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Early Maladaptive Schemas, Depression and Anxiety among Young People

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Abstract

Depression and anxiety are two of the most frequently occurring mental health conditions among young people. Symptoms of depression and anxiety are often ascribed to various aetiological factors, including early childhood experiences, maltreatment/violence, insecure parental attachment, and cognitive factors. One line of research has focused explicitly on a particular form of cognitive vulnerability, *Early Maladaptive Schemas (EMS)*, as an underlying contributing factor toward developing depression and anxiety symptoms (Young et al., 2003).

The current PhD thesis consists of three phases. In Phase One, two meta-analyses were carried out to explore the strength of associations between EMS, depression and anxiety. Findings from 24 studies revealed that EMS was positively correlated with depression with large effect sizes, indicating that predominately active EMS were highly associated with depressive symptoms among adolescents and young adults. Similarly, results from 15 studies found a strong association between EMS and anxiety symptoms, suggesting a substantial relationship of EMS with anxiety symptoms among adolescents and young adults. Details of the two meta-analyses are reported in Chapter two and Chapter three, respectively.

In Phase Two, an empirical study was conducted to explore further the associations between EMS, anxiety and depression using standardised measures of Young's Schema Questionnaire (YSQ-short form) and Depression, Anxiety, Stress Scale (DASS-21) among young people. Based on a large sample of 946 young people (aged 16-25 years; M = 20.82, SD = 2.75), this cross-sectional study replicated the meta-analyses described above, suggesting significant inter-relationships between EMS, anxiety and depressive symptoms. This study further

explored the role of self-compassion and mindfulness in these associations using standardised measures of the Self-compassion scale (SCS-short form) and the Five Facet Mindfulness Questionnaire (FFMQ). The findings from structural equation modelling (SEM) suggest significant predictive associations between EMS with depression and anxiety symptoms. The results demonstrate a significant negative relationship and a strong mediating effect of self-compassion among the associations between various EMS domains and depressive symptoms. On the contrary, mindfulness significantly mediates the associations between different EMS domains and anxiety symptoms. Due to the volume of data and analyses involved, for clarity, the empirical findings for depressive and anxiety symptoms were reported separately in Chapter four and Chapter five, respectively.

These findings have potentially important clinical implications, raising the hypothesis that increased levels of self-compassion and mindfulness can potentially mediate the association between EMS and subsequent anxiety and depression among young people. This hypothesis is consistent with the current development of clinical research in this field. While different intervention techniques have been developed to overcome the effects of maladaptive schemas, such as Schema Therapy and Cognitive Behavioural Therapy, current research trends have instead shifted from using traditional therapeutic approaches to third-wave therapeutic techniques to buffer the impact of schemas on the development of subsequent psychological distress. Instead of 'fixing' *early maladaptive schemas*, third-wave therapies seek to diminish the effect of maladaptive schemas through enhancing empathetic, non-judgemental, and mindful awareness of these negative thoughts, beliefs, and feelings.

Building on the above, in Phase Three of the PhD, a self-help intervention study was designed to examine whether and to what extent strategies to enhance mindfulness and self-compassion

would be an effective way to minimise the effects of maladaptive schemes on depression and anxiety symptoms in young people. The intervention was tested using a non-concurrent multiple baseline study, with a series of A-B replications) using the methodological design outlined by *What Works Clearinghouse Guidelines* (Kratochwill et al., 2021; Kratochwill et al., 2013). A sample of 7 participants (aged 16-25 years; M = 23.57; SD = 1.38) with higher scores on EMS took part in the self-help intervention. Given the utility and potential effects of self-help intervention and the increasing evidence of the benefits of using self-compassion/mindfulness, it was hypothesised that self-help interventions designed to help people develop the skills of self-compassion/mindfulness would be a valuable, easily accessible, and helpful resource for young people with predominant early maladaptive schemas. Consistent with this, findings suggest that the self-help compassion-based interventions elicited a significant decrease in EMS scores from pre-intervention to post-intervention and 2-week follow-up time, indicating the effectiveness of self-help intervention across 7 participants. The findings further highlight the need for early preventive and intervention strategies to buffer the impact of maladaptive schemas in causing mental health crises among young people. This study was reported in Chapter six, with a detailed discussion on the implication of current findings, limitations and future directions reported in Chapter seven.

Lay Summary

Recent years have seen a rising concern for young people's mental health. Adolescents and young adulthood are transitional stages in lives marked by significant changes regarding their emotional, social and psychological development. A recent report by UNICEF has reported that nearly 13% of young people worldwide are likely to experience mental health conditions, with anxiety and depression as the leading mental health concern. These mental health issues have long-lasting adverse and recurring effects on young people's well-being. Currently, research exploring mental health among young people is limited; there is an increasing need to understand the underlying risk and protective factors that can help us develop more effective early prevention and treatment of depressive and anxiety symptoms among vulnerable young people.

Cognitive vulnerabilities are a potent precursor for these mental health conditions among the well-known risk factors for depressive or anxiety symptoms. Research evidence has shown that young people with anxiety or depressive symptoms are more prone to negative ways of thinking, feeling and experiencing emotions than their healthy peers. One of these cognitive factors has been described as *Early Maladaptive Schemas* (EMS), defined as rigid, dysfunctional beliefs, feelings, emotions or memories about oneself or others. The findings from this thesis suggest that young people with a more significant amount of these schemas are more likely to develop symptoms of depression or anxiety. However, the symptoms vary depending upon the content of negative thoughts and beliefs. Young people with feelings and thoughts of insecure, lonely, cold and detached social environments are more prone towards developing depression. While those with distorted thinking and ideas of inability to perform,

make general life decisions and lack a sense of self are likely to suffer from anxiety symptoms. Nevertheless, similar schema content has been associated with depressive or anxiety symptoms, which may explain why people often have both depressive and anxiety symptoms.

This research was further extended to identify the underlying mechanism through which negative and maladaptive schemas exert their influence in causing depressive or anxiety symptoms. Previous research has proposed that the absence of two potential protective personality factors might play a role in this mechanism, i.e., self-compassion and mindfulness. Self-compassion and Mindfulness have been recognised as healthy psychological personality factors that serve as adaptive strategies to overcome psychological distress and build resilience among young people. *Self-compassion* has been described as being gentle, empathetic, kind and accepting of one's flaws and recognising every situation as a part of learning and experience. On the contrary, *Mindfulness* is defined as a human state of being focused on the present moment without reacting or getting caught in thoughts, feelings or emotions. This thesis partly supported the previous research and provided new insightful evidence. The results found that the lower existence of self-compassion may be a reason why young people are more likely to develop symptoms of depression if they also have more maladaptive schemas. On the other hand, poor mindfulness traits are likely to affect young people with maladaptive thoughts and subsequent anxiety symptoms.

Recent research on self-compassion and mindfulness proposes that these are modifiable personality traits that can be enhanced and practised through targeted interventions. Based on the available evidence, a final pilot study was conducted in this thesis to explore the benefits of using self-compassion-based interventions as self-help tools with young people who had significant early maladaptive schemas. Self-help tools were provided to help seven young

people to practise self-compassion techniques. The findings showed that these self-help strategies enhanced the levels of self-compassion among young people and may have significantly diminished the effects of maladaptive schemas in causing subsequent depressive or anxiety symptoms. While these findings are encouraging, they were preliminary due to the small sample size. Future clinical trials are needed to examine the present findings further.

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Chapter 1 - Introduction

The Concept of Early Maladaptive Schemas

The present chapter aims to outline the concept of *Early Maladaptive Schemas*, which is the overarching focus of the current thesis. This section will explain the construct, theoretical background, and development of schema theory. The schema theory proposes a strong association between early maladaptive schemas and psychopathology, i.e., depression and anxiety, which will be discussed in subsequent chapters with a focus on exploring self-compassion and mindfulness as a means to buffer the link between schemas and psychopathology.

1.1. Defining Early Maladaptive Schemas (EMS)

The concept of *Early maladaptive schemas* was first described and defined by Young (1990, 1999). The maladaptive schemas were defined as "broad, pervasive themes or patterns involving memory recollections, emotions, cognitions and physical sensations related to oneself or one's association with others" (Young et al., 2003). The maladaptive schemas are proposed as significantly dysfunctional perceptions that start developing earlier in life, primarily during childhood and adolescence; however, they continue to repeat and shape throughout one's lifetime (Young et al., 2003).

1.2. Characteristics of Early Maladaptive Schemas (EMS)

Furthermore, these maladaptive schemas are characterised as destructive emotions or cognitions shaped by recurring noxious experiences. They are considered mainly to have their origin rooted in early traumatic life experiences or mistreatment; however, some schemas may

develop otherwise with extreme dependency and an overprotective environment (Young et al., 2003; Schmidt & Joiner, 2004). Individuals with significant maladaptive schemas are likely to use their schemas as a survival instinct, despite knowing their alarming effects (Young et al., 2003; Schmidt & Joiner, 2004). It has been suggested that schemas help them feel suitable, comfortable, and familiar when triggered by disturbing circumstances, thus regarding their schemas as a priori truths which influence individuals' processing of later events, making them highly resistant to change (Young et al., 2003; Schmidt & Joiner, 2004).

The schema theory recommends that although schema develops during childhood and adolescence, it becomes more dysfunctional and apparent in later years of life, involving more significant social interaction (Young et al., 2003; Schmidt & Joiner, 2004). Furthermore, schemas are considered dimensional, i.e., the severity and persistence vary. The greater the seriousness of early maladaptive schemas, the more likely it is to be triggered by various situations, with more intense, long-lasting, and adverse effects (Young et al., 2003, Schmidt & Joiner, 2004).

1.3. Schema Theory

The concept of early maladaptive schemas was described in Young's schema theory, which was developed as an extension, elaboration, and refinement of Beck's cognitive theory (Young, 1990, 1999; Young et al., 2003; Clark & Guyitt, 2015). The original Beck's cognitive theory is described first before proceeding with Young's schema theory.

1.3.1. Beck's Cognitive Theory

Beck (1967, 1976) proposed a schema-based cognitive model that explains the cognitive content associated with developing and maintaining emotional disorders, i.e., depression and anxiety. According to this theoretical paradigm, psychological disorders are characterised by specific negative schemas that play a distinct role in the development of each condition Beck (1967, 1976). Central to this theory was the concept of *'cognitive schemas*,' which were described as dysfunctional beliefs, attitudes, and assumptions about oneself, the world, and the future (Beck, 1976, 1987, 2008). Figure 1.1. illustrates Beck's cognitive model.

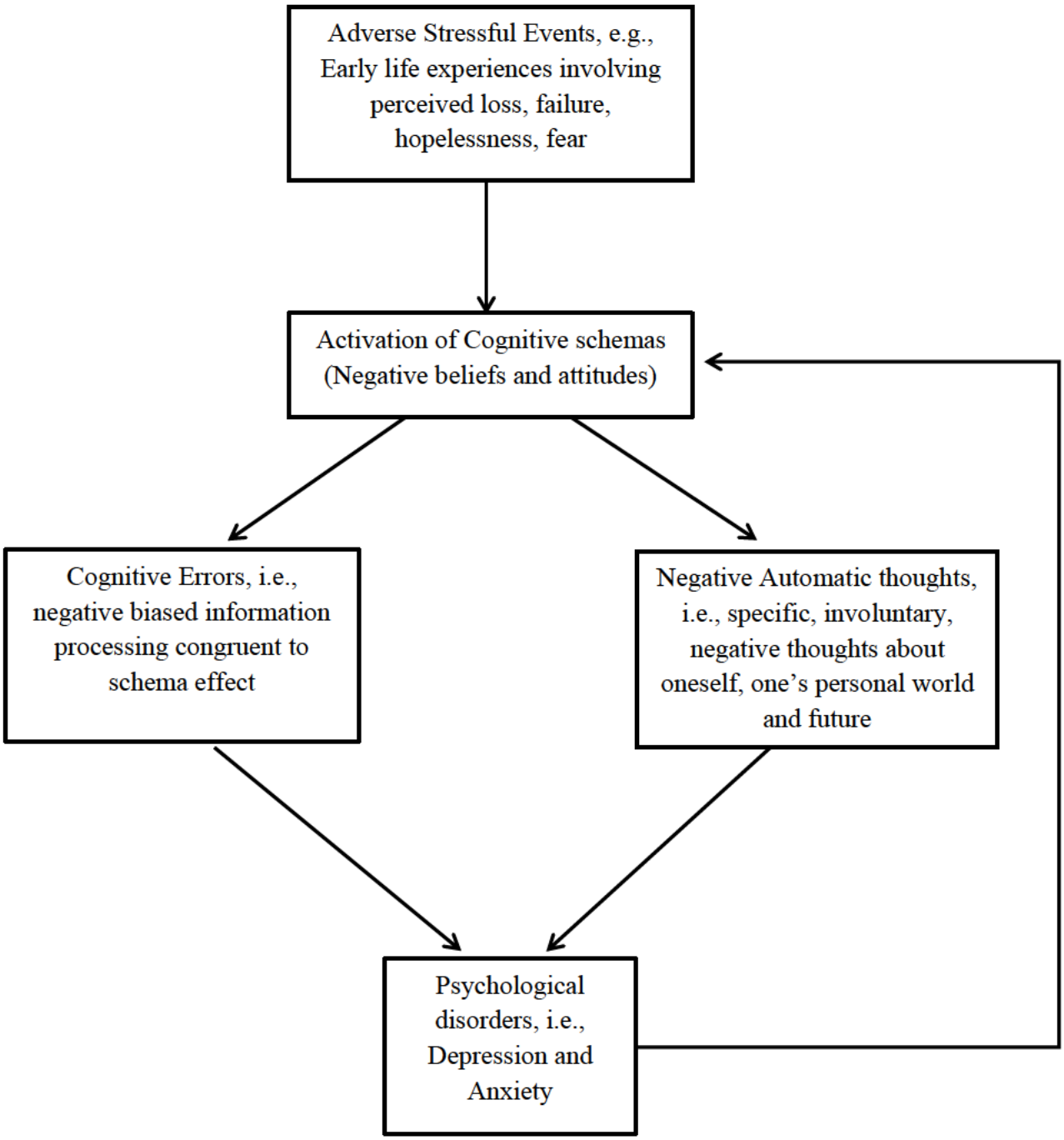

Figure. 1.1. Beck's Model of Cognitive Theory (adapted from Clark & Guyitt, 2015)

Beck (1976) described these schemas as structurally rigid, resistant, and definite themes or patterns of thoughts and images based on a biased enduring structural representation of an individual's experiences. It was further proposed that cognitive schemas can be triggered by negative, stressful situations, which might activate cognitive errors and negative automatic thoughts, leading to a negative emotional state (Beck, 1976, 1987, 2008).

In the cognitive model, the schematic content plays a distinct role in triggering any emotional state, such as the negative idiosyncratic attitudes, beliefs, and assumptions about the self, world and future are dominant themes among individuals with depressive symptoms (e.g., *"I am a loser," "Nobody loves me," "I can never achieve anything in future"*) (Beck, 1976; Clark & Guyitt, 2015). On the contrary, an anxious individual will likely have dysfunctional beliefs about a threat, danger, vulnerability to harm, worry, and inability to effective coping (e.g., "*I am going to fail my exam today," "People are going to harm me," "I feel, I have cancer"*) (Beck, 1976; Clark & Guyitt, 2015). Based on this cognitive theory, Beck and colleagues developed a psychotherapeutic approach, *Cognitive Behavioural Therapy*, that aims to reduce symptoms by modifying maladaptive schemas, biased information processing, and faulty automatic thoughts while enhancing positive thoughts and behaviours (Clark & Beck, 2010).

1.3.2. Young's Schema Theory

Young's schema theory (1990, 1999) provided an enhanced explanation for schemas with better conceptualisation and a heuristic approach to treating individuals with persistent and prevalent dysfunctional beliefs, assumptions, and thoughts while treating individuals for their characterological problems sideways, which are characterised as an essential feature for personality disorders (Young, 1990, 1999; Young et al., 2003). Young's theory involves a broader eclectic approach by drawing concepts from various psychology schools, i.e.,

cognitive, behavioural, interpersonal, gestalt, attachment, object relations, constructivist, and psychoanalytic theories (Young, 1990, 1999; Young et al., 2003).

The principal feature of this paradigm was the concept of *'Early Maladaptive schemas*,' which, despite having specific content, were not associated with any particular disorder (Young, 1990, 1999; Young et al., 2003). Unlike the cognitive paradigm, schema theory describes that any group of EMS could exist among individuals with different psychological disorders (Young et al., 2003; Clark & Guyitt, 2015). Further, schema theory proposes that all maladaptive schemas have origins deeply rooted in painful childhood experiences, thus emphasising the developmental basis of schemas (Young & Mattila, 2002). Table 1.1. summarises the critical differences between Beck's cognitive schemas and Young's early maladaptive schemas (adapted from Clark & Guyitt, 2015)

Table 1.1. Distinguishing features between Beck's cognitive schemas and Young's maladaptive schemas

Beck's Schema Concept	Young's Maladaptive Schemas
1. Schemas can develop based on a variety of adverse life events, with minimal focus on childhood schema specificity.	1. Maladaptive schemas have childhood schema specificity with greater focus on childhood developmental traumas or issues.
2. Specific schema content is associated with type of psychopathology, e.g., depressogenic schemas related to depressive symptoms.	2. Different EMS can exist differently in individuals with same psychological issues, i.e., less specificity to type of psychopathology.
3. Cognitive paradigm proposes that cognitive errors, biases, and automatic negative thoughts characterise schemas.	3. Early maladaptive schemas are defined in terms of verbal content alone, considering them as highly accessible structures.

4. Beck proposes the use of both self-report measures and behavioral assessment on information processing tasks as reliable source to tap schemas.	4. EMS can be measured reliably using retrospective self-report measures such as Young schema questionnaires.
5. Cognitive theory does not provide a detailed classification for schematic content.	5. Young has provided a detailed delineation of schema content with classification of its 18 schemas in 5 groups.
6. Beck's described behavioral responses as a part of schema construct, i.e., thoughts, feelings and behaviors are described as cognitive triad.	6. Young has provided a different perspective to behaviors. Behaviors are regarded as maladaptive coping response to EMS activation.
7. Beck's theory presents 'mode' as a group of interrelated schemas to represent a higher-order mental representation including emotional states.	7. Young has described 10-specific 'schema modes' as a set of EMS and corresponding maladaptive coping behaviors to classify individuals.
8. Repeated activation of stressful events and schema-consistent information processing plays a significant role in intensifying maladaptive schemas.	8. EMS are intensified because of an individual's continuous engagement in maladaptive coping response

1.4. Origin of Early Maladaptive schemas

As described previously, the origin of EMS is rooted in early childhood experiences, broadly classified into three main categories: (i). Unmet core emotional needs, (ii). Toxic early life experiences, and (iii). Emotional temperament (Young et al., 2003). These will be described and discussed as follows.

1.4.1. Core Emotional Needs

Young et al. (2003) have described five universal emotional needs essential for the development of a psychologically healthy individual:

(a). Safe and Secure attachment,

(b). Autonomy, competency, and sense of self,

(c). Freedom of expression for one's needs and emotions,

(d). Voluntarily natural response and play,

(e). Realistic limits and self-control.

Inability to receive gratification for these emotional needs often results from stressful early life experiences, e.g., parental disputes and quarrels, rejection, hostility, aggressive parenting, peer experiences, lack of support, warmth, and love, inadequate attention, etc., thus resulting in the development of EMS (Young et al., 2003; Martin & Young, 2010). Research evidence also suggests that children with unmet emotional needs are more likely to develop maladaptive schemas (Bach et al., 2017; Gong & Chan, 2018; Lumley & Harkness, 2007; Simard et al., 2011).

1.4.2. Early Life Experiences

Similarly, the noxious early life experiences are another predominant factor contributing toward forming and maintaining stronger EMS (Young, 1990, 1999; Young et al., 2003). The earlier family environment and relationship with parents may define a child's entire world (Young et al., 2003; Genderen et al., 2012). In addition, relationship with peers, friends, and the surrounding community also plays a significant role in developing maladaptive schemas (Young et al., 2003; Genderen et al., 2012). Young et al. (2003, 2005) identified four types of toxic childhood experiences:

(a). Toxic gratification of needs,

(b). Traumatization, Discrimination or Abuse,

(c). Experiencing Overprotectiveness,

(d). Selective identification with significant figures

The theoretical framework described by Young et al. (2003) has been empirically tested in the last decade, with findings suggesting a significant effect of adverse early life experiences on the development of EMS. A recent meta-analysis of 33 studies concluded that toxic early life experiences, abuse, and neglect significantly predicted maladaptive schemas with small to medium effect size during adulthood (Pilkington et al., 2020). Another meta-analysis of 12 studies suggests significant associations between adverse childhood experiences such as emotional abuse, emotional neglect, and maladaptive schemas (May et al., 2022).

1.4.3. Emotional Temperament

Finally, an individual's temperament has also been recognised as a critical vulnerable factor in the development of EMS (Young, 1990, 1999; Young et al., 2003). According to schema theory, emotional temperament interacts with noxious life experiences to influence the development and maintenance of maladaptive schemas (Young et al., 2003). The term 'temperament' has been interchangeably used for personality, which is determined mainly by biological precursors and starts appearing right from a child's birth (Mairet et al., 2014; Young et al., 2003). However, early life experiences and environment may predominate a child's temperament (Mairet et al., 2014; Young et al., 2003). The empirical research has included dimensions of neuroticism and introversion as temperamental factors and found significant associations between temperament and maladaptive schemas, supporting Young's schema framework (Mairet et al., 2014; Haugh et al., 2017). See Figure 1.2. for a graphic representation of Young's schema model.

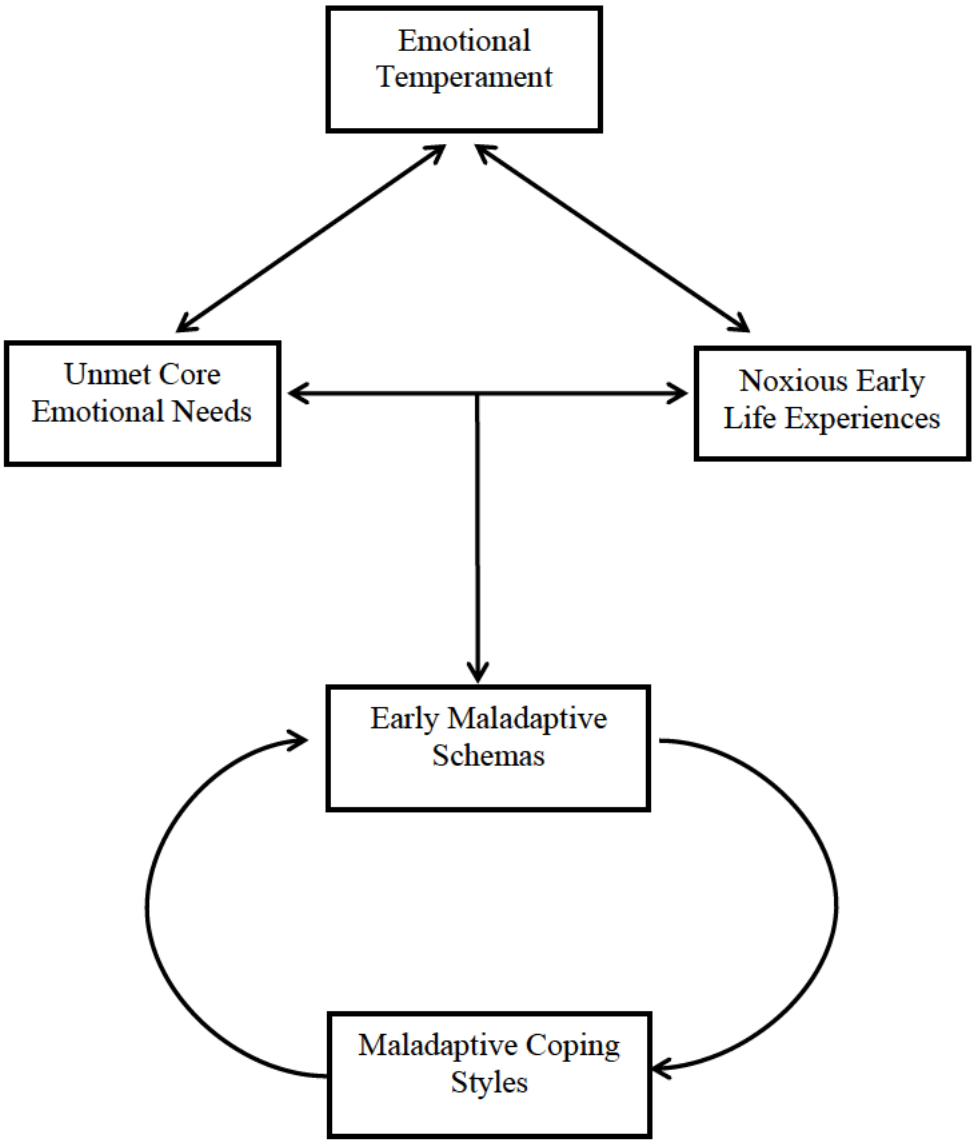

Figure. 1.2. Young's Model of Schema Theory (adapted from Clark & Guyitt, 2015)

1.5. Schema domains and Types of Early Maladaptive Schemas

In the schema theory, Young et al. (2003) have described 18 maladaptive schemas grouped into five broad categories based on unmet core emotional needs, called schema domains. The following table provides an extensive description of schema domains and maladaptive schemas (See Table. 1.2.; adapted from Young et al., 2003).

Table. 1.2. Early Maladaptive Schemas with associated Schema Domain

Schemas	Description for each schema
Disconnection and Rejection Schema Domain	
These schemas are closely associated with the insecure attachment dimension, which results from a lack of a secure, stable, safe, nurturing and empathetic family environment. Individuals feel a lack of acceptance and an inability to share feelings acceptably. These schemas are developed due to cold, detached, lonely, rejecting and abusive earlier life experiences.	
1. Abandonment/ Instability	Individuals with these schemas involve insecure and unreliable thoughts and feelings about their close relationships. They involve a sense of rejection, inability to receive emotional support, association, strength and protection from their significant figures. These schemas trigger feelings of anxiety, anger, sadness and grief among individuals.
2. Mistrust/ Abuse	The perception of being hurt, humiliated, cheated, manipulated or abused by others, that results in a lack of intimacy and distant relationships.
3. Emotional Deprivation	Persistent belief that others will never or not adequately gratify one's desire for core emotional needs (i.e., absence of emotional support, nurturance, affection, warmth, understanding, empathy or protection). Individuals with these schemas are likely to feel lonely and isolated.

4. Defectiveness/ Shame	Individuals with these schemas feel as being defective, unwanted, flawed, inferior or bad. They believe that significant others in close relationship will leave them based on these defects. These defects or flaws can be hidden (e.g., personality traits, anger, jealousy, selfishness) or overt (e.g., physical features) developing a sense of shame and guilt regarding oneself.
5. Social Isolation/ Alienation	Consistent belief and feeling of isolation from the world, social community or group of people. Lack of belongingness and feeling of being different.

Impaired Autonomy and Performance Schema Domain

The schemas included in this domain involve perception and beliefs regarding the lack of an individual's independence, sense of self and inability to perform or make decisions during daily essential tasks. The people with these schemas grew up in an enmeshed family system with either an overprotective or under-protective environment, often undermining child's ability and impeding their confidence.

6. Dependence/ Incompetence	The perceived lack of ability to perform daily life responsibilities competently without the support of other people in their life (e.g., making the reasoning, judgments, and decisions, inability to tackle new tasks, perform well in money matters, etc.). The individuals are likely to feel dependence and helplessness without considerable support.
7. Vulnerability to Harm or Illness	Individuals have exaggerated distress regarding imminent catastrophe that will hit them or their loved ones, with perceived inability to prevent it. The individuals with these schemas feel vulnerable to medical, emotional or natural disasters.

8. Enmeshment/ Underdeveloped Self	Excessive emotional attachment and involvement with significant others (one or more enmeshed figures) at the expense of one's social development, sense of self and subjectivity. People with these schemas usually feel empty and lost in absence of their enmeshed figures.
9. Failure	The perceived incapability of performing well in areas of achievement compared to their peer group. Individuals with predominant failure schemas believe themselves as non-efficient, unintelligent, untalented, low achievers and inferior.

Other-Directedness Schema Domain

These schemas involve an excessive focus on the needs, desires, expectations, reactions and responses of other people at the expense of one's desires. The individuals are likely to give up on their own needs and desires, suppress their emotions to gain acceptance, love, connectedness and avoid retaliation from their loved ones. The typical family upbringing resulting in these EMS involves conditional acceptance for their children, where parents tend to put their needs first and foremost.

10. Subjugation	Excessive submission to control of other people to avoid conflict, anger and abandonment. Individuals with these schemas surrender and invalidate their preferences, needs, feelings and emotions to avoid punishment and discord.
11. Self-sacrifice	These schemas involve voluntarily giving up on one's own needs, preferences, feelings and emotions by putting significant others at priority. Individuals with these schemas usually feel empathetic towards their loved ones and are likely to give up on their feelings with good intentions.
12. Approval-Seeking/ Recognition Seeking	Excessive focus on gaining acceptance, recognition and approval from other people at the expense of one's secure

	development, i.e., linking their self-worth to people's opinions and reactions.

Impaired Limits Schema Domain

These schemas involve setting internal limits at both personal and interpersonal levels, i.e., having difficulty in managing impulses, engaging in goal-oriented tasks, following laws, setting and achieving personal goals. Individuals with these EMS cannot respect others' rights and fail to cooperate in interpersonal relationships. The typical family origin involves a permissive environment that lacks clear guidance, direction and discipline.

13. Entitlement/ Grandiosity	The perception of being superior and special compared to other people, entitled to special treatment and rights, not bound by any regulation and laws that are normally enforced for everyone around them. They like to achieve anything they want at the cost of walking over other people.
14. Insufficient Self-control/ Self-discipline	Involves difficulty in exercising sufficient tolerance and discipline in controlling emotions, feelings and impulses. They are unable to cope with discomfort, conflict and pain, and are likely to engage in short-term gratification over long-term consequences.

Hypervigilance Schema Domain

These schemas emphasize excessively suppressing voluntary feelings, behaviors, emotions, impulses and choices as well as meeting internalized rigid expectations and moral values regarding performance and ethical conduct, often at the expense of personal well-being and interpersonal relationships. The individual's EMS develops from their upbringing in a demanding, strict, perfectionist and punitive family environment.

15. Negativity/ Pessimism	These schemas revolve around persistent fear, worry and anxiousness related to negative aspects of life (e.g., death, loss, pain, betrayal, disappointment, discord, suffering, resentment) while downplaying the optimistic aspects of life. Individuals

	with negative schemas will engage in excessive complaining and rumination about the future.
16. Emotional Inhibition	Suppressing spontaneous feelings, emotions and impulses, to avoid discomfort and disagreement with others, to avoid guilt and shame associated with these feelings. People with significant emotional inhibition schemas are reserved, strict and rational beings while disregarding emotions. They inhibit their anger, sadness, joy, affection, expression and effective communication.
17. Unrelenting Standards	People with these schemas are highly critical of themselves and others. These individuals have internalized high standards in behaviors and performance and are likely to disregard their achievements by comparing them against their standards. They are perfectionists, rigid and efficient at the expense of one's pleasure, comfort and interpersonal relationships.
18. Punitiveness	Persistent beliefs that people making mistakes and errors must be punished for their errors. The predominant punitive schemas make individuals aggressive, intolerant, irritated and unforgiving towards others as well as themselves.

1.6. Early Maladaptive Schemas and Psychopathology

To elaborate on the effects of early maladaptive schemas, Young et al. (2003) articulated that people often feel compelled to achieve specific emotional needs that expedite the development of resilience and well-being. In contrast, unfulfilled basic and universal needs may lead to unhealthy development and psychological symptoms. For example, individuals who do not receive acceptance from parents and significant others might doubt their worth, compromising their self-esteem and culminating in chronic psychological issues, mainly depression and

anxiety Young et al. (2003). Several studies have been conducted to explore the associations between EMSs or schema domains with symptoms of depression and anxiety in a variety of samples, e.g., Renner et al. (2013) found that individuals with depressive episodes had significantly higher predominant active schemas compared to non-depressed individuals. Similarly, Hawke and Provencher (2011) systematically reviewed existing literature to highlight significant maladaptive schemas with mood and anxiety symptoms. The findings from previous literature show that the higher existence of schemas was linked with a higher occurrence of depressive symptoms (Welburn et al., 2002; Stopa et al., 2001; Glaser et al., 2002; Calvete et al., 2005; Trip et al., 2006). Additionally, the result from a recent meta-analysis also suggests a statistically significant association, with medium to high effect size, between all maladaptive schemas with depressive symptoms among adult samples (Bishop et al., 2021).

Furthermore, studies have been conducted to explore the associations between EMS and different types of anxiety symptoms, suggesting the existence of different maladaptive schemas among different types of anxiety disorders, with vulnerability to harm as the most significantly associated schema with most types of anxiety symptoms (Hawke & Provencher, 2011; Calvete et al., 2013; Camara & Calvete, 2014).

Moreover, a substantial amount of research has highlighted the effects of early maladaptive schemas among young people. A recent systematic review has suggested significantly predominant schemas linked to different psychopathologies among youth (Nicol et al., 2020). The findings indicated that young people with depressive symptoms likely had activated maladaptive schemas of disconnection/rejection content. In contrast, schemas of vulnerability to harm and impaired autonomy/performance were dominant among young people with anxiety

symptoms (Nicol et al., 2020). Previous literature has investigated the association between EMS and psychological distress among young people. However, the magnitude of the association between EMS and psychological distress (depression and anxiety symptoms) has never been synthesised using a meta-analysis to explore schema domains typically associated with the symptoms of depression and anxiety during adolescence and young adulthood. This thesis, therefore, starts by conducting meta-analyses to examine the associations between schemas, depression, and anxiety (see Chapter Two, Chapter Three).

1.7. Treatment and Management of Early Maladaptive Schemas

1.7.1. Effectiveness of Schema Therapy

Based on the schema theory, Young et al. (2003) developed schema therapy as an effective therapeutic technique for treating and managing maladaptive schemas. The schema therapy was designed to overcome the shortcomings of traditional cognitive behavioural therapy, where the relapse for psychological issues was much higher despite achieving successful treatment outcomes (Durham et al., 2003; Fournier et al., 2009). Schema therapy focuses on replacing maladaptive thoughts, feelings, and behaviours with healthy beliefs while addressing the unmet core emotions to achieve higher levels of efficacy (Young et al., 2003; Kreuter & Moltner, 2014). The primary goal of schema therapy was to help individuals identify their unmet core emotional needs and find practical ways for the healthy fulfilment of these needs Young et al., 2003; Kreuter & Moltner, 2014) . It further contemplates the development and maintenance factors contributing to a psychological condition to achieve desired treatment outcome (Rafaeli et al., 2011).

Several studies have explored the effectiveness of schema therapy in treating different psychological disorders; however, there needs to be more research evidence to support that such intervention does indeed modify maladaptive schemas and cognitions (Peeters et al., 2021; Taylor et al., 2017; Bakos et al., 2015). For instance, a recent meta-analysis examined the effectiveness of schema therapy across various mental health disorders in reducing maladaptive schemas and symptoms. The findings found schema therapy was an effective treatment module for individuals with personality disorders. In contrast, minimal evidence was found for its effectiveness in treating maladaptive schemas among patients with depressive or anxiety disorders (Taylor et al., 2017). Similarly, in another meta-analysis, the findings concluded a decrease in schema scores following the implementation of schema therapy; however, the studies did not perform an analysis of clinical significance, limiting the available evidence for understanding the benefits of using schema therapy (Peeters et al., 2021). Furthermore, the effectiveness studies usually include single-group designs with few studies using an RCT with a control group (Bakos et al., 2015; Taylor et al., 2017).

1.7.2. Shift from traditional therapies to Third Wave Approaches

Current research trends have instead shifted from traditional therapeutic approaches to third-wave therapeutic techniques using mindfulness and self-compassion to minimise the impact of early childhood experiences and diminish the effects of EMS on subsequent depression and anxiety symptoms (Wilson et al., 2019; Pérez-Arandaa et al., 2021). *Self-compassion* is the ability to act compassionately towards oneself when encountering difficulties and stressful situations, i.e., people must realise their flaws, inadequacies, shortcomings, and damaging problems with a more thoughtful and understanding approach (Neff, 2010). Besides, *Mindfulness* is described as a nonjudgmental observation of an ongoing stream of internal and external stimuli or an awareness of one's moment-to-moment experience non-judgmentally

and with acceptance (Baer, 2006). It has been proposed that the mechanism of mindfulness and self-compassion work together to reduce the intensity of unpleasant feelings and thoughts and enhance well-being (Neff & Davidson, 2016; Goldstein, 2015).

Schema therapy is also recognised as a third-wave therapeutic technique that focuses on identifying and altering negative patterns of thinking and behaviour that have been deeply rooted in childhood experiences (Kahl et al., 2012). While schema therapy effectively treats specific emotional and mental health issues, it tends to be less flexible and more rigid compared to self-compassion and mindfulness approaches (Young et al., 2003; Kreuter & Moltner, 2014). Thus, this can make it less effective in addressing the unpredictable and fluctuating nature of emotional and mental health issues that can arise daily (Wilson et al., 2019; Pérez-Arandaa et al., 2021). Furthermore, self-compassion and mindfulness techniques equip individuals with the skills to develop greater emotional awareness and self-regulation, leading to greater resilience and well-being in the presence of emotional and mental health challenges (Neff & Germer, 2013; Kuyken et al., 2010; Birnie et al., 2010; Gilbert & Procter, 2006).

Further schema therapy has been criticised for focusing on changing negative schemas and beliefs through confrontation and challenging them (Fassbinder et al., 2016). This approach can be helpful for some individuals but can lead to invalidating and aggravating emotional pain among individuals with emotional dysregulation and distress (Fassbinder et al., 2016). Alternatively, self-compassion and mindfulness focus on developing a compassionate and accepting attitude towards oneself, which may be an effective strategy for addressing maladaptive thoughts, emotions, and feelings (Neff & Germer, 2013; Gilbert & Procter, 2006).

A recent study has explored the relationship between maladaptive schemas, mindfulness, self-compassion and psychological distress (Thimm, 2017). The results showed a stronger negative association between early maladaptive schemas, mindfulness and self-compassion while significant mediating and moderating effects of self-compassion and mindfulness between the associations of maladaptive schemas and psychological distress. (Thimm, 2017). Based on these findings, Thimm (2017) proposed that treatment strategies to enhance mindfulness and self-compassion can potentially reduce the impact of early maladaptive schemas. Similar emerging evidence suggests that self-compassion and mindfulness may be effective alternatives for addressing maladaptive schemas compared to schema therapy (Janovsky et al., 2019; Yakin et al., 2018; Flink et al., 2018; Thimm, 2017; Shorey et al., 2015a). Although schema therapy can be a practical treatment approach for deep-rooted maladaptive schemas (Young et al., 2003; Kreuter & Moltner, 2014), self-compassion and mindfulness interventions target modifiable personality traits that can help individuals learn to approach difficult maladaptive schemas with greater acceptance and resilience and develop healthier relationships with themselves (Amonoo et al., 2019).

Further, the effectiveness of self-compassion and mindfulness-based therapeutic techniques in treating depression and anxiety has been well-documented in previous research (Wilson et al., 2018; Finlay-Jones, 2017; Zoogman et al., 2015; Borquist-Conlon et al., 2017). The construct of self-compassion, mindfulness and their associations with maladaptive schemas will be explored and described in further detail in subsequent chapters (Chapters four, five and six).

1.8. Adolescence and Young Adulthood: a period of increased vulnerability to Mental Health Issues

Adolescence and young adulthood are developmental phases marked by their developmental challenges (Blakemore, 2019; Arnett, 2000). Adolescence is a developmental phase between 10-18 years of age, while individuals between 19-25 are described as young adults or emerging adults (McDonagh, 2018; IOM & NRC, 2014; Arnett, 2000). Recently, researchers have used the composite term 'Young People or Youth' for the 15-25 years of age group (Patton et al., 2016).

Adolescence and young adulthood are life phases marked by discrete cognitive, social, and emotional changes (Blakemore, 2019). Young adulthood is a period of transitional development between adolescence and adulthood, with the former setting the developmental trajectories for later adulthood development (Arnett, 2000; Arnett, 2014). Young people experience rapid changes at the time when they are attaining autonomy and building a coherent sense of self (McDonagh, 2018; IOM & NRC, 2014; Arnett, 2000). Distorted and maladaptive cognitive processes can contribute to the theoretical and clinical forms of depression and anxiety among young individuals (Patton et al., 2016; Benson & Elder, 2010; Maric et al., 2010). According to Young et al. (2003), schemas (or frameworks for interpreting the world) might develop during early childhood and adolescent years in response to whether basic needs are met; therefore, the present research will focus mainly on late adolescents and young adults (ages 16-25 years) as they have already acquired fairly stable and activated schemas that may significantly impact their successful development towards adulthood.

Furthermore, adolescents and young adults are particularly vulnerable to mental health issues, with 75% of people experiencing the first episode of poor mental health by the age of 24, and

50% of mental health problems have established by the age of 14 years (Kessler et al., 2007; Jurewicz, 2015; McGorry & Mei, 2018; NICE guidelines, 2015). UNICEF recently published a State of World's Children report (2021), advocating young people's mental health challenges and issues. The report highlights that nearly 13% of young people between the ages of 10 and 19 live with an undiagnosed mental health issue, with depression and anxiety constituting 40% of all mental health disorders (UNICEF, 2021). Mental health problems affect nearly 7.5 million young people between the ages of 16-24 in the UK, making it almost 12.8 % of the general population suffering from a mental health issue (UNICEF, 2021). Extensive evidence suggests that untreated mental health issues during adolescence are likely to persist into young adulthood (Colizzi et al., 2020; McGorry & Mei, 2018). Recent research has suggested the need for young people's early implementation and intervention strategies. Every 1 in 5 people by the age of 25 is likely to experience mental health issues, especially anxiety and depressive disorder, which contribute to a 45% global burden of diseases (Colizzi et al., 2020). Early prevention and intervention strategies, therefore, represent a beneficial and cost-effective strategy that is likely to reduce the long-term effects of the disease burden (McGorry & Purcell, 2009).

Considering the need for early intervention or preventive strategies, numerous treatment strategies and evidence-based therapeutic protocols deal with mental health issues (Bennett et al., 2019; Lewis et al., 2012). However, the treatment demands surpass the therapeutic support available. As a result, many young people cannot access mental health support and are often on extensive waiting lists for mental health services (Bennett et al., 2019; Lewis et al., 2012). An alternative way to avoid long waiting lists and increase access to evidence-based effective psychological treatments is to help young people access "*low-intensity interventions*", such as self-help material delivered through books or online material, with or without the guidance of

a therapist or trained supporter (Bennet et al., 2019). Self-help has emerged as a helpful strategy in psychological research and a more significant effort in mental health awareness advocacy for our communities (Jorm, 2012). Moreover, Self-help generally appeals to many people and is regarded as both widely accessible and cost-efficient (Greenwell et al., 2016; Lewis et al., 2012). For the present thesis, a self-help intervention based on self-compassion and mindfulness was evaluated to assess its effectiveness in decreasing the effects of maladaptive schemas, which is described in Chapter Six.

1.9. Thesis Overview and PhD aims

In summary, cognitive vulnerabilities have been identified as one of the leading factors in the development of depression and anxiety. Recently, research has shifted its focus toward a specific form of cognitive vulnerability, *Early Maladaptive Schemas (EMS)*, as an underlying contributing factor to the development of depression and anxiety symptoms (Young et al., 2003). The present doctoral thesis primarily examined the associations between early maladaptive schemas and the development of depression and anxiety among young people. The current research comprises four studies:

- Study 1 and Study 2 consisted of two parallel meta-analyses, focusing on anxiety and depression, respectively. Meta-analyses of the existing literature were carried out to critically analyse the magnitude of association between EMS with depression (Chapter Two) and EMS with anxiety (Chapter Three) among Adolescents and Young adults, as well as to identify the moderating effect of age on the strength of associations between EMS, depression, and anxiety.
- Study 3 was an empirical study that explored the relationship between EMS, self-compassion, mindfulness, depression, and anxiety. Due to the volume of data and analyses performed, for clarity, findings of the empirical results analysed using structural equation

modelling are presented separately for depression and anxiety in Chapters Four and Five, respectively.

- Study 4 aimed to develop and evaluate self-help strategies derived from compassionate mind training as an alternative intervention to diminish the effect of maladaptive schemas and treat subsequent psychological distress among young people. A multiple case series design with AB replication will be employed to test the effectiveness of self-help therapeutic techniques among young people (Chapter Six). The findings will inform the development of effective preventative or early intervention programmes to support young people in building psychological resilience against mental ill-health.

Chapter 2

The association of maladaptive schemas with depression among adolescents and young adulthood

2.1. Background

As described in the previous chapter, early maladaptive schemas are significantly associated with psychological conditions, mainly depression and anxiety symptoms.

Depression is described as a cluster of specific symptoms associated with significant distress and impairment in daily functioning (Thapar et a., 2012). The diagnostic and clinical features of depression have been outlined in the Diagnostic and Statistical Manual of Mental Disorder (DSM-5; APA, 2013). According to DSM-5 criteria for depressive disorder, individuals with depressive symptoms are likely to experience periods of depressed or low mood, lack of interest in daily activities, sleep disturbances, changes in appetite, loss of weight, excessive fatigue, feelings of worthlessness, guilt, lack of logical reasoning and suicidal ideations (APA, 2013). The group of symptoms are persistent for two weeks, followed by significant interruptions in daily life functioning (APA, 2013). The symptom expression of depression is generally similar among adolescents and young adults (Thapar et al., 2010; Mojtabai et al., 2016) and is a leading cause of mental health issues during this developmental phase (WHO, 2017).

Numerous risk factors have been identified and associated with depressive symptoms, including cognitive schemes (Beck, 2008; Young et al., 2003). In the past decade, extensive research has empirically highlighted the existence of maladaptive cognitive factors among adolescents (Jacobs et al., 2008; Roelofs et al., 2011) and young adults (Balsamo et al., 2015;

Losiak et al., 2019). The main aim of this chapter is to systematically review the available literature and meta-analytically generate findings to explore the magnitude of the association between early maladaptive schemas and depressive symptoms among adolescents and young adults. The content of this chapter has been summarised and published as a manuscript entitled *"A meta-analysis of the relationship between early maladaptive schemas and depression in adolescence and young adulthood"* in *Psychological Medicine.*

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A meta-analysis of the relationship between early maladaptive schemas and depression in adolescence and young adulthood

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Abstract

Early maladaptive schemas (EMS) are broad, pervasive themes and patterns of emotions, memories, cognition and physical sensations that impede the goal of individuals. Maladaptive behaviours can occur as a response to maladaptive or negative schemas, often culminating in depression or anxiety. The current meta-analysis integrates the existing literature to estimate the magnitude of effect of association between EMS and depression among adolescents and young adults. A systematic search of seven different databases including Embase, CINAHL, Medline, ASSIA, Psych INFO, Scopus and Web of Science was carried out identifying 24 relevant studies of adolescents (10–18 years) and young adults (19–29 years). The random-effect model estimate for association between overall EMS and depression was $r = 0.56$ (95% CI 0.49–0.63, $Z = 12.88$, $p \leq 0.0001$), suggesting higher predominant EMS significantly linked to higher levels of depressive symptoms, with a large effect size. Separate meta-analytical results with schema domains indicated moderately stronger associations between schemas of disconnection/rejection, impaired autonomy/performance and other-directedness with depression. Age and gender were not found to have any significant moderating effect on the associations. The findings suggest that it is vital for clinicians to identify specific maladaptive schemas contributing towards depression, to have a better understanding of underlying cognitive processes and in turn promote psychological health, well-being and resilience in adolescents and young adults. Furthermore, findings will also assist clinicians to focus more on the content of three significant schema domains, which emerged as particularly salient factors underlying adolescent depression.

Introduction

Depression in adolescence and young adulthood

Adolescence and young adulthood are regarded as a transitional period of cognitive, psychosocial, physical and neurobiological development (IOM & NRC, 2014). Adolescence refers to the developmental stage spanning between the ages 10 and 18 years (Dick & Ferguson, 2015; Patton et al., 2016) while late teens to early 20s (approximately 18–26 years of age) is recognized as a distinct period of development known as emerging adulthood or young adulthood (Arnett, 2000; IOM & NRC, 2014; Patton et al., 2016). Behavioural and emotional disturbances experienced during childhood and adolescence have been found to increase the likelihood of mental health problems during emerging adulthood (Kim-Cohen et al., 2003). A recent literature review has suggested that young people having an episode of depression during the early years are more likely to experience episodes of depression later in life (Costello & Maughan, 2015).

Depression is currently the second leading cause of global disease burden, only after heart diseases (Ferrari et al., 2013; Jamison et al , 2006). The occurrence of depression increases rapidly during adolescence and young adulthood (Hankin et al., 2015; Lewinsohn, Rohde, Seeley, Klein, & Gotlib, 2003). Symptoms typically start emerging during adolescence (Kessler et al., 2001) and are likely to reoccur during young adulthood (Lewinsohn et al., 2003), suggesting that depression occurs as a continuous development with no specific age markers (IOM & NRC, 2014). The National Institute of Mental Health (NIMH, 2017) estimated nearly 13.3% of adolescents, aged 12–17 years, in the USA suffer from depression between the ages 12 and 17 years. Abela and Hankin (2008) found 20–50% of adolescents reporting symptoms of depression before 18 years of age. Tanner et al. (2007) identified that emerging adults between the ages 18 and 29 years are at a greater risk of developing psychiatric conditions. Nearly 22% of young adults experiencing mood disorders, with depression being the most prevalent mood disorder with around 8.3% of young adults suffering from depressive illnesses (Tanner et al., 2007). Research has further suggested that approximately 75% of mental health conditions develop before the age of 25 years, making adolescence and young adulthood a critical period of vulnerability in which the risk of developing depression increases sharply

(Kessler et al., 2005). Considering together the epidemiological data of depression among adolescents and young adults, the occurrence and pattern of depression in these two developmental phases is similar, providing a basis to explore depression as a developmental trajectory (Chaiton et al., 2013; Schubert, Clark, Van, Collinson, & Baune, 2017). Notably, gender differences in depression also start emerging during mid to late adolescence, following the same trend in young adults, with girls experiencing depressive symptoms 2–3 times more than boys (Abela & Hankin, 2008; Hyde, Mezulis, & Abramson, 2008; Zarate, 2010).

Aetiology of depression

Symptoms of depression are often ascribed to early childhood experiences such as childhood psychopathology and maltreatment including violence, different forms of childhood abuse (Yaroslavsky, Pettit, Lewinsohn, Seeley, & Roberts, 2013; Young, Klosko, & Weishaar, 2003), insecure parental attachment (Costello, Swendsen, Rose, & Dierker, 2008), low socio-economic status (Yaroslavsky et al., 2013), lack of effective education or changes associated with educational environment (Reinecke & Simons, 2005), individual's behavioural-emotional characteristics such as dependency, internalizing behaviour problems (Reinherz, Paradis, Giaconia, Stashwick, & Fitzmaurice, 2003) and other genetic or environment-associated stressors (WHO, 2017; Wray et al., 2018). However, the incidence of life stressors alone does not account for all symptoms of depression. Cognitive vulnerabilities have been identified as another leading factor towards the development of depression (Cohen, Hankin & Young, 2018; Hankin & Abramson, 2002).

Previous research has identified various forms of cognitive vulnerabilities as key triggers towards depression such as dysfunctional attitudes (Lee & Hankin, 2009; Lewinsohn et al., 2003), rumination (Hankin, 2008), low self-esteem (Abela & Taylor, 2003; MacPhee & Andrews, 2006), cognitive errors and maladaptive attributional styles (Cole & Turner, 1993; Hankin, 2008; Hankin & Abramson, 2002). Recently, research has shifted its focus towards another form of cognitive vulnerability, early maladaptive schemas (EMS), as an underlying contributing factor towards the development of depression.

Early maladaptive schemas

Young (1990, 1999) defined EMS as broad, pervasive themes or patterns that directly influence individual's emotions, feelings, memories and cognitive processes (Young et al., 2003). While these schemas are believed to develop mainly during childhood and adolescence, they continue to develop throughout one's lifetime and, if left untreated, can lead to significant functional impairments (Gong & Chan, 2018). Maladaptive schemas exist in almost all the individuals, which are usually remaining dormant and hidden unless/until activated by a distressing situation or stressor, increasing an individual's risk for developing psychological difficulties (Schmidt & Joiner, 2004). EMS are classified into 18 schemas containing different cognitive content, grouped together in five different schema domains of; (i) disconnection/rejection, (ii) impaired autonomy/performance, (iii) other-directedness, (iv) impaired limits and (v) hyper-vigilance (Young et al., 2003).

EMS and depression

Indeed, the presence of maladaptive schemas is considered as a strong vulnerability factor for the development of different mental health conditions including depression (Dozois & Beck, 2008). Research evidence based on mixed clinical samples has suggested significant associations between EMS and depressive symptoms, with EMS acting as a significant predictor of depression (Glaser, Campbell, Calhoun, Bates, & Petrocelli, 2002; Renner, Lobbestael, Peeters, Arntz, & Huibers, 2012; Stopa, Thorne, Waters, & Preston, 2001; Welburn, Coristine, Dagg, Pontefract, & Jordan, 2002). However, there has been a lack of research investigating the role of specific EMS domains that contribute towards depressive tendencies (Glaser et al., 2002; Stopa et al., 2001). Further, research studies were often confounded by comorbidities, thus providing insufficient evidence to draw conclusions about the relationship between EMS and depression. Significant associations between EMS and depression have been found in other studies employing non-clinical student samples, providing evidence of predominant activated EMS in adolescents (Calvete, Orue, & González-Diez, 2013; Muris, 2006; Yigit, Kilic, Guzey Yigit, & Celik, 2018) and young adults with elevated depressive symptoms (Camara & Calvete, 2012; Eberhart, Auerbach, Bigda-Peyton, & Abela, 2011; Harris & Curtin, 2002). However, results were generated using selective schema domains that make it difficult to interpret and integrate findings for all EMS domains linked to depression.

Schema domains as predictors of depression

In a clinically depressed sample, schema domains of disconnection/rejection and impaired autonomy/performance were found to be significant predictors of depressive symptoms (Glaser et al., 2002; Renner et al., 2012; Wegener, Alfter, Geiser, Liedtke, & Conrad, 2013). Similar results were replicated in a comparative study of three different clinically diagnosed patients (clinically depressed, previously depressed and other clinical diagnoses; Wang, Halvorsen, Eisemann, & Waterloo, 2010). In another study conducted with clinically depressed patients, the schema domains of disconnection/rejection and impaired limits were significantly associated with maintaining symptoms of depression (Halvorsen, Wang, Eisemann, & Waterloo, 2010; Welburn et al., 2002).

Overall, research evidence suggests that three schema domains, disconnection/rejection, impaired autonomy/performance and other-directedness, mainly act as potent vulnerability markers towards developing and maintaining depressive tendencies (Glaser et al., 2002; Halvorsen et al., 2010; Renner et al., 2012; Wang et al., 2010; Wegener et al., 2013; Welburn et al., 2002). However, these studies did not take into account any other psychopathologies or include a control group. In addition, findings based on clinical individuals could not be generalized to a non-clinical youth sample.

Similar results have been explored in adolescents, with reciprocal relationships found between schema domains of disconnection/rejection, impaired autonomy/performance and other-directed schemas and depression (Calvete, Orue, & González-Diez, 2013; Lumley & Harkness, 2007; Van Vlierberghe, Braet, Bosmans, Rosseel, & Bögels, 2010). The same three schema domains were found to be contributing towards depressive tendencies among young adults (Braet, Van Vlierberghe, Vandevivere, Theuwis, & Bosmans, 2013; Calvete, Orue, & Hankin, 2015; Camara & Calvete, 2012; Eberhart et al., 2011; Schmidt & Joiner, 2004). Again, the research studies with adolescents and young adults only included selective schema domains based on previous research findings with clinical sample making it difficult to analyse an

overall effect of EMS and schema domains on depression among adolescents and young adults.

Aims of the current meta-analysis

Taken together, while the association between EMS and depression has been widely investigated in adults, the strength of this relationship among adolescents and young adults is less certain. Added to the complexity is that EMS are considered fluid during the developmental period of adolescents and young adults (Rijkeboer & De Boo, 2010). The overall objective of the current systematic literature review and meta-analysis was to synthesize research regarding the overall effect of EMS, different EMS domains and depressive symptoms among adolescent or young adults. Specifically, we sought to address the following research questions:

1. What is the strength of the association between EMS and depression among adolescents and young adults?
2. What is the strength of relationship between each of the schema domains and depressive symptoms among adolescents and young adults?
3. Do age and gender moderate the association between schema domains and depressive symptoms?

The protocol for the current meta-analysis was registered on PROSPERO: CRD42019135911.

Method

Literature search

The review was carried out in October 2019 following the guidelines provided by the Preferred Reporting Items for Systematic Review and Meta-analysis (PRISMA; Moher, Liberati, Tetzlaff, & Altman, 2009). A systematic literature search was completed using seven databases including Embase, CINAHL, Medline, ASSIA, Psych INFO, Scopus and Web of Science. The following specific search terms applying truncations (* and $) in combination with Boolean characters 'AND' or 'OR' was used to enhance the search sensitivity: 'Early maladaptive schemas' OR 'Young schema' OR 'EMS' AND 'Depression' OR 'Depressive Disorder' OR 'Depressive Symptoms'. Google Scholar and reference lists of relevant articles were further scanned to include grey literature that was unavailable through the databases.

Inclusion/exclusion criteria

Searches were limited to articles published in the English language in peer-reviewed journals. Studies were included in this review if they fulfilled the following criteria: (i) reported effect sizes of the relationship between EMS and depression or contained the information necessary to analyse effect sizes; (ii) the primary outcomes were measured using standardized and validated measures of EMS and depression; (iii) participants were adolescents and young adults (with a mean age between 10 and 29 years); studies with a sample mean age below 10 years or over 30 years were excluded; (iv) studies measuring beliefs, cognitive biases or other constructs that were not explicitly associated with Young's concept of EMS were excluded; (v) case reports, book chapters, qualitative studies, dissertations, conference proceedings, theoretical papers and reviews were also excluded. The PRISMA diagram (Moher et al., 2009) in Fig. 1 shows the results of the systematic search and selection process conducted for the present review.

Sample of studies

The initial search resulted in 1183 studies (Embase = 194, ASSIA = 170, CINHAL = 116, Medline = 182, Psych INFO = 275, Scopus = 164, Web of Science = 78 and Grey Literature = 04). The primary reviewer screened the titles and abstracts of each article retrieved through the initial search of databases. The eligibility of each article based on title and abstract was assessed against the inclusion and exclusion criteria described above. Full texts of potentially eligible articles were checked to confirm their eligibility. A second reviewer independently carried out an additional screening of the full-text articles to assess eligibility. Few minor disagreements were resolved through discussion between the two reviewers. Following the implementation of the search scheme and inclusion/exclusion criteria, 24 studies representing 24 samples ($N = 13\,632$) were found eligible to be included in the current meta-analysis (see Table 1). All included studies were reported from peer-reviewed articles, published between 2002 and 2018.

Data extraction

The primary reviewer used a pre-determined form to carry out data extraction from the included studies. The following information was extracted: study setting/design, participants' demographics such as age mean, S.D. and range, gender ratio, sample size, measures employed to assess EMS and depression. Table 1 provides a summary of study characteristics extracted from the 24 included studies.

Measurement of early maladaptive schemas

All studies included in the quantitative synthesis used one of the four EMS measures based on Young's schema theory (Young et al., 2003). Specifically, the 90-item Young Schema Questionnaire-Short form version 3 (YSQ-S3; Young & Brown, 2005) was the most commonly used version, having been used in 12 of the included studies. The 75-item Young Schema Questionnaire-Short form (YSQ-SF; Young & Brown, 1998) was used in seven studies, while its adolescent version (YSQ-A; Van Vlierberghe et al., 2010) was used in two studies. The longest version (i.e. the 232-item Young Schema Questionnaire-Long form version 3; YSQ-L3) was used only in two studies.

All the above measures assess five different schema domains. However, the reviewed articles mostly employed three major schema domains, i.e. disconnection and rejection, impaired autonomy and other-directedness schema, which have schema content considered to be linked with symptoms of depression (Calvete, Orue, & González-Diez, 2013; Lumley & Harkness, 2007; Van Vlierberghe et al., 2010; Young et al., 2003).

Risk of bias assessment

To assess and appraise the quality of eligible studies, the risk of bias assessment was carried out independently by two reviewers using a bespoke quality assessment tool adapted by Marsh, Chan and MacBeth (2018). The tool comprises of 11 items to be rated qualitatively by answering 'Yes', 'No', 'Partially' or

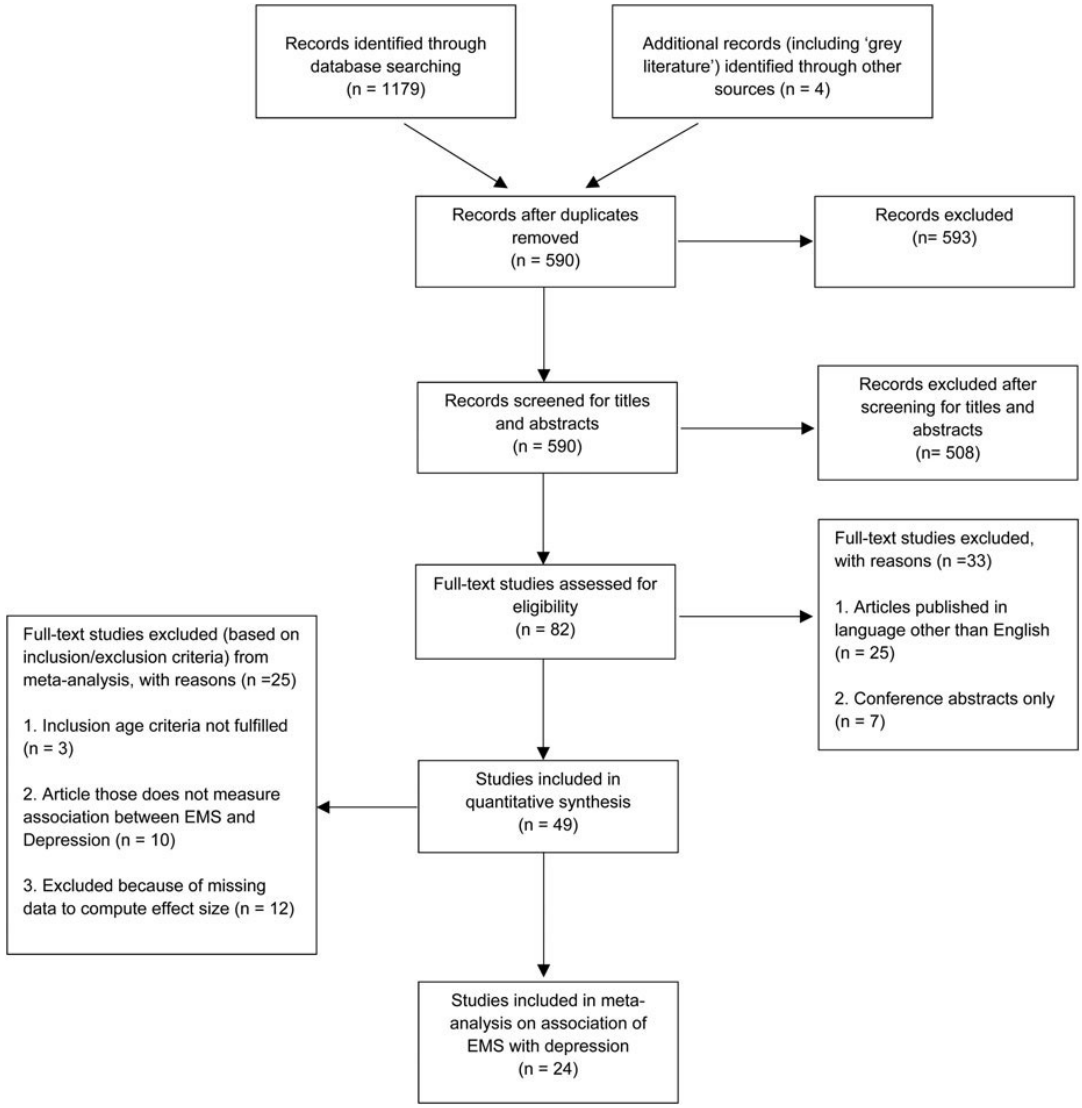

Fig. 1. Systematic search and selection process (PRISMA; Moher et al., 2009).

'Cannot Tell'. Furthermore, the numerical scores were assigned to the qualitative ratings to help generate a total quality score for each study: 'Yes' = 2, 'Partially' = 1, 'No' = 0, 'Cannot Tell' = 0. No numerical value was assigned where the items did not meet the criteria for the study. The total score for each study was calculated by summing the numerical values and then expressed as percentage based on the number of items assigned a numerical rating. Inter-rater reliability (Cohen's κ) was calculated between two independent reviewers, which was found to be 0.86, indicating high level of agreement (McHugh, 2012) (see Table 2).

Analytic procedure

Effect size coding

The correlation coefficient '*r*' values were extracted as an effect size measure for the association between schema domains and depression. Where separate correlation coefficients were reported to describe the association between separate schemas with depression, Fischer *z* transformation was carried out to compute an average effect size estimate for each schema domain. According to Corey, Dunlap, and Burke (2010), averaging the correlation coefficient could lead to an underestimation as sampling distribution for correlation coefficients is always considered to be skewed; the recommended method was to convert the correlations to Fischer *z* and calculating a weighted mean using sample size for each study. After obtaining weighted means, Fischer *z* values were converted back to the correlation '*r*'.

Meta-analytical model

Results for meta-analysis were generated in RStudio (Version 1.2.5001) using 'metaphor' (Viechtbauer, 2010), 'robumeta'

Table 1. Characteristics of the studies included in the meta-analysis ($n = 24$)

Study	Sample size	EMS measure	Depression measure	Participants	Study design	Age: mean; s.d.; range	Gender (M/F)	Country
Fouladi (2015)	429	YSQ-SF	BDI-II	Chronic depressed/non-depressed	Cross-sectional	29.67; not report; 20–40	188/241	Iran
Rezaei, Ghazanfari, & Rezaee (2016)	439	SQ-SF	BDI-II	Depressed female college students	Cross-sectional	22.47; 6.00; 19–43	0/439	Iran
Orue, Calvete, and Padilla (2014)	1170	YSQ-S3	CES-D	High school students	Longitudinal	13.44; 1.30; 13–17	632/538	Spain
Camara & Calvete (2012)	510	YSQ-SF	CES-D	1st/2nd year college students	Longitudinal	19.16; 1.69; not reported	179/331	Spain
Calvete et al. (2015)	1281	YSQ-S3	CES-D	High school students	Longitudinal	13.61; 1.41; 13–17	688/593	Spain
Calvete, Orue, and Hankin (2013)	1187	YSQ-S3	CES-D	High school students	Longitudinal	13.42; 1.30; 13–17	642/545	Spain
Alba and Calvete (2019)	572	YSQ-S3	CES-D	1st-4th year high school s	Longitudinal	15.78; 0.94; 13–19	314/255	Spain
Lewin, Garcia, Limon, and Ojeda (2015)	222	YSQ-SF	SCL-Dep	Undergraduate students	Cross-sectional	22.13; 6.21; not reported	109/113	USA
Gong and Chan (2018)	1102	YSQ-S3	ZSDS	University students	Cross-sectional	20.46; 1.13; not reported	296/806	China
Calvete (2014)	1052	YSQ-S3	CES-D	High school students	Longitudinal	13.61; 1.41; 13–17	553/499	Spain
Eberhart et al. (2011)	118	YSQ-SF	CES-D	Female university students	Longitudinal	21.28; not report; 19–27	0/118	Canada
Saritas-Atalar and Altan-Atalay (2018)	266	YSQ-S3	BDI-II	University students	Cross-sectional	21.89; 0.43; 18–27	78/188	Turkey
Mateos-Perez, Calvete, and Hankin (2015)	982	YSQ-S3	CES-D	High school students	Longitudinal	13.42; 1.30; 13–17	518/463	Spain
Muris (2006)	173	YSQ-A	PQY	Secondary school students	Cross-sectional	13.32; 0.95; 12–15	87/86	Netherland
Roelofs, Lee, Ruijten, and Lobbestael (2011)	222	YSQ-A	BDI-II	Secondary school students	Cross-sectional	14.70; 1.60; 12–18	84/138	Netherland
Haugh, Miceli, and DeLorme (2017)	403	YSQ-S3	BDI-II	Undergraduate students	Cross-sectional	19.58; 2.24; 18–46	193/210	USA
Balsamo, Carlucci, Sergi, Murdock, and Saggino (2015)	461	YSQ-L3	TDI	Student and community young adults	Cross-sectional	23.93; 6.9; 18–38	207/254	Italy
Jahromi, Naziri, and Barzegar (2012)	200	YSQ-SF	DASS	Undergraduate students	Cross-sectional	20.41; 5.59; not reported	160/40	Iran
Glaser et al. (2002)	141	YSQ-SF	BDI	Clinical out-patients	Cross-sectional	28.95; 7.8; 18–52	42/99	Greece
Naser & Shirbagi (2010)	185	YSQ-S3	BDI	University students	Cross-sectional	22.25; 1.92; not reported	110/85	Iran
Yigit et al. (2018)	325	YSQ-S3	CDI	Clinical/non-clinical adolescents	Cross-sectional	15.29; 1.14; 13–18	102/223	Turkey
Saggino et al. (2018)	918	YSQ-L3	TDI	Non-clinical community	Cross-sectional	29.85; 12.56; 18–89	396/522	Italy
Calvete, Orue, & González-Diez (2013))	971	YSQ-S3	SCL-Dep	University/vocational students	Cross-sectional	20.58; 2.81; 18–25	431/521	Spain
Evraire and Dozois (2014)	303	YSQ-SF	BDI-II	Undergraduate students	Longitudinal	18.73; 0.81; 17–48	59/244	Canada

BDI-II, Beck Depression Inventory-II (Beck, Steer, & Brown, 1996); CES-D, Centre for Epidemiologic Studies Depression scale (Radloff, 1977); SCL-Dep subscale, Symptom Checklist Depression sub-scale (Derogatis, 1994); ZSDS, Zung Self-Rating Depression Scale (Zung, Richards, & Short, 1965); PQY, Psychopathology Questionnaire for Youths (Hartman et al., 2001); TDI, Teate Depression Inventory (Balsamo & Saggino, 2013); BDI, Beck Depression Inventory (Beck, Rush, Shaw, & Emery, 1979); DASS, Depression, Anxiety and Stress Scale (Lovibond & Lovibond, 1995); CDI, Children's Depression Inventory (Kovacs, 1992).

Table 2. Risk of bias (ratings assessed using the adapted AHRQ tool)

Authors	Unbias. selection	Min. baseline differ.	Sample size cal.	Cohort descrp	EMS measure	Depress. measur	Blinded outcome assessment	Adequate follow-up	Missing drop-out	Analysis control for confound	Approp. analysis	Total score	Quality % age
Fouladi (2015)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	Partially (1)	No (0)	Yes (2)	11	69%
Rezaei et al. (2016)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	Yes (2)	Yes (2)	Yes (2)	14	88%
Orue et al. (2014)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	Yes (2)	Partially (1)	Partially (1)	Yes (2)	14	78%
Camara & Calvete (2012)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	Yes (2)	Yes (2)	Partially (1)	Yes (2)	15	83%
Calvete et al. (2015)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	Yes (2)	Yes (2)	Partially (1)	Yes (2)	15	83%
Calvete, Orue, and Hankin (2013)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	Yes (2)	Yes (2)	Yes (2)	Yes (2)	16	89%
Alba and Calvete (2019)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	Yes (2)	Partially (1)	Yes (2)	Yes (2)	15	83%
Lewin et al. (2015)	Yes (2)	N/A	No (0)	Partial (1)	Yes (2)	Yes (2)	N/A	N/A	Can't tell (0)	Yes (2)	Yes (2)	11	69%
Gong and Chan (2018)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	Partially (1)	Yes (2)	Yes (2)	13	81%
Calvete (2014)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	Yes (2)	Partially (1)	Partially (1)	Yes (2)	14	78%
Eberhart et al. (2011)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	Partially (1)	Yes (2)	Can't tell (0)	Yes (2)	13	72%
Saritas-Atalar and Altan-Atalay (2018)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	Partially (1)	Yes (2)	Yes (2)	13	81%
Mateos-Perez et al. (2015)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	Yes (2)	Partially (1)	Yes (2)	Yes (2)	15	83%
Muris (2006)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	Yes (2)	Yes (2)	Yes (2)	14	88%
Roelofs et al. (2011)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	Yes (2)	Yes (2)	Yes (2)	14	88%
Haugh et al. (2017)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	Yes (2)	Yes (2)	Yes (2)	14	88%
Balsamo et al. (2015)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	Yes (2)	Yes (2)	Yes (2)	14	88%
Jahromi et al. (2012)	Yes (2)	N/A	No (0)	Partial (1)	Yes (2)	Yes (2)	N/A	N/A	Can't tell (0)	Yes (2)	Yes (2)	11	69%
Glaser et al. (2002)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	Partially (1)	Yes (2)	Yes (2)	13	81%
Naser & Shirbagi (2010)	Yes (2)	N/A	Yes (2)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	Yes (2)	Partially (1)	Yes (2)	15	94%
Yigit et al. (2018)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	Yes (2)	Partially (1)	Yes (2)	13	81%
Saggino et al. (2018)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	Partially (1)	Yes (2)	Yes (2)	Yes (2)	15	83%
Calvete, Orue, & González-Diez (2013)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	Yes (2)	Yes (2)	Yes (2)	Yes (2)	16	89%
Evraire and Dozois (2014)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	Partially (1)	No (0)	Yes (2)	Yes (2)	13	72%

Quality ratings of included based on percentages, high quality = 80–100% category; moderate quality = 60–79% category; low quality = 50% or below.

(Fisher & Tipton, 2015) and 'MAc' (Del Re & Hoyt, 2010) package developed to facilitate reviewers by the R Development Core Team (2015). A random-effect model was used to synthesize quantitative results considering the heterogeneous nature of the study sample. Correlation '*r*' to Fischer *z* transformations were employed to compute the meta-analytic results. Fischer *z*'s were then converted back to correlation '*r*' to report the effect size estimates. *Q*-statistic was calculated to estimate the true heterogeneity of effect sizes. Higgins, Thompson, Deeks, and Altman (2003) suggested that a statistically significant *Q*-statistic indicates the presence of heterogeneity, i.e. the presence of true between-studies variation. I^2 statistic was calculated to provide a percentage of the actual variance between studies presenting the real differences between effect sizes, with 25, 50 and 75% representing the estimation of low, medium and high levels of heterogeneity (Higgins et al., 2003). Although *Q* and I^2 statistics are considered reliable tests to ascertain heterogeneity, they do not specify the studies which are more likely to influence heterogeneity. Baujat, Mah, Pignon, and Hill (2002) have developed 'Baujat plots' to identify the contribution of each study in overall results of heterogeneity with studies falling in the top quadrant of the plot contributing the most.

Publication bias

The funnel plots for each study are generated with effect sizes plotted on the horizontal axis and corresponding sample size (standard error) on the vertical axis. Studies with large standard errors tend to gather around the mean effect size, while those having smaller errors are more dispersed around the plot. Funnel plots are usually considered as a subjective measure of potential publication bias.

Rank of correlation test (Begg & Mazumdar, 1994) and Egger's test (Egger, Smith, Schneider, & Minder, 1997) were additionally employed as an objective method of assessing publication bias. A significant rank of correlation test and Egger's test represent the presence of potential publication bias.

Results

A total sample of $N = 13\,632$ (mean age = 19.49, s.d. = 3.07) from the eligible studies ($k = 24$) were included in the meta-analytic results to examine the association between EMS and depression. Separate meta-analytic results were generated to explore the association between depression and different schema domains. Table 3 summarizes the results for meta-analytic models.

Effect size reporting for association between EMS and depression

The random-effect model estimate for association between overall EMS and depression was $r = 0.56$ (95% CI 0.49–0.63, $Z = 12.88$, $p < 0.0001$), suggesting that higher predominant EMS were significantly linked to higher levels of depressive symptoms among adolescents and young adults with a large effect size (Cohen, 1992). Moderator analysis was carried out with the mean age of sample showing no moderating effect of age on study variance [Q (1) = 3.78, $p = 0.052$]. Further, an additional moderator analysis was carried out using gender as a moderating variable to assess the effect of gender on overall association of EMS and depression. Two studies were excluded during meta-regression analysis, as they comprised of only female participants. The meta-regression

Table 3. Meta-analytic results of association between early maladaptive schemas and depression

	Summary statistics				Homogeneity statistics		Moderator analysis		Publication bias analysis	
	k	*N*	*r*	95% CI	*Q*	I^2	Mean age of the sample-*Q*-value	Gender *Q*-value	Rank of correlation Kendall's τ	Egger's test *z*-value
Total early maladaptive schemas	24	13 632	0.56	0.49–0.63	777.07***	96.84%	3.78	1.81	−0.14	−1.79
Disconnection and rejection	24	13 623	0.49	0.43–0.55	436.62***	94.59%	2.90	0.97	−0.24	−2.22
Impaired autonomy/ performance	23	13 193	0.47	0.42–0.52	284.82***	92.62%	1.81	0.36	−0.20	−1.43
Other-directedness	17	10 302	0.40	0.32–0.47	393.05***	94.67%	5.86	6.25	−0.13	−1.21
Impaired limits	13	5593	0.36	0.30–0.41	64.90***	79.41%	0.03	0.06	0.01	0.95
Hypervigilance	11	5127	0.31	0.25–0.38	62.09***	83.31%	0.05	3.72	0.22	0.91

k, Number of studies; *N*, total number of participants; *r*, average uncorrected correlation; 95% CI, confidence interval, $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

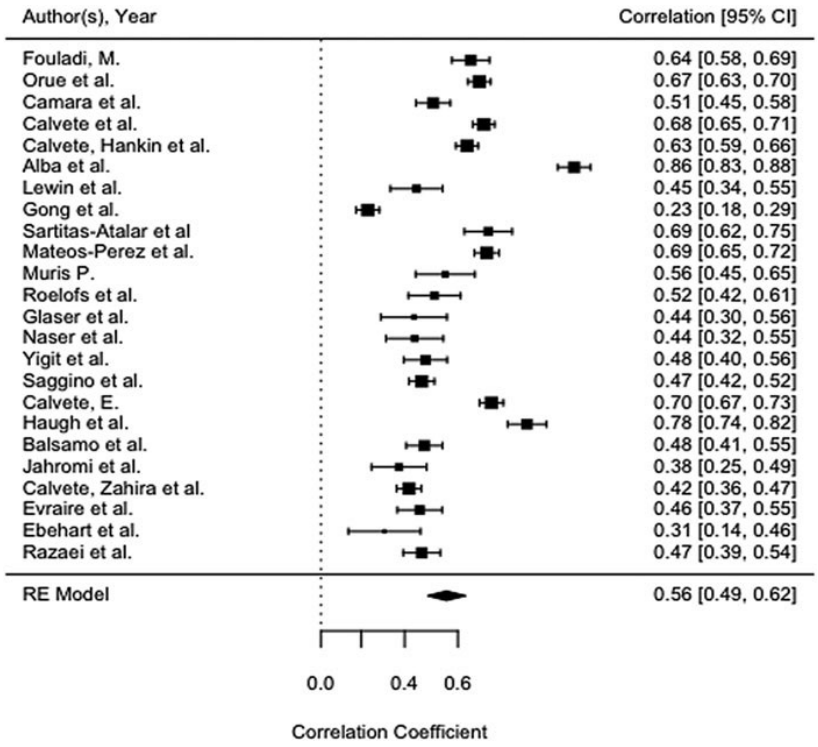

Fig. 2. Forest plot of EMS and depression meta-analysis.

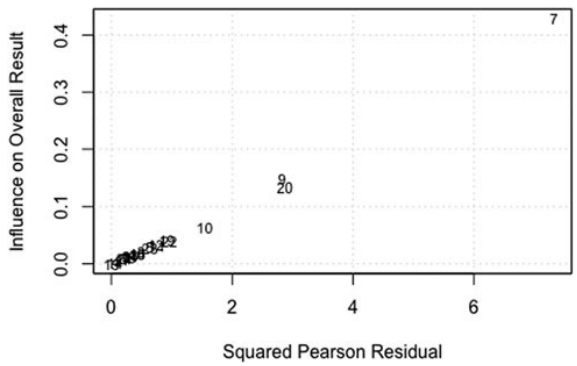

Fig. 3. Baujat plot for total EMS scores and depression meta-analysis.

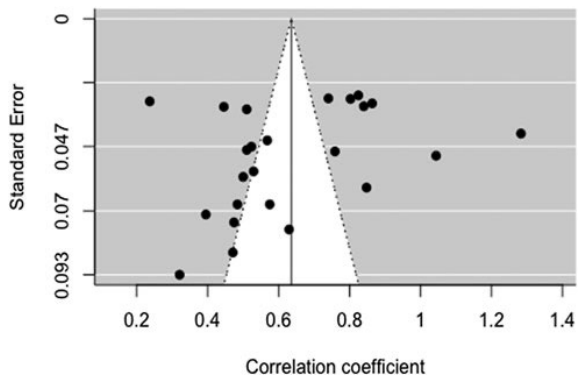

Fig. 4. Funnel plot for total EMS scores and depression meta-analysis.

conducted on $n = 22$ studies suggests that gender did not moderate the overall effect size association between EMS and depressive symptoms [Q (1) = 1.81, $p = 0.18$]. Figure 2 represents the forest plot of the overall meta-analytic model with almost all of the included studies reported moderate to large effect sizes.

The results of heterogeneity showed significant heterogeneity among the sample with $Q = 777.77$, $p < 0.0001$ and $I^2 = 96.84\%$, indicating 97% of the study variance resulted from the actual difference between studies. Besides, the Baujat plot was plotted to identify the studies that contributed to overall heterogeneity. Fig. 3 depicts that study 7, i.e. Alba et al. (2018), was the only study lying in the top quadrant contributing most to heterogeneity statistics. The rank of correlation ($p = 0.33$) and Egger's regression tests ($p = 0.07$) were non-significant suggesting that the above findings were not influenced by publication bias (see Fig. 4 for studies distribution around funnel plot).

Effect size reporting between disconnection/rejection schemas and depression

Based on all 24 included studies, the effect size estimate $r = 0.49$ (95% CI 0.43–0.55, $Z = 14.22$, $p < 0.0001$) showed a significant association between disconnection/rejection schemas and depressive symptoms, with a moderate effect size in a significantly heterogeneous set of samples ($Q = 436.62$, $p < 0.0001$). I^2 statistic indicated that 95% of the variance resulted from true between-study variance. Further, the rank of correlation ($p = 0.11$) and Egger's tests ($p = 0.26$) suggested that no evidence of publication

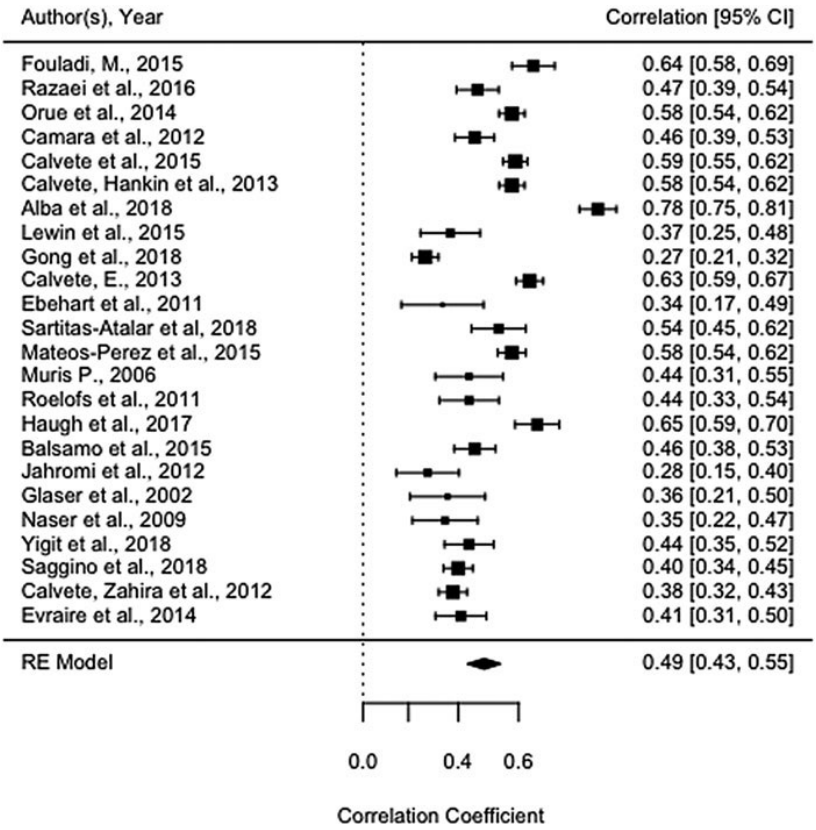

Fig. 5. Forest plot of disconnection/rejection and depression meta-analysis.

bias. Neither age nor gender significantly moderates the association between disconnection/rejection schemas and depressive symptoms [age: Q (1) = 2.90, $p = 0.09$; gender: Q (1) = 0.97, $p = 0.33$]. Figure 5 shows the details of contribution of each study in overall meta-analytical results.

Effect size of association between impaired autonomy/performance schemas and depression

The random-effect estimate of association between impaired autonomy/performance schemas and depression was $r = 0.47$ (95% CI 0.42–0.52, $Z = 15.26$, $p < 0.0001$), depicting a moderate relationship between impaired autonomy/performance schemas and depressive symptoms. The overall sample estimate suggested a significant heterogeneity ($Q = 284.82$, $p \leq 0.0001$), with 93% of effect size variance occurring due to between-study variance. No publication bias was observed using the Egger's test ($p = 0.15$) and rank test of correlation ($p = 0.19$). Furthermore, age and gender did not have a moderating effect on the meta-analytic estimates [Q (1) = 1.81, $p = 0.18$ and Q (1) = 0.36, $p = 0.55$, respectively; see Fig. 6 below for details].

Effect size estimate of association between other-directedness schemas and depression

As shown in Fig. 7, a medium effect size of $r = 0.40$ (95% CI 0.32–0.47, $Z = 9.76$, $p < 0.0001$) was estimated between other-directed schemas and depressive symptoms in a heterogeneous sample of 17 studies, reporting significant results for heterogeneity ($Q = 393.05$, $p \leq 0.0001$). The I^2 statistics showed that 95% of study variance was attributed to high variance occurring due to the actual difference between studies rather than within-study variance. The rank correlation test ($p = 0.48$) and Egger's regression test ($p = 0.22$) suggest that the findings were not influenced by publication bias. However, the moderation analysis reveals a significant impact of mean age on the relationship between other-directed schemas and depressive symptoms [Q (1) = 5.09, $p = 0.02$], proposing that the association between other-directed schema and depression increases with increasing age. Furthermore, gender also had a significant impact on the associations between other-directedness schemas and depressive symptoms, such that females with higher other-directed schemas were shown to have more depressive symptoms [Q (1) = 6.25, $p = 0.01$].

Effect size estimate of association between impaired limit domain and depression

A meta-analytical result of 13 studies reported a medium effect size of relationship between impaired limits domain with depressive symptoms ($r = 0.36$, 95% CI 0.30–0.41, $Z = 11.80$, $p < 0.0001$). The results of heterogeneity depict a significantly heterogeneous nature of included studies with $Q = 64.90$ ($p \leq 0.0001$). The value of I^2 proposes that 79% of effect size variance is associated with the actual variance occurring between studies. The non-significant results of Egger's test ($p = 0.34$) and rank correlation test ($p = 0.95$) suggest the absence of publication bias. Neither age [Q (1) = 0.03, $p = 0.87$] nor gender [Q (1) = 0.06, $p = 0.81$]

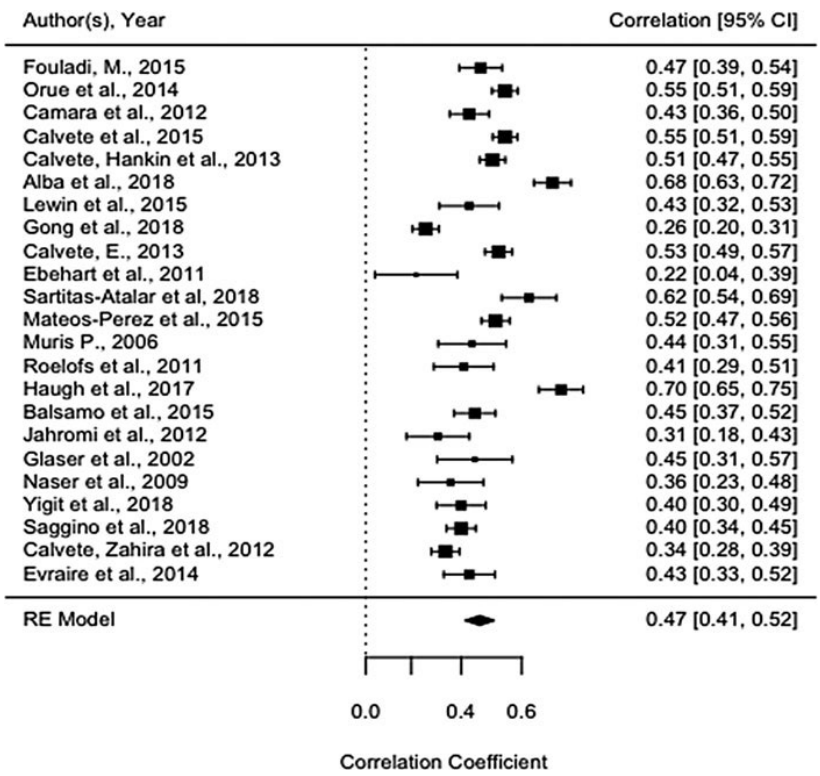

Fig. 6. Forest plot of impaired autonomy/performance and depression meta-analysis.

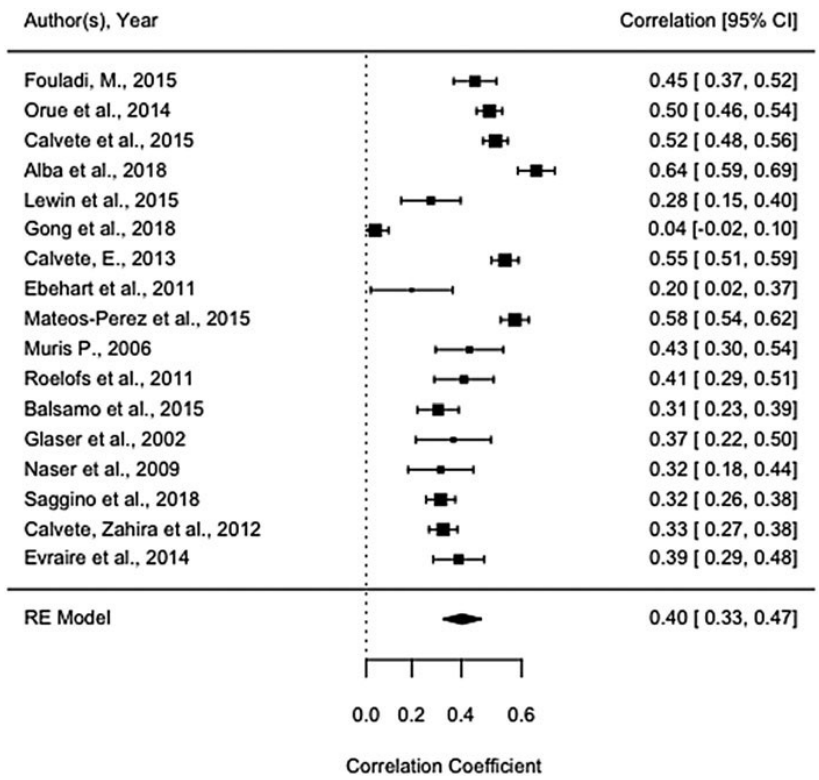

Fig. 7. Forest plot of other-directedness and depression meta-analysis.

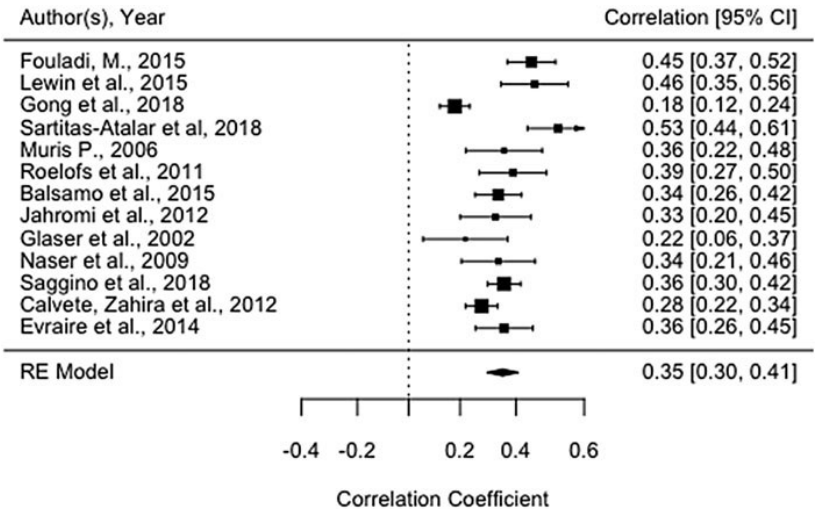

Fig. 8. Forest plot of impaired limits and depression meta-analysis.

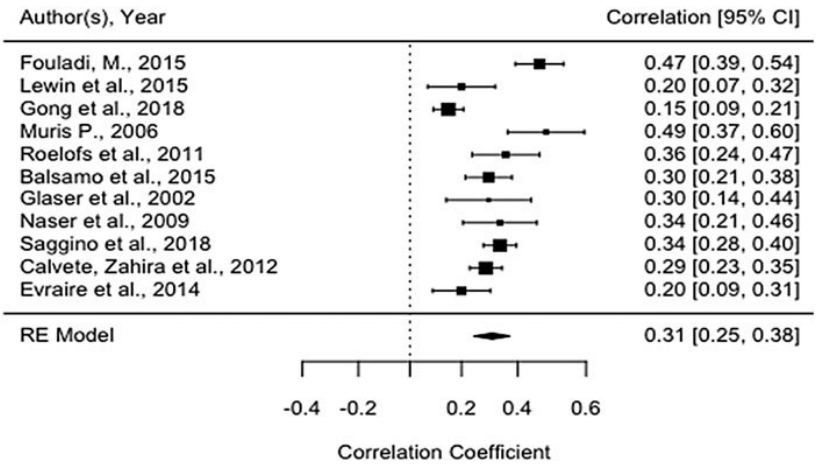

Fig. 9. Forest plot of hyper-vigilance and depression meta-analysis.

moderate the relationship between impaired limit schemas and depressive symptoms. See Fig. 8 for details.

Effect size estimate of association between hypervigilance schemas and depression

Based on 11 studies, a significant relationship with a medium effect size ($r = 0.31$; 95% CI 0.25–0.38, $Z = 8.87$, $p < 0.0001$) was found between hypervigilance schemas and depressive symptoms (see Fig. 9). The studies included were estimated to have a significant heterogeneity ($Q = 62.09$, $p \leq 0.0001$) and 83% of effect size variance accredited to actual sample variance between studies. The results were not influenced by publication bias (Egger's test $p = 0.36$, rank correlation test $p = 0.35$), or moderation effects of age [Q (1) = 0.05, $p = 0.83$] and gender [Q (1) = 3.72, $p = 0.06$].

Meta-analytical results for adolescents v. *young adults*

Finally, meta-analytical results were generated using random-effect model to estimate the effect size of the associations between EMS, schema domains and depression in adolescents and young adults separately to help clinicians have a better understanding of EMS role in specific developmental period. The overall effect size estimate depicts a slightly stronger association between EMS and depression in adolescents ($r = 0.64$) compared to young adults ($r = 0.50$) (see Table 4).

Quality assessment

All the included studies were either based on cross-sectional ($k = 15$) or longitudinal ($k = 9$) research design. None had an experimental design; therefore, the criteria for measuring baseline differences were not applicable. All the included studies provided adequate description about selection criteria and demographic information of the participant's sample. However, only one study provided details about power calculation, rendering it difficult to determine if the included samples were sufficiently powered. All studies employed a validated and reliable measure to assess EMS (YSQ-L, YSQ-S3, YSQ-SF, YSQ-A) and depression (BDI-I or BDI-II, CES-D, DASS, CDI; see Table 1). The included

Table 4. Meta-analysis of relationship between domains of early maladaptive schemas and anxiety/depression (random-effect model)

Random-effect model	*n*	*N*	Mean effect size '*r*'	95% CI	*Z*	*p* value	*Q*	I^2
Young adults								
Total early maladaptive schemas	14	6365	0.50	0.41–0.58	9.53	0.0001	265.54	94.83%
1. Disconnection and rejection	14	6365	0.44	0.37–0.50	11.10	0.0001	137.75	90.41%
2. Impaired autonomy and performance	10	5926	0.35	0.28–0.42	9.21	0.0001	63.87	85.52%
3. Impaired limits	11	4895	0.36	0.30–0.42	10.38	0.0001	64.51	80.20%
4. Other-directedness	9	4547	0.29	0.21–0.37	6.72	0.0001	90.73	87.38%
5. Hypervigilance	8	4429	0.30	0.23–0.37	7.71	0.0001	48.26	83.99%
Adolescents								
Total early maladaptive schemas	10	7267	0.64	0.55–0.72	10.60	0.0001	209.14	97.18%
1. Disconnection and rejection	10	7267	0.56	0.48–0.63	11.07	0.0001	129.54	95.54%
2. Impaired autonomy and performance	10	7267	0.51	0.46–0.57	15.17	0.0001	57.11	89.17%
3. Impaired limits	3	698	0.37	0.30–0.43	10.18	0.0001	0.18	0.00%
4. Other-directedness	8	5755	0.51	0.45–0.57	13.93	0.0001	41.79	88.36%
5. Hypervigilance	3	698	0.35	0.18–0.51	3.81	0.0001	12.49	83.88%

n, number of studies; *N*, total sample size; mean effect size *r*, average uncorrected correlation; 95% CI, lower and upper limits of 95% confidence interval for uncorrected correlations; *p* value, statistical significance; *Q*, heterogeneity; I^2, study variance.

studies have mixed quality in terms of controlling for confounding variable during analysis, with 16 shown to have taken adequate measures while six provided only partial details for this. Two of the included studies did not take into account any confounding variables. Overall the quality assessment shows that all the studies fall in moderate to high quality with none of the included study falling in low-quality category. Seven of the included studies are of moderate quality having 60–79% of quality category, posing a moderate risk of bias. Seventeen studies are of high quality with ratings falling between 80% and 100% category, indicating a low risk of bias (see Table 2).

Discussion

The current meta-analysis examined the association between EMS, different domains of EMS and depression among adolescents and young adults using separate meta-analytical models for each schema domain. Findings from 24 studies revealed that EMS were positively correlated with depression with large effect sizes, indicating that adolescents and young adults with predominately active EMS are on a greater verge of experiencing depressive symptoms. These findings are consistent with the theoretical framework proposed by Young (1990; 1999) as well as empirical studies based on adolescents and adult population (Cooper, Rose, & Turner, 2005; Glaser et al., 2002; Harris & Curtin, 2002; McGinn, Cukor, & Sanderson, 2005; Welburn et al., 2002).

Young et al. (2003) indicated the association of different maladaptive schemas with enduring psychological symptoms, with similar schemas associated with multiple psychological conditions. Therefore, it is important to identify the specific schemas or schema content associated with depressive symptoms to enhance treatment outcome by targeting specific maladaptive schemas. To enhance the understanding of specific schemas, separate meta-analyses were conducted with each schema domain to assess their associations with depressive symptoms. Our results showed that the schema domains of disconnection/rejection, impaired autonomy/performance and other-directedness have moderately stronger associations with depressive symptoms, whereas hypervigilance and impaired limits have comparatively weaker associations with depression. Consistent with Young's model (Young et al., 2003), these findings suggest that adolescents and young adults with greater depressive tendencies are likely to have their thoughts or feelings revolving around these three strongly associated maladaptive schemas. According to schema theory, disconnection rejection schemas usually involve beliefs related to insufficient acceptance and security with a lack of stable relationships with significant figures. Impaired autonomy and performance schemas involve beliefs associated with impaired ability to survive and cope with stressful and catastrophic situations. Finally, other-directed schemas involve giving excessive prominence to other people at the expense of one's own need (Young et al., 2003).

These findings are consistent with other theoretical frameworks that explain the role of cognitive vulnerabilities in developing and maintaining depressive symptomology. The hopelessness theory proposed that individuals with greater depressive tendencies are involved in maladaptive inferences about stressful situations, catastrophizing stressors and drawing negative conclusion about self (Abela & Sarin, 2002; Abramson, Alloy, & Metalsky, 1988). Similarly, Beck (1967) suggests the presence of a negative triad that includes negative interpretation about the self, world and future among depressive individuals (Abramson et al., 2002). These findings also echo interpersonal theories that emphasize the role of one's negative view of relationship with others in the development of depression (Abela et al., 2005) and empirical findings suggesting that individuals with symptoms of or risk for depression are more likely to have low self-worth, pessimistic expectations about interpersonal relations and belief that they are unworthy of healthy social relationships (Rudolph & Clark, 2001).

Age did not moderate the association between EMS, different schema domains and depression, suggesting a similar role of

maladaptive schemas in the development of depression among adolescents and young adults. It also provides the basis for considering adolescence and young adulthood as a continuous transitional process marked with similar development changes. There exists no previous evidence comparing the role of EMS with depression in adolescents and young adults. Therefore, future research should focus on exploring the role of EMS in adolescent and young adults using a comparative research design.

Similarly, results suggest that gender did not moderate the association between maladaptive schemas, schema domains and depressive symptoms. There is a limited evidence-base suggesting the absence of gender differences in experiencing EMS. Colman (2010) found no gender differences in a sample of 82 college students with predominant activated EMS. However, the current findings are inconsistent with previous evidence that found significantly stronger associations between EMS and depressive symptoms among adolescent girls (Calvete & Cardeñoso, 2005) and female young adults (Camara & Calvete, 2012; Welburn *et al.*, 2002). One possible explanation is the skewed nature of gender data in most of the studies, with two studies (Eberhart et al., 2011; Fouladi, 2015) based on a female-only sample. In addition, the results were based on biologically assigned sexual categories. In future, it would be interesting to take into account the gender differences based on individuals' self-identified gender orientations.

Clinical implications

Adolescence and young adulthood are critical developmental stages with heightened vulnerability for depression, and therefore offer a unique window of opportunity to foster psychological health and well-being through early mental health interventions (Xavier, Cunha, & Pinto Gouveia, 2015). Earlier identification, interventions and promotion of mental health can substantially prevent future distress and social cost (Arango et al., 2018). Findings of the current meta-analysis suggest that it would be helpful for clinicians to identify specific maladaptive schemas contributing to depression, to have a better understanding of underlying cognitive processes and in turn take a targeted, individualized approach to promoting psychological health, well-being and resilience in adolescents and young adults. The impact of depression through the life-course is cumulative. Looking for early markers could provide valuable opportunities for early intervention. Screening for the onset of EMS provides the potential for early identification and diverting from the adult trajectory towards depression. General practitioners and local medical professional may be in the best place to develop expertise in recognizing precursors during routine early childhood check-ups, vaccines and assessment of developmental milestones. In addition, our findings also encourage clinicians to focus more on the content of three significant schema domains of disconnection/rejection, impaired autonomy/performance and other-directedness in particular. Identifying specific schemas will help clinicians in devising a targeted treatment plan suited for each individual's need.

Limitations and areas for future research

The current meta-analysis has several limitations. The inclusion criteria for searches of review articles were limited only to peer-reviewed journal articles, excluding the grey literature such as unpublished theses, abstracts and conference proceedings. This ensured the presence of high-quality peer-reviewed articles but could also induce an upward bias in findings. It is encouraging to note however that no significant publication bias was found. Furthermore, a large number of studies ($n = 25$) were excluded because of publication in a language other than English. Time and cost constraints have made it impossible to have these papers translated, which may make it difficult to generalize our results. Finally, the included studies were based mostly on a cross-sectional research design describing only the magnitude of the associations between EMS and depression, rather than explaining causal interactions.

Future systematic reviews and meta-analysis should include grey literature and literature published in a language other than English to enhance the generalizability of findings.

Conclusion

Adolescents and young adults with significantly activated maladaptive schemas are likely to experience greater symptoms of depression. Further, the findings suggest that schemas associated with disconnection/rejection, impaired autonomy and other-directed schema content are likely to contribute more towards depressive tendencies.

Supplementary material. The supplementary material for this article can be found at https://doi.org/10.1017/S0033291721001458.

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Author contributions. We confirm that the manuscript has been read and approved by all named authors and that there are no other persons who satisfied the criteria for authorship but are not listed. We further confirm that the order of the authors listed in the manuscript has been approved by all of us.

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Conflict of interest. None.

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2.9. Chapter Conclusion

This study shows the strength of associations between early maladaptive schemas and depressive symptoms among adolescents and young adults. To further understand the relationship of different schema domains with depressive symptoms, separate meta-analyses were conducted with five schema domains showing significant associations between schemas related to disconnection/rejection, impaired autonomy/performance, and other-directedness to depressive symptoms. The findings suggest that among adolescents and young adults, depressive symptoms were significantly associated with negative thoughts and feelings related to a lack of secure, nurturing relationships, impaired sense of independence, inability to perform rationally and suppression of one's emotions, needs and feelings. The content of these maladaptive schemas is entirely aligned with automatic and negative thoughts, feelings and behaviours that have been predominantly found and tested in depressed individuals and described in different theories of depression (Abela et al., 2005; Abela & Sarin, 2002; Rudolph & Clark, 2001; Abramson, Alloy & Metalsky, 1988). This study has set the background for the following chapters, where the role of schemas in predicting depression was empirically tested using these significant schema domains while exploring the mediating role of self-compassion and mindfulness in these associations.

Chapter 3

The association of maladaptive schemas with anxiety symptoms among adolescents and young adulthood

3.1. Background

While the previous chapter explored the association between maladaptive schemas and depressive symptoms, this chapter will focus on the association with anxiety symptoms. Relevant previous research has been briefly discussed in the introductory chapter. Young et al. (2003) proposed that the existence of maladaptive schemas will likely result in the development of emotional disorders, including anxiety symptoms.

Anxiety disorders are one of the leading mental health issues associated with extreme feelings of nervousness, anxiousness, and fear (Bystritsky et al., 2013; Kendall, 2012). It is usually conceptualised as a normative response to daily life stressors involving emotional, biological, and cognitive response systems; however, the threshold of feelings experienced during anxiety is much more extreme and intense than usual and developmentally age-appropriate human response (Weems et al., 2005; APA, 2013). Anxiety disorder comprises several types, but the underlying symptoms are shared among all anxiety disorders, including excessive fear, worry, anxiety, avoidance and associated cognitive ideations that incapacitate an individual's daily social and occupational functioning (APA, 2013). On the contrary, anxiety disorders vary from each other based on the types of objects or situations that trigger the symptoms (APA, 2013). The presence of anxiety disorders during adolescence strongly predicts recurring anxiety symptoms and is a precursor for depression and significant mental health problems during young adulthood (Garber & Weersing, 2010).

Cognitive factors have been identified as a strong vulnerability marker for developing anxiety disorders (MacLeod & Mathews, 2011; Haegen, Etinenne & Duregger, 2016). The cognitive behavioural paradigm proposes that anxiety symptoms are shaped and maintained by a negative cognitive triad, i.e., the interlink of thoughts, feelings and behaviours when triggered by a threatening situation (Barlow, 2004; Edwards et al., 2019). Early maladaptive schemas (EMS) have been further highlighted as a salient underlying contributing factor to the development of anxiety disorders and other mental illnesses (Young et al., 2003).

The present chapter explores the associations between Young's maladaptive schemas and anxiety symptoms among adolescents and young adults following a systematic search of relevant literature and meta-analytically aggregating the findings from previous studies. The results of this chapter have been summarised and published as a manuscript titled *"Relationship between Early Maladaptive Schemas and Anxiety in Adolescence and Young Adulthood: A systematic review and meta-analysis"* in the *Journal of Affective Disorders.*

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Review article

Relationship between Early Maladaptive Schemas and Anxiety in Adolescence and Young Adulthood: A systematic review and meta-analysis

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ABSTRACT

Background: : Early maladaptive schemas (EMS) are self-perpetuating dysfunctional cognitive structures that have been linked with youth psychological health and play a significant role in developing and maintaining psychological distress, including anxiety symptoms.
Method: : The present meta-analysis synthesises the existing literature to evaluate the strength of association between EMS and anxiety symptoms among adolescents and young adults (aged 10–29 years). The systematic literature search was carried out in October 2019 using six different databases.
Results: : Our systematic search has identified 15 studies, comprising of 9515 participants (Mean age = 18.95, SD = 5.30). All the studies assessed were either cross-sectional or longitudinally designed. The random effect estimate for overall EMS with anxiety was $r = 0.59$ (95% CI = 0.50 to 0.68, $Z = 9.69$, $p < 0.0001$), indicating a strong association between EMS and anxiety. When different schema domains were investigated separately, anxiety was shown to have significantly stronger associations with the schema domains of disconnection/rejection ($r = 0.50$), impaired autonomy/performance ($r = 0.47$) and other-directedness ($r = 0.49$). Further, females were found to have higher schemas of hypervigilance and other-directedness and associated anxiety symptoms compared to males.
Limitations: : Meta-analytical results were limited to articles published in peer-reviewed journals in English language, inducing an upward publication bias and limiting the generalizability of the findings.
Conclusions: : The findings highlight schemas related to disconnection/rejection, impaired autonomy/performance and other-directedness as particularly salient precursors of anxiety symptoms, providing evidence for clinicians to target these particular schemas during prevention, intervention, and management of anxiety disorder.

1. Introduction

1.1. Anxiety in adolescence and young adulthood

Anxiety disorder is an umbrella term used for many different anxiety problems, including panic disorder, social anxiety, specific phobias, separation anxiety and generalized anxiety. Anxiety disorders vary in terms of the different objects or situations that induce them, but share similar symptoms such as excessive worry, anxious thoughts, physiological symptoms and related behavioral disturbances such as avoidance and distress (American Psychiatric Association, 2013). Collectively, they are one of the most frequently occurring psychiatric conditions, with an estimated 32% life-time prevalence rate (Doering et al., 2019; Kessler et al., 2012). Indeed, up to 1 in 3 adolescents (31.95%) are estimated to have an anxiety condition by the age of 18 years (National Institute of Mental Health, 2017).

Anxiety disorders have been recognized as the 9th leading cause of illness and disability among adolescents (WHO, 2020) and young adulthood (Global Burden of Disease Study, 2015; Gustavson et al., 2018). They typically onset during childhood and early adolescence, run a chronic course, and exhibit comorbidly with other psychiatric conditions such as depression, substance use disorder and suicidal ideations and behaviour (Doering et al., 2019; Pine et al., 1998; Garber and Weersing, 2010). Furthermore, they adversely impact upon many

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aspects of functioning and increase the risk of adverse social family functioning, lack of life satisfaction, adjustment issues in working environment and educational underachievement during emerging adulthood (Woodward and Fergusson, 2001; Essau et al., 2014).

1.2. Aetiology of anxiety disorders

Symptoms of anxiety are often ascribed to genetic predispositions (Gottschalk and Domschke, 2017; Leib et al., 2000), different temperamental styles such as behavioral inhibition, shyness, withdrawal or avoidant coping mechanisms (Spence and Rapee, 2016; Rapee, 2012), early maladaptive parent-child relationship and authoritative, over-protective parenting environment (McLeod et al., 2007; Hudson et al., 2008), modelling and learning influences from social environmental experiences (Murthy, 2007; Mineka and Zinbarg, 2006), and stressful life events and aversive situations (Edwards et al., 2010).

Female gender is a risk factor, with girls about twice as likely to acquire a diagnosis of anxiety disorders compared to boys throughout their lifetime (Costello et al., 2003; Rapee et al., 2009). One possible explanation for this sex difference are cognitive vulnerability factors (MacLeod and Mathews, 2012; Haegen and Etinenne, 2016). Early maladaptive schemas (EMS) have been particularly highlighted as a salient underlying contributing factor towards the development of anxiety disorders and other mental illnesses (Young et al., 2003).

1.3. Early maladaptive schemas (EMS)

Early maladaptive schemas are defined as self-perpetuating dysfunctional cognitive structures that play a direct impactful role in shaping individual's thought, emotion, behavior and feelings (Young et al., 2003). EMS are thought to develop during childhood and adolescence, based on dysfunctional childhood experiences with significant figures and stressful environmental situations. However, they are considered to exist and continue developing throughout the lifespan (Gong and Chan, 2018).

Maladaptive schemas may exist in all individuals as significant core beliefs that direct an individual's future assumptions about the self and world. These schemas can continue to exist dormant, unless activated by a stressor or aversive situation. The presence of activated maladaptive schemas can then directly influence future behavioral responses and interpersonal associations, thereby increasing an individual's risk for psychopathology (Young, 1999). Eighteen different maladaptive schemas have been identified and classified in a group of five different schema domains as follows: (i) disconnection/rejection, (ii) impaired autonomy/performance, (iii) other directedness, (iv) impaired limits and (v) hyper-vigilance (Young et al., 2003).

The *disconnection/rejection schemas* usually involve fear of disconnection and inadequacy from significant figures, an expectation of insecure and unstable relationships with excessive feelings of isolation and inferiority. *Impaired autonomy/performance* schemas involve schema content associated with feelings of incompetence, failure and greater vulnerability to harm and catastrophic situations. Finally, the *other-directed* schemas involve beliefs associated with excessive sacrifice and compromise for others at the expense of one's own needs and happiness. The other two schemas of *hypervigilance* and *impaired limits* involve over-perfectionism, rigid expectations from self and inability to meet their set goals (Young et al., 2003).

1.4. Early maladaptive schemas and anxiety disorder

Previous literature has recognized the presence of predominately active EMS among individuals with higher anxiety scores. Research evidence has found significantly activated EMS in clinical populations of individuals with social phobia (Pinto-Gouveia et al., 2006), panic disorder with agoraphobia (Hedley et al., 2001), generalized anxiety (Shorey et al., 2015), and generalised anxiety disorder (Delattre et al., 2004; Hawke and Provencher, 2011). Significant associations have also been identified between EMS and general anxiety symptoms among non-clinical student samples (Schmidt et al., 1995; Schmidt et al., 2004; Yan et al., 2018; Calvete et al., 2005) and young adults (Cui et al., 2011; Rhein and Sukawatana, 2015; Saggino et al., 2018). However, findings have been mixed possibly due to different schemas being associated with different anxiety symptomology. Further, the cross-sectional design of these studies made it difficult to identify aetiological pathways.

1.5. Schema domains as predictors of anxiety

Patients with increased anxiety symptoms are likely to score higher on all schema domains compared to healthy cohorts (Hawke and Provencher, 2011). In clinical samples, schema domains of *disconnection/rejection, impaired performance/autonomy and other-directedness schemas* were found to have significantly stronger associations with general anxiety symptoms (Glaser et al., 2002; Halford et al., 2002; Hawke and Provencher, 2011; McGinn et al., 2005; Welburn et al., 2002). However, these findings were limited to clinically diagnosed anxiety patients and could not be generalized to sub-clinically anxious youth populations.

In adolescent student sample, the schema domains of *impaired autonomy/ performance* and *hypervigilance* (Schmidt et al., 1995) and *Impaired autonomy/performance, disconnection/rejection and other-directedness* were found to be significant predictors of anxiety symptoms among undergraduate university students ((Cui et al., 2011)Cui et al., 2011). Similar findings have been found in a sample of young adult's university students, with *impaired autonomy and performance* schemas significantly predicting increase in anxiety symptoms (Calvete and Camara, 2012). Nevertheless, these researches were limited to community student samples and included only certain specific schema domains making it difficult to analyze the associations for overall EMS, all schema domains and anxiety symptoms among clinically anxious youth populations.

1.6. Aims of the current meta-analysis

Taken together, while the associations between different EMS and anxiety symptoms have been widely explored, the strength of this associations among adolescents and young adults has not been systematically investigated. EMS during this transitional phase is considered fluctuating and changeable (Rijkeboer and De Boo, 2010), such that earlier identification of EMS's could help clinicians and practitioners to target maladaptive schemas before they become rigid and permanent. The aim of the current meta-analysis is therefore to assess the overall relationship of EMS, and five schema domains in particular, with anxiety symptoms among adolescents and young adults, with specific research questions as follows:

1 What is the strength of the association between EMS and anxiety among adolescents and young adults?
2 What is the strength of relationship between each of the schema domains and anxiety symptoms among adolescents and young adults?
3 Do age and gender moderate the association between schema domains and anxiety?

This meta-analysis on anxiety was conducted in conjunction with another meta-analysis on depression (Tariq et al., 2021); the joint protocol was registered on PROSPERO: CRD42019135911

2. Method

2.1. Literature search

The current meta-analysis was carried out in October 2019 following

the Preferred Reporting for Systematic Review and Meta-analysis (PRISMA; Moher et al., 2009) guidelines. Six different databases were used to carry out the systematic search including: Embase. CINAHL, Medline, ASSIA, Psych INFO, Scopus and, Web of Science. The search terms used for the systematic search were: "Early maladaptive schemas" OR "Young schema" OR "EMS" AND "Anxiety" OR "Anxiety symptoms" OR "Anxiety disorders" OR "Anxious". Along with using Boolean characters 'AND' or 'OR', the searches were further refined and enhanced using truncations (* and $). Google Scholar and reference lists of relevant articles were further scanned to include grey literature that was unavailable through the databases. The systematic searches were repeated in December 2020 to validate the included literature and to identify newly published literature.

2.2. Inclusion / exclusion criteria

Searches were limited to articles published in the English language in peer-reviewed journals. Studies were included in this review if they fulfilled the following criteria: (i) reported effect sizes of the relationship between EMS and anxiety or contained the information necessary to analyze effect sizes; (ii) the primary outcomes were measured using standardized and validated measures of early maladaptive schemas and anxiety; (iii) participants were adolescents and young adults with a mean age between 10 and 29 years; (iv) studies measuring beliefs, cognitive biases, or other constructs that were not explicitly associated with Young's concept of early maladaptive schemas were excluded; (v) case reports, book chapters, qualitative studies, dissertations, conference proceedings, theoretical papers, and reviews were also excluded. The Prisma Diagram (Moher et al., 2009) in Fig. 1 shows the results of the systematic search and selection process conducted for the present review.

2.3. Sample of studies

The initial search resulted in 1183 studies (Embase = 194, ASSIA = 170, CINHAL = 116, Medline = 182, Psych INFO = 275, Scopus = 164,

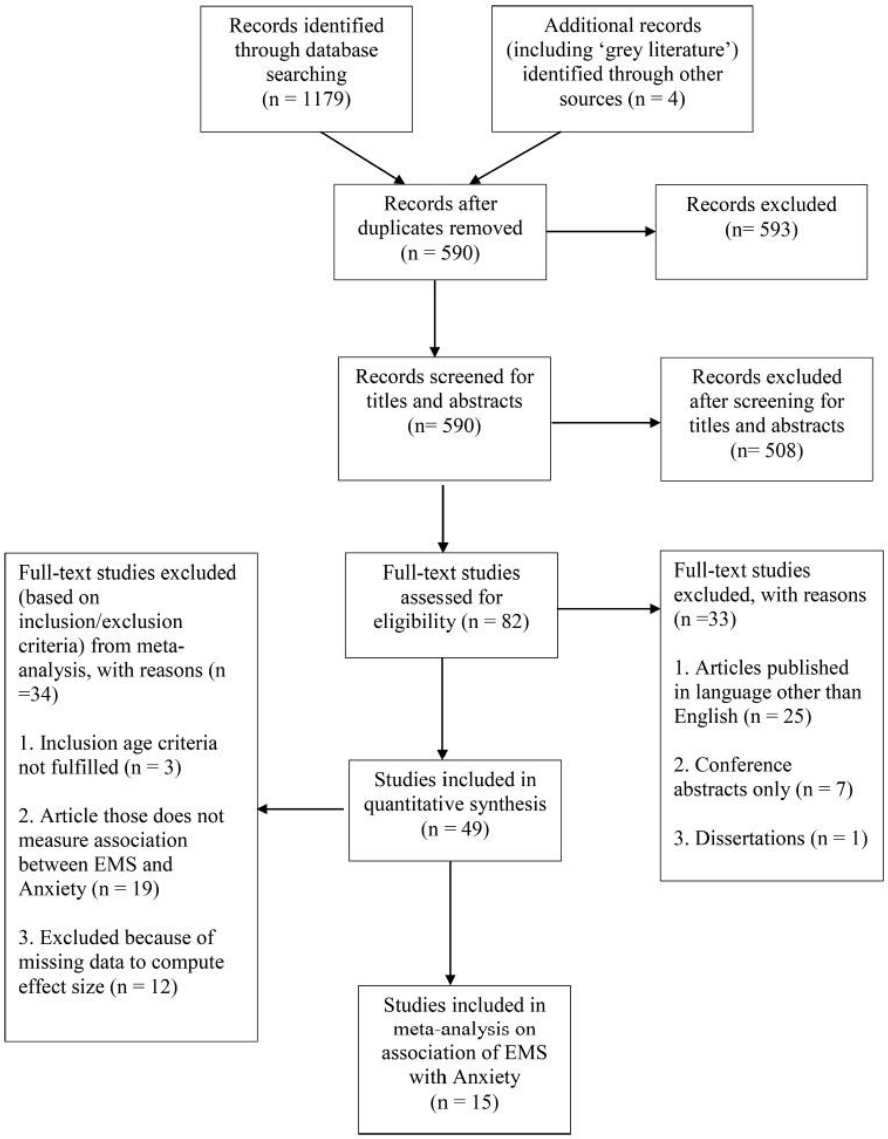

Fig. 1. Systematic search and selection process (PRISMA; Moher et al., 2009).

Web of Science = 78 and Grey Literature = 04) prior to de-duplication. The primary reviewer screened the titles and abstracts of each article retrieved through the initial search of databases. The eligibility of each article based on title and abstract was assessed against the inclusion and exclusion criteria described above. Full texts of potentially eligible articles were checked to confirm their eligibility. A second reviewer independently carried out an additional screening of the full-text articles to assess eligibility. Few minor disagreements were resolved through discussion between the two reviewers. Following the implementation of the search scheme and inclusion/exclusion criteria, 15 studies representing 15 samples ($N = 9515$) were found eligible to be included in the current meta-analysis (See Table. 1). All included studies were reported from peer-reviewed articles, published between 2002 and 2018.

2.4. Data extraction

The primary reviewer used a pre-determined form to carry out data extraction from the included studies. The following information was extracted: study setting/design, participants' demographics such as age mean, SD and range, gender ratio, sample size, measures employed to assess early maladaptive schemas and depression. Table 1 provides a summary of study characteristics extracted from the 15 included studies.

2.5. Measurement of early maladaptive schemas

All studies included in the quantitative synthesis used one of the four early maladaptive schema measures based on Young's schema theory (Young et al., 2003). Specifically, the 90-item Young Schema Questionnaire-Short form version 3 (YSQ-S3; Young and Brown, 2005) was the most commonly used version, having been used in 10 of the included studies. The 75-item Young Schema Questionnaire- Short form (YSQ-SF; Young and Brown, 1998) was used in two studies, while its adolescent version (YSQ-A; Van Vlierberghe et al., 2010) was used in one study. The longest version (i.e., the 232-item Young Schema Questionnaire- Long form version 3; YSQ-L3) was used in two studies.

All the above measures assess five different schema domains. However, the reviewed articles mostly employed three major schema domains, i.e., Disconnection and rejection, Impaired autonomy, and Other-directedness schema, which have schema content considered to be linked with symptoms of anxiety.

2.6. Measurement of anxiety symptoms

All studies included in the current meta-analysis employed a standardized measure of anxiety symptoms. Four studies measured social anxiety symptoms specifically using the Social Anxiety Scale for Adolescents (SAS-A; La Greca and Lopez, 1998). The State-Trait Anxiety Inventory (STAI; Spielberger et al., 1970) was further used to measure symptoms of general anxiety in four studies. Two of the included studies used the Symptom Checklist's Anxiety subscale (SCL-A; Derogatis, 1994) while another two studies utilized the Social Phobia scale (SPS; Mattick and Clarke, 1998) and Social Interaction and Anxiety Scale (SIAS; Mattick and Clarke, 1998) to generate overall anxiety scores among adolescent and young adult samples. In addition, the Zung Self-report Anxiety scale (ZSAS; Zung, 1971), Psychopathology Questionnaire for Youth (PQY; Hartman, 2001) and the Social Anxiety Questionnaire for Adults (SAQ; Caballo et al., 2010) were used in three separate studies to measure anxiety symptoms.

2.7. Risk of bias assessment

To assess and appraise the quality of eligible studies, the risk of bias

Table 1
Characteristics of the studies included in the meta-analysis ($n = 15$).

Study	Sample size	EMSmeasure	Anxiety measure	Participants	Study Design	Age: Mean; SD; Range	Gender (M/F)	Country
Orue et al., (2014)	1170	YSQ-S3	SAS-A	High School Students	Longitudinal	13.44; 1.30; 13–17	632/538	Spain
Camara et al. (2012)	510	YSQ-SF	SCL-A	1st/2nd year college students	Longitudinal	19.16; 1.69; not reported	179/331	Spain
Calvete et al., (2015)	1281	YSQ-S3	SAS-A	High School Students	Longitudinal	13.61; 1.41; 13–17	688/593	Spain
Calvete et al., (2013)	1187	YSQ-S3	SAS-A	High School Students	Longitudinal	13.42; 1.30; 13–17	642/545	Spain
(Gong and Chan, 2018)	1102	YSQ-S3	ZSAS	University Students	Cross-sectional	20.46; 1.13; not reported	296/806	China
(Calvete, 2014)	1052	YSQ-S3	SAS-A	High School Students	Longitudinal	13.61; 1.41; 13–17	553/499	Spain
(Saritas-Atalar and Altan-Atalay, 2018)	266	YSQ-S3	STAI-T	University Students	Cross-sectional	21.89; 0.43; 18–27	78/188	Turkey
Parsons et al., (2017)	235	YSQ-S3	SPS/SIAS	University Students	Cross-sectional	18.84; 1.14; not reported	69/166	USA
Muris P. (2006)	173	YSQ-A	PQY-5	Secondary School students	Cross-sectional	13.32; 0.95; 12–15	87/86	Netherland
Mairet et al., (2014)	360	YSQ-S3	SPS/SIAS	University students	Cross-sectional	20.68; 5.7; 17–25	105/255	Australia
Gonzalez-Diez et al., (2015)	471	YSQ-S3	SAQ	School and University students	Longitudinal	17.81; 3.19; 16–25	231/240	Spain
Glaser et al., (2002)	141	YSQ-SF	SCL-A	Clinical out-patients	Cross-sectional	28.95; 7.8; 18–52	42/99	Greece
Yigit et al., (2018)	325	YSQ-S3	STAI	Clinical / Non-clinical adolescents	Cross-sectional	15.29; 1.14; 13–18	102/223	Turkey
Carlucci et al., (2018)	461	YSQ-L3	STICSA	Students/Community young adults	Cross-sectional	23.93; 6.9; 18–38	207/254	Italy
Saggino et al., (2018)	918	YSQ-L3	STICSA	Non-clinical community	Cross-sectional	29.85; 12.56; 18–89	396/522	Italy

Table 1 notes: SAS-*A* = Social Anxiety Scale for Adolescents (La Greca and Lopez, 1998); SCL-*A* = Symptom Checklist Anxiety sub-scale (Derogatis, 1994); ZSAS = Zung Self Rating Anxiety Scale (Zung, 1971); STAI-*T* = State-Trait Anxiety Inventory -Trait Form (Spielberger et al. 1970); PQY-5 = Psychopathology Questionnaire for Youths (Hartman et al., 2001); SPS = Social Phobia Scale (Mattick & Clarke, 1998); SIAS = Social Interaction and Anxiety Scale (Mattick & Clarke, 1998); SAQ = The Social Anxiety Questionnaire for Adults (Caballo et al., 2010); STICSA = State Trait Inventory of Cognitive and Somatic Anxiety (Ree et al., 2008).

Table. 2
Risk of bias (Ratings assessed using the adapted AHRQ tool).

Authors	Unbias. selection	Min. Baselinediffer.	SampleSizeCal.	CohortDescrp	EMSmeasure	Depress. Measur	Blindedoutcomeassessment	AdequateFollow-up	Missingdrop-out	Analysis control forconfound	Approp. Analysis	Totalscore	Quality %age
Orue et al., (2014)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	Yes (2)	Partially (1)	Partially (1)	Yes (2)	14	78%
Camara and Calvete (2012)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	Yes (2)	Yes (2)	Partially (1)	Yes (2)	15	83%
Calvete et al., (2015)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	Yes (2)	Yes (2)	Partially (1)	Yes (2)	15	83%
Calvete et al., (2013)	Yes (2)	N/A	No (0)	Yes 2)	Yes (2)	Yes (2)	N/A	Yes (2)	Yes (2)	Yes (2)	Yes (2)	16	89%
Gong and Chan (2018)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	Partially (1)	Yes (2)	Yes (2)	13	81%
(Calvete, 2014) Calvete, E. (2014)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	Yes (2)	Partially (1)	Partially (1)	Yes (2)	14	78%
Saritas-Atalar and Altan-Atalay (2018)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	Partially (1)	Yes (2)	Yes (2)	13	81%
Parsons et al., (2017)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	Yes (2)	Yes (2)	Yes (2)	13	81%
Muris P. (2006)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	Yes (2)	Yes (2)	Yes (2)	14	88%
Mairet et al., (2014)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	Yes (2)	No (0)	Partial (1)	11	69%
Gonzalez-Diez et al., (2015)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	Yes (2)	Yes (2)	Yes (2)	Yes (2)	16	89%
Glaser et al., (2002)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	Partially (1)	Yes (2)	Yes (2)	13	81%
Yigit et al., (2018)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	Yes (2)	Partially (1)	Yes (2)	13	81%
Carlucci et al., (2018)	Yes (2)	N/A	No (0)	Partial (1)	Yes (2)	Yes (2)	N/A	Yes (2)	Yes (2)	Yes (2)	Yes (2)	15	83%
Saggino et al., (2018)	Yes (2)	N/A	No (0)	Yes (2)	Yes (2)	Yes (2)	N/A	Partially (1)	Yes (2)	Yes (2)	Yes (2)	15	83%

Notes: Quality ratings of included based on percentages, High quality = 80–100% category; Moderate quality = 60–79% category; Low quality = 50% or below.

Table. 3
Meta-analytic results of association between early maladaptive schemas and anxiety.

	Summary statistics				Homogeneity statistics		Moderator analysis		Publication bias analysis	
	k	N	r	95% Cl	Q	I^2	Mean age of the sample-Q-value	GenderQ-value	Rank of CorrelationKendall's tau	Egger's Testz-value
Total Early Maladaptive Schemas	15	9515	0.59	0.50, 0.68	765.00***	97.79%	3.78	7.03**	-0.23	-1.74 -1.56
Disconnection & Rejection	15	9515	0.50	0.42, 0.59	360.74***	95.69%	1.58	3.54	-0.15	-0.74 -1.97
Impaired Autonomy/ Performance	14	9157	0.47	0.39, 0.54	235.45***	94.62%	0.07	1.48	-0.22	0.29 0.30
Other-Directedness	11	8056	0.49	0.35, 0.60	597.74***	98.14%	3.49	23.06***	-0.29	
Impaired Limits	7	3532	0.35	0.24, 0.44	71.48***	90.39%	0.37	0.04	0.14	
Hypervigilance	6	3266	0.38	0.26, 0.48	86.72***	91.76%	0.02	6.58*	0.07	

Notes. k = Number of studies, N = Total number of participants, r = average uncorrected correlation, 95% Cl = Confidence interval, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

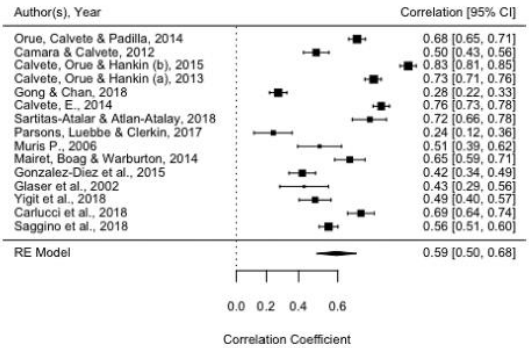

Fig. 2. Forest plot of EMS and Anxiety Meta-analysis.

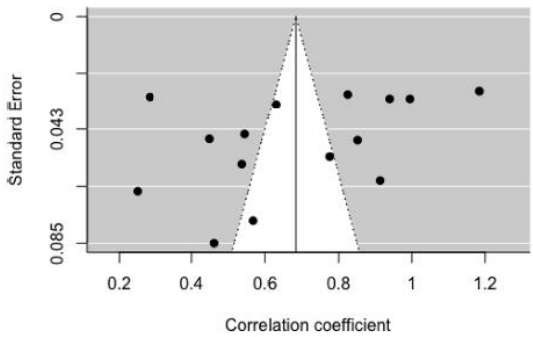

Fig. 4. Funnel plot for EMS scores and Anxiety Meta-analysis.

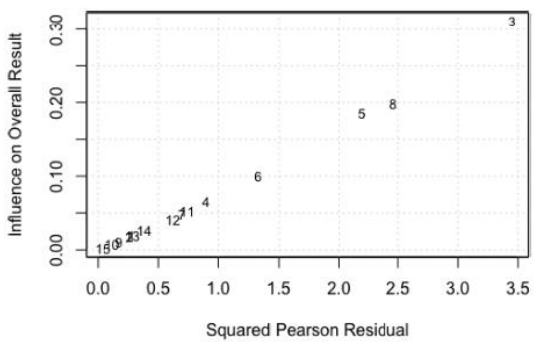

Fig. 3. Baujat plot for EMS scores and Anxiety Meta-analysis.

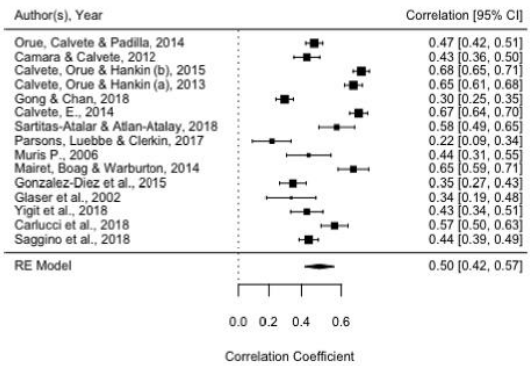

Fig. 5. Forest plot of Disconnection/Rejection and Depression Meta-analysis.

assessment was carried out independently by two reviewers using a bespoke quality assessment tool adapted by Marsh et al. (2018). The tool comprises of 11 items to be rated qualitatively by answering "Yes", "No", "Partially", or "Cannot Tell". Furthermore, the numerical scores were assigned to the qualitative ratings to help generate a total quality score for each study: "Yes" = 2, "Partially" = 1, "No" = 0, "Cannot Tell" = 0. No numerical value was assigned where the items did not meet the criteria for the study. The total score for each study was calculated by summing the numerical values and was then expressed as percentage based on the number of items assigned a numerical rating. Inter-rater reliability (Cohen's kappa) was found to be 0.86 between two independent reviewers, indicating high level of agreement (McHugh, 2012) (See Table. 2).

3. Analytic procedure

3.1. Effect sizes

The correlation coefficient 'r' values were extracted as an effect size measure for the association between schema domains and anxiety. Where separate correlation coefficients were reported to describe the association between separate schemas with anxiety, Fischer z transformation was carried out to compute an average effect size estimate for each schema domain. According to Corey et al. (2010), averaging the

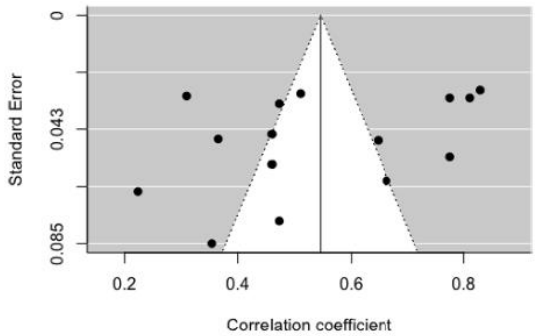

Fig. 6. Funnel plot providing details of Publication bias for the results of Disconnection/Rejection and Anxiety Meta-analysis.

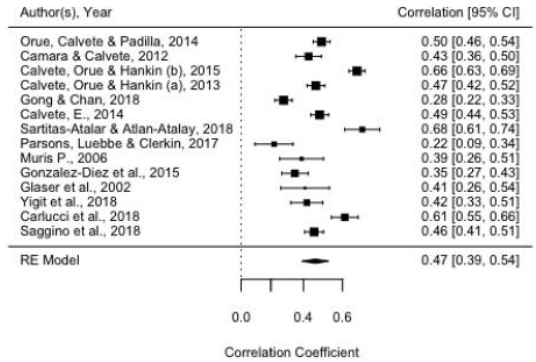

Fig. 7. Forest plot of Impaired autonomy/performance and Anxiety Meta-analysis.

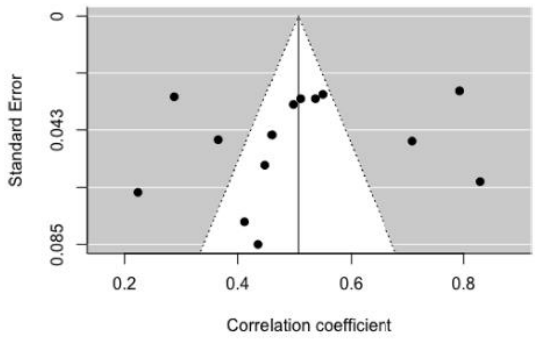

Fig. 8. Funnel plot providing details of Publication bias for the results of Impaired Autonomy and Anxiety Meta-analysis.

correlation coefficient could lead to an underestimation as a sampling distribution for correlation coefficients is always considered to be skewed; the recommended method was to convert the correlations to Fischer z and calculate a weighted mean using sample size for each study. After obtaining weighted means, Fischer z values were converted back to the correlation 'r'.

3.2. Meta-analytical model

Results for meta-analysis were generated in RStudio (Version 1.2.5001) using "metaphor" (Viechtbauer, 2010), "robumeta" (Fisher and Tipton, 2015) and "MAc" (Del *Re* and Hoyt, 2010) package developed to facilitate reviewers by the R Development Core Team (2015). A

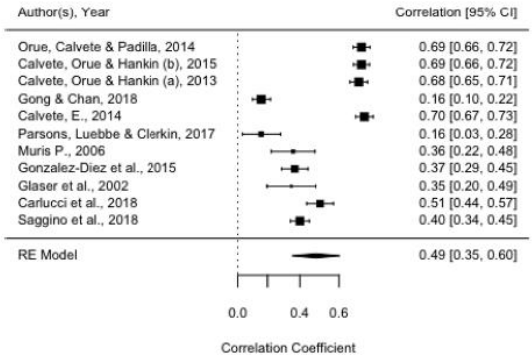

Fig. 9. Forest plot of Other-directedness and Anxiety Meta-analysis.

random effect model was used to synthesize quantitative results considering the heterogenous nature of the study sample. Correlation 'r' to Fischer z transformations were employed to compute the meta-analytic results. Fischer z's were then converted back to correlation 'r' to report the effect size estimates. Q-statistic was calculated to estimate the true heterogeneity of effect sizes. Higgins et al. (2003) suggested that a statistically significant Q-statistic indicates the presence of heterogeneity, i.e., the presence of true between-studies variation. I^2 statistic was calculated to provide a percentage of the actual variance between studies presenting the real differences between effect sizes, with 25%, 50% and 75% representing the estimation of low, medium and high levels of heterogeneity (Higgins et al., 2003). Although Q and I^2 statistics are considered reliable tests to ascertain heterogeneity, they do not specify the studies which are more likely to influence heterogeneity. Baujat et al. (2002) have developed "Baujat plots" to identify the contribution of each study in overall results of heterogeneity with studies falling in the top quadrant of the plot contributing the most.

3.3. Publication bias

The funnel plots for each study are generated with effect sizes plotted on the horizontal axis and corresponding sample size (standard error) on the vertical axis. Studies with large standard errors tend to gather around the mean effect size, while those having smaller errors are more dispersed around the plot. The asymmetrical distribution of studies (indicated by individual dots) on both sides of the vertical line on funnel plot usually represents the presence of publication bias. However, Funnel plots are usually considered as a subjective measure of potential publication bias (Quintana, 2015).

Rank of Correlation test (Begg and Mazumadar, 1994) and Egger's test (Egger et al., 1997) were additionally employed as an objective method of assessing publication bias. A significant Rank of correlation

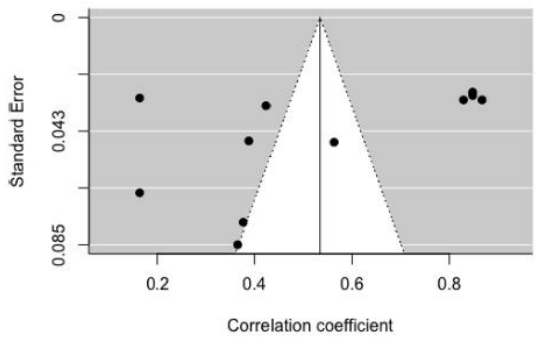

Fig. 10. Funnel plot providing details of Publication bias for the results of Other-directedness and Anxiety Meta-analysis.

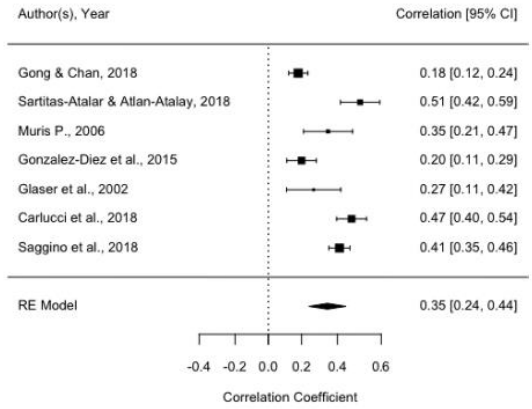

Fig. 11. Forest plot of Impaired limits and Anxiety Meta-analysis.

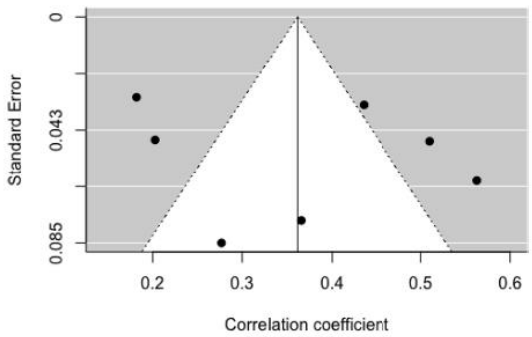

Fig. 12. Funnel plot providing details of Publication bias for the results of Impaired Limits and Anxiety Meta-analysis.

and Egger's test represents the presence of potential publication bias.

3.4. Quality assessment

Table 2 shows the risk of bias assessment for the included studies with almost all studies falling in the moderate to high quality ratings classification. Three of the included studies fall in moderate quality rating between 60 and 79% quality ratings, inducing a moderate risk of bias for the meta-analytical results while thirteen studies were of high quality between 80 and 100% quality category, indicating a minimal risk of bias. All included studies employed appropriate and standardized measures to assess EMS and Anxiety symptoms. Further, they all provided adequate description about the included sample and selection process, however, only one of the included studies had provided partial

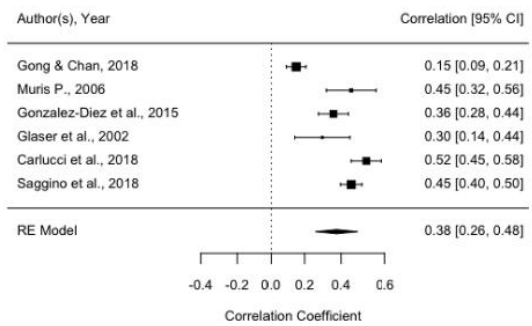

Fig. 13. Forest plot of Hyper-vigilance and Anxiety Meta-analysis.

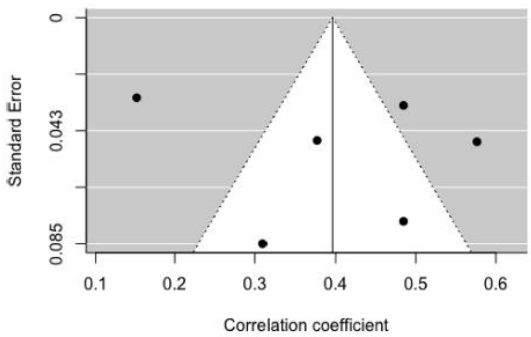

Fig. 14. Funnel plot providing details of Publication bias for the results of hyper-vigilance and Anxiety Meta-analysis.

description about the characteristics of the sample (Carlucci et al., 2018). Six of the studies were based on longitudinal research design with an adequate follow up period. However, one of the studies (Saggino et al., 2013) used a 1 month follow up which was comparatively shorter than other included studies, and the number of participants completing the follow-up measures was smaller. None of the included studies reported an appropriate power calculation to estimate the sample size, raising concerns as to whether the sample was sufficiently powered.

4. Results

The meta-analytical results were generated using a total sample of 9515 people (Mean age = 18.95, SD = 5.30) from 15 studies. The results were computed to explore the associations between overall scores of early maladaptive schemas with anxiety as well the effect size associations between five schema domains with anxiety. Summary statistics for meta-analytical models are presented in Table. 3.

4.1. Effect size reporting for association between ems and anxiety

The uncorrected random effect estimate for overall EMS with anxiety was $r = 0.59$ (95% Cl = 0.50 to 0.68, $Z = 9.69$, $p < 0.0001$), indicating a significant association with a larger effect size between EMS and anxiety among adolescents and young adults. See forest plot in Fig. 2.On meta-regression, the mean age of sample showed no significant associations, indicating that age did not moderate the overall effect size estimates nor contribute towards the study variance [Q (1) = 3.78, $p = 0.21$]. Gender however significantly affected the associations between EMS and anxiety, showing stronger associations among adolescent girls and young females [Q (1) = 7.03, $p = 0.008$].

The heterogeneity estimates showed significant heterogeneity ($Q = 765.00$ ($p < 0.0001$) and $I^2 = 97.79\%$). Baujat plots were constructed to identify the studies that contributed most towards the overall estimate of heterogeneity. In Fig 3., Study 3 (i.e., Calvete et al., 2015) is lying in the top quadrant, indicating the highest contribution to heterogeneity results. The results were non-significant for rank of correlation test (0.23) and Egger's regression tests (0.08), indicating that the present findings were not affected by publication bias. Fig 4. represents the symmetrical distribution of studies on the vertical line of funnel plot further supporting the non-significant results of publication bias.

4.2. Effect size reporting between disconnection/rejection schemas and anxiety

The random effect model based on 15 studies estimated the association between disconnection/rejection schemas and anxiety as $r = 0.50$ (95% Cl = 0.42 to 0.57, $Z = 10.75$, $p < 0.0001$). The large effect size indicates the presence of more disconnection/ rejection related schemas among adolescents and young adults with increased anxiety symptoms.

The heterogeneity statistics suggests the presence of a significant heterogenous sample ($Q = 360.74$, $p < 0.0001$), with 96% of the effect size variance contributed by actual differences occurring between the included studies. Fig 5. below shows the contribution of each study along with an overall meta-analytical estimate. In Fig 6. the funnel plot exhibits symmetrical distribution of studies indicating that the results were not influenced by publication bias. The non-significant results of rank test of correlation (0.43) and Egger's tests (0.12) also suggested the absence of publication bias. The meta-regression results further suggest no significant relationship of mean age [Q (1) = 1.58, $p = 0.21$ and gender [Q (1) = 3.54, $p = 0.06$] with the overall effect size estimate.

4.3. Effect size association between impaired autonomy/ performance schemas and anxiety

Based on 14 studies, a random effect meta-analytical model found a moderate effect size association between impaired autonomy/performance schemas with anxiety symptoms ($r = 0.47$, 95% CI = 0.39 to 0.54, $Z = 10.89$, $p < 0.0001$). Findings of the meta-analytical model are presented in Fig 7 below. The overall sample was found to be highly heterogenous ($Q = 235.45$, $p < 0.0001$), with 95% of effect size variance occurring due to potential differences between the included studies. The rank of correlation ($p = 0.27$) and Egger's tests (0.46) were not significant while the funnel plot shown in Fig 8 also supports that the meta-analytical results were not influenced by the presence of publication bias. Additionally, results for meta-regression suggested that neither age [Q (1) = 0.00, $p = 0.93$] nor gender [Q (1) = 1.48, $p = 0.22$] moderated the effect on the current meta-analytical association.

4.4. Effect size estimate of association between other-directedness schemas and anxiety

The meta-analytical estimate from 11 studies found a medium effect size association, $r = 0.49$ (95% CI = 0.35 to 0.60, $Z = 6.37$, $p < 0.0001$) between other-directness schemas and anxiety symptoms (See Fig 9 below).

The overall sample estimate showed that the included sample was highly heterogenous ($Q = 597.73$, $p < 0.0001$) with an I^2 statistic of 98%. Furthermore, no statistically significant publication bias was found using rank of correlation (0.21) and Egger's regression test (0.06). Fig 10 shows a symmetrical funnel plot with equal number of studies lying on both sides of the vertical line. Moderator analysis showed no significant association of age with other-directedness and anxiety [Q (1) = 3.49, $p = 0.06$]. However, the results of meta-regression showed female sex significantly influencing the association between other-directedness schemas and anxiety [Q (1) = 23.06, $p < 0.0001$].

4.5. Effect size estimate of association between impaired limit domain and anxiety

As shown in Fig. 11, an overall medium effect size of $r = 0.35$ (95% CI = 0.24 to 0.44, $Z = 6.24$, $p < 0.0001$) from 7 studies was found between impaired limit schemas and anxiety, albeit in a highly significantly heterogenous sample ($Q = 71.48$, $p < 0.0001$). 90% of effect size variance was attributed to actual variance occurring between studies. The results for rank of correlation ($p = 0.77$) and Egger's test (0.76) were non-significant suggesting that the present results were not influenced by notable publication bias which is further evident through the symmetrically distributed studies on funnel plot presented in Fig 12. Neither age [Q (1) = 0.37, $p = 0.54$] nor gender [Q (1) = 0.04, $p = 0.85$] was found to moderate the relationship between impaired limit schemas and anxiety symptoms.

4.6. Effect size estimate of association between hypervigilance schemas and anxiety

A random effect meta-analytical model generated from 6 studies found a significant medium effect size association between hypervigilance schemas and anxiety symptoms ($r = 0.38$; 95% CI = 0.26 to 0.48, $Z = 6.07$, $p < 0.0001$; See Fig 13 for details). The included studies were found to be highly heterogenous ($Q = 86.72$, $p < 0.0001$) with 92% of effect size variance accredited to actual sample variance between the included studies. The findings were not influenced by the presence of publication bias (Egger's test $p = 0.77$, Rank correlation test $p = 1.00$; See Fig 14 for funnel plot. Meta-regression results suggested that age [Q (1) = 0.02, $p = 0.89$] did not moderate the associations. However, gender [Q (1) = 6.58, $p = 0.01$] was a significant moderator, in that females with hypervigilance schemas experienced more EMS and associated anxiety symptoms.

5. Discussion

A systematic search of the literature has identified six to fifteen different studies contributing effect sizes to estimate the meta-analytical associations between different EMS schema domains and anxiety symptoms among adolescents and young adults. This meta-analysis examined the associations between five different schema domains and anxiety symptoms. We found a strong association between EMS and anxiety symptoms in general, suggesting a stronger relationship between predominately active EMS among adolescents and young adults with significant anxiety symptoms. The findings are consistent with Young's schema theory (1999; Young, 1990) and previous empirical evidence found in adolescents (Schmidt et al., 1995; Calvete and Camara, 2012) and adults (Gewelt et al., 2017; Ansari et al., 2016; Glaser et al., 2002). Research evidence from a Chinese adolescent sample found EMS accounting for 31% of total variance for anxiety symptoms (Yan et al., 2018) while they accounted for 34% variance among young adults (Glaser et al., 2002). In addition, similar findings have been reported in a psychiatric outpatient's group where EMS accounted for 52% variance for anxiety symptoms (Welburn et al., 2002).

The results generated for separate schema domains suggest substantially stronger associations between schemas of disconnection/rejection, impaired autonomy/performance and other directedness, in that these three schema domains were found to have larger effect size estimates compared to schema domains of hypervigilance and impaired limits. These findings are in keeping with Young's theory. The three significant schemas domains found associated with anxiety symptoms include maladaptive beliefs and fears related to inability to form secure stable relationships, lack of independent functioning, dependency, vulnerability to harm, and placing excessive importance on other's needs (Young et al., 2003). Based on the schema content, it is likely that anxious adolescents and young adults have prominent anxious thoughts and feelings revolving around their relationships and daily life stressors which stimulates worry, panic, fear and excessive overthinking among individuals. This is consistent with previous research that suggests the relationship between daily environmental stressors and occurrence of anxiety symptoms among adolescents and young adults (Hamilton et al., 2013; Schrami et al., 2011). Eley and Stevenson (2000) identified that youth with anxiety disorders are likely to experience threat related life stressors such as fear of losing significant figures, vulnerability for traumatic events, physical and psychological threats. Individuals with predominantly active schemas consider catastrophic and dangerous situations as imminent and the inability to cope tends to increase the feelings of worry and anxiousness (Camara and Calvete, 2012).

In addition, our findings for schema domains are partly consistent with previous findings reported in a clinically diagnosed anxiety patients, where schema domains of *other-directedness* and *impaired autonomy/performance* correlated significantly with anxiety symptoms

(McGinn et al., 2005). Moreover, all five schema domains were found significant predictors of trait anxiety in a non-clinical sample (Trip, 2006). Our results support Young's suggestion that different schemas associated with different psychopathologies need to be identified and targeted in psychological interventions to enhance the outcome of an intervention program (Young et al., 2003).

The measures of statistical heterogeneity (Q and I^2 statistics) shows that the meta-analytical results had significant heterogeneity between included studies. The results were generated using random effect model keeping in consideration the heterogenous nature of included studies. Further, the results are indicative of methodological differences between different studies such as the difference of study designs, use of different assessment measures to evaluate outcome measures and the diverse nature of participants and sample. Most of the included studies were cross-sectionally designed ($k = 9$) with rest based on longitudinal design. In addition, the studies used different versions of Young's schema measures as well as outcome measures of anxiety symptoms which can also contribute towards the existing higher heterogeneities.

The results of moderator analysis suggest that age did not moderate the associations between EMS, schema domains and anxiety symptoms among adolescents and young adults. The findings therefore provide additional support for considering adolescence and young adulthood as a broad transitional developmental phase. There is however comparatively little direct research evidence exploring and comparing the role of EMS across the 15 years or so of adolescence and young adulthood. Future research could therefore focus on comparing the prevalence and impact of different schemas in, for example, pubescence, late teenage years, and the early twenties.

Gender was found to significantly moderate the associations between overall EMS, other-directedness, and hypervigilance domains with anxiety symptoms. The results highlight that female are likely to have significantly predominant EMS and schema content related to other-directed and hypervigilance schema domains compared to males. The findings are consistent with previous research evidence that suggests the presence of significant gender differences in experiencing activated EMS among clinically diagnosed anxiety patients, with females scoring higher in schemas falling in other-directedness and hypervigilance schema domains (Shorey et al., 2013).

In addition, Welburn et al. (2002) has also identified gender differences with females experiencing higher schemas related to other-directed domain compared to their male counterparts. Neacşu (2016) reported the presence of significant hypervigilant schemas among women compared to men. The schema content of other-directed and hypervigilance schema domains usually involves feelings and beliefs related to emotional inhibition, excessive negativism, self-sacrifice and approval seeking. These are relational aspects that are typically more important for females compared to males. Social roles and cultural expectations might influence such gender differences, as females are in general more prone to sacrificing their personal needs for their significant others.

5.1. Limitations

The present meta-analysis has several limitations to consider. The literature search was limited to peer-reviewed journal articles and did not include grey literature such as unpublished theses, abstracts and conference proceedings. As a result, publication bias may have impacted on our current findings. Although we did not find any evidence of publication bias in our analysis, these were low power tests.

Further, a large number of studies ($n = 25$) were published in languages other than English that we could not include in our meta-analysis. This could limit the generalizability of our findings. In addition, some relevant studies ($k = 2$) could not be included in current meta-analysis because of the lack of effect size data required for meta-analytical results.

5.2. Clinical implications

Adolescence and early adulthood are usually described as distinct transitional phases marked with approximately identical biological, cognitive, psychosocial and psychological development (Institute of Medicine and National Research Council, 2014). An estimated 75% of mental health conditions have been identified to develop or have their onset during this time period (Singh et al., 2005), making it a critical and vulnerable life phase for the development of anxiety and related disorder. There is an urgent need to explore the development of mental health conditions during adolescence and young adulthood, to increase understanding of mental health issues with a view to designing effective early strategies or interventions (McGorry and Mei, 2018). Our current findings and those from another meta-analysis we recently carried out on depression (Tariq et al., 2021) suggest that it would be helpful for clinicians to consider maladaptive schemas contributing to anxiety and depression symptoms. Similar schema domains of disconnection/rejection, impaired autonomy/performance and other-directedness have been identified as precursors of both depression and anxiety symptoms. These overlapping schema domains suggests that individuals with depressive tendencies can be at risk of developing anxiety symptoms and vice versa. A better understanding of these potentially underlying factors could help devise targeted management and intervention plan based on the specific needs of each individual. Future interventions targeting vulnerability due to early maladaptive schemas would be of value and in fact the research team is currently piloting a self-help manual on young adults. Our findings here further suggest that these might most effectively focus on schemas of disconnection/rejection, impaired autonomy/performance and other-directedness in anxious adolescents and young adults. Earlier identification and management of mental health issues at this time of life could help clinicians to reduce future distress and societal cost (Arango et al., 2018).

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8. Author statement

We confirm that the manuscript has been read and approved by all named authors and that there are no other persons who satisfied the criteria for authorship but are not listed. We further confirm that the order of the authors listed in the manuscript has been approved by all of us.

CRediT authorship contribution statement

Asnea Tariq: Conceptualization, Data curation, Software, Formal analysis, Writing – review & editing. **Ethel Quayle:** Writing – review & editing. **Stephen M Lawrie:** Writing – review & editing. **Corinne Reid:** Conceptualization, Writing – review & editing. **Stella W.Y. Chan:** Conceptualization, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no conflict of interest.

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3.9. Chapter Conclusion

This chapter reports meta-analytical findings of previous empirical studies for the magnitude of associations between maladaptive schemas and anxiety symptoms among adolescents and young adults. Similar to the results of the last chapter, adolescents and young adults have significantly activated maladaptive schemas related to disconnection/rejection, impaired autonomy/performance, and other-directedness schema domain. There is no significant moderating effect of age on the associations between any EMS domains; however, gender did moderate the associations. These findings suggest a stronger association between EMSs and anxiety symptoms among females. Based on these findings and those in the last chapter, the associations between significant schema domains and depression and anxiety symptoms were further empirically tested using structural equation modelling, which will be reported in the following two chapters.

Chapter 4

Investigating the role of Self-compassion and Mindfulness in relation to Early Maladaptive Schemas and Depression using a Structural Equation Model

Based on the findings of the two meta-analyses, an empirical study was designed and conducted to explore the mediating effects of positive psychological constructs, i.e., self-compassion and mindfulness, between the association of maladaptive schemas and depressive and anxiety symptoms. These positive psychological constructs have been found to be effective in enhancing psychological well-being (see Chapter One and below). Encouragingly they are not fixed individual traits but rather modifiable attributes that can be taught and enhanced through targeted interventions (Amonoo et al., 2019). As such, research into them may be particularly informative for therapeutic development. The current chapter will focus on the association with depressive symptoms investigated in this empirical study.

4.1. Introduction

4.1.1. Defining Self-compassion

The concept of '*Self-compassion'* originated from general 'compassion', which is described as an individual's ability to recognise others' sufferings empathetically, accept people's feelings of pain and discomfort and desire to ease their sufferings (Ekman, 2003; Ekman, 2017). It further involves an individual's ability to non-judgmentally accept others' flaws, shortcomings and mistakes and regard them as human fallibility (Goetz et al., 2010; Goetz et al., 2017). Relatedly, self-compassion is defined and described as an individual's ability to act

compassionately towards oneself, i.e., being empathetic towards one's sufferings and emotions, accepting one's sense of pain and discomfort, having the desire to ease one's pain with kindness, and non-judgmental recognition of one's flaws, inadequacies and failures, such that an individual's experience is reflected as a part of more considerable human experience (Neff, 2003a; Neff, 2003b). Neff (2003a; 2003b) defined self-compassion as a positive and healthy attitude that involves an individual's relationship with oneself (MacBeth & Gumley, 2012).

In contrast, Gilbert (2009) described the evolutionary basis of self-compassion, which involves an interplay between threat, motivational, and soothing emotion systems, formulating a person's psychological and physiological reactions. The threat-based system helps detect and recognise the threatening situation, triggering an individual's survival mode. This threat-based system is closely linked with negative emotions, including anger, fear, shame, guilt, etc., experienced during stressful situations. On the opposite side, individuals possess two positive affect systems, i.e., the drive system (associated with intrinsic and extrinsic motivations and rewards) and the soothing system (linked with human needs for attachment). According to Gilbert (2009), the act of compassion or self-compassion results from an individual's social capacity to relieve threat-based triggers through their motivational and emotional soothing system, i.e., adapting to the empathetic feelings of self and others, expressing and communicating feelings of warmth and safeness, and soothing oneself with kindness and non-judgmentally (Liotti & Gilbert, 2011; Gilbert, 2014).

4.1.2. Components of Self-compassion

Neff (2003b) described three fundamental components of self-compassion that are conceptually distinct but combine and mutually interact to generate a compassionate frame of

mind (Neff & Dahm, 2015). Each of these three components has an opposite negative counterpart in the absence of each positive part (Barnard & Curry, 2011). These three components include: *(a). Self-kindness vs Self-judgement,* i.e., an individual's ability to extend empathy, forgiveness, warmth, sensitivity and acceptance in negative, stressful situations rather than engaging in rejecting, harsh and critical feelings, thoughts and behaviours (Neff & Davidson, 2016; Gilbert & Iron, 2005; Neff, 2003). *(b). Common Humanity vs Isolation,* this component includes people's ability to relate to other human beings and the ability to recognise their flaws, inadequacies and shortcomings as human experiences shared by everyone around, rather than feeling lonely, cut off or left alone to struggle in distressing situations (Neff & Davidson, 2016; Neff & Dahm, 2015; Neff, 2003a). Finally, *(c). Mindfulness vs Over-identification* is the last component that includes clear and balanced awareness and attention to present-moment experiences rather than avoiding or ruminating about stressful aspects of oneself or one's life (Neff & Davidson, 2016; Neff & Vonk, 2009).

Theoretical associations between these three components have been empirically explored, suggesting higher intercorrelations between all six factors with medium to large effect sizes (Neff et al., 2017). Neff (2003a) initially developed a measure of self-compassion comprising these six factors to tap the overall self-compassion component among individuals. Recently, researchers argued about the inclusion of negative counterparts into the broad definition of self-compassion (Muris et al., 2019; Muris & Petrocchi, 2017; Muris et al., 2016; Lopez et al., 2015). Muris and colleagues (2019; 2017; 2016) discussed that presence of compassionate factors is not always associated with the absence of uncompassionate factors. Further, the positive and negative items in the original self-compassion scale measure conceptually and theoretically distinct constructs, thus questioning the use of the overall total score for the measurement of self-compassion (Muris et al., 2019; Muris & Petrocchi, 2017; Muris et al.,

2016). In addition, Muris and Petrocchi (2017) also empirically found that the inclusion of negative factors inflates the associations between the overall measure of self-compassion and psychopathology.

4.1.3. Defining Mindfulness

'Mindfulness' is described as a positive psychological trait that involves cultivating mindful awareness and non-judgmental acceptance of one's momentarily changing experience (Hayes & Feldman, 2004; Kabat-Zinn, 1990). Different definitions of mindfulness have been described in previous years; however, one central concept is evident among all of these, i.e., purposeful attention to the present moment, emotions, thoughts and feelings in a non-judgmental way (Kabat-Zinn, 1994; Keng et al., 2011). Baer (2003; 2006) defined mindfulness as an individual's ability to non-judgmentally perceive the evolving stream of internal and external stimuli as they arise. Further to the attentional aspects of mindfulness, it has two additional components, i.e., self-regulation of attention and acquiring a particular orientation to one's experience (Bishop, 2004). Self-regulatory attention is an individual's ability to recognise, observe and anchor attention to present emotions, feelings or sensations while intentionally shifting attention to alternative aspects (Bishop, 2004). The orientational aspects of experience encompass an individual's attitude towards their experience, such as openness, curiosity and acceptability for the experiences without suppressing or over-engaging in these stressful stimuli (Bishop, 2004).

4.1.4. Components of Mindfulness

Similar to self-compassion, various components combined to form the Mindfulness construct have been identified. Baer et al. (2006) integrated elements of different mindfulness measures

into five distinct facets of Mindfulness. These five facets were identified as: *(a). Observing*, i.e., sensory awareness of external and internal stimuli, *(b). Description* involves stating an individual's experiences of stimuli in statements and words. (c). *Acting with Awareness* includes the ability to engage in mindful action in response to stimuli, (*d). Non-judgmental inner experience* enables people to practice unconditional empathy and self-acceptance of thoughts, feelings or emotions, and *(e). Non-reactivity* encompasses the ability to experience emotions, thoughts and feelings without getting carried with them, i.e., a healthy way toward emotional resilience and mental equilibrium (Baer et al., 2009; Baer et al., 2006). These theoretical facets of mindfulness have been empirically supported, with evidence suggesting a significant association between all five aspects of mindfulness (Christopher et al., 2012; Baer et al., 2008).

4.1.5. Association between Self-compassion and Mindfulness

Theoretically, self-compassion and mindfulness are proposed as closely related psychological traits originating in traditional Buddhist theories (Baer et al., 2011; Neff, 2009; Neff, 2003a). Also, mindfulness has been described as an essential component of self-compassion, thus, raising questions related to similarities and differences between these two constructs (Neff & Dahm, 2015). Self-compassion and mindfulness are often described as reciprocal behaviours that enhance and facilitate each other (Neff, 2003a, Baer et al., 2012).

Despite having some conceptual overlap between self-compassion and mindfulness, both constructs are distinct theoretically and applicably. Mindfulness has been suggested to focus on awareness, non-judgmental attention and non-resistance to the present emotions, thoughts and feelings (Greco et al., 2011), while on the contrary, self-compassion likely involves active engagement and actions utilised during stressful situations to activate the self-soothing system

(Neff & Pommier, 2013; Germer, 2009). In addition, mindfulness is a psychological trait that can exist at any moment or experience; self-compassion specifically exists during distressing, stressful situations (Bluth & Blanton, 2014; Germer, 2009). Furthermore, self-compassion is related to the global self, an individual's relationship to the sufferer or oneself, whereas mindfulness focuses on the individual's relationship with thoughts, feelings, and emotions (Baer et al., 2012). Additionally, it is believed that different physiological and neural systems are involved in generating self-compassion and mindfulness, thus suggesting a difference between the two psychological traits (Gilbert et al., 2009; Neff & Dahm, 2015). Based on these nuanced differences, researchers have suggested measuring self-compassion and mindfulness as two distinct constructs (Baer et al., 2012; Keng et al., 2011; Kuyken et al., 2010; Robins et al., 2012; Van-Dam et al., 2011).

4.1.6. Early Maladaptive schemas (EMS), Self-compassion and Depressive Symptoms

The concept of EMS and its association with depressive symptoms have been highlighted, and the findings of the meta-analysis were presented in the previous chapter two. The current chapter expands on the earlier research to explore the effects of self-compassion between these associations among young people.

Self-compassion has recently emerged as a potent factor that protects against developing and maintaining depressive disorders while enhancing emotional well-being (Zessin et al., 2015; Bluth et al., 2016). Previous literature evidence suggests significant negative associations between self-compassion and depressive symptoms among adults (Macbeth & Gumley, 2012; Lopez et al., 2018). Two further meta-analyses found a significant negative association between self-compassion and depressive symptoms among adolescents (Marsh et al., 2017; Pullmer et al., 2019). Additionally, a recent meta-analysis of 40 studies has specifically

explored the association among young people, i.e., 15 to 24 years of age, suggesting similar negative associations with a moderate-to-large effect size (Egan et al., 2022).

A recent study with undergraduate students explored the mediating effect of self-compassion among EMS and psychological distress, with findings suggesting a significant negative link between self-compassion with EMS and psychological distress, i.e., predominant maladaptive schemas were associated with negative, self-critical thoughts and evaluations. Further, self-compassion mediated the association between different EMS domains and psychological distress, with a medium to large effect size, recommending that low levels of self-compassion might be an essential mechanism through which EMS leads to the development of psychological symptoms (Thimm, 2017). However, these findings were generated using simple mediation analyses where results were generated separately for each schema domain rather than considering all EMS domains simultaneously. In addition, the results did not include any separate analyses for depressive symptoms. Further, the sample was limited to undergraduate student samples from one specific institution, thus making it hard to generalise the findings.

Similarly, in another study with young adults, Yankin et al. (2019) explored the mediating effects of self-compassion and emotional dysregulation between the associations of disconnection/rejection schemas and symptoms of psychopathology. The findings revealed that only self-compassion appeared to have a significant negative association and a robust mediating effect between the associations of disconnection/rejection schemas and psychopathology. Based on the findings, Yankin et al. (2019) suggested that self-compassion likely masked the effects of emotional dysregulation when both positive and negative dynamic strategies were considered together in a parallel mediational model. Likewise, in another study with undergraduate students, Faustino et al. (2020) found that self-compassion emerged as a

strong mediator between emotional schemas and psychopathological symptoms. The results further demonstrated that self-compassion likely masked the effect of mindfulness when both self-compassion and mindfulness were simultaneously observed as mediating variables (Faustino et al., 2020). The existing evidence suggests that self-compassion may be a potential mechanism by which maladaptive schemas influence subsequent psychological symptoms. Self-compassion has been primarily identified as an essential mechanism for reducing self-critical and judgmental self-evaluation when encountering dysfunctional thoughts, emotions, feelings and behaviours (Neff & Germer, 2022). However, previous research has been limited to small sample sizes, a lack of sophisticated computational modelling, and failure to include validated measures for depressive symptoms.

4.1.7. Early Maladaptive schemas, Mindfulness and Depressive Symptoms

In recent years, like self-compassion, Mindfulness has been recognised as an essential strategy to improve mental health outcomes (Goldberg et al., 2019). The efficacy of mindfulness based-interventions has been well-established in clinically depressed (Goldberg et al., 2019; Wang et al., 2018) and non-clinical youth samples (Reangsing et al., 2021; Chi et al., 2018: Zoogman et al., 2014). Literature evidence suggests that an increase in mindfulness traits may help in reducing symptoms of psychological distress, i.e., enhancing mindful awareness, observation and experiences of distressful thoughts, feelings and emotions in a decent and non-judgmental way can help an individual's emotional reactivity towards the negative emotions, thus reducing symptomatic expression (Tomlinson et al., 2018; Alsubaie et al., 2017; Gu et al., 2015).

A meta-analytical review of 77 studies showed a significant negative association between mindfulness and depressive symptoms among the general population, with a large effect size (Carpenter et al., 2019). An extensive amount of research shows that low levels of mindfulness

are associated with higher depressive symptoms among adolescents (Ma & Fang, 2019; Shambhu et al., 2018; Heath et al., 2016) and young adults (Jones et al., 2022; Thimm et al., 2017; Baker et al., 2016; Bajaj et al., 2016).

Additionally, limited literature has found strong negative associations between maladaptive schemas and mindfulness (Calvete et al., 2019; Martin et al., 2018; Flink et al., 2018; Shorey et al., 2015). These findings highlight the need for mindful awareness, attention and non-judgmental evaluation as a helpful mechanism to buffer the activation of maladaptive schemas (Calvete et al., 2019).

In addition to the direct association of mindfulness with EMS and depressive symptoms, research has also explored its role in mediating the link between EMS and depressive symptoms. Thimm (2017) examined the mediating effects of mindfulness alongside self-compassion in an undergraduate student sample. Mindfulness appeared to mediate the associations, individually and in the presence of self-compassion, between all five schemas domains with psychological distress (Thimm, 2017). These findings suggest that low mindfulness traits may increase experiential avoidance, which is often associated with predominant EMS (Rezaei et al., 2016). Enhancing an individual's mindful awareness and non-judgmental evaluation of maladaptive thoughts, feelings, and behaviours can help to buffer the effect of EMS on subsequent depressive symptoms (Thimm, 2017; Rezaei et al., 2016).

Furthermore, Faustino et al. (2020) found a statistically significant mediating effect of mindfulness between emotional schemas and psychological symptoms; however, mindfulness did not mediate this association in the presence of self-compassion, i.e., the mediating effect of mindfulness existed only as an individual mediator. This might have resulted due to shared

variance and conceptual similarities between self-compassion and mindfulness (Neff & Dahm, 2015). The findings were further limited to emotional schemas alone and did not specifically target the early maladaptive schemas as described by Young et al. (2003).

Recent research has longitudinally explored the bidirectional role of mindfulness facets between significant EMS domains of disconnection/rejection schemas and depressive symptoms among adolescents (Gómez-Odriozola & Calvete, 2020). The findings following a path analysis showed substantial mediating effects of two mindfulness facets, i.e., describing and acting with awareness between disconnection/rejection schemas and depressive symptoms. These findings suggest that disconnection/rejection schemas affect depressive symptoms indirectly through an individual's inability to adequately describe and act in a stressful situation Gómez-Odriozola & Calvete, 2020). Nevertheless, these findings are limited to disconnection/rejection schemas alone. Meta-analytical evidence presented in Chapter two suggests that impaired autonomy/performance is also a significant predictor of depressive symptoms and must be considered for exploring this pathway.

While the above studies raised hypotheses that self-compassion and mindfulness may influence the associations between depression and maladaptive schemes, previous research tended to be limited by sampling bias and a lack of advanced statistical analysis incorporating significant schemas within the same analysis, and an absence of robust depressive symptomatic measures. Therefore, this study sought to overcome these methodological limitations.

4.1.8 Aims of the current study

Based on the literature reviewed above and the results of the meta-analysis presented in chapter two, the present study aimed to explicitly evaluate the associations between schema domains,

self-compassion, mindfulness and depressive symptoms in a large, diverse sample of young people. The maladaptive schema domains of disconnection/rejection and impaired autonomy/performance had significantly higher associations with depressive symptoms among adolescents and young adults (See Chapter two). Therefore, the present study further explored the mediating effects of self-compassion and mindfulness between the associations of significant schema domains and depressive symptoms among young people using advanced statistical modelling techniques. The main hypotheses investigated in this study were:

(1). There will exist significant associations between all five schemas domains, self-compassion, mindfulness and depressive symptoms among young people.

(2). Higher predominant disconnection/rejection schemas, impaired autonomy/performance schemas, self-compassion and mindfulness will directly predict depressive symptoms.

(3). Self-compassion and Mindfulness will indirectly mediate the relation between two schema domains (i.e., disconnection/rejection and impaired autonomy/performance schemas) and depressive symptoms while controlling for gender and age.

4.2. Methods

4.2.1. Design Overview

The current study employed a cross-sectional research design and assessed the presence and relationships of early maladaptive schemas and subsequent psychological symptoms using four standardised measures.

4.2.2. Sample Size and power calculations

Structural equation model (SEM) requires a large sample size to make logical inferences and conclusions regarding the hypotheses, making it a tiring task, especially for a complex model with many parameters involved (Kline, 2011). Jackson (2003) has suggested the *N:q rule* of thumb to estimate the sample size (N) based on the number of parameters (q) involved in the hypothesised model. A generally accepted 20:1 (20 participants per parameter) is primarily recognised and proposed by Kline (2011), suggesting a minimal sample of 400 participants for the current hypothesised model with 20 parameters.

The sample size required for the current research was also calculated using an anticipated effect size with desired statistical power and probability level. The optimal number of participants was estimated using an a *priori* sample size calculator available online (http://www.danielsoper.com). A minimum sample of 911 participants was required using a small-anticipated effect size at 0.1, and 80% desired statistical power. The statistical significance was set at a recommended level of 0.05, which helps to increase the confidence level of the research findings.

4.2.3. Participants

Based on the above power calculation, a total sample of 946 young people between 16-25 years (*M* = 20.82, *SD* = 2.75) was recruited. Participation was voluntary using an online survey. The majority of the sample was young females (72.2%) with White ethnicity (68.1%). See Table 4.1. for the demographic characteristics of the participants.

Table 4.1. Demographic Characteristics of the Participants (N = 946)

Demographic Variable	Frequency	Percentage (%)	Mean age	Std. Deviation
Gender				
Males	221	23.4%	20.48	2.90
Females	683	72.2%	20.92	2.65
Other/ Not specified	42	4.4%	20.93	3.34
Age			20.82	2.75
Ethnicity				
White	644	68.1%		
Black	42	4.4%		
Asian	105	11.1%		
Mixed	69	7.3%		
Other	74	7.8%		
Not disclosed	12	1.3%		

Furthermore, nearly half of the included sample had normal to moderate depression (48.5%) and anxiety scores (49%). Nearly 55% of the young people that took part in the present research had higher scores on maladaptive schemas, i.e., above cut-off 3, which is indicative of the predominant higher existence of maladaptive schemas (Young et al., 2003). While at the same time, the included majority of young people had lower levels of self-compassion (48.6%) and mindfulness (57.5%) attributes. See Table 4.2. for the clinical characteristics of the study participants.

Table 4.2. Clinical Characteristics of the Participants (N = 946)

Demographic Variable	Frequency	Percentage (%)	Means	Std. Deviation
Depression Level			20.75	12.66
Normal	214	22.6		
Mild	96	10.1		
Moderate	177	18.7		
Severe	130	13.7		
Extremely Severe	329	34.8		
Anxiety Level			15.95	10.76
Normal	227	24.0		
Mild	76	8.0		
Moderate	180	19.0		
Severe	102	10.8		
Extremely Severe	361	38.2		
Early Maladaptive Schemas			3.13	0.86
Below cut-off score	424	44.8		
Above cut-off score	522	55.0		
Self-compassion Level			2.57	0.74
Low	460	48.6		
Moderate	380	40.2		
High	106	11.2		
Mindfulness Level			42.71	8.77
Below average	544	57.5		
Above average	402	42.5		

Based on the sample characteristic, it appears that a significant proportion of the sample had normal to moderate levels of depression and anxiety, which suggests that they may be experiencing some symptoms but are not severe enough to meet the diagnostic criteria for a disorder. Additionally, the prevalence of maladaptive schemas among the sample and lower levels of self-compassion and mindfulness may indicate potential areas for targeted

interventions to improve mental health outcomes for young people. It is important to note that the study's findings are specific to the sample included and may not be generalisable to all populations. Further research is needed to explore these issues in different contexts and with diverse populations.

4.2.4. Ethical Approval and Considerations

The research study was reviewed and approved by the Clinical and Health Psychology Ethics research panel at the School of Health in Social Science, University of Edinburgh (See Appendix- D). Participants were provided with a participant information sheet explaining the rationale and procedure of the research (See Appendix- E). The ethical considerations were followed carefully throughout the study. The participant information sheet also detailed the procedure to ensure the participant's confidentiality, anonymisation and procedure for data storage. Participants were aware of their rights to withdraw from research without any penalty or consequences. They were also allowed to ask questions and were provided with contact details of the research team if they wished to contact before or after the survey completion. An electronically filed consent form was completed before accessing the online survey (See Appendix- F).

The data protection guidelines provided by the University of Edinburgh were followed during the electronic data storage. Participants' information was anonymised after completion of the survey, and any identifiable information was secured separately against the participant's identification number. A debrief sheet was also provided to participants towards the end of the survey, which listed specific hotlines and organisations they could contact in case of feeling distressed or seek professional mental health support (See Appendix- H).

4.2.5. Procedure

An online survey was used for data collection explicitly designed to target the current research. The survey platform, Bristol Online Surveys, was used, which was secure, and password protected to keep the confidentiality intact and prevent potential data loss. Data was only accessed using a secure university's VPN server. The survey was made live, and data collection was carried out from October 2019 to October 2020. The survey system was advertised online using multiple sources such as psychology-relevant blogs, websites and social networks like Twitter, Facebook and Reddit. This enabled collection of extensive and diverse data from individuals from different ethnicities and communities.

4.2.6. Measuring Instruments

Five standardised measures with well-established psychometric properties were used. They were also chosen to be age appropriate based on previous research with adolescents and young adults. The internal consistency of each measure was also assessed in the present sample and reported below. Of note, no measure showed a Cronbach's alpha below the acceptable range of 0.70 (See Table 4.3).

4.2.6.1. Young Schema Questionnaire-Short Form, 3rd Edition (YSQ-S3; Young, 2005)

YSQ-S3 is a self-report measure used to assess the presence of early maladaptive schemas among participants. The YSQ-S3 measure comprises 90 items assessing 18 individual schemas grouped in five major schema domains of (i) Disconnection/Rejection, (ii) Impaired Autonomy and Performance, (iii) Other-directedness, (iv) Impaired Limits and (v) Hypervigilance/ Inhibition. The items were rated on a 6-point rating scale, with '1' corresponding to *'completely*

untrue of me' and '6' signifying '*describes me perfectly.'* On each schema, higher scores indicate the higher existence of particular schemas.

The measure has well-established psychometric properties for both adolescents (Camara & Calvete, 2012; Van Vlierberghe et al., 2010; Lumley & Harkness, 2007) and young adults (Calvete et al., 2013; Eberhart et al., 2011) with values of internal consistencies higher than 0.70 for all schema domains as well as higher test-retest reliabilities were identified while exploring factor structures for YSQ-S3 (Lumley & Harkness, 2006; Baranoff et al., 2006). The internal consistency for total YSQ-S3 in the current sample was high, with Cronbach's α = 0.97. Internal consistency for all five schema domain domains was between 0.95 for disconnection/rejection schemas and 0.80 for impaired limits. See Table 4.3. for internal consistencies for each schema domain.

4.2.6.2. The Self-compassion Scale (SCS; Neff, 2003)

The Self-compassion scale comprises 26 items to assess the levels of self-compassion among participants. The items were rated on a 5-point Likert scale with values ranging from 1 to 5, where '1' means *'almost never'* and '5' refers to *'almost always*.' Neff (2003) suggested the use of both total scores to identify the overall levels of self-compassion as well as has identified six different subscales: (i) Self-Kindness, (ii) Self-Judgement, (iii) Common Humanity, (iv) Isolation, (v) Mindfulness and (vi) Over-Identification. In the present study, participants used a total mean score for SCS, with higher scores corresponding to higher self-compassion. The SCS measure has strong psychometric properties with an internal consistency of 0.92 for the total SCS score and 0.93 for test-retest reliability in an undergraduate student sample (Neff, 2003). In similar studies using SCS with adolescent and young adult samples, the internal consistency was found to be 0.90 (adolescents) and 0.93 (young adults), supporting an excellent

internal consistency for the scale (Neff & McGehee, 2010). Cronbach's alpha for the total SCS scale in the present study was 0.93.

4.2.6.3. Five-Facet Mindfulness Questionnaire-short form (FFMQ-15; Baer et al., 2012)

A 15 items FFMQ scale was used to assess five areas of mindfulness, (i) Observing, (ii) Describing, (iii) Acting with awareness, (iv) Non-judging, and (v) Non-reactivity. The items were rated on a 5-point scale, with the lowest value '1' showing 'never or very rarely true' and the highest value of '5' referring to *'very often or always true*.' The mindfulness measure is considered a reliable scale, with Cronbach's alpha ranging between 0.70 to 0.87 for all five facets of mindfulness (Gu et al., 2016; Bohlmeijer et al., 2011). Baer et al. (2006) found that all the mindfulness facets closely described the overall mindfulness construct; thus, an overall total score can be used to measure mindfulness. Therefore, in the present study, a total mindfulness score was computed, summing the scores for all mindfulness facets, with higher scores corresponding to higher mindfulness among participants. The internal consistency of the total FFMQ in the current study was 0.77.

4.2.6.4.Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995)

The DASS-21 is a self-report measure used to assess depression, anxiety and stress scores for the participants. The measure comprises 21 items grouped into three categories of depression, anxiety and stress scores, with each type comprising 7 items. Participants rated each item on a 4-point scale from 0 (*does not apply)* to 3 (*applied to me very much*). Separate scores were computed for depression and anxiety subscales, with higher scores corresponding to higher depressive and anxiety symptoms among the participants. The measure has excellent psychometric properties in clinical and non-clinical samples, with internal consistencies

between 0.82 to 0.97 for three subscales (Henry & Crawford, 2005; Lovibond & Lovibond, 1995). In the current sample, the Cronbach alphas for depression and anxiety subscale were 0.91 and 0.84, respectively.

Table 4.3. Cronbach alpha's, Mean and SD for the measuring instruments.

Measures	**No of items *(k)***	**Cronbach's Alpha (α)**	**Mean *(M)***	**Std. Deviation *(SD)***
Young Schema Questionnaire (YSQ-SF3)	90	0.97	284.61	81.34
(i). Disconnection/Rejection Schema	25	0.95	82.44	30.59
(ii). Impaired Autonomy/Performance	20	0.91	56.25	20.35
(iii). Other-Directedness	15	0.85	47.64	13.86
(iv). Impaired Limits	10	0.79	29.09	88.06
(v). Hypervigilance	20	0.91	69.20	19.91
Self-compassion Scale (SCS)	26	0.93	61.54	17.816
Five Facet Mindfulness Questionnaire (FFMQ)	15	0.77	42.71	8.77
Depression Anxiety Stress Scale (DASS-21)	21	0.93	28.58	14.65
(i) Depression	7	0.91	10.38	6.33
(ii) Anxiety	7	0.84	7.97	5.381

4.2.7. Statistical Analysis

All statistical analyses were conducted using IBM Statistics version 25 (Statistical Package for Social Sciences). The main hypotheses were tested using correlations and mediational analysis. The Pearson product-moment correlation was used to assess the hypotheses 1 and 2, i.e., the associations between five schema domains, self-compassion, mindfulness and depressive symptoms. Further, hypotheses 3 to 5 were examined using direct and indirect mediational pathways using structure equation modelling (SEM). The computational and modelling software, Mplus version 7.31 (Muthén & Muthén, 2011-2015) was employed to conduct the SEM analysis.

4.2.8. Data Screening

Before analysing data for hypothesis testing using SEM, the original data set was screened for the assumptions described below to ensure the appropriateness of the planned analysis.

4.2.8.1. Missing data

Case screening was carried out to assess missing values among the available data. No missing values were found on the items of YSQ-SF, SCS and FFMQ. A few of the Items on DASS had ≤ 5% missing values, proposing that the dataset can be used further for statistical analysis through necessary imputations without fearing the issues of bias (Kline, 2011; Bennet, 2011). Among the various described methods of data imputation, the person's mean substitution method was used, where the mean scores of each participant on the DASS scale were computed and replaced with missing values where needed (Moniek et al., 2003).

4.2.8.2. Outliers

The data were screened for both univariate and multivariate outliers. No significant univariate outliers were found while examining the Stem and Leaf, and Box plots for total scores of DASS. Only a few outlier cases emerged on measures of YSQ schema domains, SCS and FFMQ. In addition, multivariate outliers were also identified using the Mahalanobis distance (D) statistic calculated using the linear regression method in SPSS. The corresponding significance values were calculated for Mahalanobis statistics and examined to determine the outliers' cases with significant extreme scores on two or more variables. A conservative significance value of $p < 0.001$ was considered a considerable outlier. Only four cases were identified as outlier cases; they were initially removed from the raw data but were retained for the final analysis as they were found to have no significant impact on the results.

4.2.8.3. Multivariate normality

Another critical assumption for SEM is to ensure that data is multivariate normal, i.e., the distribution for each variable is normal, and the joint distribution of any pair of variables is also normally distributed. It is challenging to assess multivariate normality for all the variables. Therefore, Kline (2011) recommended the inspection of the univariate normality of data to ensure the existence of a multi-normality. The absolute indexes of skewness and kurtosis were examined to identify the univariate normality with none of the indexes above ± 3 and ± 10 for skewness and kurtosis, respectively, the recommended cut-off for extremely skewed and kurtotic data (Kline, 2011). Further, Kim (2013) recommended considering absolute skewness and kurtosis values for larger samples greater than 300 participants. The skewness and kurtosis values were examined on both individual items and the total scale score to ensure that the available data were normally distributed and appropriate for all preliminary analyses and SEM (See Table 4.4). According to Byrne (2012), despite confirming univariate normality in sample data, there still exists a chance that the data is not normally distributed at the multivariate level; thus, the normally distributed assumption will be violated for SEM, and the use of default model estimators will produce biased results (explained further in section 4.2.10.3).

Table 4.4. Skewness and Kurtosis values with Standard Error (SE) for main variables

Variable	Skewness value	Skewness SE	Kurtosis	Kurtosis SE
Disconnection/Rejection schemas	0.087	0.080	-0.822	0.159
Impaired Autonomy/ Performance schemas	0.34	0.080	-0.494	0.159
Other-directedness schemas	0.086	0.080	-0.337	0.159
Hypervigilance schemas	0.006	0.080	-0.438	0.159
Impaired Limits schemas	0.249	0.080	-0.227	0.159
Mindfulness (FFMQ)	0.042	0.080	-0.082	0.159
Self-compassion (SCS)	0.246	0.080	-0.416	0.159
Depression	0.102	0.080	-1.156	0.159
Anxiety	0.417	0.080	-0.695	0.159

4.2.8.4. Collinearity Diagnostics

The data was further screened for multicollinearity among the independent variables. The presence of extreme multicollinearity violates an essential assumption of SEM, suggesting that two or more variables measure exactly similar constructs and are considered redundant when used in similar model specifications. Firstly, the multicollinearity was assessed using squared multiple correlations between each independent variable in SPSS, where none of the correlation coefficients between the independent variables was above 0.80, which is assumed to show higher collinearity among the variables (Kline, 2011). In addition, collinearity was also assessed by examining tolerance statistics and variance inflation factor (VIF) generated using linear regression in SPSS. The values of tolerance less than 0.10 and VIF greater than 10.0 show extreme multicollinearity among the variables (Field, 2013; Kline, 2011; Hair Jr et al., 2010;). The data analysis shows that all variables had tolerance values above 0.20 and VIF statistics less than 10.0, indicating the absence of multicollinearity among the variables (See Table 4.5.).

Table 4.5. Multicollinearity Test based on Tolerance and VIF statistics.

Variable	Tolerance	VIF
Disconnection/Rejection schema	0.23	4.31
Impaired Autonomy and Performance schema	0.29	3.50
Other-Directedness schema	0.42	2.40
Hypervigilance schema	0.31	3.28
Impaired Limits schema	0.55	1.81
Mindfulness (FFMQ)	0.56	1.77
Self-compassion (SCS)	0.45	2.22
Depression	0.45	2.85
Anxiety	0.35	2.85

4.2.9. Structural Equation Modelling (SEM)

SEM is a multivariate statistical methodology employed to assess and evaluate the relationships between continuous or categorical, independent and dependent variables. SEM is not a technique for any particular analysis; instead, it is an umbrella term used to cluster several related statistical procedures under one basic paradigm (Kline, 2011). Confirmatory factor analysis (CFA) with the Structural equation modelling (SEM) approach was chosen for the current study. A combination of factor analysis and path analysis was examined to test the hypotheses. Based on this approach, each SEM model comprises two parts, (i) a *measurement model* assessing the latent variables based on indicator items (items of different measuring instruments combined to provide a composite score for a particular measure) and (ii) a *structural model* testing hypothesised pathways among different latent variables using series of regression coefficients (Byrne, 2012; Kline, 2010).

4.2.9.1. Advantages of choosing SEM

SEM has been primarily used in complex analysis compared to regression and mediational analysis for identifying predictive and indirect associations due to its definite advantages:

Firstly, SEM, despite appearing similar to simple regression analysis, is fundamentally different from regression and mediational analysis because of its distinct ability to treat the same variable as the independent and dependent variable in the same hypothesised model (Byrne, 2012; Kline, 2010). Secondly, SEM provides an appropriate framework to treat variables as cause and effect in one single model compared to the traditional mediation or regression framework, where variables are allocated as cause or effect based on a *priori* assumption (Kraemer et al., 2001). Thirdly, SEM can also allow multiple mediators and independent and dependent variables to be included in one single model, allowing ease of estimation and interpretation within one framework compared to PROCESS, which is restricted to only one independent and dependent variable in each model testing (Gunzler, 2013; Imai et al., 2010). Additionally, SEM analysis provides researchers with model fit indices to identify the reliability of hypothesised models on available data, allowing them to make plausible causal interpretations (Gunzler, 2013; Imai et al., 2010). Finally, the standard procedures for mediational analysis explained by Baron and Kenny (1986) or Hayes (2013) are low-powered compared to complex SEM analysis (MacKinnon, 2008), making it a better choice for researchers to estimate complex hypothesised models.

4.2.10. Steps of SEM

In the present research, all steps identified by Kline (2010) were carefully followed for SEM hypothesis testing. The following flowchart (Figure. 4.1.) outlines the basic steps followed in SEM, which are further explained in detail.

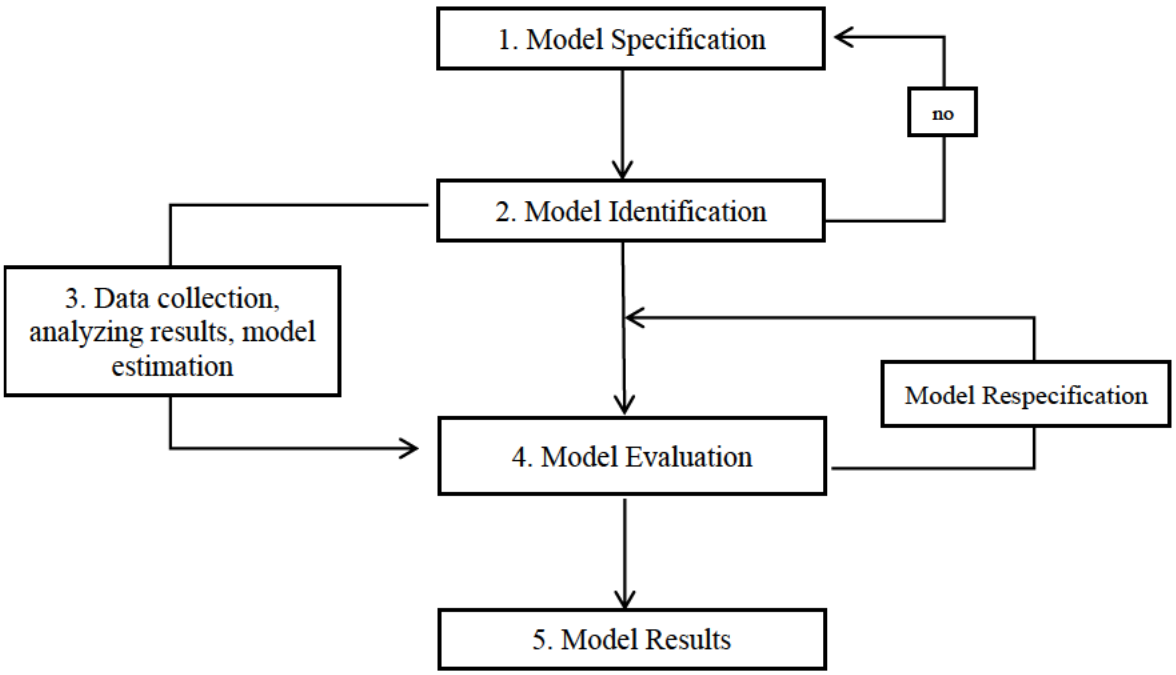


Figure. 4.1. Basic Steps for Structural Equation Modeling (adapted from Kline, 2010)

4.2.10.1. Model Specification. The first step in SEM involves a schematic representation of the hypothesis using a combination of geometric shapes and symbols: oval, rectangles and arrowheads. The following SEM model in Figure 4.2. describes the hypotheses for the current study. The oval shapes signify the latent variables (unobserved variables), while rectangle shapes represent the observed variables (indicator items that constitute the latent variable). The single-headed arrowhead represents the directional relationship between different variables. The hypothesised model was then statistically specified in Mplus using the input language specific to the software (Muthén & Muthén, 2011-2015).

4.2.10.2. Model Identification. This step ensures that the model specified in step 1 is empirically testable by considering the degrees of freedom. SEM researchers describe degrees of freedom $df \geq 0$ as the basic rule of thumb to proceed with the analysis (Byrne, 2012; Kaplan, 2009). In SEM, an over-identified model (with degrees of freedom greater than 0) is preferred where the number of available observations or data points exceeds the estimated parameters. Mplus software automatically provides an error message when the model is under-identified due to negative degrees of freedom ($df < 0$) or when there are fewer data observations available to estimate all the parameters specified in the model (Kline, 2010). Additionally, model identification was ensured by fixing factor loadings (regression coefficients) for the first indicator variable in each latent variable to 1.00, which is achieved by default in Mplus software. Furthermore, to identify the model appropriately, it is essential to have a minimum of three indicator items per latent variable for SEM analysis (Kline, 2010; Ullman, 2006). In the current study, there were 3 to 6 indicator items for all the latent variables used in the analysis.

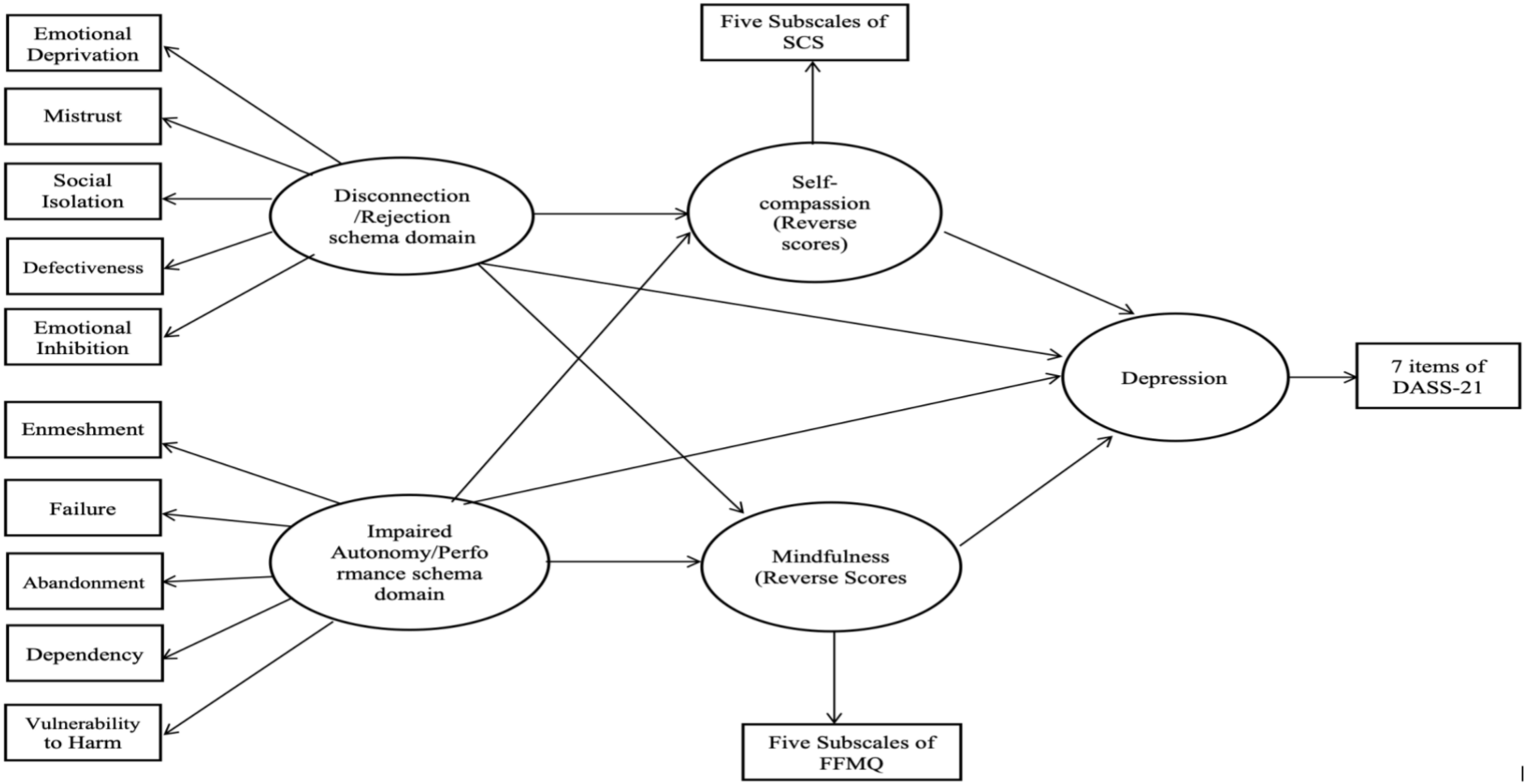


Figure 4.2. Hypothesised Structural Equation Model with Latent and Observed Variables for Depressive Symptoms

4.2.10.3. Model Estimation. The Maximum Likelihood estimator is a default estimation method in Mplus. It is preferred mainly because it provides precise estimates when the data is normally distributed, which occurs only for continuous variables (Kline, 2010; Ullman, 2006). The ML method is considered a full-information method as it estimates all model parameters simultaneously, yielding unbiased, reliable and efficient results. However, as described previously, despite having ensured the univariate normality in our sample, the models tested using an ML estimator would invalidate the statistical results due to multivariate non-normality.

Byrne (2012) suggested a method of testing models using both ML and robust estimators, such as the MLM estimator with Satorra-Bentler Chi-square adjustment. The chi-square statistics were compared in both models to assess the existence of multivariate non-normality. If the chi-squares value difference between the two models is negligible, it suggests that the data have met the assumption of multivariate normality; however, the large discrepancy between chi-square statistics shows that it is not multivariate normal, and robust estimators are a reasonable base for further analysis. Based on this approach, the model showed different chi-square statistics using both estimators; therefore, all further model testing was done using robust estimator MLM with Satorra Bentler chi-square adjustment.

4.2.10.4. Model Evaluation. The model evaluation process helps researchers accept or reject the hypothesised model after specifying and estimating the model based on the following two characteristics of the results:

(4.a). Evaluation of model fit indices. The model fit indices describe how well the hypothesised model explains sample data or fits the data. The SEM community has described

different fit indices with different cut-off values; however, Kline (2010) argues the need for caution while generalising these cut-offs as the gold standard and carefully considering all factors while analysing your results. The most widely used fit index is the model chi-square statistics (χ^2_M), where a non-significant value closer to zero suggests a perfectly fitted model. However, the chi-square statistics is highly sensitive to sample sizes, where χ^2_M tends to increase with larger sample sizes and almost always rejects the proposed model with larger samples (Kline, 2010), making it unlikely to rely solely on χ^2_M statistics for identifying the model fit for our sample (N = 946). In the present study, the absolute fit indices (RMSEA and SRMR) and incremental fits (CFI and TLI) will be considered to evaluate the hypothesised model's fit.

The absolute fit indices evaluate how well the proposed *priori* model fits the sample data compared to when no model was proposed (Jöreskog and Sörbom, 1993). The Root means square error of approximation (RMSEA) value ranges between 0-0.10, with RMSEA $\leq$ 0.08 considered a good fit while values between 0.08-0.10 as a mediocre fit (MacCallum et al., 1996). Hu and Bentler (1999) have recommended a cut-off RMSEA $\leq$ 0.06 as a good fit model. Similarly, Standardized root means square residual (SRMR) $\leq$ 0.05 indicates a good-fitting model (Byrne, 1998), while Hu and Bentler (1999) consider SRMR $\leq$ 0.08 as an indicator of a good-fitting model.

The incremental fit indices evaluate the estimated model compared to a baseline model, where all variables are considered uncorrelated (Bentler, 1990; Tucker & Lewis, 1973). The commonly used incremental fit indices of Comparative fit index (CFI) and Tucker-Lewis Index (TLI) are considered for this study, with a cut-off value greater than 0.90 representing an

acceptable model, while values greater than 0.95 representing an excellent fitting model (Hu & Bentler, 1999).

RMSEA and SRMR ≤ 0.08 and CFI and TLI ≥ 0.90 are cut-off thresholds for a good/acceptable fitting model for the current SEM analysis.

(4.b). Interpretation of parameter estimates. The second step in evaluation involves estimating the significant parameters in the model. The Mplus provides both standardised and unstandardised estimates for model parameters. The path coefficients, also referred to as regression coefficients with values significantly greater than zero, represent the hypothesised relationships among latent and observed variables within the hypothesised model.

Once the model has been identified to fit the data and parameter estimates are found appropriate, the individual significance of model parameters can be examined (i.e., if the individual parameter estimates were different from zero). This can be achieved by finding the ratios of the parameter estimate to their standard errors (often called z-value). The parameter is considered statistically significant at 0.05 if the z-values $\geq \pm 1.96$ (Lei & Wu, 2007).

(4.c). Bootstrapping. A non-parametric approach described by Preacher and Hayes (2008) was used to analyse the indirect pathways in SEM along with an ML estimator. This resampling technique allows repeated draw of n samples from the given data to make the empirical distribution of parameter estimates and provides 95% Cl's for the indirect effects. The method ensures the normal distribution is considered when calculating standard errors, despite non-normality in the sample data. With bootstrapping technique, Cl's were used for the null

hypothesis testing with the absence of zero in lower and upper bounds indicative of indirect effects to be significantly different from zero (Preacher & Hayes, 2008).

4.2.10.5. Presenting Model Results and modifications. The specified, identified, and evaluated models will be reported following the proper guidelines described in Kline (2010) and Byrne (2012). When the specified model fails to fit the sample data, modifications will be done to achieve a better-fitting model based on theoretical grounds and the literature available.

4.3. Results

4.3.1 Bivariate Correlations (Hypothesis 1)

Pearson Product moment correlations were examined to assess the relationship between variables. As seen in Table 4.6. significant associations were found among all variables at $p < 0.001$. Consistent with hypothesis 1, all schema domains were positively correlated with depressive symptoms, with medium to large effect sizes. In addition, self-compassion and mindfulness were negatively associated with all five schema domains and depressive symptoms, supporting hypothesis 1. The effect sizes were larger for the associations of self-compassion with all other variables (medium to large effect sizes) compared to mindfulness, where effect sizes were between small to medium.

Table. 4.6.

Pearson Product Moment Correlations between Maladaptive schema domains, Mindfulness, Self-compassion and Depressive symptoms (N= 946)

Variables	DR	IA	OD	HV	IL	EMS	SC	MF	Dep
Disconnection/Rejection (DR)	-	.75**	.62**	.75**	.58**	.89**	-.60**	-.49**	.66**
Impaired Autonomy (IA)		-	.66**	.73**	.64**	.90**	-.55**	-.47**	.62**
Other Directedness (OD)			-	.65**	.52**	.81**	-.44**	-.34**	.40**
Hypervigilance (HV)				-	.50**	.86**	-.55**	-44**	.59**
Impaired Limits (IL)					-	.76**	-.39**	-.33**	.45**
Total Schema score (EMS)						-	-.60**	-.50**	.65**
Self-compassion (SC)							-	.61**	-.64**
Mindfulness (MF)								-	-.49**
Depression (Dep)									-

Note. ** indicates significance at $p < 0.001$.

4.3.2. Testing the Hypothesised Model

The hypothesised model presented in Figure. 4.2. was first validated for the measurement model using confirmatory factor analysis (CFA). Initially, all latent variables and their indicator variables were tested using a pooled CFA that did not converge; therefore, separate measurement models were evaluated for each latent construct before conducting a pooled measurement model (as suggested by Byrne, 2012; Awang, 2015). The uni-dimensionality of measurement models was ensured by assessing items' factor loadings on their respective latent constructs, indicating that all items measure the same latent factor. According to Awang (2015), items should have factor loadings above 0.6 for an already standardised measuring instrument.

4.3.2.1. Measurement Model for Early Maladaptive Schemas (YSQ-short 3rd form).

Young's original scale comprised 18 first-order schema factors and 5 higher-order schema factors for the original scale. However, a 3 higher-order a priori model with 18 first-order schemas was evaluated for the current study. The decision was based on previous research where the three-factor solution has been proposed for the YSQ measure (Calvete, Orue & Gonzalez-Deiz, 2013). A vast array of literature supports the existence of two significant and stable schema domains, disconnection/ rejection and impaired autonomy/performance, while the other three schema domain appears to be less stable when factor structures are evaluated (Calvete et al., 2005; Calvete et al., 2013; Lee et al., 1999; Hoffart et al., 2005). Further, to simplify the complexity of our model, only schema domains of disconnection/rejection and impaired autonomy/performance were included in the hypothesised model because they have the most robust associations with depressive symptoms (this has been consistent with the findings of meta-analytical results provided in chapter two). The result of the correlational

matrix also shows that in the current sample, schema domains of disconnection/rejection and impaired autonomy/performance have significantly higher effect size correlations (0.66 and 0.62, respectively) with depressive symptoms.

The confirmatory factor analysis for 3 higher order schema domains with 18 schemas moderately fit the sample data of 946 participants with model fit indices, χ^2 (2125) = 8497, $p < 0.001$, CFI = 0.86, TLI = 0.85, SRMR = 0.066, RMSEA (90% CI) = 0.051 (0.050 to 0.052). All factor loadings of the indicator variables were positive and significant at $p < 0.001$, with no factor loading below 0.6.

The confirmatory factor analysis of an *a priori* model hypothesized with two schema domains of disconnection/rejection and impaired autonomy/performance showed an adequate fit to the data with fit indices of χ^2 (1314) = 6432, $p < 0.001$, CFI = 0.89, TLI = 0.89, SRMR = 0.057, RMSEA (90% CI) = 0.050 (0.048 to 0.052). To improve the measurement model, modifications were made through careful assessment of the factor loading of each indicator item and R^2. The items with factor loadings below 0.6 and $R^2 < 0.4$ were deleted, as a result, the final measurement model emerged with 37 indicator variables, 12 first-order factors and two higher-order factors of disconnection/rejection schemas and impaired autonomy/performance schemas. The emerged model adequately fits the sample data with fit indices, χ^2 (618) = 3117, $p < 0.001$, CFI = 0.91, TLI = 0.90, SRMR = 0.062, RMSEA (90% CI) = 0.058 (0.056 to 0.060). The factor loadings were significant at $p < 0.001$, $R^2 > 0.4$ and all the z-scores were above ± 1.96. The measurement model of disconnection/rejection and impaired autonomy/performance schemas is presented in Figure. 4.3.

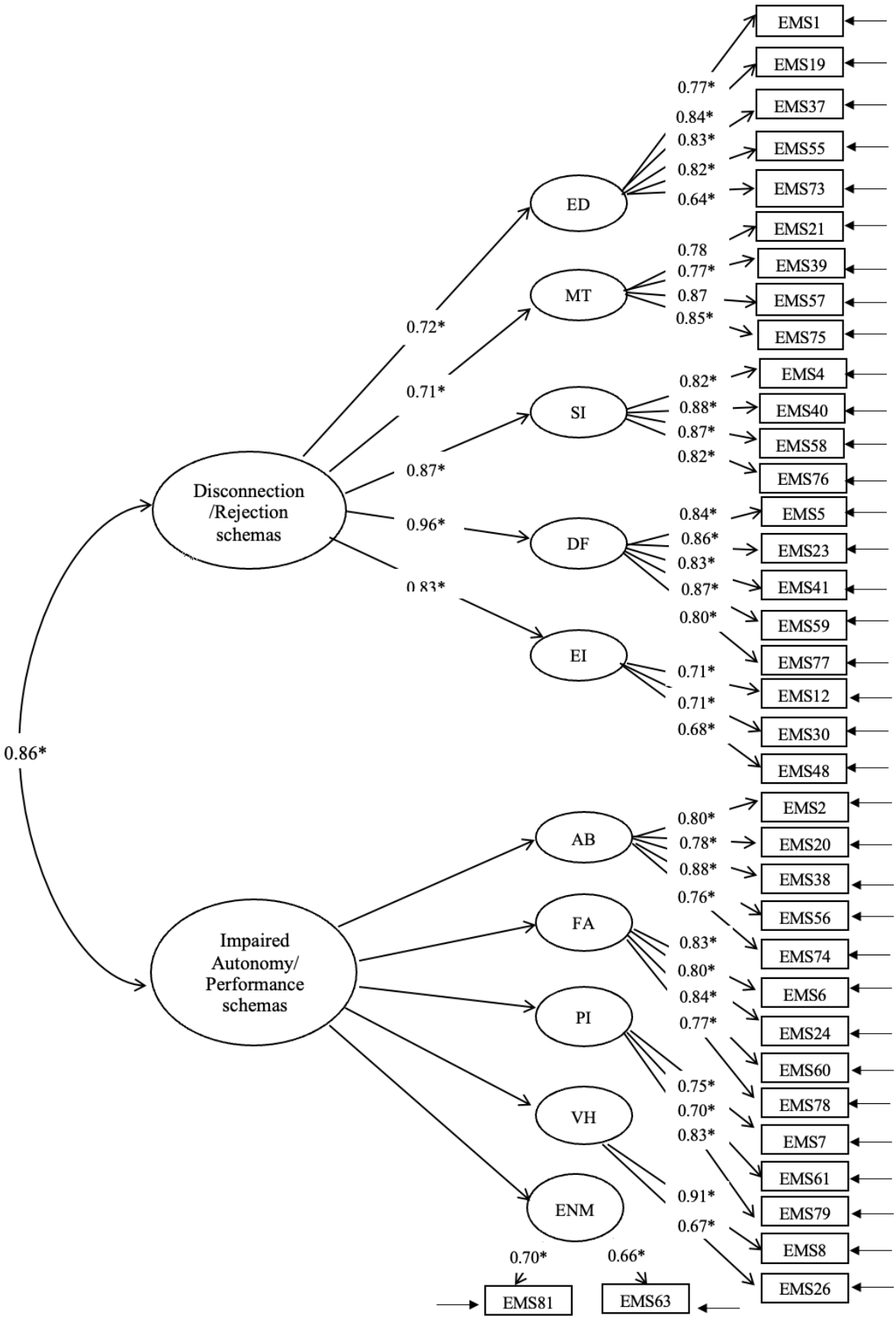


Figure 4.3. Confirmatory Factor Model for Disconnection/Rejection and Impaired Autonomy/performance schemas with MLM estimator, N = 946. All coefficients are statistically significant at *$p < 0.001$.

4.3.2.2. Measurement Model for Self-compassion Scale (SCS-24)

In the present research, the inverse self-compassion score was used such that higher scores indicate lower self-compassion. An *a priori* model with one higher-order factor of self-compassion formed using six first-order factors of self-kindness, self-judgement, common humanity, isolation, mindfulness and over-identified was hypothesised as proposed by Neff (2003). The hypothesized model poorly fits the sample data with fit indices, χ^2 (224) = 1894, $p < 0.001$, CFI = 0.85, TLI = 0.83, SRMR = 0.084, RMSEA (90% CI) = 0.080 (0.077 to 0.084). This was consistent with previous research where the hierarchal higher-order model failed to fit the sample data adequately while evaluating the confirmatory factor structure of SCS using Neff's model (Kumlander et al., 2018; Muris & Petrocchi, 2017; Costa et al., 2016; Lopez et al., 2015).

A two-factor model of self-compassion has been proposed to describe two distinct categories adequately; self-compassion and self-coldness, formed using the positive and negative items, respectively (Lopez et al., 2015; Costa et al., 2016; See section 4.1.2 for details). An *a priori* two-factor model was tested for the current sample, which showed adequate fit to the sample data with fit indices, χ^2 (245) = 1523, $p < 0.001$, CFI = 0.89, TLI = 0.88, SRMR = 0.057, RMSEA (90% CI) = 0.068 (0.064 to 0.071). After evaluating factor loadings of each indicator variable, modifications were carried out on the model by removing five items, resulting in a measurement model with 19 indicator variables and 7 latent factors which fit adequately to the sample data with fit indices, χ^2 (146) = 690, $p < 0.001$, CFI = 0.93, TLI = 0.92, SRMR = 0.049, RMSEA (90% CI) = 0.063 (0.058 to 0.068). The factor loadings were all significant and in the same positive directions indicating the one-dimensionality of the latent variables (See Figure. 4.4. for the final measurement model used in this study).

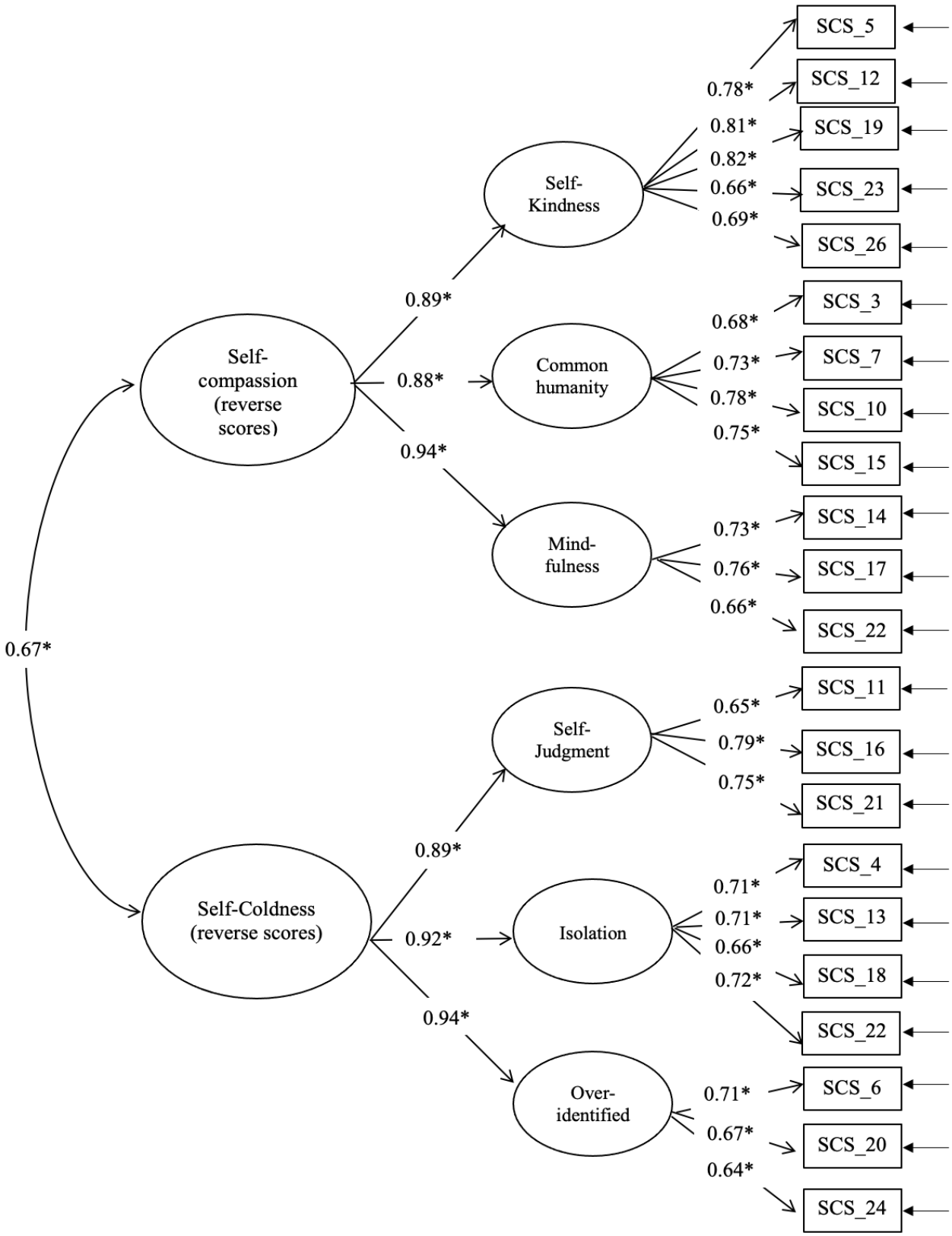


Figure 4.4. Confirmatory Factor Model for Self-compassion Scale with MLM estimator, N = 946. All coefficients are statistically significant at *$p < 0.001$.

4.3.2.3. Measurement Model for Mindfulness (FFMQ-15).

Similar to the self-compassion scale, the inverse mindfulness scores were used to assess the level of mindfulness, with higher scores indicating lower mindfulness among participants. An *a priori* hierarchal higher-order model was hypothesised for the mindfulness construct, as suggested by Baer et al. (2008). A measurement model with five first-order latent factors, observing, describing, acting with awareness, non-judging and non-reactivity, with a second high-order mindfulness latent factor, was evaluated. The measurement model converged to fit excellently to sample data (χ^2 (72) = 330, $p < 0.001$, CFI = 0.94, TLI = 0.92, SRMR = 0.069, RMSEA (90% CI) = 0.056 (0.049 to 0.063). The factor loadings were examined for all items, which showed three items to have factor loadings below 0.6 level. The low factor loading items were removed to make the measurement model more fit for the SEM analysis. The emerged measurement model with 12 indicator items and 6 latent factors, excellently fit the sample data with fit indices, χ^2 (49) = 183, $p < 0.001$, CFI = 0.96, TLI = 0.95, SRMR = 0.055, RMSEA (90% CI) = 0.048 (0.040 to 0.057); See Figure. 4.5. for the CFA model of mindfulness with factor loadings of each indicator item).

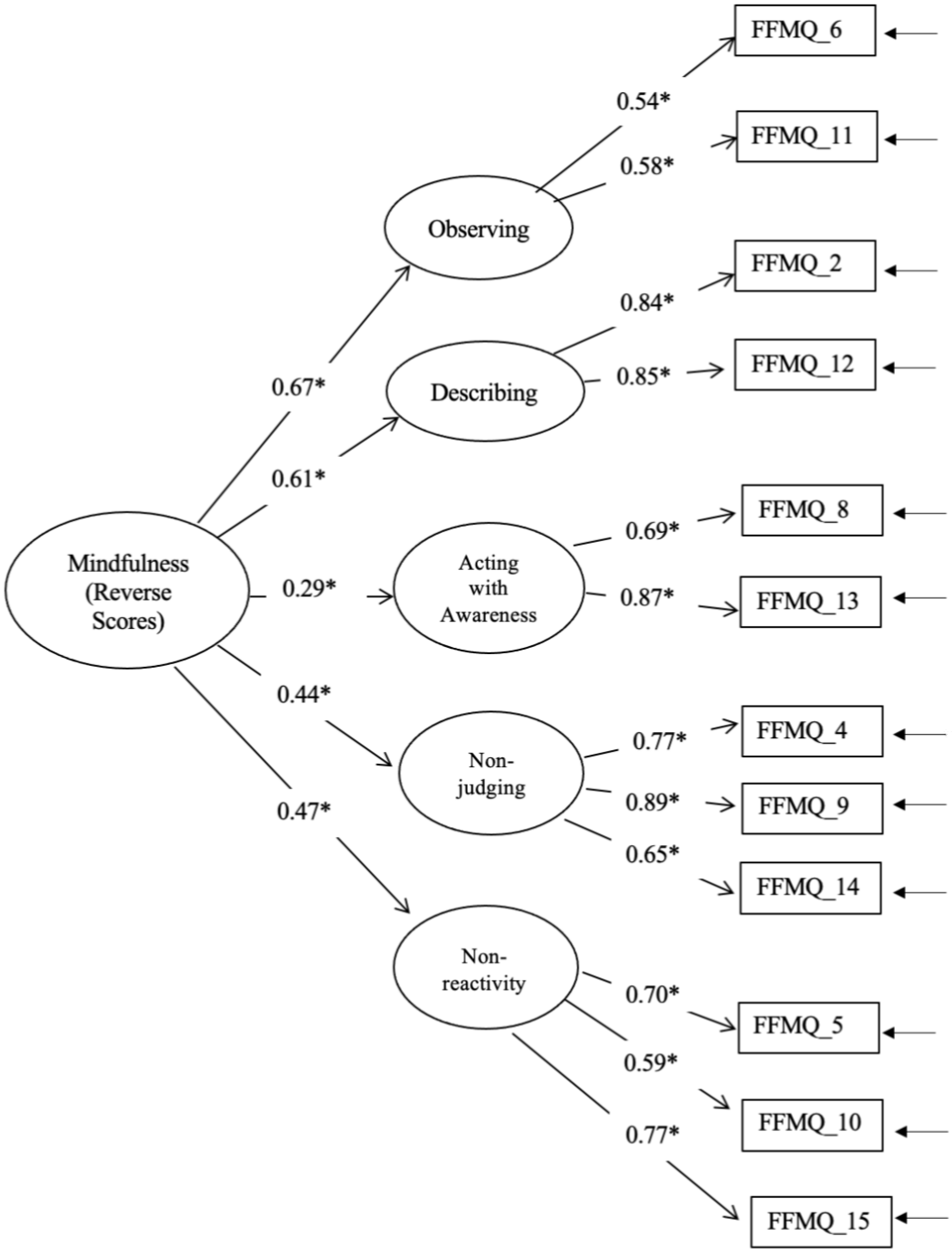


Figure 4.5. Confirmatory Factor Model for Mindfulness and its five facets with MLM estimator, N = 946. All coefficients are statistically significant at *$p < 0.001$.

4.3.2.4. Measurement Model for Depression (DASS-21).

The CFA model of DASS-21 comprising of three correlated latent variables of depression, anxiety and stress (proposed by Lovibond & Lovibond, 1995, Szabó & Lovibond, 2006) was examined, which indicated a good fit to sample data, , χ^2 (186) = 962, p < 0.001, CFI = 0.93, TLI = 0.92, SRMR = 0.04, RMSEA (90% CI) = 0.066 (0.062 to 0.071). The model converged with the same fit indices when a fourth latent construct for psychological distress was added to the measurement model. For the current study, to reduce the number of latent variables, only the depression subscale of DASS-21 was used; thus, an *a priori* measurement model was examined with 7 indicator items composing the depression latent factor. The model excellently fits the sample data, χ^2 (14) = 154, p < 0.001, CFI = 0.97, TLI = 0.95, SRMR = 0.025, RMSEA (90% CI) = 0.08 (0.073 to 0.103), with significant factor loadings and R^2 values (See Figure. 4.6. for the measurement model of depression latent factor).

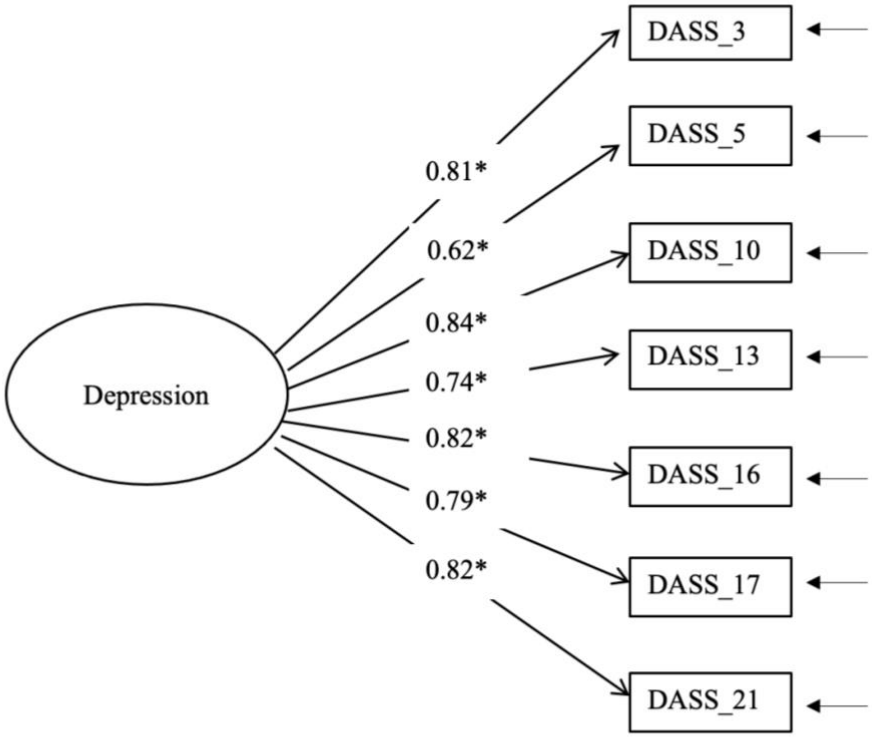


Figure 4.6. Confirmatory Factor Model for Depression subscale (DASS-21) with MLM estimator, N = 946. All coefficients are statistically significant at *$p < 0.001$.

4.3.2.5. Pooled Measurement Model (CFA)

After evaluating measurement models for separate latent constructs, a model involving all the latent factors and indicator variables was examined to assess the overall model fit. The emerged measurement model with 75 indicator items and 26 continuous latent factors shows a mediocre fit to the sample data, χ^2 (2665) = 8160, $p < 0.001$, CFI = 0.88, TLI = 0.87, SRMR = 0.06, RMSEA (90% CI) = 0.041 (0.040 to 0.042). The factor loadings were all significant; however, there were a few factor loadings below 0.6 in the model, which were removed to make the model fit better for the current data. In addition, the negative dimension of the self-compassion scale, self-coldness, was also removed to reduce the number of latent factors in the hypothesised model. The final measurement model emerged, indicating an adequate fit to the current sample with fit index, χ^2 (1215) = 4174, $p < 0.001$, CFI = 0.90, TLI = 0.90, SRMR = 0.053, RMSEA (90% CI) = 0.051 (0.049 to 0.052). Significant factor loadings were observed for all indicator variables.

4.3.2.6. Hypothesis testing using SEM

The hypothesised models based on previous literature were tested using direct and indirect pathways. Based on the hypothesised model specified in figure 4.2., hypotheses 2 and 3 were tested using SEM analysis. The latent factors of disconnection/rejection schemas, impaired autonomy/performance schemas, self-compassion, mindfulness and depression assessed using confirmatory factor analysis (CFA) in the pooled measurement model were used to evaluate the structural model.

4.3.3. Final Structural Equation Model.

4.3.3.1 Direct Effects (Hypothesis 2)

Model 1 tested the hypotheses of direct effects (hypothesis 2), i.e., the direct predictive associations of disconnection/rejection, impaired autonomy and performance schemas, self-compassion and mindfulness on depressive symptoms. An *a priori* model with 67 dependent variables, 21 continuous latent factors and 2 independent latent variables converged the sample data with adequate fit indices, ML χ^2 (2247) = 7091, $p < 0.001$, CFI = 0.90, TLI = 0.90, SRMR = 0.069, RMSEA (90% CI) = 0.048 (0.046 to 0.049). Consistent with hypothesis 2, there exists a significant positive direct association between disconnection/rejection schemas and depressive symptoms ($\beta = 0.28$, $p < 0.001$, 90% Cl = 0.155, 0.409) and impaired autonomy/performance schema ($\beta = 0.26$, $p < 0.01$, 90% Cl = 0.089, 0.437) with depressive symptoms. The findings suggest that higher schemas related to disconnection and impaired autonomy domains directly predicts increased depressive tendencies among young people.

In addition, the direct pathways for self-compassion and mindfulness to depressive symptoms were also explored, showing a significant positive direct association of Self-compassion ($\beta = 0.17$, $p < 0.001$, 90% Cl = 0.104, 0.234) and Mindfulness ($\beta = 0.18$, $p < 0.05$, 90% Cl = -0.001, 0.360) with depressive symptoms. As described previously, in the present model, the inverse scores of self-compassion and mindfulness were used to keep the model aligned directionally. As hypothesized (hypothesis 2), these findings suggest that lower scores of self-compassion and mindfulness predict higher depressive tendencies among young people (See Figure. 4.7.).

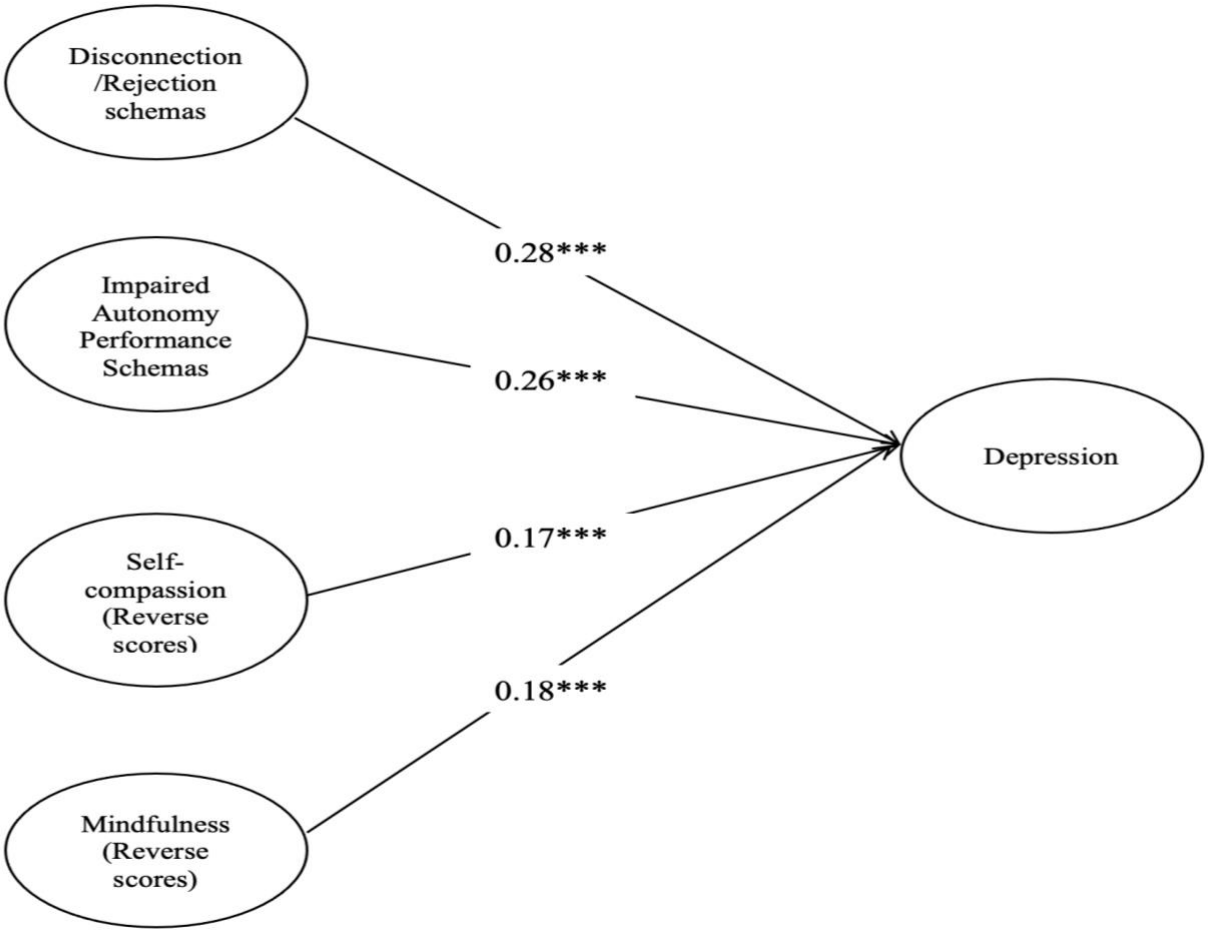


Figure. 4.7. Model 1 for the direct associations between Schema domains, Self-compassion, Mindfulness and Depressive symptoms. All coefficients are standardised and statistically significant, ***p < 0.001.

4.3.3.2. Indirect Effects (Hypothesis 3)

The final SEM model tested four indirect pathways to assess hypothesis 3, i.e., the mediating effect of self-compassion and mindfulness on the relationship between disconnection/rejection and impaired autonomy/performance schemas with depressive symptoms using 10000 bootstraps with ML estimation. The indirect effects were interpreted following the Preacher and Hayes (2008) guidelines for interpreting mediation with multiple mediators, where the use of SEM has been recommended when evaluating multiple mediators in a single model because of its flexibility to provide all the mediation pathways simultaneously. Based on this method, the mediation is established through the decomposition method, i.e., identifying the direct and specific indirect pathways of predictors and mediators. The corresponding confidence intervals were evaluated to check the absence of zero in 95% Cl's to assume the significance of a specific indirect effect different from zero at a $p < 0.05$ level. In other words, the upper and lower bounds of Cl's should omit a zero to indicate that self-compassion and mindfulness significantly mediate the associations of schema domains and depressive symptoms. Further, the mediation is not limited to significant direct pathways ('a' and 'b') as proposed in Baron and Kenny's (1986) approach to mediation. Instead, the mediation is solely based on non-zero Cl's in their upper and lower bound, i.e., the significant mediating effects can exist despite non-significant indirect effects at significance testing (Preacher & Hayes, 2008).

The results, generated after controlling for age and gender, show that the indirect effects of self-compassion between disconnection/rejection schemas and depressive symptoms as mediators was significant ($\beta = 0.045$, 90% Cl = 0.007, 0.065). Similarly, self-compassion also appears to be a mediator between impaired autonomy/performance schemas and depressive symptoms ($\beta = 0.053$, $p < 0.001$, 90% Cl = 0.012, 0.087).

The indirect effects of mindfulness were not significant for associations between impaired autonomy/performance and depressive symptoms (β = 0.113, 90% Cl = -0.006, 0.149) as well as non-significant indirect effects were found for the association of disconnection/rejection schemas and depressive symptoms (β = 0.044, 90% Cl = -0.008, 0.226), as the Cl's does contain a zero between upper and lower Cl's bound.

Table 4.7. shows the direct, indirect and total effects for all the paths for the full SEM model. The total indirect effects for both paths, from disconnection/rejection schemas and impaired autonomy/performance to depressive symptoms, when including mediators, were significant at $p < 0.05$ as the Cl's does not include zero, showing mediation has been established in our proposed model, where only self-compassion has a significant mediating effect between schema domains and depressive symptoms. Figure 4.8. shows the final structural model for the hypothesised predictors and mediators of depressive symptoms.

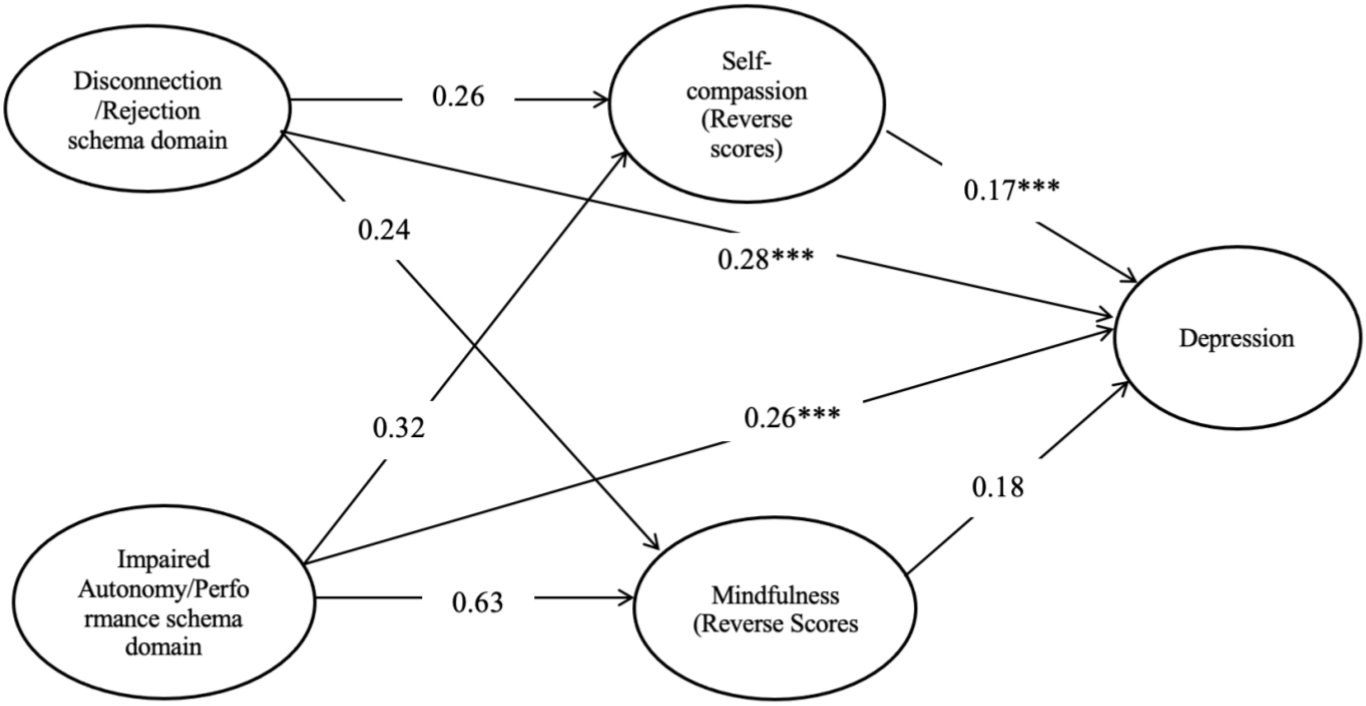


Figure. 4.8. Model 2 for the indirect associations between Schema domains, Self-compassion, Mindfulness and Depressive symptoms. All coefficients are standardised and statistically significant, ***p < 0.001.

Table. 4.7.

The Direct, Indirect and Total effects of all paths for the final Structural equation model (N= 946).

Paths	Un-standardized beta (B)	Standardized beta (β)	Bootstrap 95 % Confidence for Standardized β	
			LB	UB
Direct Effect: Disconnection/Rejection schemas → Depressive symptoms	0.247***	0.282***	0.107	0.381
Disconnection/Rejection schemas → Self-compassion → Depressive symptoms	0.039	0.045	0.007	0.085
Disconnection/Rejection schemas → Mindfulness → Depressive symptoms	0.038	0.044	-0.006	0.149
Total Indirect Effect: Disconnection/Rejection schemas → Depressive symptoms	0.078	0.089	0.008	0.192
Direct Effect: Impaired autonomy/performance schemas → Depressive symptoms	0.160*	0.263**	- 0.008	0.226
Impaired autonomy schemas. → Self-compassion → Depressive symptoms	0.033	0.053	0.012	0.070
Impaired autonomy schemas. → Mindfulness → Depressive symptoms	0.069	0.113	-0.008	0.227
Total Indirect Effect: Impaired autonomy/performance schemas → Depressive symptoms	0.101	0.167	0.022	0.269

Note. Significance at *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

4.4. Discussion

The present study investigated the associations between maladaptive schema domains, depressive symptoms, self-compassion and mindfulness among young people. To examine these associations, the current study investigated direct and indirect pathways to depressive symptoms using structural equation modelling to explore the hypotheses. The findings indicate that all five schema domains have significant positive associations with depressive symptoms, while a significant negative relationship exists with self-compassion and mindfulness, supporting hypothesis 1 of the present study. The results further supported hypothesis 2, i.e., the findings demonstrated a direct predictive association between disconnection/rejection and impaired autonomy/performance schemas, self-compassion and mindfulness with depressive symptoms among young people. Finally, the current findings partly supported hypothesis 3, i.e., only self-compassion appears to significantly mediate the link between schema domains of disconnection/rejection and impaired autonomy/performance to depressive symptoms.

The current findings empirically support Young's theoretical framework, i.e., higher predominant maladaptive schemas are associated with higher depressive tendencies among people (Young et al., 2003). The findings suggest that the existence of EMS predicts a substantial variance in future depressive symptoms among young people. Previous research has indicated relatively stable and inflexible schemas among depressive people, particularly for the schema domains of disconnection/rejection, impaired autonomy/performance and other-directedness (Wegner et al., 2013; Renner et al., 2012). Consistent with previous literature, our results also indicated that young people who have maladaptive beliefs and assumptions related to disconnection/rejection and impaired autonomy/performance schemas, i.e., persistent belief and feelings related to a lack of secure, stable, nurturing relationships, a sense of defectiveness, shame, mistrust and social isolation, inability to perform competently, fear of failure, harm and

vulnerability to illness and extreme dependence, are likely to experience more significant depressive tendencies (Tariq et al., 2021; Calvete et al., 2015; Calvete et al., 2013; Braet et al., 2013; Camara & Calvete., 2012; Eberhart et al., 2011; Lumley & Harkness, 2007). Similar to previous findings, our results support the role of maladaptive schemas as cognitive vulnerability factors for developing and maintaining depressive symptoms among young people (Alba & Calvete., 2019; Davoodi et al., 2018; Halvorsen et al., 2009).

Furthermore, the current findings suggested that lower levels of self-compassion and mindfulness were associated with the higher existence of maladaptive schema domains. These negative associations were consistent with previous literature, which showed that maladaptive schemas are significantly more robust and activated among individuals who have higher self-critical abilities, harsh, judgmental evaluations, and lack of acceptance of their thoughts and feelings (Janovsky et al., 2019; Yakin et al., 2018; Flink et al., 2018; Thimm, 2017; Shorey et al., 2015a; Shorey et al., 2015b; Cecero et al., 2008). In addition, consistent with previous findings, the results showed that self-compassion has significantly higher associations with large effect sizes with all five schema domains compared to mindfulness, which has medium effect size associations (Yakin et al., 2018; Flink et al., 2018; Thimm, 2017).

In addition, the direct SEM pathways findings proposed that self-compassion and mindfulness were significant predictors of depressive symptoms among young people, i.e., self-compassion ($\beta = 0.17$) and mindfulness ($\beta = 0.18$) predicted depressive symptoms with comparable effect size and shared variance. These findings align with previous research, which found that the negative and positive facets of self-compassion and the five facets of mindfulness uniquely predicted a similar amount of variance in depressive symptoms among a large general population sample (Lopez et al., 2016). Similarly, findings from recent research with an adult

sample found that both mindfulness and self-compassion were significant predictors of depressive symptoms (Perez-Aranda et al., 2021). These empirical results propose that mindfulness and self-compassion are essential factors when dealing with depressive tendencies among young people, i.e., to reduce depressive symptoms, it is crucial to work on an individual's harsh self-critical attitudes regarding themselves as well as to increase an individual's mindful awareness towards their negative feelings, thoughts and behaviours (Egan et al., 2021; Marsh et al., 2018).

Finally, the indirect pathways using SEM were explored to identify the mediating effects of self-compassion and mindfulness between schema domains of disconnection/rejection and impaired autonomy/performance and depressive symptoms among young people. This is the first study that explored the parallel mediating effects of self-compassion and mindfulness between two significant robust schema domains and depressive symptoms among young people. Results proposed that self-compassion was the only considerable mediator between the two schema domains and depressive symptoms. Unlike Thimm (2017), these findings partially support our hypothesis, i.e., self-compassion significantly mediated the proposed paths. Still, on the other hand, mindfulness did not act as a mediator in the presence of self-compassion. One possible explanation for these different findings is advanced SEM analysis. The previous research, Thimm (2017), was conducted with a small sample using the Ordinary least square (OLS) regression model. Statistical researchers have widely advocated the efficacy of SEM over the OLS model, with both models providing different statistical results due to differences in assumptions tested (Bollen & Pearl, 2012). Further, SEM has been widely recognised as a robust method that implies a functional relationship using several different paths in one analysis (Gunzler et al., 2013).

Besides, these findings largely replicated previous literature, where Faustino et al. (2020) found self-compassion as the only mediator in the presence of mindfulness between the associations of emotional schemas and psychological symptoms. However, previous findings were limited to emotional schemas alone. Hence, they need to be considered with caution while explaining current results. There can be several plausible explanations for these findings. Firstly, previous research suggested the existence of shared variance and overlap between self-compassion and mindfulness due to conceptual and theoretical similarities (Neff & Dahm, 2015). Self-compassion contains a component of mindfulness, i.e., being mindful of challenges and stressful situations, while mindfulness includes a non-judgement and accepting part of self-compassion (Neff & Pommier, 2013; Bluth et al., 2013). This conceptual similarity suggests that one component is likely to mask the effect of another element when considered together in any statistical analysis (Yankin et al., 2019).

Additionally, Van Dam et al. (2011) found using multivariate and univariate analysis that self-compassion was a more robust predictor of depressive symptoms than mindfulness, i.e., self-compassion approximately explains depressive symptoms with ten times more unique variance. Similarly, in another study, self-compassion was found to be a more robust predictor of depression than mindfulness in a non-clinical community sample (Neff & Dahm, 2015). These differences in predictive associations suggest that during mediational analysis, there exists a high chance that a more significant proportion of predictive variance towards depression is being controlled by self-compassion. Further, Neff and Dahm (2015) also reported that self-compassion was the only considerable mediator between happiness, life satisfaction and depressive symptoms. Together with these findings, the current results appeared to suggest that when self-compassion and mindfulness are taken together in a

mediational model, self-compassion may affect the indirect pathways more significantly due to its closer predictive associations with depressive symptoms.

Taken together, these findings suggest that self-compassion may indirectly mediate the link from schema domains to depressive symptoms among young people. The available literature evidence proposes that the inability to engage in self-soothing, calming and comforting behaviours may serve as a potential mechanism through which maladaptive schemas are associated with higher depressive symptoms.

According to Young's schema framework (Young et al., 2003), maladaptive schemas result from adverse early childhood experiences such as unmet core emotional needs and lack of secure, stable and nurturing relationships (Bach et al., 2017; Gong & Chan, 2018; Martin & Young, 2010); deprived early attachment and traumatisation experiences (May et al., 2022). Researchers have also proposed that individuals experiencing adverse childhood experiences and traumas are more likely to develop self-critical and judgmental attitudes (Naismith et al., 2019; Pepping et al., 2015; Tanaka et al., 2011; Van Dam et al., 2011). Furthermore, Neff et al. (2007) proposed that individuals develop cognitive schemas based on their interpersonal relationships with earlier attachment figures; thus, negative self-critical or positive reassuring experiences with a significant other translate into either self-criticism or self-compassion traits, respectively. This suggests that underlying salient precursors for maladaptive schemas and self-compassion may be similar as a result there are greater chances for direct and indirect associations between EMS and self-compassion among young people.

Additionally, it has been suggested that mindfulness-based intervention programmes work well in improving depressive symptoms in the presence of self-compassion exercises, i.e., self-

compassion has been identified as a key mechanism through which mindfulness-based interventions enhance well-being and decrease depressive symptoms (Baer, 2010; Holzel et al., 2011). For instance, an evaluation of a mindfulness-based stress reduction program at 15 weeks of follow-up with depressed patients found that both self-compassion and mindfulness mediated the association between intervention and depressive symptoms; however, they found that increase in self-compassion (and not mindfulness) significantly caused a reduction in cognitive reactivity and depressive symptoms at follow-up time (Kuyken et al., 2010). This research evidence supports the robust beneficial effects of self-compassion over mindfulness and supports our current findings.

4.4.1. Clinical Implications

Early maladaptive schemas have been identified as a strong precursor of depressive symptoms among young people. The present study provides novel insight into the clinical implications of current findings in future psychotherapeutic practice to minimise or buffer the impact of maladaptive schemas and reduce subsequent depressive symptoms. Firstly, the present results provide additional evidence to support that there exist predominant maladaptive schemas among young people experiencing depressive symptoms. These findings can assist clinicians in better understanding the cognitive vulnerabilities toward depressive symptoms among young people and devising treatment and intervention protocols to target these specific maladaptive schemas. Furthermore, the current findings possibly suggest the mediating role of self-compassion between maladaptive schemas and depressive symptoms, thus suggesting the use of compassion-based therapeutic approaches in treating maladaptive schemas and subsequent depressive symptoms among young people. However, future studies using self-compassion as moderating variables are needed to make affirmative conclusions. The present evidence also supports the primary rationale for schema therapy, which focuses on enhancing maladaptive

coping responses among people with significant EMS as a treatment target (Young et al., 2003). Previously, Vresswijk et al. (2014) incorporated mindfulness-based therapeutic approaches as an adaptive coping strategy to mindfully avoid experiential avoidance often experienced in people with activated schemas. The current evidence identifies another adaptive positive coping strategy, i.e., increasing self-compassion and emotional self-caring ability among young people to achieve psychological well-being. The findings can assist clinicians in devising targeted treatment plans to increase adaptive coping strategies and positive psychological constructs to help young people accept and regard their negative thoughts, feelings, behaviours and emotions.

4.4.2. Strengths, Limitations and Future Directions

This was the first study that explored the role of self-compassion and mindfulness in the link between schema domains and depressive symptoms in a large, diverse sample of young people between the ages of 16 and 25. It further employed advanced statistical modelling analysis (SEM) to explore all the pathways between latent and observed constructs in a composite analysis rather than using separate analyses as conducted in previous similar studies (i.e., Thimm, 2017; Faustino et al., 2020).

However, despite the strengths of this study, it also has several limitations. Firstly, it was conducted as a cross-sectional study. Researchers have debated in the past regarding the use of mediational analysis, as the estimates of causal inferences in cross-sectional data may lead to biased estimates (Maxwell et al., 2011). Although Hayes (2013) strongly argued in favour of using mediational analysis with cross-sectional data, researchers must be cautious about making inferences and avoid claims for causality with cross-sectional data (Hayes, 2013). To

overcome the biases encountered in cross-sectional data, current findings should be taken with caution until they are replicated by future longitudinal studies.

Secondly, the current study relied on self-report measures. Although all measures had well-established psychometric properties, the original structure of the self-compassion (SCS) measure did not fit well for the current sample. Similar limitation for the SCS measure has been identified in previous studies (such as Muris & Petrocchi, 2017; Muris et al., 2016; Lopez et al., 2015; Costa et al., 2015). Consistent with previous studies, our analysis showed that a positive and negative factor solution to self-compassion and self-coldness was deemed more appropriate for the current sample. In the present study, only the positive component of self-compassion was considered while analysing the SEM pathways; therefore, future research should focus on assessing a total self-compassion score using Neff's (2003) model and/or re-examine the negative component of self-compassion.

Furthermore, the conceptual and theoretical overlap between self-compassion and mindfulness makes it difficult to differentiate between the two constructs. However, despite the difficulty, the two constructs are not interchangeable (Neff & Pommier, 2013; Bluth et al., 2013). According to Neff and Dahm (2015), self-compassion is a broader construct that includes self-kindness and common humanity along with mindfulness. On the contrary, mindfulness is a narrower construct focusing only on the elements of present-moment experiences and non-judgemental acceptance (Neff & Pommier, 2013; Bluth et al., 2013). To overcome this construct overlap, separate confirmatory factor analyses (CFA) were conducted to test the distinctiveness of the self-compassion and mindfulness factors. Further, a pooled measurement model was also tested in the present research, where self-compassion and mindfulness freely correlate in the measurement model. The final measurement model showed that despite the

higher associations between self-compassion and mindfulness constructs, the coefficients were below the threshold for higher multicollinearity (Tarka, 2018; Field, 2013). Future SEM analysis using only the subscales of self-kindness and common humanity can help overcome the overlap between the mindfulness element of self-compassion and the mindfulness construct. Furthermore, future research can include a bifactor model, i.e., allowing the measurement of both the general factors (i.e., self-compassion) and specific factors (i.e., mindfulness) simultaneously, which will help account for the shared variance and examination of their unique contributions to the overall construct.

Furthermore, only two significant schema domains were considered for SEM pathways to depressive symptoms. Despite considerable evidence for their association with depressive symptoms, future studies could include all five schema domains with an even larger sample (i.e., 90 items for schema measure). Further, future analyses could also consider the role of all eighteen specific schemas in predicting depressive symptoms to gain a more in-depth insight into particular schemas associated with depressive symptoms.

Moreover, recent research has explored a moderating effect of mindfulness between maladaptive schemas and depressive symptoms (Calvete et al., 2018; Martin et al., 2017). Future studies can be conducted by testing the moderating pathways of mindfulness between schema domains and depressive symptoms.

4.4.3. Chapter Conclusion

This chapter presented the empirical findings of a cross-sectional study conducted with young people between the ages of 16 to 25 years to explore the role of early maladaptive schemas in depressive symptoms. It further examined the mediating effects of self-compassion and

mindfulness between this predictive association. The key findings demonstrate that schemas of disconnection/rejection and impaired autonomy/performance domains were significant associates of depressive symptoms among young people. Further, only self-compassion acts as an essential mediator in this association. This empirical study also examined these factors and associations in relation to anxiety, which will be reported and discussed in the next Chapter.

Chapter 5

Investigating the role of Self-compassion and Mindfulness in relation to Early Maladaptive Schemas and Anxiety using Structural Equation Modelling

The current chapter is based on the same dataset outlined in Chapter four. The methods, including study sample, measuring instruments, ethical considerations, procedure and data analysis plan, has been described fully in the previous chapter. The constructs of maladaptive schemas, self-compassion and mindfulness have been described and discussed in Chapter one and Chapter four. The present chapter will focus on anxiety; in particular, it will report the findings for the mediating effects of self-compassion and mindfulness between maladaptive schema domains and anxiety symptoms among young people.

5.1. Introduction

5.1.1. Early Maladaptive Schemas, Self-compassion and Anxiety Symptoms

A vast array of literature highlights the beneficial effects of self-compassion when encountering stressful or distressing situations. The conceptualisation of self-compassion describes it as an essential ability or trait that helps an individual to maintain a balanced perspective during stressful events, i.e., rather than avoiding the situation altogether, they allow people to recognise their failures and transform negative emotions, shame, guilt and self-criticism into positive and healthy coping emotions (Neff & Dahm, 2015; Ewert et al., 2021).

Macbeth and Gumley (2012) carried out a meta-analysis including 13 studies. They found significant negative associations with a large effect size between self-compassion and anxiety symptoms among the adult sample. Similarly, the meta-analytical findings from 7 empirical studies show a significant negative relationship with a medium effect (r = 0.49) between self-compassion and anxiety symptoms among adolescents (Marsh et al., 2017). In another meta-analysis of 40 relevant literature studies with young people, i.e., individuals between 16 to 25 years of age, the researchers have found a medium-to-large, pooled effect size estimate with significant negative associations between self-compassion and anxiety symptoms (Egan et al., 2022). These empirical findings suggest that self-compassion may be an essential protective factor against developing anxiety symptoms in young adults and adolescents (Egan et al., 2022; Gill et al., 2018; Finlay-Jones, 2017; Marsh, 2017; Macbeth & Gumley, 2012).

There is sparse research evidence on the effects of self-compassion on maladaptive schemas and anxiety symptoms. As discussed in Chapter four, previous research exploring self-compassion's mediating or moderating role between schemas has considered overall psychological distress, psychopathology or poor mental health as outcome factors with no separate analysis for anxiety symptoms. For example, Thimm (2017) found a significant negative association and a vital mediating link between self-compassion with EMS domains and psychological distress among an undergraduate student sample. Similarly, self-compassion mediated the relation between disconnection/rejection schema domains and psychopathology in the presence of the emotional regulation component only, i.e., self-compassion alone was a significant mediator in the relation between maladaptive schema domains and symptoms of psychopathology among young adults (Yankin et al., 2019; Yankin, 2015). Furthermore, Faustino et al. (2020) found a robust mediating effect of self-compassion between emotional schemas and psychopathological symptoms. This research evidence highlights the mechanism

through which predominant maladaptive beliefs, thoughts and feelings may lead towards psychological symptoms, including anxiety issues. Lower self-compassionate tendencies serve as a potential mechanism through which maladaptive schemas lead to excessive worry, distress and anxiety (Faustino et al., 2020; Yankin et al., 2019; Thimm, 2017). All these research studies assessed psychopathology symptoms using *Brief Symptom Inventory* (BSI; Derogatis, 1993) which comprises nine symptom dimensions, including anxiety symptoms. However, none of the studies included separate findings for anxiety symptoms. The present study, therefore, aims to explore the mediating link of self-compassion between schema domains and anxiety symptoms.

5.1.2. Early Maladaptive Schemas, Mindfulness and Anxiety Symptoms

Recently, mindfulness has been recognised as an effective treatment regimen in modern psychotherapeutic practice to improve psychological health and well-being (Zhou et al., 2020; Goldberg et al., 2019; Rodrigues et al., 2017). Mindfulness involves cultivating non-judgmental acceptance and awareness of present moment experience through a variety of exercises that help individuals effectively deal with negative experiences and stressors without changing or altering the situation, i.e., the primary goal of increasing mindful awareness is to accept negative feelings, thought or emotions rather than reduction of these symptoms (Call et al., 2013). Further, mindfulness-based interventions enhance an individual's ability to compassionately accept their present moment experiences by decreasing their tendencies for avoidance, control or suppression (Vollestad et al., 2011; Williams, 2010). This is particularly relevant to improving anxiety disorder symptoms, which involve attentional biases toward threats, repetitive negative thinking, dysfunctional automatic thoughts, physiological arousal, avoidance behaviours, and deficit in emotional regulation (Craske & Stein, 2017; Bystritsky et al., 2013).

The effectiveness of mindfulness-based interventions in reducing anxiety symptoms has been well-documented among clinical and non-clinical samples (Zhou et al., 2020; Gharhari et al., 2020; Rodrigues et al., 2017; Vollestad et al., 2011a; Vollestad et al., 2011b). Additionally, previous literature illustrates a robust negative association between mindfulness and anxiety symptoms, i.e., individuals with higher mindfulness were likely to experience lower anxiety symptoms (Jaiswal et al., 2019; Parmentier et al., 2019; Rudkin et al., 2017; Cernetic, 2016; Desrosiers et al., 2013; Hoge et al., 2013; Arch & Craske, 2010). Furthermore, a meta-analysis using the structural equation modelling technique with pooled effect sizes from 19 longitudinal studies with an adult sample found significant predictive associations between facets of mindfulness and anxiety symptoms at two different time points, i.e., lower mindfulness predicted higher anxiety symptoms at two different time intervals (Prieto-Fidalgo et al., 2022). These inverse associations between anxiety and mindfulness suggest that mindfulness is a practical personal skill that can enhance an individual's ability to deal with rumination, excessive worry and physiological symptoms triggered by anxiety disorders (Webb et al., 2018; Call et al., 2013).

Additionally, as described in Chapter four, previous research has highlighted a significant inverse relationship between mindfulness and early maladaptive schemas. A few studies emphasise that maladaptive schemas were more activated and predominant among individuals with lower levels of mindfulness, i.e., they were more substantial among people who lack present moment awareness and engaged in harsh, judgmental attitudes toward the ongoing stream of internal maladaptive themes (Arpaci, 2021; Hosseinzadeh et al., 2019; Calvete et al., 2019; Martin et al., 2018; Flink et al., 2018; Shorey et al., 2015; Cecero et al., 2008).

Further, in addition to the direct associations between mindfulness and maladaptive schemas, recent research has explored the mediating effects of mindfulness between maladaptive schemas and psychological distress; however, the literature is minimal and still emerging. Thimm (2017) found that mindfulness mediated the associations between maladaptive schema domains and psychological distress in a university student sample. Similarly, mindfulness appears to significantly mediate the link between emotional schemas and psychological symptoms in an undergraduate student sample (Faustino et al., 2020). Nevertheless, this significant mediating link did not exist when self-compassion and mindfulness were included as competing mediators in a mediating model. As reviewed earlier, the more salient literature currently focuses more on psychological distress, general psychopathology or mental health problems as outcome factors that include components of depression and anxiety. The current study, therefore, aims to overcome this limitation by having separate empirical findings for depression and anxiety symptoms. Further, these empirical findings were limited to small sample sizes and a lack of advanced statistical analysis.

In another study with University students, Fischer et al. (2016) explored the mediating effects of psychological flexibility between early maladaptive schemas and psychopathology using structural equation modelling. Psychological flexibility is described as an individual's ability to fully and consciously engage with their present experiences (Hayes et al., 2006), including components of mindfulness, cognitive fusion, experiential avoidance and personal valuing. The findings showed that psychological flexibility significantly mediated the link between maladaptive schemas and psychopathology, i.e., maladaptive schemas affect psychopathology due to inhibition of mindfulness and present moment awareness and acceptance (Fischer et al., 2016). Nevertheless, the existing literature is relevant to general psychopathology and does not contain separate findings for anxiety symptoms. Further, only overall maladaptive schema

scores were incorporated as independent factors rather than significant schema domains that have been highlighted to have an essential association with anxiety symptoms, as suggested in previous findings of the meta-analysis presented in Chapter Three.

Therefore, it would be worth exploring the mediating effects of self-compassion and mindfulness between the associations of schema domains and anxiety symptoms. Previous research has proposed that interventions incorporating mindfulness are a valuable technique to overcome the distressing effects of schemas (Vresswijk et al. (2014). Apart from altering schema content as targeted in traditional cognitive and schema therapy, it would be helpful to incorporate strategies to enhance mindfulness and self-compassion to increase an individual's empathetic acceptance of maladaptive schemas (Flink et al., 2018; Fischer et al., 2016).

5.1.3. Aims of the current study

Considering the literature evidence available and findings from the previous meta-analysis presented in Chapter Three, this study investigated the role of self-compassion and mindfulness in the associations of significant schema domains and anxiety symptoms among young people. The previous meta-analytical findings presented in Chapter Three have explicitly identified the schema domains of disconnection/rejection and impaired autonomy/performance as important precursors of anxiety symptoms among adolescents and young adults. Building on this, the current chapter will explore these two significant schema domains with anxiety symptoms among young people. The following hypotheses were explored using the structural equation modelling approach.

(1). All five schema domains, self-compassion and mindfulness will have a significant association with anxiety symptoms among young people.

(2). Higher predominant disconnection/rejection schemas, impaired autonomy/performance schemas, self-compassion and mindfulness will directly predict anxiety symptoms.

(3). The effect of impaired autonomy/performance schemas will be significantly stronger than disconnection/rejection schemas in predicting anxiety symptoms.

(4). There will be a significant indirect mediating effect of self-compassion and mindfulness between the associations of disconnection/rejection and impaired autonomy/performance schemas with anxiety symptoms.

5.2. Methods

The current study is based on the same dataset described in Chapter four. Methodological details can be found in the last Chapter (Section 4.2.). In brief, a cross-sectional research survey was conducted with a sample of 946 young people between the ages of 16 and 25 (*M* = 20.82, *SD* = 2.75). The sample characteristics, procedure and details of measuring instruments have been described in sections 4.2.1- 4.2.6. The anxiety subscale of DASS-21 was used in the present empirical chapter, which showed good internal consistency of 0.84. Further, there were no incidences of skewness, kurtosis and multicollinearity for the anxiety subscale. Following the SEM steps described by Kline (2010), the hypotheses for the current study were schematically represented in Figure. 5.1.

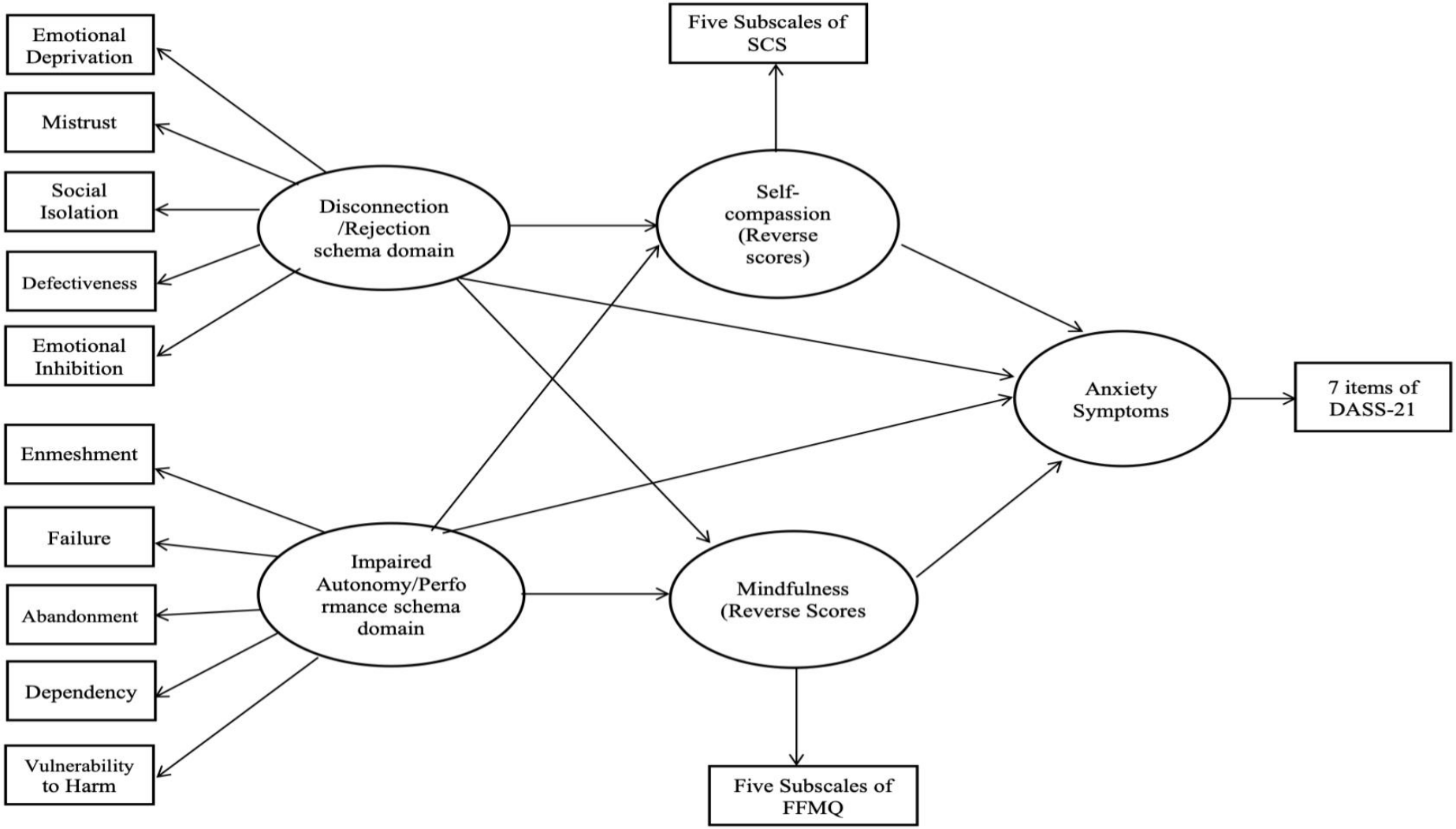


Figure 5.1. Hypothesised Structural Equation Model with Latent and Observed Variables for Anxiety Symptoms

5.3. Results

5.3.1. Bivariate Correlations (Hypothesis 1)

To address Hypothesis 1, Pearson Product moment correlations were conducted to test the relationship between schema domains, self-compassion, mindfulness and anxiety symptoms. Table 5.1. illustrates significant associations between all study variables at $p < 0.001$. Anxiety symptoms had substantially positive significant associations with schemas of disconnection/rejection and impaired autonomy/performance with a large effect size. Furthermore, self-compassion and mindfulness had a significant negative relationship with anxiety symptoms with a medium effect.

Table. 5.1.

Pearson Product Moment Correlations between Maladaptive schema domains, Mindfulness, Self-compassion and Anxiety symptoms (N= 946)

Variables	DR	IA	OD	HV	IL	EMS	SC	MF	ANX
Disconnection/Rejection (DR)	-	.75**	.62**	.75**	.58**	.89**	-.60**	-.49**	.50**
Impaired Autonomy (IA)		-	.66**	.73**	.64**	.90**	-.55**	-.47**	.55**
Other Directedness (OD)			-	.65**	.52**	.81**	-.44**	-.34**	.49**
Hypervigilance (HV)				-	.50**	.86**	-.55**	-44**	.49**
Impaired Limits (IL)					-	.76**	-.39**	-.33**	.37**
Total Schema score (EMS)						-	-.60**	-.50**	.57**
Self-compassion (SC)							-	.61**	-.40**
Mindfulness (MF)								-	-.44**
Anxiety (ANX)									-

Note. ** indicates significance at $p < 0.001$.

5.3.2. Testing the Hypothesized Pathways

The measurement models for disconnection/rejection schemas, impaired autonomy/performance schemas, and self-compassion and mindfulness were tested and reported in the previous Chapter four (sections 4.3.2.1 - 4.3.2.3). The same measurement models established in the previous study were used for testing the structural equation pathways with anxiety symptoms in the current chapter. For the present analysis, the measurement model for the Anxiety subscale (DASS-21) was tested before proceeding further with the analysis.

5.3.2.1. Measurement Model for Anxiety (DASS-21).

The confirmatory factor analysis with anxiety items from the DASS-21 scale was conducted using an *a priori* model with 7 indicator items. The measurement model with 7 items perfectly converged the sample data to construct the latent anxiety factor. The model exhibited excellent fit indices, , χ^2 (14) = 81.03, $p < 0.001$, CFI = 0.97, TLI = 0.95, SRMR = 0.03, RMSEA (90% CI) = 0.071 (0.057 to 0.087). All the indicator items loaded significantly ($p < 0.001$) on the latent factor with $R^2 > 0.4$ and z-scores greater than ± 1.96. The measurement model for the anxiety latent factor is shown in Figure. 5.2.

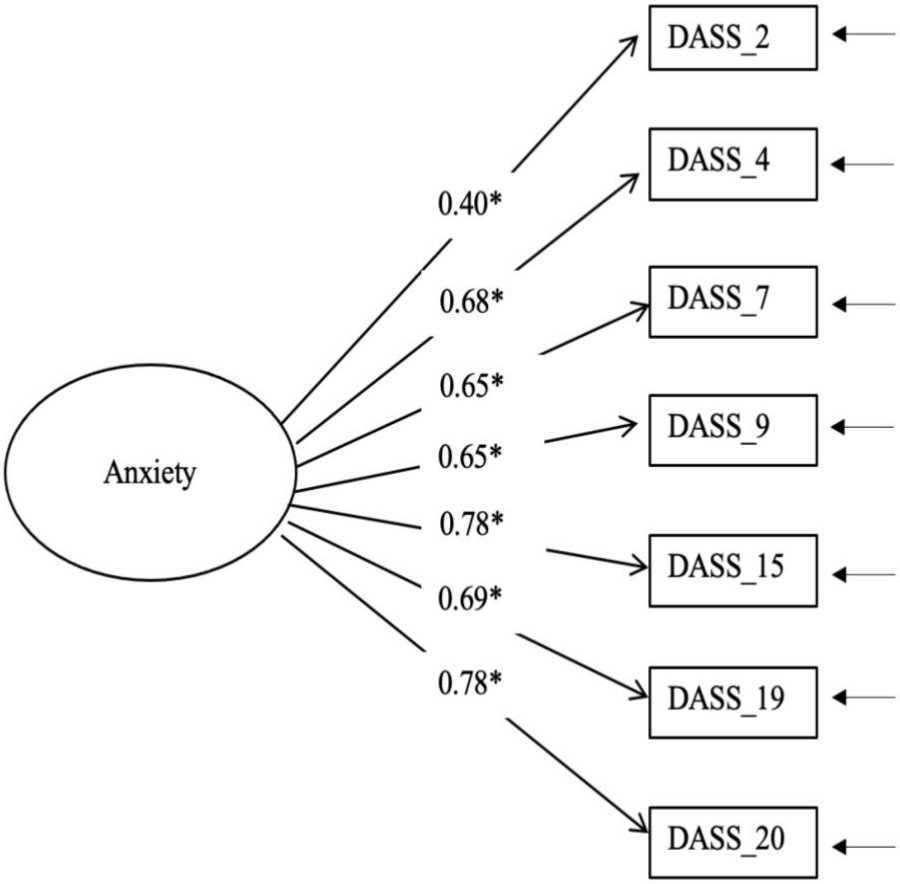


Figure 5.2. Confirmatory Factor Model for Anxiety subscale (DASS-21) with MLM estimator, N = 946. All coefficients are statistically significant at *$p < 0.001$.

5.3.2.2. Pooled Measurement Model (CFA)

As the first part of the structural equation model, a measurement model (also known as confirmatory factor analysis) was examined, employing all the hypothesised latent constructs and their contributing indicator items. The overall model fit for the measurement model was assessed to identify if the hypothesised model is well-explained by the available sample data. The separate measurement models evaluated for each construct of schema domains, self-compassion, mindfulness (assessed in Chapter four) and anxiety subscale were pooled together to construct a final measurement model. The measurement model with 81 dependent indicator variables and 23 continuous latent factors emerged, showing adequately good fit indices with the current dataset, χ^2 (762) = 2494, $p < 0.001$, CFI = 0.90, TLI = 0.90, SRMR = 0.07, RMSEA (90% CI) = 0.049 (0.047 to 0.051). All factor loadings for indicator variables on their latent factors were statistically significant at $p < 0.001$.

5.3.2.3. Hypothesis testing using SEM

The hypothesis specified in section 5.1.5 (hypotheses 2, 3 and 4) or graphically in Figure. 5.1. were tested to identify the direct and indirect effects towards anxiety symptoms. The latent factors for schema domains, self-compassion and mindfulness evaluated using confirmatory factor analysis in Chapter four (Sections 4.3.2.1 - 4.3.2.3) were used to generate the pooled measurement model used in the present study. The next section will report the final results of the structural model.

5.3.3. Final Structural Equation Model

5.3.3.1. Direct Effects (Hypotheses 2 and 3)

Model 1 tested the direct effects of disconnection/rejection and impaired autonomy/performance schemas in predicting anxiety symptoms (Hypothesis 2). The model further tested the role of self-compassion and mindfulness in predicting anxiety symptoms (Hypothesis 2). As described previously, in the present research, the scores for self-compassion and mindfulness were inversed to keep the model constructs aligned; this means the higher scores on measures of self-compassion and mindfulness signify the lower existence of both constructs among young people.

The hypothesised model emerged had 67 indicator variables, 21 continuous latent factors and 226 free parameters. The results for the measurement model exhibited adequate model fits, χ^2 (2119) = 5910.16, $p < 0.001$, CFI = 0.91, TLI = 0.90, SRMR = 0.069, RMSEA (90% CI) = 0.043 (0.042 to 0.045), indicating a good fitting model.

The results demonstrated that only impaired autonomy and performance schemas were significantly predicting the anxiety symptoms among young people ($\beta = 0.23$, $p < 0.05$, 90% Cl = 0.003, 0.450) while non-significant standardized pathways were found between disconnection/rejection schemas and anxiety symptoms ($\beta = 0.094$, $p = 0.21$, 90% Cl = -0.240, 0.052). The findings of direct effect pathways were consistent with hypothesis 3, suggesting that young people are more prone to developing anxiety symptoms when they have significantly predominant schemas related to impaired autonomy and performance, i.e., the cognitive beliefs regarding the inability to control oneself in daily life and manage independently.

Furthermore, consistent with hypothesis 2, the direct predictive association between self-compassion, mindfulness and anxiety symptoms was statistically significant. The direct structural pathways show that mindfulness exhibited stronger predictive associations with anxiety symptoms ($\beta = 0.64$, $p < 0.001$, 90% Cl =0.408, 0.865) compared to self-compassion ($\beta = 0.13$, $p < 0.001$, 90% Cl = 0.064, 0.185). Figure. 5.3. represents model 1 with all the standardised pathways for direct effects.

In addition, the results of direct effects further supported hypothesis 3, as only impaired autonomy and performance schemas were found to have a significant and more robust predictive impact on anxiety symptoms compared to disconnection/rejection schemas.

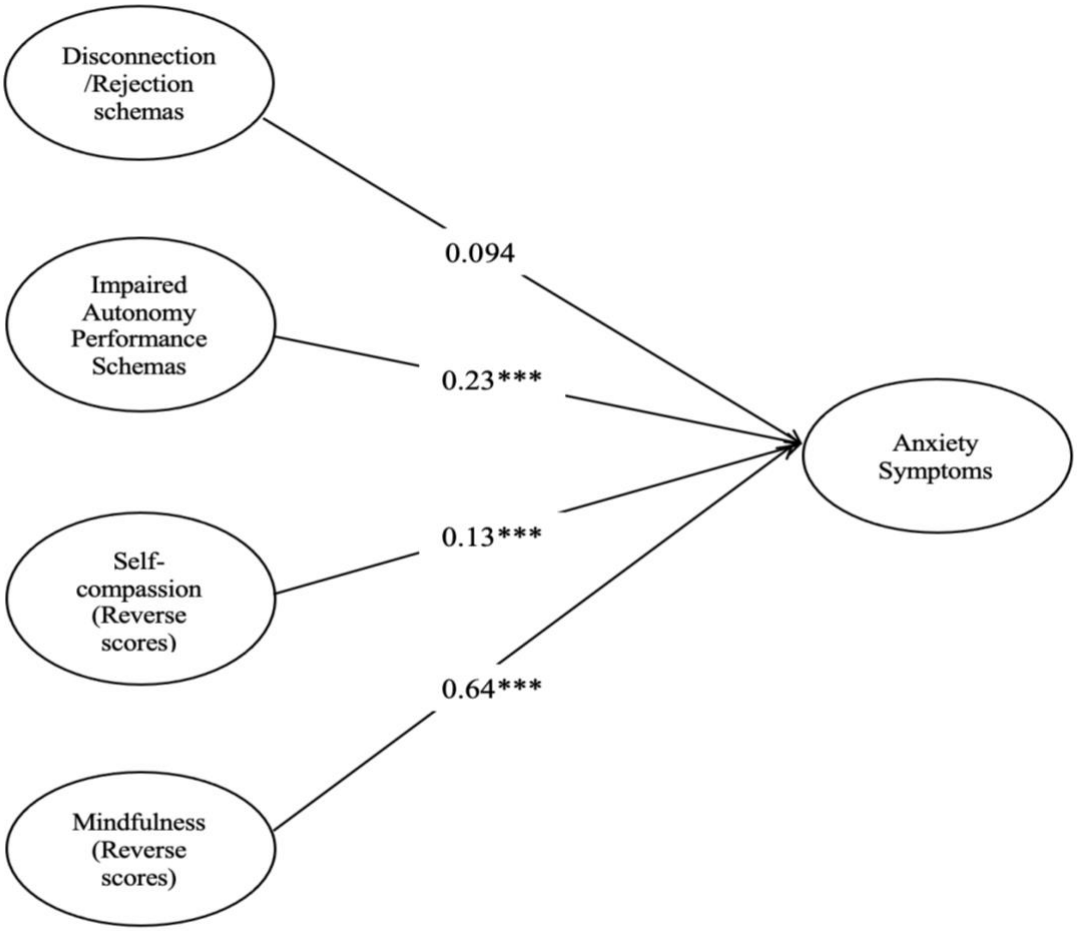


Figure. 5.3. Model 1 for the direct associations between Schema domains, Self-compassion, Mindfulness and Anxiety symptoms. All coefficients are standardised and statistically significant, ***p < 0.001.

5.3.3.2. Indirect Effects (Hypothesis 4)

The indirect effects from SEM were further used to evaluate the mediating effects of self-compassion and mindfulness between schema domains and anxiety symptoms. Model 2 was estimated using the Maximum Likelihood (ML) estimator with 5000 bootstrapped samples. 95% percentile confidence interval level of significance testing was used to evaluate the structural model for mediational effects. An absence of zero in the 95% confidence interval range suggested the presence of significant estimated indirect effects (Preacher & Hayes, 2008; Hayes, 2018).

The hypothesized model 2 emerged with 68 indicator variables, 21 latent factors and 229 free parameters exhibited a good fitting model, χ^2 (2185) = 6779.71, $p < 0.001$, CFI = 0.91, TLI = 0.90, SRMR = 0.069, RMSEA (90% CI) = 0.047 (0.046 to 0.048). The model explained a 49% variance in anxiety symptoms among young people ($R^2 = 0.485$).

The results of indirect effects after controlling for age and gender show that self-compassion only mediated the link between disconnection/rejection schemas and anxiety symptoms (β = 0.04, 95% Cl = 0.008, 0.078). However, the mediating effect found was relatively small. The indirect effects of self-compassion between impaired autonomy/performance schemas and anxiety symptoms contained zero in 95% upper and lower bound Cl's, suggesting a non-significant mediating link (β = 0.02, 95% Cl = -0.006, 0.043).

Furthermore, findings revealed a significant indirect effect of mindfulness between impaired autonomy/performance schemas and anxiety symptoms (β = 0.28, 95% Cl = 0.125, 0.444) and between disconnection/rejection schemas and anxiety symptoms (β = 0.21, 95% Cl = 0.064, 0.360). These findings propose that lower levels of mindfulness significantly mediated the

associations of schemas related to disconnection/rejection and impaired autonomy/performance domain with anxiety symptoms. Table 5.2. shows all pathways for full SEM, including direct, indirect and total effect paths from schema domains to anxiety symptoms. Figure. 5.4. represents the results for the pathways leading to anxiety symptoms with hypothesised predictors and mediators.

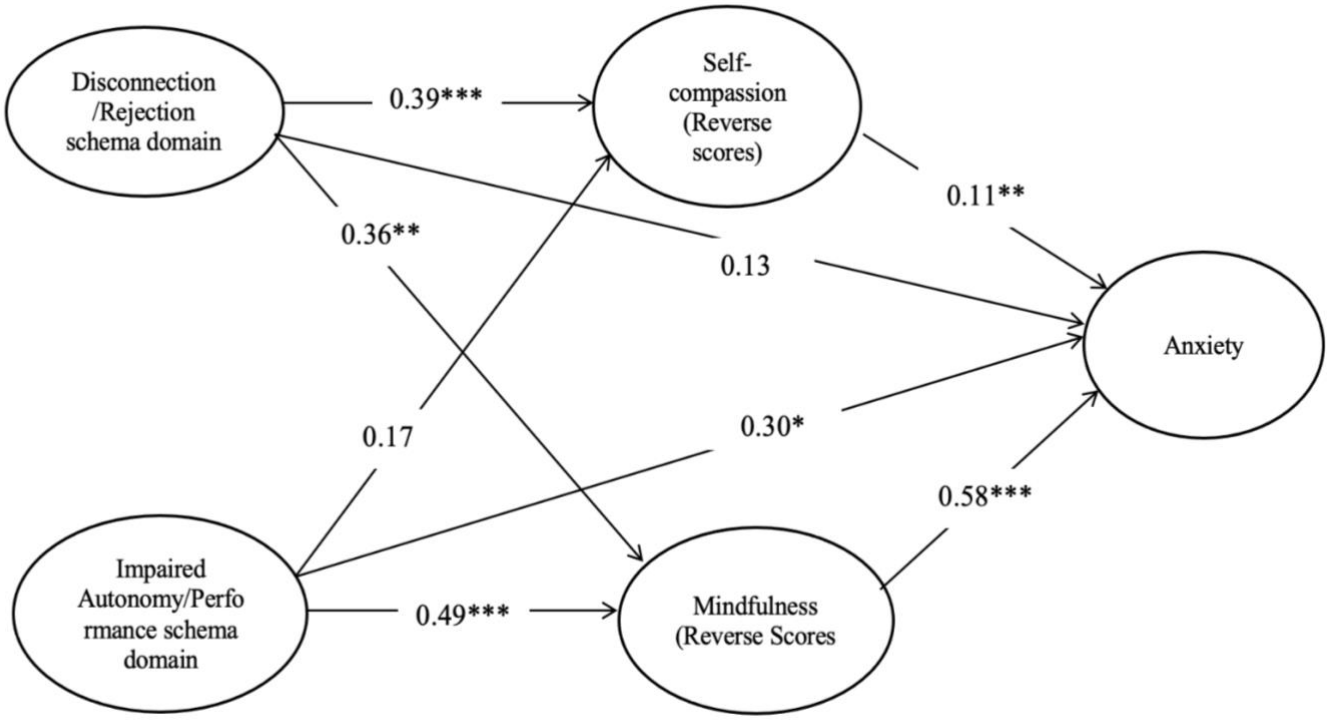


Figure 5.4. Model 2 for the associations between Schema domains, Self-compassion, Mindfulness and Anxiety symptoms. All coefficients are standardised and statistically significant, ***p < 0.001.

Table 5.2.

The Direct, Indirect and Total effects of all paths for the final Structural equation model (N= 946).

Paths	Un-standardized bets (B)	Standardized beta (β)	Bootstrap 95 % Confidence for Standardized β	
			LB	UB
Direct Effect: Disconnection/Rejection schemas → Anxiety symptoms	0.048	0.13	-0.070	0.319
Disconnection/Rejection schemas → Self-compassion → Anxiety symptoms	0.017*	0.043*	0.008	0.078
Disconnection/Rejection schemas → Mindfulness → Anxiety symptoms	0.082*	0.212*	0.064	0.360
Total Indirect Effect: Disconnection/Rejection schemas → Anxiety symptoms	0.065	0.169	0.025	0.313
Direct Effect: Impaired autonomy/performance schemas → Anxiety symptoms	0.113*	0.298*	0.083	0.514
Impaired autonomy schemas. → Self-compassion → Anxiety symptoms	0.007	0.018	-0.006	0.043
Impaired autonomy schemas. → Mindfulness → Anxiety symptoms	0.108**	0.284**	0.125	0.444
Total Indirect Effect: Impaired autonomy/performance schemas → Anxiety symptoms	0.101**	0.266**	0.111	0.420

Note. Significance at *** $p < 0.001$, ** $p < 0.01$, * $p < 0.0$

5.4. Discussion

The current study empirically explored the associations between early maladaptive schemas, self-compassion, mindfulness, and anxiety symptoms among young people. The present study is the first to explore these study variables using a structural equation modelling approach with a large, diverse young people sample to estimate the direct and indirect pathways to anxiety symptoms. The findings show that early maladaptive schemas and schema domains had a significant positive relationship with anxiety symptoms, while a significant negative relationship exists with self-compassion and mindfulness, supporting hypothesis 1 for the current study. Furthermore, the impaired autonomy/performance schema domain had a significant association with anxiety symptoms than disconnection/rejection schemas. Finally, the findings partly supported hypothesis 4, as only mindfulness strongly mediates the link between schema domains and anxiety symptoms.

The present findings are consistent with Young's schematic framework that proposes a substantial existence of psychopathology, including anxiety disorder, among individuals with predominant and activated maladaptive schemas, i.e., individuals with maladaptive thoughts, beliefs, emotions, and feelings are likely to experience more significant psychopathological symptoms (Young et al., 2003). These findings advise that young people have a stronger relationship between maladaptive schemas and anxiety symptoms, thus suggesting that they are likely to suffer anxiousness, worry, fear, physiological arousal and other associated difficulties when triggered by negative and dysfunctional schemas. In line with previous research, both within this thesis (Chapter three) and that conducted by others (Carlucci et al., 2018; Saggino et al., 2018; Gonzalez-Diez et al., 2015; Calvete, 2014; Calvete et al., 2013), there appears to be robust evidence for a significant link between maladaptive schemas and various anxiety symptoms among youth, adolescents, and young adult sample.

Furthermore, consistent with previous findings, our results supported the hypothesis that the schemas of impaired autonomy/performance were a more robust predictor of anxiety symptoms among young people. There exist notable similarities between the schema content for impaired autonomy/performance domain and the cognitive biases characteristic of anxiety symptoms. The contemporary cognitive models proposed that individuals with different anxiety symptoms have maladaptive, rigid, inaccurate, and destructive beliefs central to their identity that play a causal role in generating and maintaining anxiety symptoms (Beck & Dozois, 2011). These maladaptive beliefs usually involve thoughts and feelings of incompetence, danger, potential harm, threat, rejection, and negative evaluation that can cause excessive worry and fear related to daily life situations (APA, 2013; Boden et al., 2013; Clark & Wells, 1995). Moreover, the schemas linked with impaired autonomy/performance domain involve maladaptive thoughts and beliefs related to an individual's inability to perform responsibly and competently in daily life situations, lack of independence and excessive emotional attachment, vulnerability to harm, illness and catastrophe, and constant fear of failure (Young et al., 2003). This is consistent with the previous findings described earlier in this thesis (Chapter Three) as well as with previous literature, suggesting that young people with preoccupying beliefs and thoughts linked with this schematic content are likely to suffer more from anxious tendencies (Calvete et al., 2015; Camara & Calvete, 2012; Hawke & Provencher, 2011; Vlierberghe et al., 2010; Lumley & Harkness, 2007).

Similarly, as hypothesised, findings showed a significant negative association between self-compassion and mindfulness with all five schema domains. The results suggest that individuals with lower levels of self-compassion and mindfulness are likely to have significant maladaptive beliefs, feelings, and emotions, i.e., people with higher self-critical tendencies, lack of empathy, lower mindful awareness, and acceptance of negative thoughts cannot adequately

channelise their negative thoughts, behaviours, feelings and emotions (Janovsky et al., 2019; Yakin et al., 2018; Flink et al., 2018; Thimm, 2017; Shorey et al., 2015a; Shorey et al., 2015b; Cecero et al., 2008). These findings are reported and discussed previously in Chapter four as well.

Furthermore, our results suggested a significant negative association of anxiety symptoms with self-compassion and mindfulness, with medium effect sizes. Additionally, direct SEM pathways revealed that self-compassion and mindfulness significantly predicted anxiety symptoms among young people, but with contrasting effect sizes from small ($\beta = 0.13$) with self-compassion to large ($\beta = 0.65$) with mindfulness. Several previous studies suggest mindfulness and self-compassion are essential components in predicting anxiety symptoms among adolescents and young adults (Perez-Aranda et al., 2021; Egan et al., 2021; Makadi & Koszycki, 2020; Marsh et al., 2018; Soysa & Wilcomb, 2015). Theoretically, mindfulness and self-compassion have been described as similar and parallel constructs that play an equally essential and dynamic iterative process in promoting psychological and emotional well-being among adolescents (Bluth & Blanton, 2013). Yet, despite the shared similarities, self-compassion and mindfulness are distinct personal skills that focus on different human factors (Neff & Dahm, 2015). Further, the findings proposed a more significant predictive association between mindfulness and anxiety symptoms than self-compassion. This is consistent with previous literature where mindfulness appears to have a more robust predictive association with anxiety symptoms in a non-clinical community (Neff & Dahm, 2015) and clinical samples (Hoge et al., 2013). Based on these empirical findings, it appears that it may be of value to support young people with anxious tendencies to mindfully attend to external and internal stimuli to reduce psychological and physiological arousal that can lead to anxiety symptoms, i.e., In other words, mindful attention and awareness of stimuli may be a more effective strategy

than accepting the situation with kindness and empathy in this context. Indeed, similar findings have been observed in a randomised control pilot study using mindfulness-based cognitive therapy (MBCT) and compassion-focused therapy (CFT) with clinical patients, where MBCT resulted in a more significant reduction of anxiety symptoms compared to CFT (Frostadottir & Dorjee, 2019).

Finally, the SEM pathways for indirect effect suggested a significant mediating effect of mindfulness between the schema domains and anxiety symptoms, compared to self-compassion, which mediated the association between disconnection/rejection schemas and anxiety symptoms only. In other words, it appears that mindfulness may be a mechanism through which young people with prevalent maladaptive beliefs regarding lack of independence and competence, fear of failure, excessive dependency and vulnerability to harm and illness are likely experience severe symptoms of anxiety.

These empirical findings are partly consistent with previous research; for instance, Thimm (2017) found that mindfulness and self-compassion significantly mediate between schema domains and psychological distress. In our findings, mindfulness strongly mediated the link between schemas and anxiety symptoms. In contrast, self-compassion only mediated the disconnection/rejection to the anxiety pathway, with only a small effect size. This discrepancy in findings can be due to the difference in outcome variables, as Thimm (2017) included psychological distress as a composite measure of depression and anxiety. Furthermore, previous research has highlighted mindfulness as a more robust predictor of anxiety symptoms than self-compassion (Frostadottir & Dorjee, 2019; Hoge et al., 2013; Neff & Dahm, 2015). However, these findings should be considered with caution due to the cross-sectional nature of the current study. This was the first study to date that explored the parallel mediating effects of

mindfulness and self-compassion between the associations of schema domains and anxiety symptoms using SEM pathways in a diverse young people sample. There has been a paucity of previous research that explores the mediating effects of self-compassion and mindfulness between maladaptive schemas and anxiety symptoms. Future studies are needed to make more robust and specific conclusions.

Nevertheless, the current findings suggest that mindfulness may serve as the mechanism through which maladaptive beliefs, feelings, and emotions may lead towards anxiety symptoms among young people. Young et al. (2003) have previously described that individuals with maladaptive schemas are likely to engage in avoidance behaviours as an adaptive coping strategy. On the contrary, mindfulness is recognised as a human trait that involves mindful awareness and acceptance of unwanted thoughts, feelings, and emotions (Baer et al., 2012; Baer et al., 2003), i.e., it may help individuals to overcome the avoidance and escape towards the negative stimuli. Further, mindfulness-based interventions have been successfully employed in recent years, along with using schema therapy to treat emotional problems (Van-Vresswijk & Broersen, 2014; McKay et al., 2012; Cousineau, 2012). Additionally, Neff and Dahm (2015) suggested that developing mindfulness may allow anxious people to notice their fears and anxiety deliberately and, in turn, respond with openness, acceptance and curiosity. Further, engaging in mindfulness practices might enhance an individual's ability to tolerate distress, interrupt avoidance behaviours and promote healthy mind/body functioning (Bowen & Marlatt, 2009; Greeson & Brantley, 2009).

5.4.1. Clinical Implications

Adolescence and young adulthood is a developmental stage with elevated vulnerability to mental health issues, particularly anxiety disorders (Adult Psychiatric Morbidity Survey,

2014). Nearly 75% of the population experience the first onset of a psychiatric illness before 25 years (Kessler et al., 2005). However, despite an increase in mental health difficulties, young people are less likely to access or receive mental health support (Adult Psychiatric Morbidity Survey, 2014). There exists an urgency to recognise and understand the needs of young people's mental health difficulties to improve mental and psychological health. The present findings provide novel insight regarding the cognitive vulnerabilities towards anxiety symptoms and extend empirical support for existing evidence regarding early maladaptive schemas as a precursor of anxiety disorders. Further, these findings provide evidence for self-compassion and mindfulness as mediating factors that link maladaptive schemas and subsequent anxiety symptoms among young people. The current results can assist clinicians in considering the role of mindfulness and self-compassion-based interventions to address maladaptive thoughts, behaviours, and feelings. In addition, these results support the need for and development of self-help materials to help young people understand maladaptive behaviours, feelings and thoughts and cultivate self-compassion and mindfulness.

5.4.2. Strengths, Limitations and Future Directions

The methodological strength and limitations of this study have been discussed and highlighted in previous chapter four (Section 4.4.2).

5.4.3. Chapter Conclusion

In conclusion, the empirical findings demonstrate a significant direct association between impaired autonomy/performance schemas with anxiety symptoms among young people. Further, the findings showed that mindfulness was a more robust mediator for the link between schema domains and anxiety symptoms, while self-compassion only mediated the link between

disconnection/rejection schemas and anxiety symptoms. These results suggest that young people with significantly predominant schemas of impaired autonomy/performance and disconnection/rejection are likely to experience anxiety symptoms due to lower levels of mindful awareness and non-judgmental acceptance of their negative thoughts. These results will be further discussed alongside that presented in the last chapter in the final discussion chapter (Chapter Seven). Given the role of self-compassion and mindfulness demonstrated in this study, the thesis proceeded to the final study, which investigated if self-help materials could be used to alleviate symptoms of anxiety and depression in individuals with elevated maladaptive schemas. The next chapter will describe and report its findings in full.

Chapter 6

An Experimental Investigation of Self-help material based on Compassionate Mind Training to Reduce the Effects of Early Maladaptive Schemas using a Multiple Baseline Design

The previous two chapters highlight two mechanisms through which EMS exerts its influence on subsequent depression and anxiety among young people. Specifically, the potential mediating effects of self-compassion and mindfulness provide a preliminary evidence base for the potential use of self-compassion and mindfulness-based psychotherapeutic interventions to diminish schemas' harmful effects and improve young people's psychological well-being. Therefore, a pilot study was conducted to test the effectiveness of self-help compassion-based intervention that encompasses components of self-compassion to diminish the maladaptive effects of schemas among young people. This chapter will report the rationale, design, execution, and findings of this pilot study.

6.1. Introduction

6.1.1. What is a Self-help Intervention

A self-help intervention is a psychological treatment protocol that enables individuals or patients to work independently through standardised therapeutic materials (Greenwell et al., 2016; Cuijpers & Schuurmans, 2007). Self-help interventions are usually delivered through specific step-by-step guidance through books or other media platforms such as computer packages, videos, television, or smartphone applications (Greenwell et al., 2016; Boucher, 2013). People can complete these self-help interventions without therapeutic guidance, often

described as "*unguided self-help".* Alternatively, "*guided self-help*" aims to provide facilitative support from a trained professional during the process of self-help intervention. The contacts with professionals are usually made briefly through telephone or emails to provide additional explanations regarding the use of self-help materials and extend support and encouragement to the patients to complete the treatment protocols (Cuijpers et al., 2010; Cuijpers & Schuurmans, 2007).

6.1.2. Importance of developing self-help strategies

Mental health problems affect nearly 7.5 million young people in the UK between the ages of 17 to 23 years, making it almost 16.9% of the general population suffering from a potential mental health issue (Newlove-Delgado et al., 2021). Globally, 1 in 7 adolescents (nearly 14%) between 10 and 19 years are estimated to suffer from mental illness, with depression and anxiety recognised as the leading cause of mental health conditions (World Health Organization WHO, 2021). Recently, the COVID-19 pandemic has posed an additional risk to the mental health crisis among adolescents and young adults, with 83% of the young population expressing deterioration in their mental health amid the COVID-19 pandemic (Carvajal et al., 2021; Young Mind, 2020). Numerous treatment strategies and evidence-based therapeutic protocols exist to deal with mental health issues; however, the treatment demands surpass the therapeutic support available. As a result, many young people do not receive mental health support and are often on extensive waiting lists for mental health services (Bennett et al., 2019; Lewis et al., 2012).

A review of Children and Adolescent Mental Health Services (CAMHS, 2022) estimated that the average waiting time is 18 weeks from the first referral to the start of treatment for young people (CAMHS, 2022). Long waiting times for accessing mental health services can result in

worsening symptoms, poorer outcomes, and disengagement from the treatment (Stafford et al., 2020). An alternative way to avoid long waiting lists and increase access to evidence-based psychological therapies is to help young people access '*low-intensity interventions'*, i.e., access to self-help strategies delivered through books, brochures, online services or intzernet apps, with or without the guidance and support of a trained therapist (Bennett et al., 2019). Self-help has recently emerged as a helpful strategy in psychological research and a more significant effort to advocate mental health awareness among our communities (Jorm, 2012). These strategies appeal to the broader sample due to their easy accessibility, cost-effectiveness, and reduced time burden of visiting mental health practitioners (Greenwell et al., 2016; Lewis et al., 2012). In addition, self-help materials benefit individuals with a fear of associated mental health stigma to access and practice the intervention programs at their own pace and comfort (Greenwell et al., 2016).

Recently, there has been a greater demand and market growth for self-help books (National Purchase Diary Panel- NPD, 2020). A number of self-help books are organised in a workbook format consisting of specific exercises for readers to practice independently and in a self-directed manner. These self-help workbooks are commonly referred to as manuals (Boucher, 2013), i.e., the approach is more hands-on, allowing greater involvement and helping readers to practice effective strategies rather than merely reading the book (Boucher, 2013; Bergsma, 2008; Norcross, 2000). Additionally, these materials enable individuals to revisit the strategies or materials to avoid relapse of a condition and reinforce acquired learning (Bendelin et al., 2011).

6.1.3. Effectiveness of Self-help Interventions for Depressive and Anxiety disorders

In recent years, the effectiveness of self-help interventions has been empirically tested and explored. Meta-analytical evidence from previous literature found significant improvement in depressive and anxiety symptoms following a self-help intervention (Lewis et al., 2018; Hofmann et al., 2013; Haug et al., 2012; Cuijpers et al., 2010; Hof et al., 2009; Gellatly et al., 2007; Hirai & Clum, 2006). The meta-analytical findings from 28 RCTs employing self-help intervention based on CBT showed a significant reduction in depressive symptoms (Hedges *'g'* = 0.35, $p < 0.001$) at post-treatment assessment (Ho et al., 2020). Similarly, the meta-analytical findings from 23 studies found that self-help interventions helped relieve symptoms of depression (Effect size, SMD = 0.13, $p < 0.05$) among patients with physical illness compared to control participants (Matcham et al., 2014).

Likewise, previous findings showed promising effects of self-help intervention in reducing anxiety symptoms. Based on 31 studies, a meta-analysis has showed a significant therapeutic effect of self-help interventions in decreasing anxiety symptoms (Effect size = 0.84, $p < 0.001$) among diagnosed anxiety patients compared to waitlist controls (Lewis et al., 2012). A systematic review of the literature also showed that self-help techniques effectively dealt with various anxiety symptoms, such as social phobias, panic disorder, agoraphobia, and generalised anxiety disorders (Lewis et al., 2012). Similar findings were observed in a previous meta-analysis that found bibliography-based self-help interventions were clinically effective for treating individuals with depression and anxiety disorders (den Boer et al., 2004). Furthermore, meta-analytical findings from 56 studies showed clinically significant effects of self-help interventions over waiting list controls, with moderate to large effect sizes (Hedges *'g'* = 0.74, $p < 0.001$; Haug et al., 2012), while self-help interventions only differed minimally, with a small effect, from face-to-face treatment (Hedges *'g'* = 0.21; Haug et al., 2012). These findings

suggest that self-help interventions have a valuable role in treating individuals with anxiety or depressive disorders (Cuijpers et al., 2010).

6.1.4. Self-compassion and Mindfulness as Self-help techniques

In recent years, there has been abundant ongoing research into the beneficial effects of self-compassion and mindfulness in alleviating negative symptoms such as depression and anxiety and improving psychological well-being, resilience, and healthy coping (Sirois et al., 2015; Keng et al., 2011; Allen & Leary, 2010; Neff & McGehee, 2010). The effectiveness of mindfulness and self-compassion-based interventions has been well-documented in improving symptoms of anxiety and depression in both clinical (Craig et al., 2020; Vollestad et al., 2011; Hofmann et al., 2010) and non-clinical samples (Conversano et al., 2020; Joss et al., 2019; Ferrari et al., 2019; Kirby et al., 2017; Leaviss & Uttley, 2014). As described in Chapters four and five, *Mindfulness* has been described as an individual's attention to present moment experiences and accepting the ongoing stimuli and events in an accepting and open manner (Bishop et al., 2004; Baer, 2006). In contrast, *Self-compassion* is a human tendency to empathetically accept one's sufferings, pains, negative emotions, and situations as part of human experience and avoid critical judgement (Neff, 2003a, 2003b). Self-compassion and Mindfulness lend themselves to the self-help format as they are considered mutable attributes and skills that can be learned easily and practised independently through targeted interventions (Neff, 2022; Amonoo et al., 2019; Bluth & Neff, 2018; Bluth et al., 2016; Neff & Germer, 2013). Mental health practitioners and researchers are increasingly recommending the use of self-help interventions based on self-compassion and mindfulness to bring improvement in psychological well-being and adaptive emotional regulation and decrease symptoms of depression, anxiety, or stress (Al-Refae et al., 2021; Hudson et al., 2020; Linardon, 2019; Sommers-Spijkerman et al., 2018; Wilson et al., 2018).

A recent meta-analysis explored the effectiveness of self-help, self-compassionate, and mindfulness-based interventions delivered using a smartphone application. The meta-analytical findings from 33 studies employing mindfulness interventions resulted in higher mindfulness levels than in comparison groups (Hedges 'g' = 0.29, $p < 0.001$). Similarly, the results from nine studies that delivered self-compassion interventions showed an improvement in self-compassion levels after engagement with a smartphone-delivered intervention compared to control conditions (Hedges 'g' = 0.31, $p < 0.01$). These findings support using self-help materials to enhance self-compassion and mindfulness (Linardon, 2020).

In another study, Al-Refae et al. (2021) employed a smartphone application to complete four weeks of mindfulness and self-compassion-based cognitive intervention with the general population to evaluate the effectiveness of self-compassion and mindfulness in improving symptoms of depression and anxiety. The findings revealed a significant improvement in self-compassion levels at the post-assessment time. At the same time, the symptoms of depression and anxiety decreased significantly among the participants than in the waitlist control group. These findings provide preliminary evidence that self-engagement with self-compassionate and mindfulness-based intervention has the potential to help reduce symptoms of depression through increased levels of self-compassion, mindfulness, and cognitive restructuring (i.e., reframing a stressful and disturbing situation, event, or emotion more positively and adaptively). Further, it has been proposed that improvement in self-compassion tendencies may help individuals disrupt the pathway for negative emotions by reducing over-identification of negative feelings, thoughts and behaviours and instead engaging in more positive thinking (Al-Refae et al., 2021).

6.1.5. Employing Self-compassion-based self-help techniques for the current study

Based on the empirical findings and arguments developed in the previous chapters, the current study was designed using self-help skills derived from compassion-based interventions. *Mindfulness* refers to a mental process of achieving a non-judgmental, accepting, open and curious frame of awareness toward the present experiences, sensations, feelings, and emotions (Bishop et al., 2004). Further, it is conceptualised as a state of mind characterised by focus and attention to the experiences without getting caught by stressful thoughts and emotions (Kabat-Zinn, 1990). In contrast, *self-compassion* involves sensitivity toward negative experiences and efforts to alleviate that experiences and suffering (Goetz et al., 2010). The two concepts, despite having operational similarities, are distinct processes. Furthermore, self-compassion is a broader concept with additional components to mindfulness, i.e., it involves self-soothing practices to alleviate suffering and understanding its existence as a part of human experiences (Neff & Dahm, 2015).

Thimm (2017) proposed that to reduce the distressing effects of early maladaptive schemas, it is essential to develop an acceptance and acknowledgement of their existence. Based on this, we proposed that self-compassionate practices that involve engagement in adaptive and positive behaviours will be more beneficial than being aware or mindful of schemas (i.e., mindfulness). According to Neff and Dahm (2015), it is crucial to be compassionate towards oneself and their suffering, especially when stressful thoughts, feelings and emotions are self-critical and linked with inadequacy, dependency, and impaired feelings. Furthermore, some researchers proposed that self-compassion is the main mechanism through which mindfulness influences psychological health and well-being (Holzel et al., 2011; Baer, 2010; Kuyken et al., 2010).

Different interventions that aim to cultivate self-compassion have been developed and empirically tested; however, the most prominent are *Compassion Focused Therapy* (CFT; Gilbert, 2014; Gilbert & Procter, 2006) and *Mindful Self-compassion* (MSC; Neff & Germer, 2013). Gilbert and Procter (2006) developed a self-compassion therapy targeted explicitly at clinical populations that aims to improve and enhance self-compassion among participants with higher levels of shame and self-criticism. Conversely, Neff and Germer (2013) developed a mindful self-compassion intervention to teach self-compassion skills to the general population. Despite different intervention designs, these techniques are grounded in Buddhist traditions and perspectives of human suffering and therefore have similar techniques (Kirby et al., 2017; Hangartner, 2013).

6.1.6. Effectiveness of Self-compassion-based Self-help skills

A few research studies conducted in recent years have found that self-help interventions employing compassion-based therapy show promising benefits as a public mental health strategy to improve psychological well-being and overcome the adverse symptoms of psychological distress (Sommer-Spijkerman et al., 2017; Kelly & Carter, 2014; Kelly et al., 2010; Shapira & Mongrain, 2010).

Sommer-Spijkerman et al. (2017) conducted a large-scale RCT with a Dutch sample of nearly 245 participants, assigned randomly to an intervention and waitlist control group. The participants were provided with a self-help workbook based on elements of compassion-focused therapy (Gilbert, 2014). Participants were engaged in a guided self-help intervention, where they were asked to complete and practise self-help strategies for nine weeks. The findings at post-assessment and follow-up time showed significant improvement in participants' levels of well-being, gratitude, and self-compassion. At the same time, symptoms

of depression, anxiety, stress, and self-criticism decreased significantly after the intervention (Sommer-Spijkerman et al., 2018a).

In another study, Hudson et al. (2019) conducted a feasibility trial of self-help compassion-focused therapy among individuals diagnosed with a skin condition. The researchers found moderate improvement in symptoms of depression, anxiety, stress, self-compassion, and dermatology-specific quality of life after engagement with a 2-week intervention module. The findings from the current study need to be taken with caution due to the short intervention period and lack of any follow-up assessment. It has been proposed that at least 8-12 sessions of compassion-based interventions are required to see clinically significant change among participants (Craig et al., 2020; Frostadottir & Dorjee, 2019).

Similarly, a 3-week self-help training using self-compassion techniques of mindful imagery, self-talk and letter writing was carried out with participants engaged in binge eating. The findings showed a significant increase in levels of self-compassion among participants in a short period and effective results for reducing binge eating symptoms (Kelly & Carter, 2015). Similar to previous studies, this RCT was limited to fewer sessions required to improve significantly.

6.1.7. Role of Self-compassion among Early Maladaptive Schemas and Symptoms of Depression and Anxiety

The previous chapters provide empirical evidence for the mediating effects of self-compassion between maladaptive schemas associated significantly with symptoms of depression and anxiety. *Early maladaptive schemas (EMS)* are described as distorted, broad, and pervasive beliefs, feelings, emotions and memories regarding the self or others, often rooted in early

childhood experiences and continuing to develop throughout one's lifetime (Young et al., 2003). The schema content of significantly predominant schemas among young people with depression or anxiety symptoms are linked with maladaptive feelings or beliefs of self-criticism, harsh, punitive self-judgement, lack of competence, failure, guilt, and shame (Young et al., 2003). The findings from previous literature further provide additional evidence that individuals with lower levels of self-compassion are more likely to have predominantly active maladaptive beliefs, thoughts, and feelings due to their constant engagement with the self-critical and punitive judgement of their beliefs (Janovsky et al., 2019; Yakin et al., 2018; Flink et al., 2018; Thimm, 2017). The available literature evidence suggests the beneficial effects of self-compassion among young people with higher EMS, i.e., self-compassion will be an adaptive, effective, and active ingredient in diminishing and buffering the effects of maladaptive schemas and subsequent depression or anxiety symptoms among young people.

6.1.8. Aims of the current study

Given the utility and potential of self-help intervention and the increasing evidence of the benefits of using self-compassion, it is reasonable to propose that self-help interventions designed to help people develop the skills of self-compassion will be a valuable, accessible, and helpful resource for young people with predominant early maladaptive schemas. This study, therefore, aimed to test the following hypotheses:

(i). The self-help compassion-based intervention is a feasible, acceptable, and effective treatment strategy to reduce the maladaptive effects of EMS on subsequent depression and anxiety among young people.

(ii). The self-help strategies based on compassionate-based interventions will increase levels of self-compassion and mindfulness while decreasing the scores of early maladaptive schemas, depression, and anxiety among young people.

6.2. Methods

6.2.1. Design Overview

The present study was conducted as a non-concurrent multiple baseline design with a series of A-B replications based on previous research (e.g., Dunn et al., 2019; Holmes et al., 2016). The *What Works Clearinghouse Guidelines* were followed for designing and ensuring methodological rigour for the study (Kratochwill et al., 2021; Kratochwill et al., 2013).

Multiple baselines across different subjects were employed in which participants had to complete different baseline lengths before starting the intervention phase (Conn & Rapp, 2018), such that the intervention was sequentially introduced to different subjects at different times (Krasny-Pacini & Evans, 2018). The non-concurrent design helped collect data from participants at different time points based on availability (Watson & Workman, 1981). The multiple baseline design comprised two phases, (A) the Baseline phase, during which no intervention or independent variable was manipulated, followed by (B) an Intervention phase where an independent variable (Self-help intervention) was introduced. The primary rationale behind using this design was to demonstrate that the change due to intervention occurs when and only when the intervention was introduced and not due to other potential environmental or personal factors. The participant's baseline period serves as their own control condition (Krasny-Pacini & Evans, 2018; Conn & Rapp, 2018; Lobo et al., 2018).

6.2.2. Participants

A sample of young people (N = 7) between 16-25 years was recruited for this study. During the previous empirical study, a total of 122 participants had given consent to be contacted for further research. The participants with higher scores on the early maladaptive schema measure

were screened for participation in the current study. A cut-off mean score of 3 was chosen based on Young scoring guidelines (2005) and previous research (i.e., Pellerone et al., 2017). Coincidentally all of these participants had significant scores in most of the schema domains, with nearly 80 participants having elevated scores on all five schema domains of the early maladaptive schema (EMS). Among these 80 participants, individuals with the highest score on EMS (Total mean score above 3) were initially contacted via email and invited to participate in this research.

Ten participants consented to their participation and completed initial screening measures. Two participants had lower scores than the cut-off scores on EMS. In contrast, one participant did not complete the self-help intervention. The final sample, therefore, comprised seven young people between 16 to 25 years (M = 23.57, SD = 1.38), including six females and one male participant with elevated maladaptive schemas scores (M = 3.61; SD = 0.86). Among these 7 participants, 6 participants had moderate to extreme depressive scores while 5 participants had moderate to severe anxiety scores at the baseline level (See Table 6.1).

Table 6.1. Means and SDs on Clinical Variables at Baseline (N = 7).

Clinical Variables	Frequency	Percentage (%)	Means	Std. Deviation
Depression Level			25.14	9.23
Normal	0	0		
Mild	1	14.3		
Moderate	1	14.3		
Severe	3	42.9		
Extremely Severe	2	28.6		
Anxiety Level			14.00	8.17
Normal	1	14.3		
Mild	1	14.3		

Moderate	2	28.6		
Severe	3	42.9		
Extremely Severe	0	0		
Self-compassion Level			2.37	0.40
Low	5	71.4		
Moderate	2	28.6		
High	0	0		

6.2.2.1. Inclusion and Exclusion criteria

The inclusion criteria for the present study were:

1. Participants between the ages of 16-25 years.
2. Participants who self-identified to have sufficient fluency in the English language to understand the information sheet and complete pre-and post-questionnaires and self-help materials provided during the intervention phase.
3. Participants with elevated scores on early maladaptive schema measure with an overall mean score above 3.

The exclusion criteria included:

1. Participants who are currently seeking any other psychological treatment or engage in a research project evaluating psychological symptoms.

6.2.3. Ethical Approval and Considerations

The present study was assessed and approved by the Research Ethics team at the School of Health in Social Science, University of Edinburgh (Reference no: CLPS047; See Appendix-J). The University's sponsorship was attainted before seeking ethical approval, considering the UK policy framework for health and social care research (Sponsor no: CAHSS2104/02; See Appendix- I). The ethical considerations outlined in University's data protection protocol were

carefully followed throughout the process of conducting research and data handling. The participants were informed of their rights to participation, confidentiality, rationale, and procedure for the study in a detailed participant information sheet. Participants completed electronically filled consent forms before the beginning of the research study. They were provided with opportunities to ask queries related to the project from the lead researcher at any time throughout the data collection process. Further, participants were regularly supplied with information about specific support services, hotlines, and organisations at the start and throughout the study to ensure that participants were well-aware of the help available.

6.2.4. Procedure

The participants were allocated using block randomisation by the researcher to three different baseline phases of two weeks (~2 participants), three weeks (~2 participants), and four weeks (~3 participants) (similar to randomisation done in previous research, e.g., Holmes et al., 2016). Participants from the empirical study who left their email addresses were invited to this study. Participant information sheets were emailed, and a consent form was completed before the beginning of the study. Three participant information sheets were sent based on the randomisation of participants to 2-, 3- or 4 weeks (See Appendix- K). Participants provided a unique participant number on their consent forms that was used consistently during all the required tasks and completing daily and pre/post-test measures. This helped the researcher identify and keep records of each participant's data throughout the study. All participants had to complete a ***baseline phase (A)*** for two, three or four weeks (depending upon the randomisation to a particular baseline allocated to each participant followed by an ***intervention phase (B)*** of 7 weeks, which was similar across all participants. Individuals' baseline acted as their control periods. During the baseline phase, participants had to complete ratings of mood (PANAS) and dysfunctional beliefs (DAS) on alternate days. The minimum baseline points to

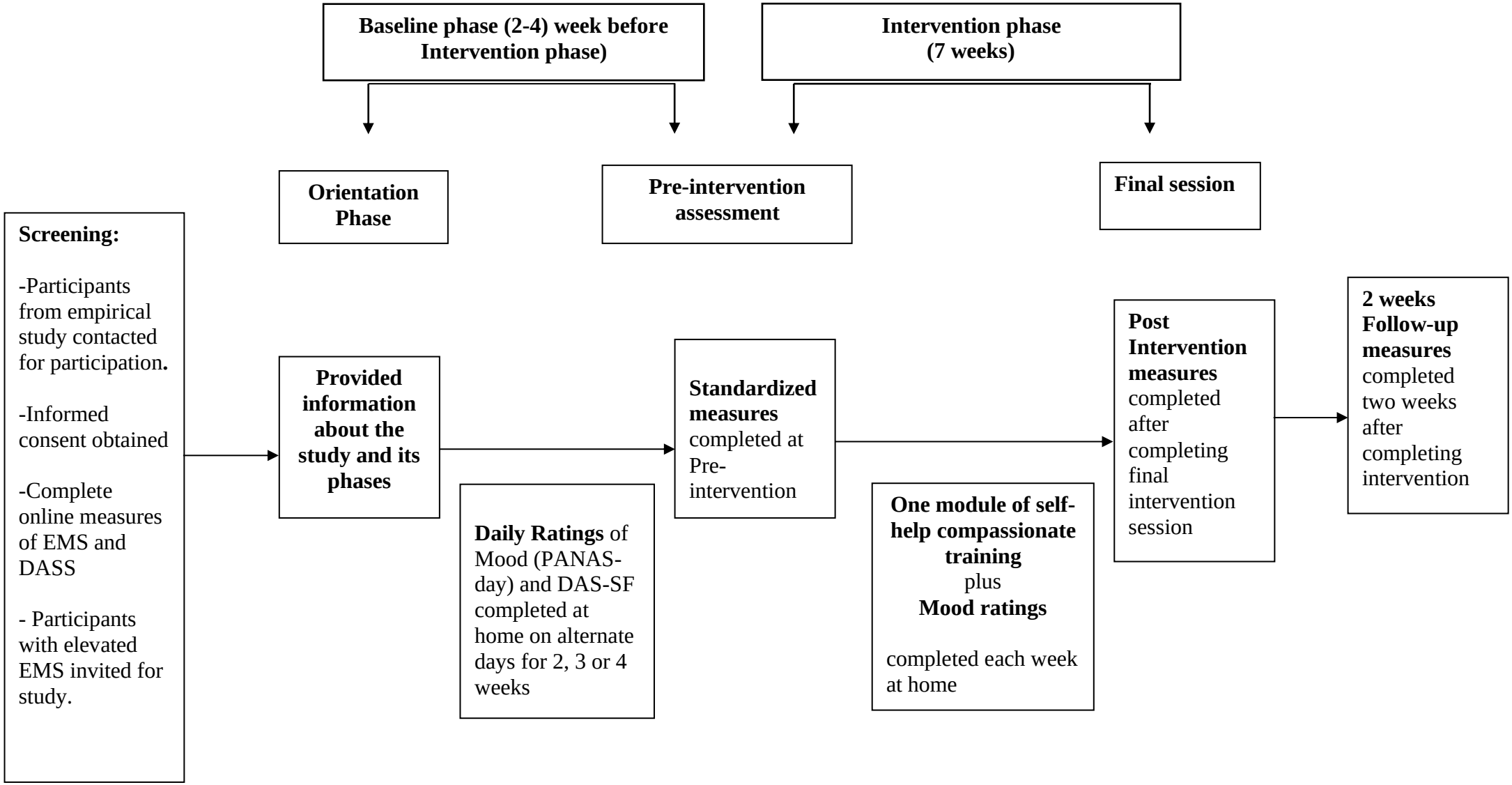
be completed by participants were set as seven. This had been selected as Kazdin (1985) had suggested using baselines with five or more points to identify a stable pattern of behaviour before the intervention starts. (See Figure 6.1. for a diagrammatic overview of the procedure).

6.2.4.1. Screening. Participants who expressed their interest in the study were invited to complete an online demographic data (age and gender) followed by the screening measure (Early Maladaptive schemas, YSQ). The Bristol online survey (BOS) was used to create the web-based survey. The participant's scores on the EMS scale were assessed, and only participants with elevated scores on EMS were invited to participate further in the research.

6.2.4.2. Orientation session. The primary investigator conducted a short online individual orientation session with each participant who wished to participate in the study. During the online session, participants were briefed about the research structure and its phases. They were also instructed to complete the baseline measures for two, three or four weeks at their home (depending upon the random allotment for each participant to the baseline period). Participants were given a tentative calendar set up for each participant to give an idea of when they were required to complete the tasks (See Appendix- O).

6.2.4.3. Baseline phase (A), during which participants' ratings of mood (PANAS day version) and dysfunctional attitudes (DAS-SF) were assessed using standardised measuring instruments. Participants had to complete the baseline session for assigned weeks, with each measure completed on alternate days. Participants' consent was taken for email or WhatsApp reminders in their consent form. Based on their consent, regular email reminders were sent individually on days to complete baseline measures (See Measuring instruments below for details of baseline and pre-post intervention measures).

Figure 6.1. Procedure overview



6.2.4.4. Pre-intervention assessment. After completing the baseline phase, participants had to complete the pre-intervention measures of early maladaptive schemas, self-compassion, mindfulness, and depression/anxiety. Participants were asked to complete measures using the same participant number used previously during the screening and baseline phase. Regular reminders (if consent was given) were sent to complete the tasks throughout the study.

6.2.4.5. Intervention phase (B) The baseline phase was followed by an *intervention phase (B),* during which participants were provided with self-help materials derived using compassionate mind training (CMT) and mindful self-compassion (MSC) to identify the effectiveness of intervention techniques to reduce the effects of EMS. Participants were emailed one module of self-help material based on self-compassion tasks at the beginning of each week (or any particular day of their choice). Participants were asked to complete each session of self-help material at their homes at any feasible time of the day. Furthermore, participants were also required to complete daily ratings of mood and dysfunctional beliefs after completing the self-help tasks by signing into the online survey (BOS). The tasks provided required 45 minutes to 1 hour to complete, depending on each person's pace.

The session's structure was based on the self-help materials grounded on Paul Gilbert's and Kristine Neff's work on compassion-based therapy. The materials identified for the intervention sessions were self-help tools to be used independently by individuals without the clinician's involvement. The self-help material developed by the Centre for Clinical Interventions (CCI; Australia) was used in the present study after permission from relevant authorities (See Appendix- Q for permission letter).

During intervention sessions, participants were provided with worksheets and material that helped participants understand the concepts of compassion and self-compassion. The sessions also focused on exploring themselves and their behaviours directed toward themselves. The particular self-help techniques used by the participants during the sessions included understanding self-compassion, barriers to self-compassion, preparing for self-compassion, compassionate imagery, compassionate thinking, compassionate behaviour, compassionate living, practising relaxation, mindfulness, mindful reading and listening, etc. (See Table 6.2. for details of self-help material, See Appendix- R for more information of each module).

6.2.4.6. Final Session. At the end of the intervention phase, participants were requested to complete the measuring instruments (post-assessment) to identify the effects of self-help therapeutic techniques on measures of early maladaptive schemas, self-compassion, mindfulness, and depression/anxiety.

6.2.4.7. Follow-up. Two weeks after the completion of the final session, participants were contacted again via email to complete the same measures of early maladaptive schemas and depression/anxiety to assess intervention improvement after two weeks.

Table 6.2. Details of Self-help modules used in the present study

Lesson	Objectives	Activities
1. Module 1: Understanding Self-Compassion	The module provides a general description of self-compassion and why it is essential for mental health, particularly in helping overcome an individual's tendency to be one's worst critic.	(i) What is self-compassion; (ii) Why is self-compassion important (iii) Developing awareness of self-critical thoughts, (iv) A checklist to identify how self-critical you are, (v) Self-critical cycle
2. Module 2: Barriers to Self-Compassion	This module was about pre-empting and dealing with the common barriers that get in the way of being more compassionate toward one-selves. Typical barriers are positive beliefs an individual hold about being self-critical and negative beliefs they may hold about what it means to be self-compassionate.	(i) Identifying positive beliefs about self-criticism, (ii) Challenging positive beliefs about self-criticism, (iii) Negative beliefs about self-compassion, and (iv) Kindness vs Criticism experiment.
3. Module 3: Preparing for Self-Compassion	This module engages participants in first practical steps towards being more self-compassionate. That is, retraining participant's attention to be more aware of when they are being self-critical and may need a kinder approach toward themselves, and also how to slow things down, using their breathing to activate a calming physical state that is more conducive to being self-compassionate.	(i) Mindful and slow breathing, (ii) Attention Retraining, (iii) Mundane task focusing, (iv) Meditation, (v) Slow breathing and Attention Retraining Diary
4. Module 4: Compassionate Imagery	We know that imagery can be very powerful in triggering our emotions. With this is mind, this module teaches participants about how to develop	(i) Imagine giving compassion, (ii) Compassionate imagery, building a

	their own compassionate image, that will help them trigger compassionate feelings within them, which they can then direct toward themselves whenever they need them.	compassionate image; (iii) My compassionate image, (iv) Compassionate communication
5. Module 5: Self-Compassionate Thinking	This module teaches participants how to take the compassionate feelings they are developing and allow these to guide how they think. This module will teach them strategies such as Compassionate Thought Diaries and Compassionate Letter Writing, to encourage a kinder way of thinking about themselves and their situation.	(i) Understanding thought feeling connection, (ii) Compassionate thought diary, (iii) Compassionate letter writings, (iv) Appreciate the positives
6. Module 6: Self-Compassionate Behaviour	This module teaches them how to behave and act in more compassionate ways, both by being kinder toward oneself, kinder toward others, and how to face some of the tough things in life they may need to deal with.	(i) Self-soothing activities, (ii) Taking care of others, (iii) Building self-compassion, (iv) Weekly activity schedule
7. Module 7: Self-Compassionate	This final module draws together everything they have covered in the previous modules, to help them live a compassionate life over the long term. They will develop a Self-Compassion Action Plan and Maintenance Plan, to help keep them on track with all the new self-compassion skills they have learned.	(i) Understanding self-compassion cycle, (ii) Self-compassion action plan, (iii) Self-compassion Maintenance plan

6.2.5. Measuring Instruments

6.2.5.1. Baseline Measures.

1. The Positive and Negative Affect Schedule (PANAS) developed by Watson, Clark and Tellegen (1988) was used to keep track of participants' positive and negative moods before and during the intervention phase. PANAS consisted of 10 positive and ten negative adjectives rated on a 5-point Likert scale, with '1' corresponding to *'Very slightly or not at all'* to '5' referring to *'Extremely'*. In this study, the PANAS Day version was used to assess their mood during the baseline phase and after each intervention session's completion. The PANAS "Day" asked participants to indicate the extent to which they "have felt this way ***today***". Positive and Negative affect scores were computed by summing scores on corresponding items, with higher scores suggesting higher positive and higher negative affect. PANAS has been reported to have well-established psychometric properties, with internal consistency ranging from 0.86 to 0.90 on the positive affect scale and 0.84 to 0.87 on the negative affect scale (Watson et al., 1988).

2. Dysfunctional Attitude Scale (DAS-SF) developed by Beevers et al. (2007) is a short version of DAS (Weissman, 1979) comprising nine items. It was used to assess dysfunctional beliefs and maladaptive schemas that reflect a person's self-evaluation of negative and perfectionist attitudes. The DAS measure was shorter than the original 90 items schema measure. It was used for its use on a regular basis and its higher convergent validity with the original schema measure ($r = 0.61$ to 0.74, $p < 0.0001$; Schmidt et al., 1995; Wang et al., 2010). The items were rated on a 4-point Likert scale ranging from '*totally agree (1)*' to '*totally disagree (4)'*. Internal consistency, test-retest reliability, and average item-total correlations of the DAS-SF were satisfactory, with an internal consistency of 0.83 among the general population (Beevers et al., 2007). The total score was computed by summing together

responses on 9 items, with higher scores suggesting an individual's more dysfunctional attitude.

6.2.5.2. Pre- and Post-intervention Measures.

The measures used in the pre-test, post-test and follow-up phases were similar to those used in the previous empirical study; therefore, they are briefly described here.

6.2.5.2. Primary Measures.

1. Young Schema Questionnaire-short form, 3rd edition (Young et al., 2005) was a standardised measure to assess early maladaptive schemas at pre, post and follow-up phases. The instrument had 90 items assessing 18 schemas grouped into five major domains: disconnection/ rejection, impaired autonomy, impaired limits, other-directedness, and over-vigilance/ inhibition. The items were rated on a 6-point scale, with '1' corresponding to '*completely untrue of me'* and '6', means '*describes me perfectly'*. The mean scores were computed by taking an average of total items to compare individuals' scores before and after the intervention.

2. Self-compassion Scale (SCS) developed by Neff (2003) was used to assess self-compassion among participants. The scale comprised 26 items rated on a 5-point Likert scale where '1' corresponds to '*almost never'* while '5' corresponds to '*almost always*.' The scale comprises six subscales identified as self-kindness, self-judgement, common humanity, isolation, mindfulness, and over-identified items. The scores were computed by taking average scores on all items with higher mean scores suggesting the higher existence of the self-compassion component.

6.2.5.3. Secondary Measures.

3. Five-Facet Mindfulness Questionnaire-short form (FFMQ-15) developed by Baer, Carmody and Hunsinger (2012) was administered to the participants to identify five areas of mindfulness, including observing, describing, acting with awareness, non-judging, and non-reactivity. The scale was a 5-point rating scale where '1' shows '*never or rarely true'* while '5' represents '*very often and always true'*. The total scale scores were computed, with higher scores indicating higher mindfulness among participants.

4. Depression, Anxiety and Stress Scale (DASS) developed by Lovibond and Lovibond (1995) was administered to participants to assess the psychological distress indicated by depression, anxiety, and stress. The instrument comprised 21 items, further divided into depression, anxiety, and stress subscales. The items were rated on a 4-point rating scale, with '0' corresponding to '*does not apply',* while '3' corresponding to '*applied to me very much'*. In the present study, the subscales of depression and anxiety were used to assess participants' level of depression and anxiety at pre, post and follow-up assessments.

6.2.5.4. Feasibility and Acceptability.

Program Evaluation. To assess participants' subjective perception of the acceptability of self-help compassion-based training, a feedback questionnaire was used after the intervention measures to capture their experience with the self-help material (similar to questions asked in previous research, i.e., Pile et al., 2020). The feedback questionnaire comprised four items rated on a 5-point Likert scale, with '1' corresponding to a negative response (e.g., poor, not at all or very dissatisfied) while '5' representing a positive response (e.g., excellent, extremely. or very satisfied). The items included in the feedback questionnaires were: 1. How would you rate

this program overall, 2. How much the intervention had helped you, 3. Would you recommend this type of intervention program to others, 4. Are you happy with the number of sessions?.

6.2.6. Data Analysis Plan

The data analysis for the present study was planned using the *What Works Clearinghouse* (WWC; Kratochwill et al., 2013) guidelines to evaluate the effectiveness of the intervention employed in the case study design. Reliable and comprehensive analysis of single-case design requires a combination of visual and statistical methods. Firstly, visual analysis was carried out by plotting the functional relationship between baseline and intervention phases to examine within and between phase data. Secondly, the significant functional trends in the visual analysis were supported using the quantitative analysis method (i.e., Tau-U estimate), which provides a magnitude statistic for the effect between baseline and intervention phases. In addition, each participant's time series analysis using Simulation Modelling analysis (SMA) was also conducted separately to assess the autocorrelated time-series data during the baseline and intervention phases. Thirdly, the effect size calculations between pre-test, post-test and follow-up measures were carried out using Repeated Measure ANOVA's and Reliable Chang Index (RCI) to estimate the overall effectiveness of intervention across all subjects/participants, helping in the generalizability of intervention among the sample (Lobo et al., 2018).

6.2.6.1. Visual Analysis. Visual analysis is one of the traditional and widely used methods to analyse the effectiveness of intervention using a single case series design (Lobo et al., 2018; Kratochwill et al., 2010; Ferron & Jones et al., 2006). The subject's raw data on baseline measures of the Dysfunctional attitude scale (DAS-SF) and Positive and Negative affect scale (PANAS-day version) was separately plotted across baseline and intervention time points. Analysis and interpretation of visual graphs required evaluation for both within-phase and

between-phase data points for each participant by examining six different features (See Table. 6.3. for details of features; adapted from Morley, 2018). The graphs should demonstrate at least three features for an intervention effect to establish a significant functional relationship between the baseline and intervention phase (Kratochwill et al., 2010). A visual analysis worksheet provided by Ledford et al. (2017) was used to examine visual graphs for each participant's baseline measures (See Appendix- S).

Table 6.3. Features for systematically exploring Single Case Visual Graphs (adapted from Morley, 2018)

Feature	Description	Outcome Demonstrating an Effect
	Within-Phase Data examination	
1. Level	Central location, i.e., Mean scores are calculated within each data phase.	Change in mean score for both baseline and intervention data in desired direction suggests that intervention has caused the change.
2. Trend	Systematic shift of central location within each phase, i.e., slope of best fitting line within phases using split half method.	The difference of slopes of best fitting line between two phase demonstrates an effect due to intervention.
3. Variability	80-90% of the data points in each phase fall within 15% range (or standard deviation) of respective mean score, i.e., Range (or SD's) are calculated to compare with mean score for each phase	The minimum variability is optimum to show the occurrence of behavioral change due to intervention effect.
	Between-Phase Data examination	
4. Immediacy of effect	Comparison of mean scores of last three data points in baseline phase with first three data points of intervention phase	A change in mean scores of two phases in hypothesized direction suggests evidence for rapid and immediate effect of intervention
5. Consistency of data patterns	The baseline and intervention phase are explored for consistency among data points.	Greater the consistency among data points in each phase, higher the causal relationship between two phases
6. Over-lap	The overlapping data points between baseline (A) and intervention phase (B), evaluated using AB contrast in statistical tests such as Percentage of Non overlapping data (PND) or Tau-U statistics	Higher percentages of overlapping data points between two phases suggest greater intervention effect.

6.2.6.2. Statistical Analysis Method for supporting the significant visual trend. After significant visual trends and variability among baseline and intervention phases, the visual analysis was further supplemented using a non-parametric statistical method. The non-parametric methods were chosen keeping in view the smaller sample size, fewer data points, non-normal data distribution and the existence of autocorrelation among time-series data, i.e., each observation is correlated with previous observation in a series of data and error terms are likely to be dependent (Brossart et al., 2013; Morley, 2018; Lobo et al., 2018).

For the present analysis, Tau-U non-parametric statistical method was chosen as it provides trends in baseline and intervention phases and is less likely to be influenced by smaller sample size, incidences of autocorrelation and non-normal distribution (Parker et al., 2011; Brossart et al., 2013). The Tau-U effect size was calculated separately for the dysfunctional attitude scale (DAS-SF), Positive affect and Negative Affect scores for participants using an online calculator (Vannest et al., 2016) available at: http://singlecaseresearch.org/calculators/tau-u.

Since the quantitative statistical methods are still underdeveloped in evaluating intervention effectiveness using case series design, it is recommended to use multiple effect size estimators to validate the findings (Lobo et al., 2018; Brossart et al., 2013; Kratochwill et al., 2013). Therefore, simulation modelling analysis (SMA) using the Pearson coefficient was used to assess time series data for baseline and intervention data points on DAS and PANAS scales. The SMA analysis is recommended when the time series involve less than 30-time points in each phase, which was applicable to our design as the time points between three different randomised MB groups were between 14 to 22 data points (Borckardt & Nash, 2014). The SMA analysis provided 5000 bootstrapped Pearson's coefficient, which was assessed to identify the significant correlations between baseline and intervention phase data. It also

provided slope and level change trends from the baseline to the intervention phase. The slope and level change were assessed to decide the overall intervention effect, in accordance with guidelines provided by Kratochwill et al. (2010), i.e., at least three significant slope or level trends should exist between the baseline and intervention phase to demonstrate a significant effect of an intervention. SMA - Version 07.30.20 -Simulation Modelling Analysis program for ephemeral streams of time-series data (Freeware; Borckardt, 2006) was employed for carrying out non-parametric simulations.

6.2.6.3. Effect Size calculations. The clinically significant change using effect size estimators between an individual's pre-test and post-test assessment was further conducted to evaluate; (a) the clinical change has occurred due to intervention effect, i.e., reliable change rather than happening due to measurement error, (b). the magnitude of change is clinically significant. Two different types of tests were conducted for this purpose:

(i). The Reliable change index (RCI) method described by Jacobson and Truax (1991) was carried out using participants' pre-test and post-test scores on measures of early maladaptive schemas, mindfulness, self-compassion, depression, and anxiety. The RCI index was computed using an RCI calculator based on the following formula:

$$RCI = \frac{\text{(Pre-test score- Post-test score)}}{\text{Standard error of the difference}}$$

The change score value for each individual greater than the RCI index suggests a clinically significant and reliable change between the pre-test and post-test scores after introducing intervention (Jacobson & Truax, 1991). The RCI index was calculated using an Excel program, the Leeds Reliable Change indicator, developed by Morley and Dowzer (2014).

(ii). Repeated Measure ANOVAs were conducted to evaluate the significant changes in scores on measures of early maladaptive schemas, mindfulness, self-compassion, depression and anxiety at pre-test, post-test and 2-week follow-up assessment. A significant p-value and effect size estimate (η^2) suggests a substantial effect of self-help intervention across the whole sample. The effect size estimation across participants will help generalise the findings and effectiveness of the intervention for the sample.

6.3. Results

6.3.1. Visual Analysis.

The visual graphs were separately plotted for the Dysfunctional attitude scale (DAS) and the Positive and Negative affect scale (PANAS). Firstly, the visual graphs were systematically assessed for all seven participants for baseline and intervention data on the **DAS measure** (See Figure 6.2). To assess six different features of visual graphs, the means, standard deviations, and range were calculated for both baseline and intervention phases for all participants (See Table. 6.4.). The ***within-condition examination*** of visual graphs recommends that there exists level and trend changes in all seven participants, suggesting that change in dysfunctional attitudes during baseline and intervention phase has resulted from the implementation of self-help interventions and is indicative of its effectiveness. The average means and mean scores for all seven participants deteriorated from the baseline to intervention phases (See Table 6.4. for mean score change)—the split-middle method estimated trend change within each phase, suggesting an increasing trend during the baseline phase. In contrast, a decreasing trend was seen during the intervention phase (See Figure 6.2.)

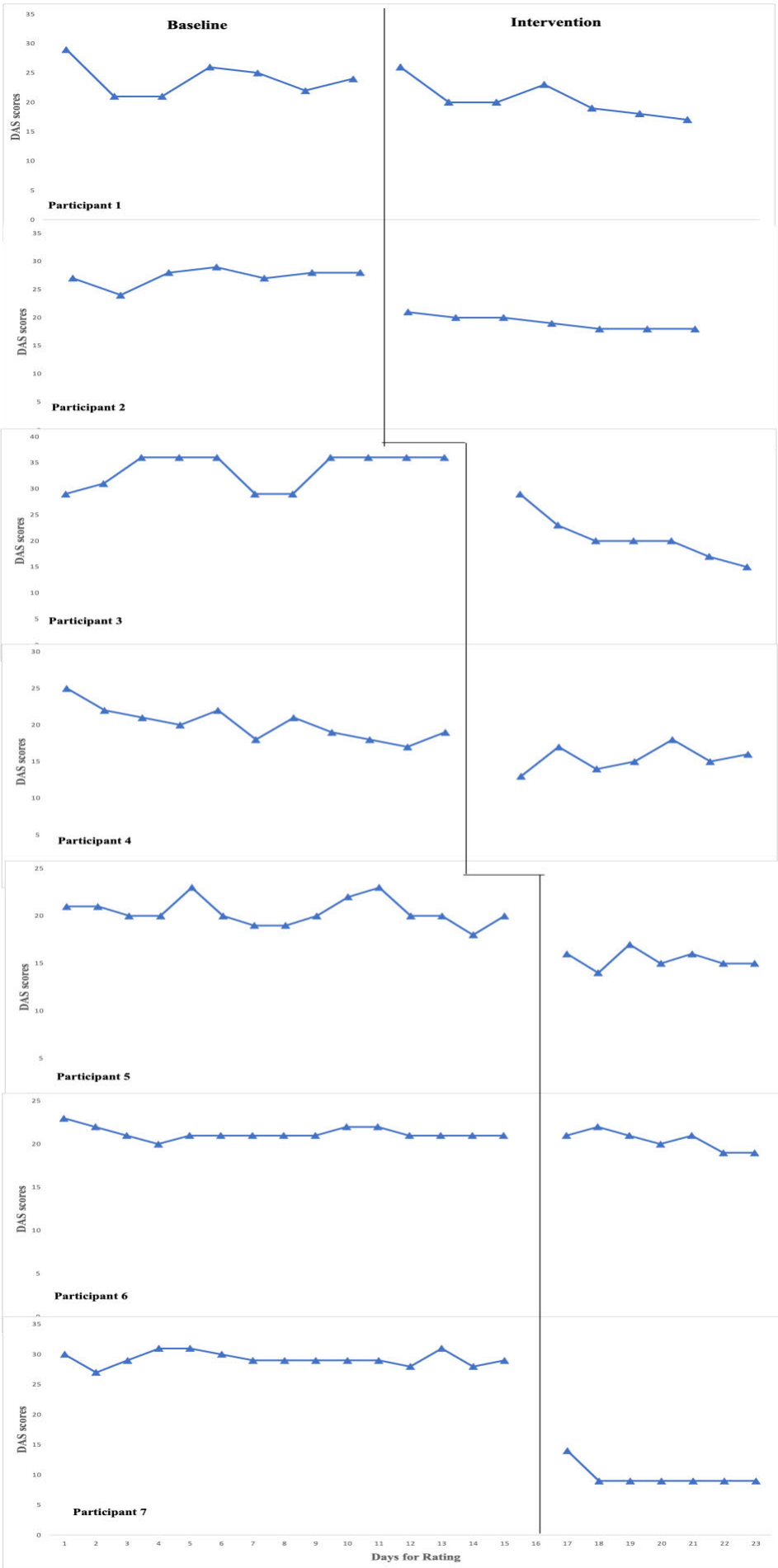


Figure 6.2. Scores on Dysfunctional Attitude Scale (DAS)

Table 6.4. Means, SDs and Range for data points on Dysfunctional Attitude Scale and Positive/Negative Affect Scale (N = 7)

Participant	Baseline (M; SD; Range; last three points mean)				Intervention (M; SD; Range; First three points mean)				Mean change	Mean change for immediacy effect	Percentage of Non-overlap; p-value
					Dysfunctional Attitude Scale (DAS)						
Participant 1	24.38	2.92	21-29	23.67	20.42	3.10	17-26	22.00	-3.96	-1.67	71.43 ; 0.007
Participant 2	27.00	1.69	24-29	27.67	19.14	1.21	18-21	20.33	-7.86	-7.34	100 ; 0.002
Participant 3	33.25	3.44	29-36	36.00	20.57	4.50	15-29	24.00	-12.68	-12.00	100 ; 0.000
Participant 4	21.00	3.59	17-30	18.00	15.43	1.72	13-18	14.67	-5.57	-3.33	85.71 ; 0.0002
Participant 5	20.40	1.40	18-23	19.33	15.43	0.98	14-17	15.67	-4.97	-3.66	100 ; 0.000
Participant 6	21.27	0.70	20-23	21.00	20.43	1.13	19-22	21.33	-0.84	+0.33	28.57 ; 0.06
Participant 7	29.27	1.16	27-31	29.33	9.71	1.89	9-14	10.67	-19.56	-18.66	100 ; 0.000
Average	**25.01**	**5.17**	**17-36**	**25.00**	**17.31**	**4.40**	**9-29**	**18.38**	**-7.70**	-6.62	
					Positive Affect (PA)						
Participant 1	32.88	5.57	24-38	31.00	35.14	5.37	26-41	34.33	+2.26	+3.33	42.86 ; 0.07
Participant 2	18.00	4.21	12-23	19.01	22.71	2.56	19-26	22.33	+4.71	+3.32	42.86 ; 0.07
Participant 3	14.50	4.60	10-23	14.67	27.00	4.62	20-33	23.00	+12.5	+8.33	85.71 ; 0.0002
Participant 4	35.75	7.79	16-44	35.00	38.00	6.53	27-46	42.00	+2.25	+7.00	28.57 ; 0.09
Participant 5	26.13	8.63	13-18	32.00	36.29	2.63	33-40	38.33	+10.16	+6.33	42.86 ; 0.02
Participant 6	26.40	3.64	18-32	28.67	29.00	7.12	16-36	31.00	+2.60	+2.33	42.86 ; 0.02
Participant 7	16.47	6.92	10-35	10.00	47.15	4.18	39-50	46.33	+30.68	+36.33	100 ; 0.000
Average	**24.06**	**9.64**	**10-44**	**24.34**	**33.61**	**8.92**	**16-50**	**33.90**	+9.55	+9.56	

						Negative Affect (NA)					
Participant 1	19.13	6.10	10-31	22.33	23.57	7.14	16-37	27.00	+4.44	+4.67	0 ; 1.00
Participant 2	21.25	5.92	12-28	19.33	19.14	5.70	14-31	22.00	-2.11	+2.67	14.29 ; 0.37
Participant 3	29.42	5.14	23-37	33.00	17.71	3.45	15-24	20.33	-11.71	-12.67	100 ; 0.000
Participant 4	12.83	2.48	10-17	14.33	18.00	4.08	14-25	15.00	+5.17	+0.67	0 ; 1.00
Participant 5	14.07	4.98	10-26	10.67	10.57	0.79	10-12	10.00	-3.50	-0.67	57.14 ; 0.03
Participant 6	15.07	5.23	10-27	14.67	18.43	8.06	10-29	16.33	+3.36	+1.66	28.57 ; 0.06
Participant 7	17.73	3.13	10-23	18.67	10.86	1.46	10-13	12.00	-6.87	-6.67	71.43 ; 0.005
Average	**18.04**	**6.96**	**10-37**	**19.00**	**16.90**	**6.44**	**10-37**	**17.52**	**-1.14**	**-1.48**	

The graphs suggested more significant variability of scores during both phases, with most participants having only 70% of data points falling within the suggested 25% phase of the mean score, suggesting non-variability among scores.

For the between-condition **examinations,** the mean scores for the last three baseline data points to the first three intervention points suggest that there was an immediate effect after introducing the self-help intervention across all seven participants, with mean scores decreasing after implementing intervention modules. Further, the calculations of PND suggest that most of the participants had non-overlapping data, i.e., greater percentages of non-overlap, suggesting significant trends between the two phases due to the intervention effect in the therapeutic direction. Only participant 6 appeared to have overlapping data points. Based on the results of visual inspections, it appears that a decrease in dysfunctional attitudes may have occurred due to the implementation of self-help intervention. The score change was in line with our hypothesis, i.e., increasing self-compassion will likely decrease dysfunctional attitudes among participants.

6.3.1.2. Visual Analysis for PANAS

Visual analysis for PANAS was further carried out to assess the effect of self-help self-compassion interventions on baseline and intervention trends of positive and negative affect (See Figure. 6.3.). The within and between phase examination of **Positive Affect (PA)** propose a significant level and trend changes occurring between baseline and intervention phases in desired therapeutic direction, i.e., the PA scores increased from baseline to intervention phase across all seven participants. Further, the change also appears to be immediate after the implementation of the intervention. Besides, the PND calculations advise more significant overlapping between the scores of the two phases, suggesting that the scores were non-variable

between the two phases and that the effects of an intervention on PA trends need to be considered with caution (See Table. 6.4.). Based on Kratochwill et al. (2013) recommendations, we can still propose an intervention effect as the visual graphs suggest changes on three features of level, trend, and immediacy for PA graphs.

The systematic evaluation of visual graphs for **Negative Affect (NA)** scores does not indicate strong intervention effects on negative affect; despite an overall average mean change in the desired direction, the level and trend changes were varied for all seven participants. The level and trend changes were observed in four participants (2, 4, 5 and 7), i.e., the scores decreased from baseline to intervention after the intervention was introduced. Further, the immediacy effect was not strongly observed across any of the seven participants (See Table. 6.4.). The individual evaluation of graphs suggests that only participants no. 3, 5 and 7 showed therapeutic effects on NA scores, i.e., increasing self-compassion helped to relieve negative symptoms, as the scores were consistent, stable, and non-overlapping for only these three participants.

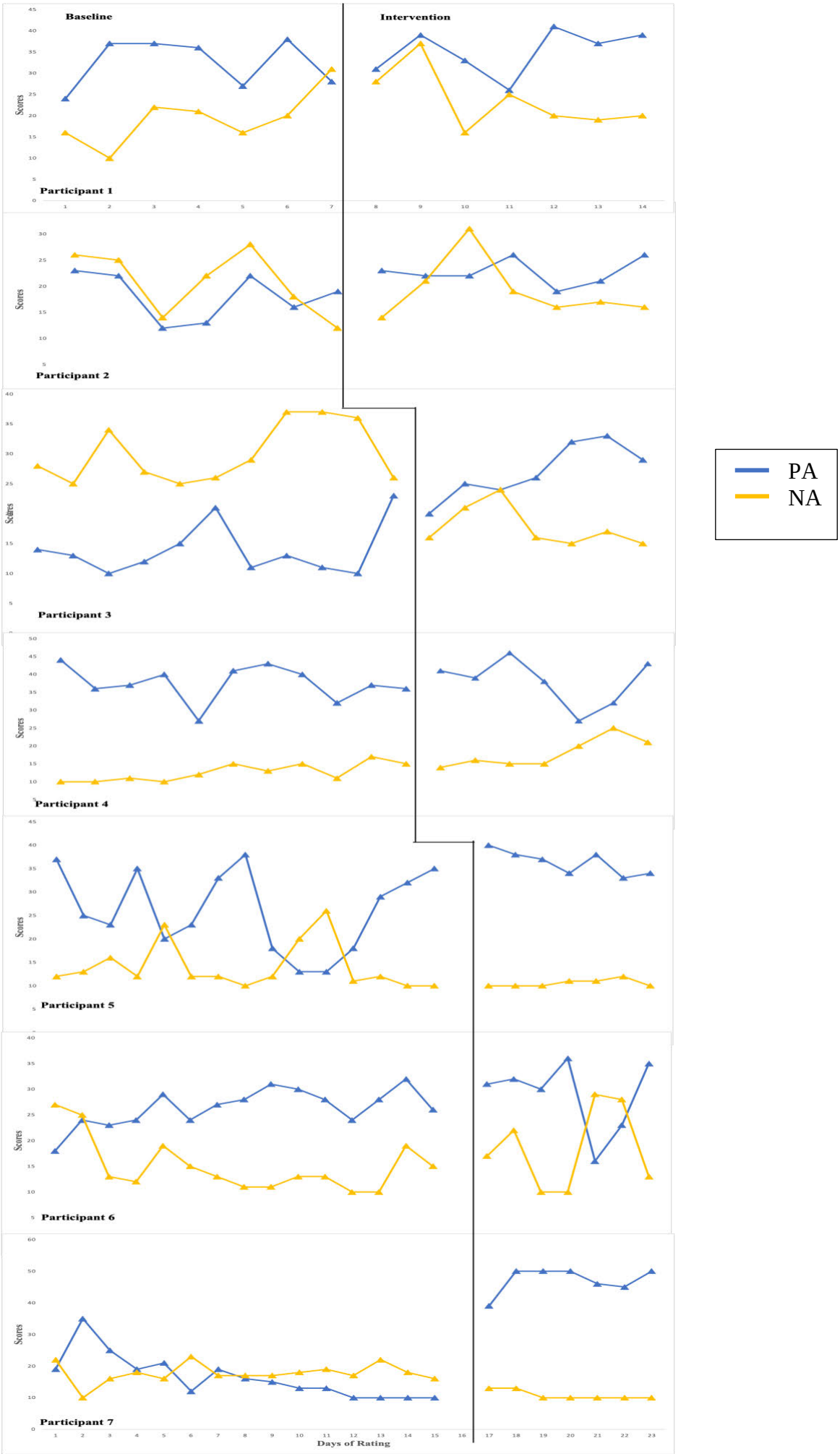


Figure 6.3. Scores on Positive and Negative Affect Scale (PANAS)

6.3.2. Statistical Analysis

(i). Tau-U Effect Size (Parker et al., 2011). Further, to support the findings for visual analysis, Tau-U statistics were computed for individual participants and an overall effect size across participants to generalise the effectiveness of self-help intervention for both DAS and PANAS scores (See Table. 6.5.).

The average Tau-U statistic for the DAS measure was statistically significant at $p < 0.001$ suggesting an overall decrease in scores on dysfunctional attitudes following the implementation of self-help intervention with an effect size of 0.79. Further, the Tau-U statistics support the findings of visual analysis as the baseline to intervention phase trend was statistically significant for six participants (i.e., all except participant no. 6), suggesting the effectiveness of self-compassion-based intervention across six participants.

Table 6.5. Effect size calculation for Dysfunctional Attitude Scale and Positive/Negative Affect Scale following Time-Series Analysis (N = 7)

Participant	Tau-U	p-value	Bootstrapped Pearson 'r'	Level	Slope
Dysfunctional Attitude Scale (DAS)					
Participant 1	-0.65	0.04	-0.54*	-0.54	+0.25
Participant 2	-1.00	0.002	-0.95***	-0.95***	+0.21
Participant 3	-0.96	0.0008	-0.87***	-0.87**	-0.03
Participant 4	-0.48^{+}	0.09	-0.76***	-0.76**	-0.69*
Participant 5	-1.00	0.0002	-0.88***	-0.88**	-0.47
Participant 6	-0.41	0.13	-0.40*	-0.40	+0.27
Participant 7	-1.00	0.0002	-0.99***	-0.99***	-0.44
Average	**-0.79**	**0.001**			
Positive Affect (PA)					
Participant 1	0.35	0.277	0.25	+0.25	-0.16
Participant 2	0.55	0.084	0.56**	+0.56	-0.16
Participant 3	0.95	0.0009	0.85***	+0.84*	+0.66
Participant 4	0.12	0.683	0.04	+0.04	-0.02
Participant 5	0.71	0.008	0.56**	+0.56	+0.20
Participant 6	0.07^{+}	0.81	0.25	+0.25	+0.47*
Participant 7	0.99^{+}	0.0001	0.92***	+0.92***	+0.15
Average	**0.63**	**0.001**			
Negative Affect (NA)					
Participant 1	0.27	0.41	0.31	+0.31	+0.62*
Participant 2	-0.16	0.60	-0.14	-0.14	-0.16
Participant 3	-1.00	0.0005	-0.82***	-0.82*	-0.05
Participant 4	0.30^{+}	0.29	0.70***	+0.69	+0.59
Participant 5	-0.62	0.02	-0.38*	-0.38	-0.26
Participant 6	0.20	0.46	0.26	+0.26	-0.22
Participant 7	-0.91	0.0007	-0.78***	-0.78***	-0.22
Average	**-0.29**	**0.008**			

Note. $^{+}$= Baseline Corrected Tau-U, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The overall Tau-U statistic for Positive affect (PA) was also statistically significant at $p < 0.001$ across all participants with an effect size of 0.60 in the expected therapeutic direction, i.e., increasing self-compassion will likely increase positive affect among participants. The Tau-U statistic for each participant suggested that trends between AB phases were statistically significant across four out of seven participants (i.e., participants no. 2, 3, 5 and 7).

Statistically significant yet small effect size in the desired direction was observed for Negative affect (Tau-U = - 0.29; $p = 0.008$) after the administration of self-help intervention. However, as found in visual analysis, the results across all seven participants were not in the desired direction. The self-help intervention only helped participants 3, 5 and 7 decrease their negative affect following the increase in self-compassion. The Tau-U statistical was statistically significant for all these participants at $p < 0.05$.

(ii). Time Series Analysis using SMA (Borckardt, 2006). In addition to the Tau-U effect size, simulation modelling analysis was conducted to estimate a bootstrapped Pearson correlation coefficient after taking autocorrelation into account. The results for SMA were consistent with previous findings, providing additional support to current study findings. All participants had a significant negative correlation coefficient with values ranging from 0.40 to 0.99 ($p < 0.001$), thus suggesting a significant and effective therapeutic outcome in decreasing dysfunctional attitudes following an increase in self-compassion attributes.

The autocorrelated 'r' coefficient for Positive affect across seven participants suggests a statistically significant improvement in positive affect among four participants with effect sizes between 0.56 and 0.92 ($p < 0.01$). The findings indicate that increasing self-compassion will

likely enhance participants' positive feelings. The results suggested improvement in participants no. 2, 3, 5 and 7 (consistent with previous results).

Finally, a significant negative correlation coefficient was estimated for participants 3, 5 and 7 on the negative affect scale with larger effect sizes (0.70 to 0.82 at $p < 0.001$). The findings are consistent with the statistical and visual analyses above, suggesting that self-help interventions based on self-compassion helped decrease negative affect, albeit here, among only three participants.

6.3.3. Effect Size calculations for Pre/Post Assessment

(i). Reliable Change Index (Jacobson & Truax, 1991). The RCI index was calculated for each participant to assess if the magnitude of change occurring in pre-treatment, post-treatment, and follow-up assessments was significantly reliable following the implementation of therapeutic intervention. The reliability statistics, means and standard deviations used in the Excel calculator to estimate the RCI index were obtained from previous empirical studies. Table 6.6. summarises the overall RCI index for each measure used at pre, post and follow-up time, followed by the change score for each participant and the total percentage of participants showing the reliable change.

The results suggest a reliable change for early maladaptive schema measure at both post and follow-up assessments, with all seven participants (100%) showing a decrease in schema scores after implementing self-help interventions. For Self-compassion (SCS) scores, six out of seven participants (86%) demonstrated reliable improvement at post-assessment, which was further maintained at follow-up time. The SCS scores decreased for participant number 6, which was, however, relatively minimal. The score for participant 6 showed they already had a high score

on the self-compassion scale (highest compared to other participants) at the pre-assessment time, which remained unchanged after the implementation of the self-compassion intervention.

Furthermore, reliable improvement was observed for six participants (86%) on the Mindfulness measure at a post-assessment time, which increased to 100% at follow-up time. There was no change for participant 2, which might have occurred due to the already high mindfulness attribute.

For depression and anxiety scores, all seven participants showed reliable decrease in depression scores, which were maintained at both post and follow-up assessments. Only five out of seven participants (71%) displayed a decrease in anxiety scores following the implementation of self-help intervention. Among the 2 participants who did not show reliable change, participant 7 already had scored zero on anxiety scores at the pre-assessment point, which was maintained at post-assessment and 2-weeks follow-up. In other words, there was no room for improvement for this participant.

In summary, the findings for the current analysis support our hypothesis, i.e., the increase of self-compassion using compassion-based interventions will likely reduce predominant early maladaptive schemas. Furthermore, the findings also support the effectiveness of self-help intervention in reducing schemas, depression and anxiety while enhancing self-compassion and mindfulness among participants.

Table 6.6. Percentage of Reliable Change at Pre/Post measures (N = 7)

Measures	Time period	P.1	P.2	P.3	P.4	P.5	P.6	P.7	RCI index	RC %
Early Maladaptive schemas	Post	1.22*	1.20*	2.33*	1.00*	2.48*	1.58*	2.00*	0.19	100%
	Follow-up	1.28*	0.55*	2.04*	1.12*	2.47*	1.83*	2.16*		100%
Disconnection/Rejection schemas	Post	1.80*	1.68*	1.92*	1.16*	2.72*	2.68*	3.12*	0.30	100%
	Follow-up	2.04*	1.24*	1.84*	1.28*	2.76*	2.72*	3.16*		100%
Impaired Autonomy Schemas	Post	1.45*	1.25*	2.40*	0.60	3.05*	1.55*	0.90*	0.74	86%
	Follow-up	1.15*	1.05*	1.95*	0.65	2.90*	1.55*	0.90*		86%
Other-Directedness Schemas	Post	1.40*	0.40	2.67*	1.00*	1.73*	-0.07	2.06*	0.85	71%
	Follow-up	1.20*	-0.54	2.27*	1.20*	2.06*	0.80	2.73*		71%
Self-compassion	Post	43*	30*	44*	16*	50*	-8	70*	7.74	86%
	Follow-up	38*	40*	50*	25*	52*	-1	66*		86%
Mindfulness	Post	21*	4	21*	10*	21*	7*	25*	5.06	86%
	Follow-up	26*	7*	23*	21*	21*	16*	31*		100%
Depression	Post	22*	18*	20*	38*	36*	24*	12*	7.67	100%
	Follow-up	20*	14*	14*	36*	36*	20*	12*		100%
Anxiety	Post	20*	6	20*	14*	18*	12*	0	9.05	71%
	Follow-up	8	-2	20*	10*	16*	6	0		43%

Note. * Reliable Change at 1.96

(ii). Repeated Measure ANOVA

The repeated measure ANOVAs were conducted further for group-level analysis (N = 7) to identify a change in primary and secondary outcome measures at three-time points. The assumptions for repeated measure ANOVAs were checked before proceeding with the analysis, i.e., non-significant Shapiro Wilks ($p > 0.05$), univariate normality with skewness and kurtosis within ± 3 suggesting normal distribution. Further, no significant outliers were found for the outcome measures at any time. Moreover, Mauchly's test of sphericity was non-significant ($p > 0.05$) for all the repeated measure combinations suggesting an equal variance among the groups of variables used in the analysis. The results were generated using pre, post and 2-week follow-up time as within-subject factors and Bonferroni Post-hoc adjustments for significant effects.

The self-help, self-compassion-based intervention elicited a statistically significant main effect over time on Early Maladaptive Schemas, $F (2, 12) = 42.82$, $p < 0.001$, partial $\eta^2 = 0.88$. There was a significant decrease in EMS scores from pre-intervention to post-intervention and follow-up time at $p < 0.001$ as identified through pairwise comparisons (See Table 6.7. for mean and standard deviations for all measures at three-time points).

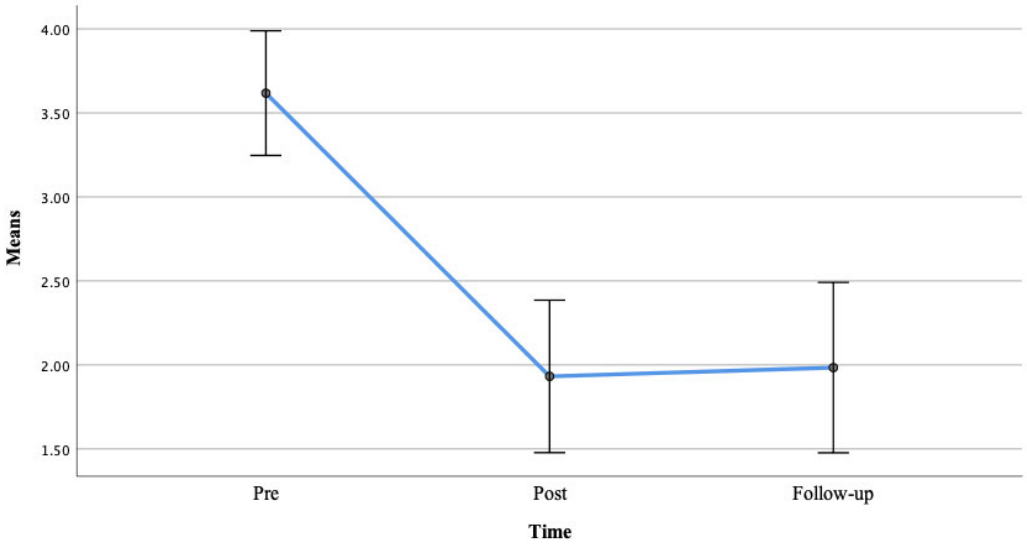
Further, significant main effects were also observed for Self-compassion, $F (2, 12) = 15.29$, $p < 0.01$, partial $\eta^2 = 0.72$; Mindfulness, $F (2, 12) = 46.72$, $p < 0.001$, partial $\eta^2 = 0.89$; Depression, $F (2, 12) = 37.48$, $p < 0.001$, partial $\eta^2 = 0.86$ and Anxiety, $F (2, 12) = 12.74$, $p < 0.001$, partial $\eta^2 = 0.68$. The pairwise comparisons showed that the use of self-help compassionate mind training has resulted in significant increase in self-compassion scores from pre-test to post-test ($p < 0.05$) and follow-up time ($p < 0.01$). Further, there also exist significant

improvement in mindfulness scores from pre-test to post-test ($p < 0.001$) and 2 weeks follow-up ($p < 0.001$).

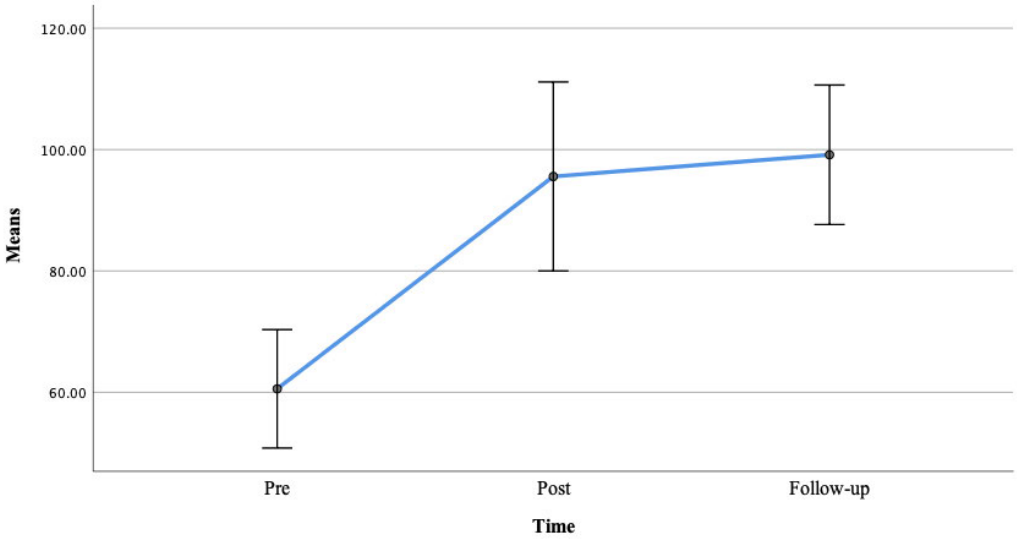
Table 6.7. Mean and Standard Deviations for Outcome Measures at three-time points

	Time		
Measures	**Pre-treatment**	**Post-treatment**	**2-week Follow-up**
Early Maladaptive Schemas (YSQ)			
M	3.62	1.93	1.98
SD	0.40	0.49	0.55
Self-compassion (SCS)			
M	60.57	95.57	99.14
SD	10.55	16.83	12.43
Mindfulness (FFMQ)			
M	27.71	42.86	47.14
SD	3.35	5.52	4.74
Depression (DASS-21)			
M	25.14	0.88	3.43
SD	9.23	1.57	3.41
Anxiety (DASS-21)			
M	14.00	1.14	5.71
SD	8.17	1.57	5.09

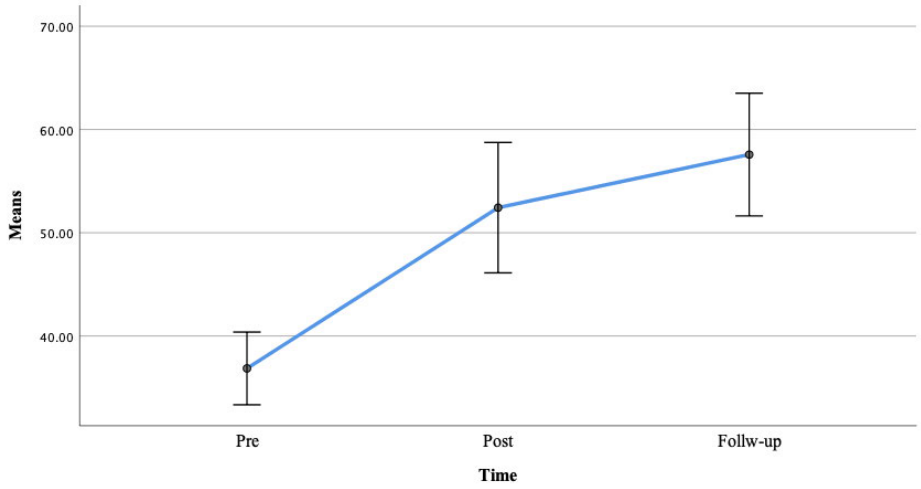
The score of depression and anxiety decreased after the implementation of self-compassionate mind training, with a significant decrease in depression scores from pre to post ($p < 0.01$) and follow-up ($p < 0.01$) assessment compared to the reduction in anxiety scores which decreased significantly at pre to post assessment time only ($p < 0.01$). The results of pairwise comparisons for all measures further suggested that none of the changes was significant between post and 2-week follow-up assessment, suggesting that the improvements were maintained at 2 weeks follow-up (See Figure 6.4. for Mean Effects)



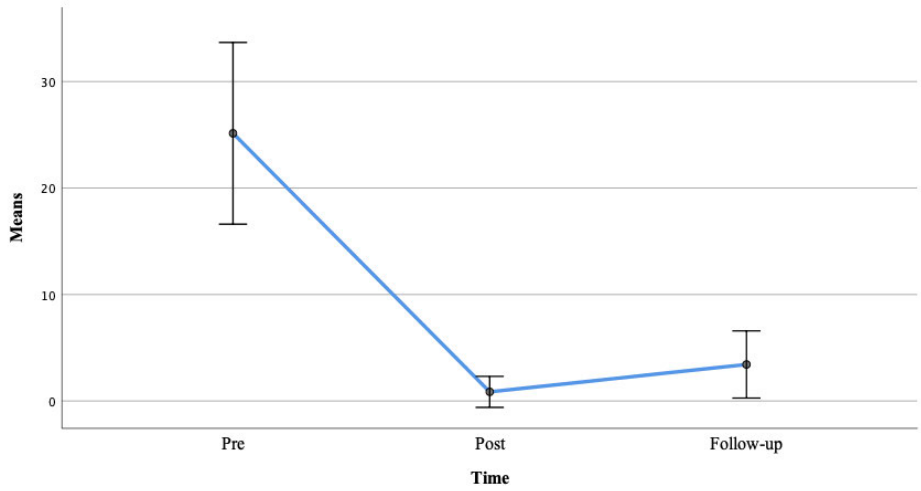
(a) Early Maladaptive Schemas



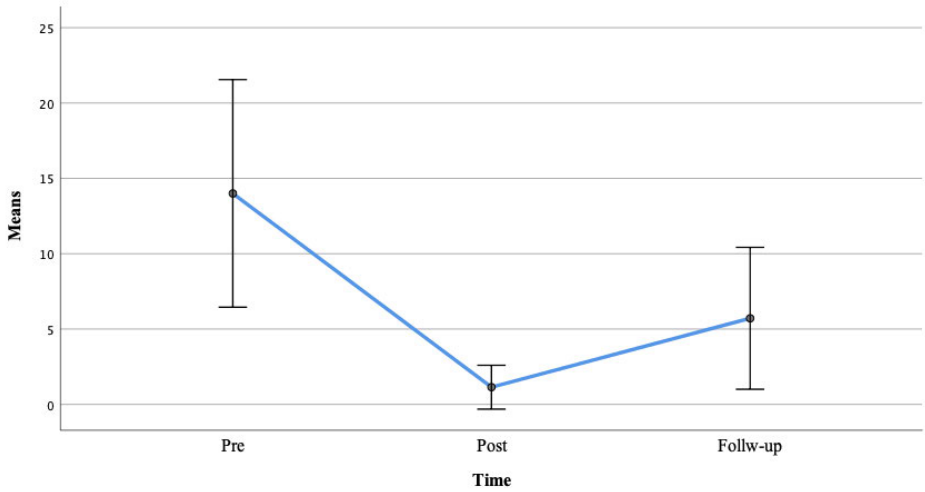
(b) Self-Compassion



(c) Mindfulness



(d) Depression



(e) Anxiety

Figure 6.4. Mean Scores for Measures of Early Maladaptive Schemas, Self-compassion, Mindfulness, Depression and Anxiety

6.3.4. Feedback and Acceptability

All participants completed all the self-help intervention modules and assessment measures at the required time points. Based on the short feedback questionnaire participants completed at the follow-up assessment, the average participant's ratings on each question are presented in Table 6.8. Overall, the participants were satisfied with the self-help intervention (M = 4.71, SD = 0.49) and the number of sessions involved (M = 4.57, SD = 0.54). Three participants reported having 'extremely' benefited from the intervention. In comparison, three participants reported that the intervention has helped them 'very much, with only one participant reporting 'moderate' help from the intervention. Most participants (n =5) were likely to recommend this type of self-help intervention to their friends in the future.

Table 6.8. Quantitative Feedback on the acceptability of the intervention (N = 7)

Questions	P.1	P.2	P.3	P.4	P.5	P.6	P.7	Mean	SD
1. How much would you rate this overall program?	5	4	5	4	5	5	5	4.71	0.49
2. How much the intervention has helped you?	4	4	5	3	4	5	5	4.29	0.76
3. Would you recommend this type of intervention program to others?	5	5	5	3	4	5	5	4.57	0.79
4. Are you happy satisfied with the number of sessions	4	4	5	4	5	5	5	4.57	0.54

Note. The questions are rated on 1-5 scale with 5 being most positive answer (excellent, extremely, or very satisfied)

6.4. Discussion

Early Maladaptive Schemas (EMS) are dysfunctional beliefs, thoughts, feelings, and emotions that impede healthy psychological functioning and well-being among young people (Young et al., 2003; Tariq et al., 2021a, 2021b). The present non-concurrent multiple baseline case series study evaluated the clinical efficacy, feasibility and effectiveness of self-help techniques derived from compassion-based intervention. This pilot study was the first to date to evaluate self-compassion as an adaptive and healthy coping alternative to diminish or buffer the maladaptive effects of schemas among young people rather than merely blocking or changing the schemas. The findings suggested that self-help techniques using self-compassion as an intervention were efficient and viable techniques to help young people with active EMS. The statistical findings revealed a reliable and significant improvement with a large effect size (partial $\eta^2 = 0.88$, $p < 0.001$) in early maladaptive schema scores after implementing self-compassion-based interventions from pre- to post and follow-up.

The visual and statistical trends across the baseline measure for seven participants suggested that self-compassion-based interventions significantly decreased dysfunctional attitudes while improving positive affect among the participants. This suggests that improving self-compassion might have reduced dysfunctional beliefs and maladaptive schemas while enhancing their positive feelings and moods. On the contrary, the improvement in negative affect was relatively small and limited to only three out of seven participants, suggesting that enhancing self-compassion did not significantly affect negative moods. The present findings are preliminary, nonetheless promising, evidence for the clinical efficiency of using self-help techniques and self-compassion-based interventions to help young people. The findings propose that the change was observed for each participant after the implementation of our intervention rather than due to any other extraneous factors or variables. The findings are

according to the primary rationale behind using the multiple baselines design and provide the basis to make comprehensive conclusions (Krasny-Pacini & Evans, 2018; Conn & Rapp, 2018; Lobo et al., 2018). However, these findings should be considered cautiously, as this study did not include a true control condition and could not consider all factors (such as a possible placebo effect). Future RCT trials with control groups are required to make more robust inferences.

In addition, self-compassion-based self-help techniques appear to be feasible and acceptable strategies. The retention rate from pre to post and follow-up assessment was 88%, and only one participant failed to complete the intervention. Further, the findings from feasibility and acceptability measures proposed an overall high acceptance and satisfaction of participants with the intervention delivered. All participants were satisfied with the number of sessions included and were likely to recommend these interventions to their peers. These preliminary reports of feasibility and acceptability support our hypothesis, i.e., self-help strategies that aim to enhance self-compassion can be effective, feasible and acceptable techniques for young people with significant maladaptive schemas. However, the current findings are only limited to quantitative feedback from participants; therefore, qualitative feedback would be preferred to gauge individual experiences and feedback of participants in the future. Nevertheless, these findings still support the future evaluation of self-help techniques based on self-compassion in a large RCT trial.

The statistical findings on primary outcomes measures demonstrated a significant and reliable reduction in predominant maladaptive schemas while levels of self-compassion increased after the intervention. The current findings support our central hypothesis for this study, i.e., improving self-compassion may help minimise the effects of early maladaptive schemas. The

findings align with the previous literature that proposed that enhancing self-compassion will be an effective and helpful mechanism to overcome the maladaptive effects of schemas (Janovsky et al., 2019; Yakin et al., 2018; Flink et al., 2018; Thimm, 2017). However, the previous literature evidence was limited to cross-sectional studies. This is the first study which involves manipulating the self-compassion component to explore its effect on maladaptive schemas among young people. The current findings partially align with recent studies that explored the effectiveness of compassion-based interventions in improving maladaptive schemas (Jalayer et al., 2022; Nasirharand et al., 2022). A recent study found that effective compassion-focused therapy improves emotional schemas among diabetic patients (Jalayer et al., 2022). Similarly, in another study, compassion-focused interventions have shown promising results in improving early maladaptive schemas among married female students (Nasirharand et al., 2022).

Based on these findings, we can propose that emerging research trends have shifted towards using self-compassion techniques as an effective and efficient way to treat people with schemas. Gilbert and Procter (2006) conducted a small pilot study with 6 participants experiencing chronic difficulties. The results showed significant reductions in depression, anxiety, self-criticism, shame, inferiority, and submissive behaviour among these participants (Gilbert & Procter, 2006). Similarly, our findings suggest that young people with significant maladaptive schemas often use self-critical, harsh, and punitive judgement of their feelings, thoughts, and behaviours. At the same time, these self-critical tendencies cause feelings of guilt, shame, inferiority, and dependency among young people. Resolving these hostile and harsh judgmental tendencies may help young people buffer the negative impacts these schemas could cause in their lives and, in turn, overcome psychopathological tendencies, i.e., the development of depression and anxiety symptoms. At individual levels, the findings suggested

that the decrease in early maladaptive schemas and improvement in self-compassion levels was consistent across all seven participants, i.e., the self-compassion-based strategies were equally effective and beneficial for young people. These findings generally support the future use of these techniques with young people to promote resilience, adaptive coping and overcoming mental health difficulties.

Consistent with previous literature, our findings on secondary measures suggested that self-compassion-based intervention resulted in a significant and reliable decrease, with a large effect size, in symptoms of depression ($\eta^2 = 0.86$, $p < 0.001$) and anxiety ($\eta^2 = 0.68$, $p < 0.001$) among young people. Our findings are consistent with previous meta-analytical results that found self-compassion-based interventions as practical third-wave therapeutic approaches in improving symptoms of depression and anxiety (Ferrari et al., 2019; Wilson et al., 2019; Kirby et al., 2017). Furthermore, the present findings in reducing symptoms of depression and anxiety occurred using self-help, self-compassion-based interventions. Promising and beneficial effects of self-help strategies based on self-compassion have been previously found to improve symptoms of depression and anxiety among the general population (Sommer-Spijkerman et al., 2018a), individuals with binge eating disorder (Kelly & Carter, 2014) and patients diagnosed with a skin condition (Hudson et al., 2019). The current findings elaborate on the effective use of self-help techniques derived from self-compassion as a viable option to buffer the impact of schemas in causing subsequent depression and anxiety among young people.

Moreover, the comparison of post and 2-week follow-up assessments demonstrated that scores of early maladaptive schemas, depression, and anxiety increased slightly from post-assessment to follow-up time; however, the increase in scores was not statistically significant. This suggests that the improvement obtained using self-compassion exercises was marginally

maintained. This must be considered in evaluating self-compassion-based interventions' long-lasting and robust effects. On the other hand, the effects of self-compassion interventions were maintained for self-compassion and mindfulness; in fact, scores improved from post to follow-up time. This was in line with previous studies that found robust and long-lasting effects of mindful self-compassion and compassion-focused therapy in maintaining levels of self-compassion and mindfulness for six months to one year after the follow-up assessment (Sommer-Spijkerman et al., 2018a; Neff & Germer, 2012).

Finally, as discussed previously, the present self-compassion-based intervention significantly enhanced mindfulness levels among young people. These findings are consistent with a vast array of effectiveness studies that found a significant improvement in mindfulness post-engagement in self-compassion-related interventions (Ferrari et al., 2019; Moller et al., 2019; Bluth & Elsenlohr-Moul, 2017; Neff & Germer, 2012). The meta-analytical effect size pooled from 14 relevant studies found a significant moderate effect of self-compassion-led interventions on improving mindfulness symptoms (Hedge's 'g' = 0.61, $p < 0.05$; Ferrari et al., 2019). In Buddhist traditions, self-compassion and mindfulness have been described as two wings of the same bird that fly together (Krause & Sears, 2009). It is essential to develop a mindful awareness of stressors, negative thinking patterns and behaviours to learn and cultivate self-compassion towards one's experience and self. Previously, literature on the effectiveness of mindfulness-based interventions has found self-compassion as the critical mechanism for improvement (Baer et al., 2012; Kuyken et al., 2010; Shapiro et al., 2005). Conversely, the experimental studies using self-compassion as an intervention tool have found that mindfulness is equally essential in cultivating self-compassionate tendencies (Neff & Germer, 2012). Further, Neff (2003a, 2003b) has described mindfulness as one of the three main self-compassion components, enabling individuals to develop a balanced awareness of painful

experiences, stressors, and negative aspects of self. These findings propose that it is unlikely to help young people develop self-kindness and common humanity without helping them develop a balanced view of self and their experiences.

6.4.1. Clinical Implications

Self-compassion and mindfulness practices have long been implemented in clinical practices to improve mental health issues, resilience, coping, and quality of life among clinically diagnosed and the general population (Bluth & Neff, 2018). The present findings provide additional clinical insights to help future mental health practitioners and clinical psychologists who are advocating for young people's mental health.

Firstly, the study highlights the potentially beneficial effects of promoting self-help interventions and techniques to equip young people with *'low-intensity intervention'* to overcome the long-awaiting times for clinical referrals and help them seek immediate psychological help for their conditions. Moreover, these self-help interventions can be incorporated with other therapeutic techniques for additional long-term effects or to overcome relapse of their condition.

Secondly, the findings suggest the feasibility and acceptability of self-compassion-based interventions to diminish or buffer the effects of early maladaptive schemas in causing subsequent depressive or anxiety symptoms. These findings could help clinicians to employ self-compassion as an adaptive and healthy psychological factor along with traditional cognitive or schema therapies to bring more improvement in maladaptive schemas. Mental health practitioners can employ self-help, compassionate-focused interventions as an effective

technique to promote cognitive restructuring among young people, i.e., empowering young people with adaptive techniques to change their negative and critical thinking styles.

6.4.2. Strengths, Limitations and Future Directions

The present multiple case series study explores the feasibility, acceptability and effectiveness of a self-help intervention based on self-compassion-based therapy for young people with higher predominant early maladaptive schemas. The case-series study is helpful at the early stages of evaluating a new intervention strategy enabling researchers to overcome issues associated with setting up a large clinical trial. At the same time, the case-series design helps researchers evaluate the effectiveness and improvement on individual levels too. The current study is the first to date which explores the adaptive coping strategy of self-compassion as an effective treatment mechanism to diminish or buffer the schemas effect. Previously, schema therapy (Young et al., 2003) or mindfulness-based interventions (Vresswijk et al., 2014) have been identified as potential treatment strategies for maladaptive schemas. Additionally, this study provides empirical evidence to support the propositions made for self-compassion in the previous chapter and research (i.e., Janovsky et al., 2019; Yakin et al., 2018; Flink et al., 2018; Thimm, 2017).

Despite the strengths of this study, there are several methodological limitations. The present multiple case series study is limited to a small sample with no control group, making it difficult to generalise the findings to a broader population of young people or to be sure that the benefits observed were due to the precise therapeutic method rather than non-specific support. In future, large, randomised control trials with control groups are recommended to make a firm conclusion regarding the effectiveness of these strategies. Further, although various forms of statistical and visual analysis were employed in the present study, rigorous statistical analysis

to estimate and evaluate results for the case-series design is not possible. Future RCTs with advanced statistical analysis are recommended to overcome this issue. Additionally, there exists a chance that participants have experienced improvements in their symptoms due to a potential placebo effect, i.e., simply due to the belief that they were receiving treatment. Future studies may consider additional strategies to minimise the impact of the placebo effect on the findings.

Furthermore, feasibility and acceptability were assessed using short quantitative feedback. A more robust qualitative feedback protocol is recommended to assess the individuals' feedback and identify their recommendations and suggestions to improve the intervention (as conducted in previous studies, i.e., Dunn et al., 2019).

6.4.3. Chapters Conclusion

Despite the caveats in the present study, the findings illustrate that self-help intervention based on compassionate-based therapy offers an opportunity to overcome or diminish the effects of maladaptive schemas and enhance well-being among young people. The findings suggest that helping young people develop a non-critical, non-judgement, well-balanced, and empathic acceptance towards negative thoughts, feelings, and emotions can help restructure their negative thinking style and, in turn, avoid symptoms of depression and anxiety.

Chapter 7

General Discussion

The present thesis has examined the role of specific cognitive vulnerability factors towards depressive and anxiety symptoms among young people. In addition, the present research explores the beneficial effects of healthy psychological constructs of self-compassion and mindfulness to diminish the effects of cognitive vulnerabilities that predispose young people towards symptoms of depression and anxiety. Previous literature has described and advanced Beck's schema theory to explain *Early Maladaptive Schemas (EMS)* embedded in early childhood experiences (Young et al., 2003; discussed in Chapter one). Despite the similar central theme for the thesis, i.e., EMS, depression and anxiety symptoms, each empirical chapter presented findings addressing the different key research questions. The present chapter summarises the key findings for empirical chapters two to six, discusses the implications of current research, and illustrates the limitations and directions for future research. Although the limitations, future directions and clinical implications have been outlined for each empirical study, this chapter will further consider the limitations and future directions applicable throughout this research.

7.1. Summary of Key Findings

A vital strength of the present thesis was examining the role of maladaptive schemas with depression and anxiety symptoms, i.e., the two most common mental health conditions affecting young people. Previous research proposes that maladaptive schemas continue to develop throughout one's lifetime; however, they are primarily shaped by early childhood and adolescent experiences (Young et al., 2003; Schmidt & Joiner, 2004). Therefore, the focus of

the current thesis was late adolescence and young adults to tap the EMS when they are more explicit, apparent and manifested in daily social interaction (Young et al., 2003; Schmidt & Joiner, 2004). Additionally, the previous research on adolescents and young adults was limited to student samples (Calvete et al. 2013; Lumley and Harkness, 2007; Van Vlierberghe et al., 2010; Braet et al., 2013; Calvete et al., 2015; Camara and Calvete, 2012; Eberhart et al., 2011; Schmidt and Joiner, 2004), the present research provides beneficial evidence to generalise the findings based on a large, diverse community sample of young people belonging to different racial and ethnic backgrounds.

7.1.1. The role of EMS in Depression and Anxiety symptoms

The present thesis has contributed to the existing literature by systematically assessing and quantifying the effect size estimates for the associations between EMS, five schema domains and the symptoms of depression and anxiety among adolescents and young adults. Chapters two and three present empirical findings for these meta-analyses. A random effect model was employed to estimate an overall effect size due to the heterogeneous nature of the included studies. The random effect estimates from 24 studies showed that EMS was significantly and primarily associated with depressive symptoms among adolescents and young adults ($r = 0.56$, $p < 0.001$). Further, the meta-analytical estimates from 15 studies showed a large and significant association between EMS and anxiety symptoms ($r = 0.59$, $p < 0.001$). Though all five schema domains had associations with depressive and anxiety symptoms, results indicated that schemas of disconnection/rejection, impaired autonomy/performance, and other-directedness domains had robust and significant associations with depressive and anxiety symptoms. Furthermore, most of the included literature in meta-analyses only incorporated significant schema domains while exploring their roles in predicting depressive and anxiety symptoms. Two schema domains, disconnection/ rejection, and impaired autonomy/

performance, were the most robust predictors of depressive and anxiety symptoms. These similar schemas were evident in young people with depressive and anxiety disorders, partly explaining the high comorbidity between the two emotional disorders (Calvete et al., 2015; Ranta al., 2009). The previous literature has supported that the high comorbidity between anxiety and depressive symptoms among youth can occur due to adverse and maladaptive cognitions, biased information processing, and cognitive errors such as excessive worry, rumination, and catastrophising situations (Garber & Weersing, 2011).

Chapters four and five empirically explored the associations between robust schema domains of disconnection/rejection and impaired autonomy/performance with depressive and anxiety symptoms, respectively, among a diverse sample of young people between 16 to 25 years. Advanced statistical modelling, SEM, was employed to explore the direct pathways. The measurement model (CFA) for two schema domains assessed using Young Schema Questionnaire (YSQ-SF, version 3) adequately fit the current sample and showed excellent reliability metrics. Additionally, depression and anxiety symptoms were assessed using the Depression, Anxiety and Stress (DASS-21) subscales. Both depression and anxiety subscales exhibited an excellent measurement model and had adequate reliability coefficients. The SEM pathways show a significant and direct predictive association between disconnection/rejection and impaired autonomy/performance schemas with depressive symptoms. However, only impaired autonomy/performance schemas predicted anxiety symptoms among young people.

The difference between these findings can be due to the variation in schematic content associated with each schema domain. The feelings and beliefs around abandonment, lack of secure, stable relationships, mistrust, abuse in intimate relationships, emotional deprivation, social alienation, and feelings of unwantedness, defectiveness, and shame are the core

components of disconnection/rejection schemas (Young et al., 2003; Schmidt & Joiner, 2004). On the contrary, impaired autonomy/performance schema involves feelings of extreme dependency, incompetence in daily activities and tasks, excessive fear and worry regarding catastrophic situations, vulnerability to harm, illness, failure, excessive emotional involvement, and underdeveloped self (Young et al., 2003; Schmidt & Joiner, 2004).

Young people with depressive symptoms can fail to develop and seek comfort from their significant other, thus experiencing higher insecure attachment. At the same time, they may lack confidence and belief in their ability to perform well in their daily responsibilities, tasks, and achievements (Verhees et al., 2021). On the other hand, anxiety symptoms are usually accompanied by excessive fear, worry and distress related to the individual's incapability to perform, vulnerability to harm, illness, accident, and failure (APA, 2013). These maladaptive schemas align with symptomatic criteria of anxiety symptoms and provide a rationale for being central in predicting anxiety symptoms (Barlow, 2004; Edwards et al., 2019). Carlucci et al. (2018) have identified separate schema domains associated with somatic and trait anxiety with impaired autonomy/performance schemas as the only predictor of somatic anxiety. The present research used the anxiety subscale from DASS-21, which measures the state version of anxiety symptoms (Lovibond & Lovibond, 1995). The available evidence supports our findings, i.e., impaired autonomy/performance schemas were significant predictors for psychological and physiological symptoms triggered by distressing and adverse situations, i.e., the state version of anxiety.

7.1.2. The role of self-compassion and mindfulness underlying the relationship between EMS domains, depression, and anxiety symptoms

The current thesis explored the benefits of self-compassion and mindfulness between the associations of EMS, depression, and anxiety in Chapters Four and Five. Chapters four and five data were collectively collected through an online survey, yet the findings for depression and anxiety symptoms were presented as separate chapters for clarity. This added to the existing literature, where most previous research has been conducted with overall psychological distress as an outcome measure. In Chapter four, the direct pathways in SEM showed that lower self-compassion ($\beta = 0.17$) and mindfulness ($\beta = 0.18$) were salient predictors of depressive symptoms. However, the indirect mediational pathways suggested that only self-compassion significantly mediated the indirect pathway between two significant schema domains to depressive symptoms. This proposed that young people who have predominant maladaptive beliefs regarding disconnection/rejection and impaired autonomy/performance are likely to experience depressive symptoms because of the lack of self-compassionate tendencies, i.e., young people are highly self-critical, judgemental, and harsh towards their feelings, beliefs, and emotions which makes them vulnerable them towards experiencing sadness, low moods, and hopelessness.

The SEM findings in chapter five showed that self-compassion ($\beta = 0.13$) and mindfulness ($\beta = 0.64$) were significant predictors of anxiety symptoms; however, the magnitude of this prediction showed mindfulness to be a more salient predictor of anxiety symptoms. Further, the indirect mediational pathways showed that mindfulness appeared to significantly mediate the link between two significant schemas to anxiety symptoms. In contrast, with minimal effect size, self-compassion only mediated the link between disconnection/rejection schemas and anxiety symptoms.

This research suggests that self-compassion is an important mechanism underlying the link between maladaptive schemas and depressive symptoms, while mindfulness may be an essential mechanism between schemas and anxiety symptoms. This partially supports the previous research, which propose that self-compassion is a significant predictor of depressive symptoms, while mindfulness is a stronger predictor of anxiety symptoms (Frostadottir & Dorjee, 2019; Hoge et al., 2013; Neff & Dahm, 2015). Young people who cannot rationalise their maladaptive beliefs, feelings, and emotions as a regular part of human experience are more prone to feeling sad, rejected, hopeless and worthless. They are liable to be their own worst critics and, thus, feel emotional distress (Neff & Davidson, 2016; Neff & Dahm, 2015; Neff, 2003a). Conversely, young people could benefit from mindfully avoiding the maladaptive schemas that trigger their anxiety symptoms, i.e., psychological and physiological arousal (Van-Vresswijk & Broersen, 2014; McKay et al., 2012; Cousineau, 2012). As discussed previously, shared comorbidity exists between depression and anxiety symptoms due to the similarity of schema domains (Neff & Dahm, 2015); however, the current findings elucidate the mechanism which can be adopted to avoid particular symptoms among young people. This provides helpful insight for future clinicians in identifying the underlying symptoms among young people that are experienced as a result of predominant EMS and then enhancing the particular component to avoid the distressful effects of EMS.

7.1.3. Effectiveness of Self-compassion-based interventions in diminishing the maladaptive effects of EMS

To test the proposition made in previous research and findings from Chapters Four and Five, this research experimentally investigated the effectiveness of self-compassion-based interventions in diminishing the effects of EMS. The present research provided emerging evidence from a pilot study conducted as a non-concurrent multiple baseline case series

completed with seven young people. Future clinical trials are warranted to permit more generalisable assumptions.

This pilot research, presented in Chapter six, found that enhancing self-compassion is potentially helpful in diminishing the effects of maladaptive schemas. Self-compassion is a protective and powerful source to enhance young people's adaptive coping and resilience to deal with distressing thoughts, beliefs, feelings, and emotions (Neff, 2003a; Neff, 2003b). Further, the research shows that self-compassion is a mutable personality trait that can be learned and practised at a young age (Amonoo et al., 2019). Although, enhancing mindfulness and self-compassion were beneficial mechanisms for dealing with two different emotional disorders. We decided to incorporate self-compassion-based interventions in the present research. Firstly, mindfulness can increase awareness of negative thoughts, and awareness of these negative thoughts without the ability to engage in empathetic coping strategies could render it difficult to diminish their adverse effects: i.e., without practising self-compassion (Janovsky et al., 2019; Yakin et al., 2018). Additionally, self-compassion incorporates a component of mindfulness (Neff, 2003a, 2003b) which can help young people develop a mindful awareness of stressors while learning to deal with them compassionately.

Chapter six proposes the additional effectiveness of self-help, low-intensity interventions for young people. The findings from the present research support previous literature documenting the effectiveness of self-help interventions. These findings suggest that young people with activated EMS can benefit from self-help strategies that diminish maladaptive and distressing thoughts, beliefs, and feelings. These self-help techniques can be learned and practised with or without the guidance of a trained therapist and can be sought out at any hour of need Cuijpers et al., 2010; Jorm, 2012). Moreover, the research was conducted during the COVID-19

pandemic making access to psychotherapeutic help more challenging (CAMHS, 2022), which made this self-help intervention an ideal alternative. It is possible that the current helpful findings might have resulted from the active engagement of participants who could not seek professional mental health services due to the lockdown restrictions. Further, there were long waiting times to get non-urgent mental health support (CAMHS, 2022) which suggests that advancement in self-help interventions would be a profitable strategy in the approaching times.

7.2. Limitations

The limitations of each empirical study have been recognised and described in their respective chapters. However, this section will cover some general limitations that may have impacted the overall research findings described within this thesis.

1. **Self-report measures** used to assess EMS, self-compassion, mindfulness, and depressive and anxiety symptoms in two research studies are subject to potentially biased responses. Though all measures used in the present research had adequate reliability (within this study) and validity (as described in previous research), the self-reported data could have response biases, such as individuals being biased in estimating their self-assessed behaviours. Individuals might fail to understand some items or respond as they think others might prefer i.e., social desirability bias. The data collection was carried out anonymously to minimise the response bias issues relating to self-report measures.

2. The **voluntary participation** of the recruited sample also raises a risk for potential bias. Individuals with particular psychological symptoms likely volunteered to participate in the present research. Young people with certain emotional disturbances, and views about them may have been particularly intrigued to participate, thus influencing the results. This poses a threat by limiting the generalisability of the findings to all young people. To minimise the

possible risk of such selection bias, the data collection was carried out on multiple media platforms to attract and recruit a wide variety of diverse samples. In addition, for the final research study, the participants from the previous study fulfilling the inclusion and exclusion criteria were invited to participate, which may have helped minimise other potential selection biases that may arise through separate recruitment.

3. The present research is primarily **limited to cross-sectional data**, making causal inferences difficult. Though the chosen statistical method, SEM, has helped determine the direct and indirect pathways between the variables. Nonetheless, experimental research is needed to estimate causal mechanisms among the study variables. The research study presented in chapter six involved a pilot study based on a multiple baseline design that involved manipulation of the experimental condition, however, the sample size involved was very small. A future RCT with a control condition is required to make robust conclusions.

4. The present research was **limited to a non-clinical sample**, which may have influenced the findings. Previous research has shown that predominant maladaptive schemas were more apparent and distressing among clinical patients compared to non-clinical samples (Yigit et al., 2021). This makes it difficult to generalise the current findings to young people with clinically diagnosed depressive or anxiety disorders. Moreover, the self-help intervention study was also conducted with young people who exhibited higher scores of EMS. This limits the generalisability of our intervention to non-clinical young people with higher predominant schemas. Future large-scale trials are needed to explore the effectiveness of self-help strategies based on self-compassion among clinically depressed and anxious young people. However, despite the current limitations, the findings based on a non-clinical sample still provide insightful research evidence. Anxiety and depression are a spectrum of mental health illnesses with a range of severities of symptoms (Leyfer & Brown, 2014; Adam, 2013). Therefore, the

patterns observed in non-clinical samples at lower levels of symptoms are still a good indicator for the behavioural patterns observed at the higher levels of spectrum observed in clinical patients.

5. Most of the sample in this study was **based on young females,** making it difficult to generalise the findings to young males due to the over-representation of females. In future, research with a similar number of males and females is needed to increase generalisability.

7.3. Future Directions

The findings from the present research significantly contribute to the available evidence and provide noteworthy directions to plan future research work. Firstly, the present findings provide empirical support to Young's schema theory (Young et al., 2003). However, the current findings indicate that the associations between EMS and depression or anxiety symptoms are not straightforward. The present research has explored the mechanism using self-compassion and mindfulness as the underlying factor between this link; however, more research studies are needed to explore this mechanism with other healthy psychological constructs, such as the role of emotional regulation and psychological flexibility (e.g., similar to recent studies, Pyszkowska & Stojek, 2022 or Yankin et al., 2019).

Furthermore, recently, research has shifted its focus to observing the bi-directionality between EMS and depression or anxiety symptoms. The findings have shown that it is likely that higher depressive or anxiety symptoms are likely to predict higher endorsements of maladaptive schemas among adolescents (Gómez-Odriozola & Calvete., 2020). Future research should consider exploring the bi-directional pathways using longitudinal data to draw robust causal inferences. Also, the longitudinal pathways will help validate the current findings.

The feasibility and effectiveness trial of self-compassion-based self-help interventions support using self-compassion as an adaptive coping strategy to help diminish the distressing effects of EMS among young people. Furthermore, these findings support the shift in research trends from traditional therapeutic techniques to third-wave psychotherapies. Future research should use these strategies in large RCT's with separate control groups to evaluate their effectiveness. Since this research highlights the need to target the schemas during the adolescent and young adult years when they are modifiable, future mental health practitioners should consider designing mental health curriculum to assist and support young people during their school and college levels. These helpful strategies could be taught to individuals as a normal and healthy practice that can help them overcome EMS and prove beneficial in reducing the adverse effects of stress, enhancing attention, healthy engagement in academics and avoiding behavioural problems.

In addition, the present study considered self-help strategies based on self-compassion. Future research should consider mindfulness-based strategies to devise a holistic protocol to help enhance self-compassion and mindfulness traits. Effectiveness trials to compare the beneficial effects of separate interventions would also provide insightful evidence for mental health practitioners and clinicians to devise individualised treatment plans targeted according to each individual's needs.

7.4. Conclusion

Adolescence and Young adulthood are a period of transitional development marked by increased vulnerability to mental health conditions, particularly depressive or anxiety symptoms. Young people experience rapid changes at the time when they are attaining autonomy and building a coherent sense of self. Distorted and maladaptive cognitive processes

can significantly contribute to the theoretical and clinical formations of depression and anxiety among young people (Maric et al., 2010). Young et al. (2003) have described early maladaptive schemas that develop during early childhood and adolescence in response to whether basic needs are met, which may significantly impact young people's well-being and psychological health.

This study empirically supported the validity of Young's schema framework, with findings suggesting a significant predictive link between EMS and depressive or anxiety symptoms. The causal mechanisms found the indirect mediating pathways through lower levels of self-compassion and mindfulness underlying these links. Further, this research found that enhancing self-compassion through self-help self-compassion-based interventions helps to diminish or buffer the effects of EMS. However, the current evidence remains preliminary and warrants future investigation to establish the validity and reliability of the recent findings.

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Appendix

Chapter no.	Appendix no.	Information
Chapter 2 and 3	APPENDIX- A	Supplementary Materials for Articles
Chapters 2 and 3	APPENDIX- B	Permission to use articles in dissertation
Chapters 2 and 3	APPENDIX- C	Risk of Bias tool for Meta-analysis
Chapters 4 and 5	APPENDIX- D	Ethical Approval Letter from School of Health in Social Science, Research Ethics Committee, University of Edinburgh (Study 3)
Chapters 4 and 5	APPENDIX- E	Participant's Information Sheet
Chapters 4 and 5	APPENDIX- F	Participant's Consent Form
Chapters 4, 5 and 6	APPENDIX- G	Measuring Instruments 1. Young Schema Questionnaire-Short Form, 3rd Edition (YSQ-S3; Young, 2005) 2. The Self-compassion Scale (SCS; Neff, 2003) 3. Five-Facet Mindfulness Questionnaire-short form (FFMQ-15; Baer et al., 2012) 4. Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995)
Chapters 4 and 5	APPENDIX- H	Debrief Sheet
Chapter 6	APPENDIX- I	The University of Edinburgh, Sponsorship letter
Chapter 6	APPENDIX- J	Ethical Approval Letter from Research Ethics team at the School of Health in Social Science, University of Edinburgh (Study 4)
Chapter 6	APPENDIX- K	Participant's Information Sheets (2, 3 and 4 weeks)
Chapter 6	APPENDIX- L	Participant's Consent Form

Chapter 6	APPENDIX- M	Participant's Invitation Email
Chapter 6	APPENDIX- N	Baseline Measures: 1. The Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) 2. Dysfunctional Attitude Scale (DAS-SF; Beevers et al., 2007)
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Chapter 6	APPENDIX- Q	Permission Email from Centre for Clinical Interventions (CCI; Australia)
Chapter 6	APPENDIX- R	Self-help Modules
Chapter 6	APPENDIX- S	Visual analysis worksheet (Ledford et al., 2017)

APPENDIX- A

Supplementary Material for Article

A Meta-analysis of the Relationship between Early Maladaptive Schemas and Depression in Adolescence and Young Adulthood

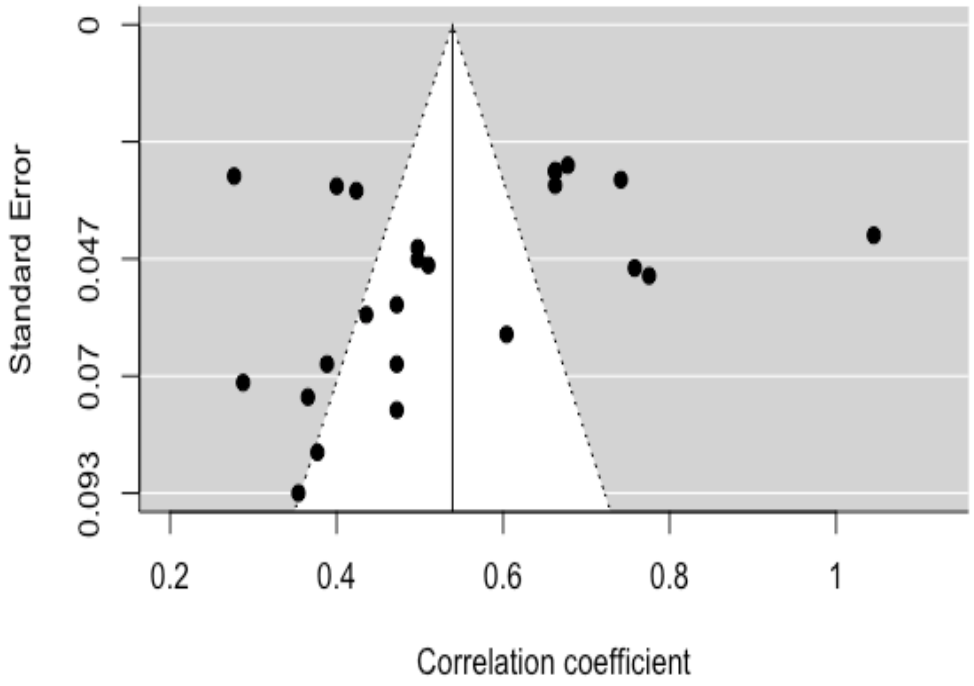

Fig. Funnel plot providing details of Publication bias for the results of Disconnection/Rejection and Depression Meta-analysis

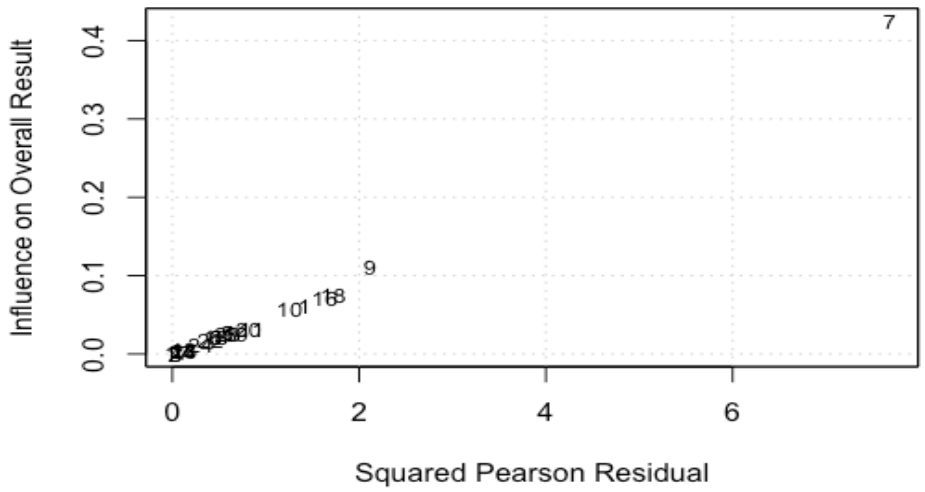

Fig. Baujat plot providing details of studies contributing to heterogeneity results of Disconnection/Rejection and Depression Meta-analysis with the one lying in top quadrant contributing the most

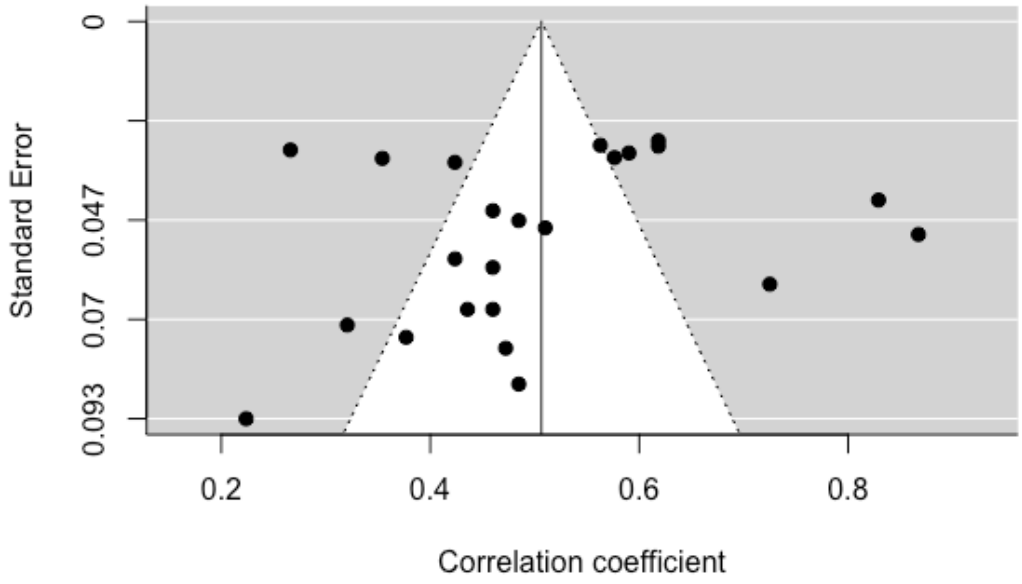

Fig. Funnel plot providing details of Publication bias for the results of Impaired Autonomy and Depression Meta-analysis

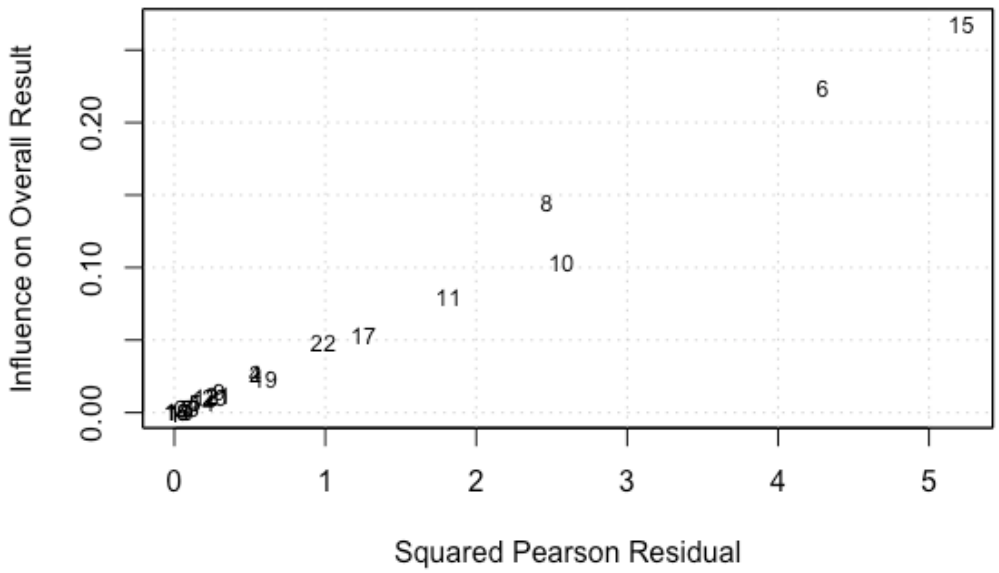

Fig. Baujat plot providing details of studies contributing to heterogeneity results of Impaired Autonomy and Depression Meta-analysis with studies lying in top quadrant contributing the most

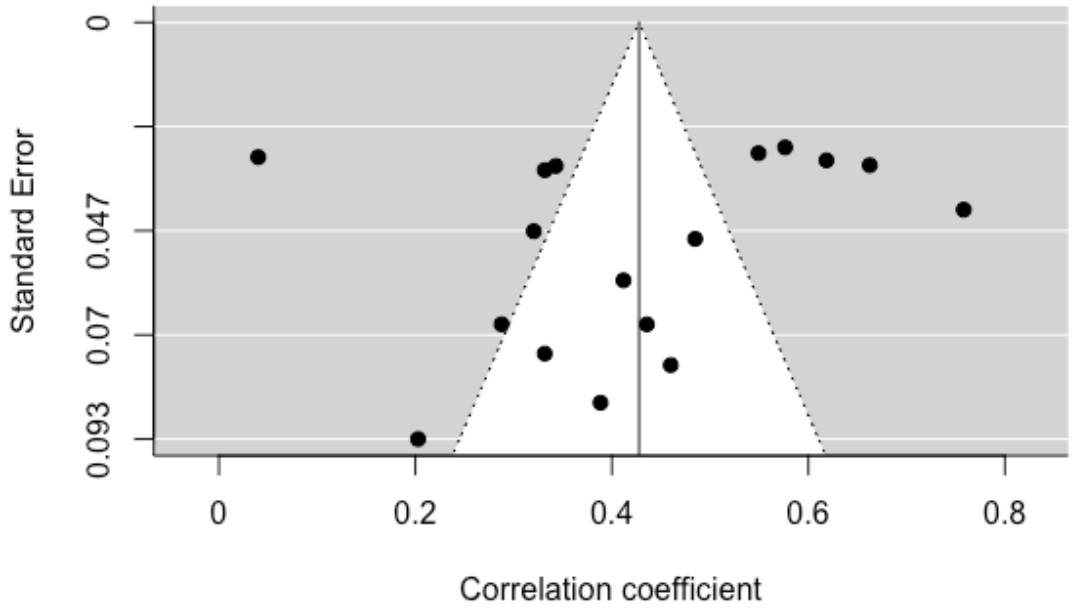

Fig. Funnel plot providing details of Publication bias for the results of Other directedness and Depression Meta-analysis

Fig. Baujat plot providing details of studies contributing to heterogeneity results of Other directedness and Depression Meta-analysis with studies lying in top quadrant contributing the most

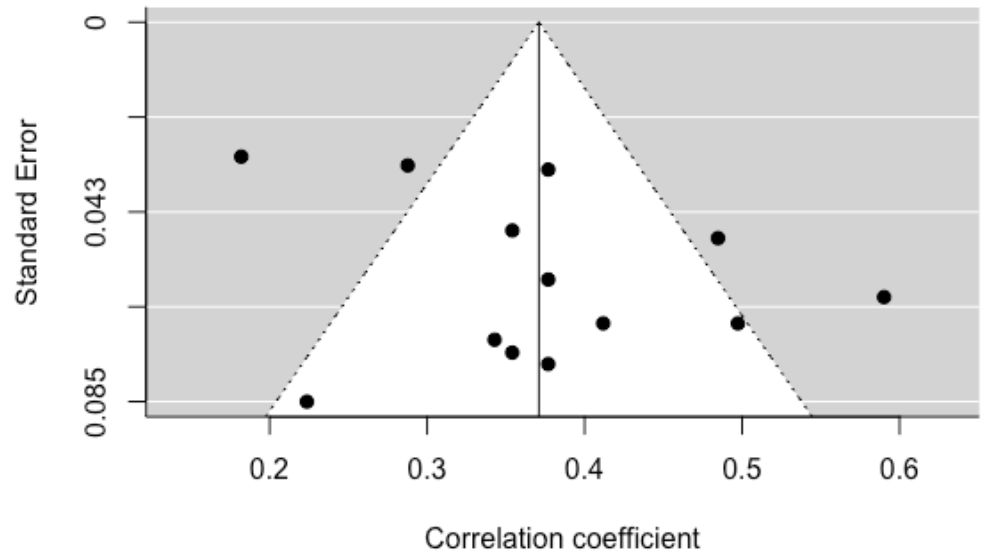

Fig. Funnel plot providing details of Publication bias for the results of Impaired Limits and Depression Meta-analysis

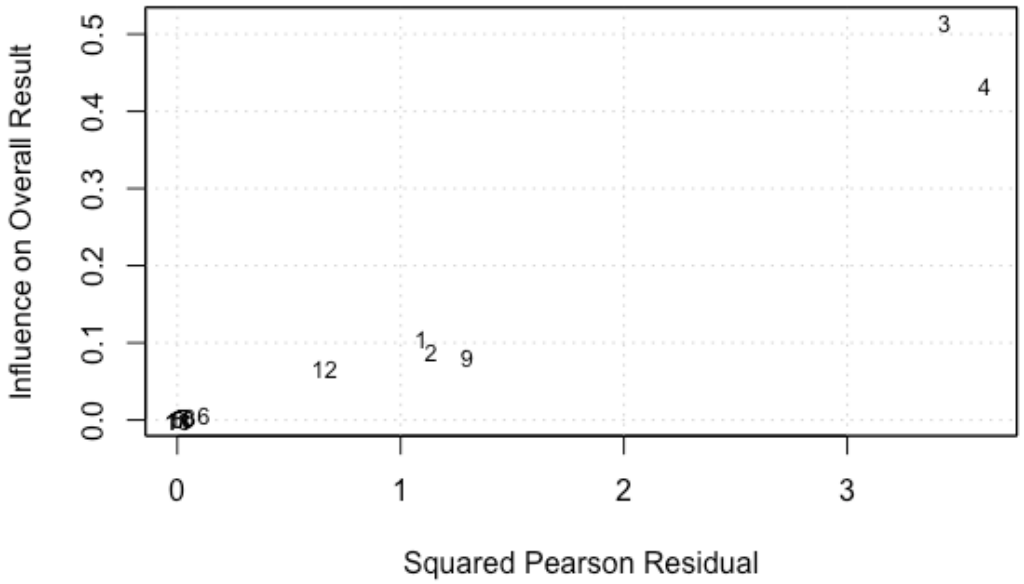

Fig. Baujat plot providing details of studies contributing to heterogeneity results of Impaired Limits and Depression Meta-analysis with the ones lying in top quadrant contributing the most

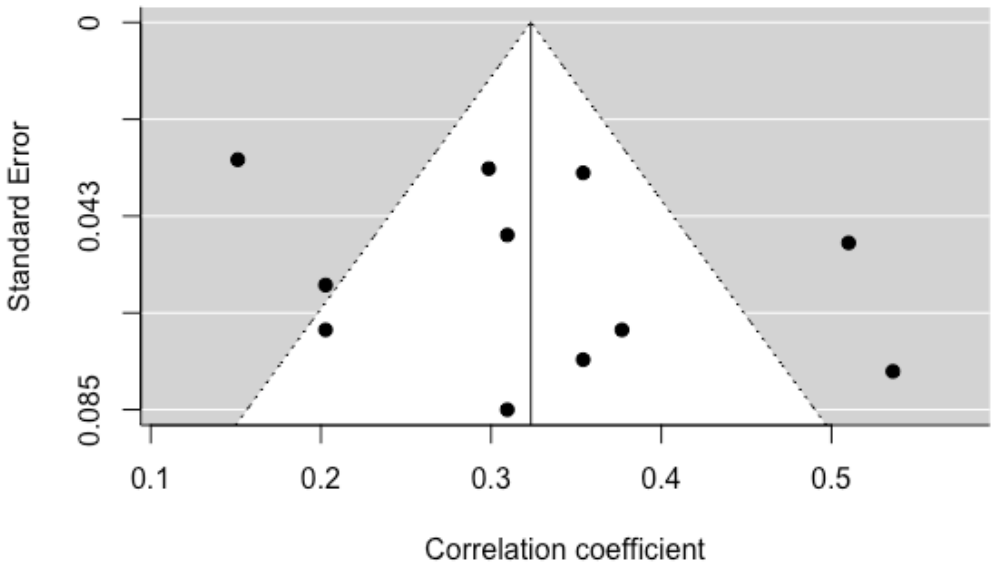

Fig. Funnel plot providing details of Publication bias for the results of hyper-vigilance and Depression Meta-analysis

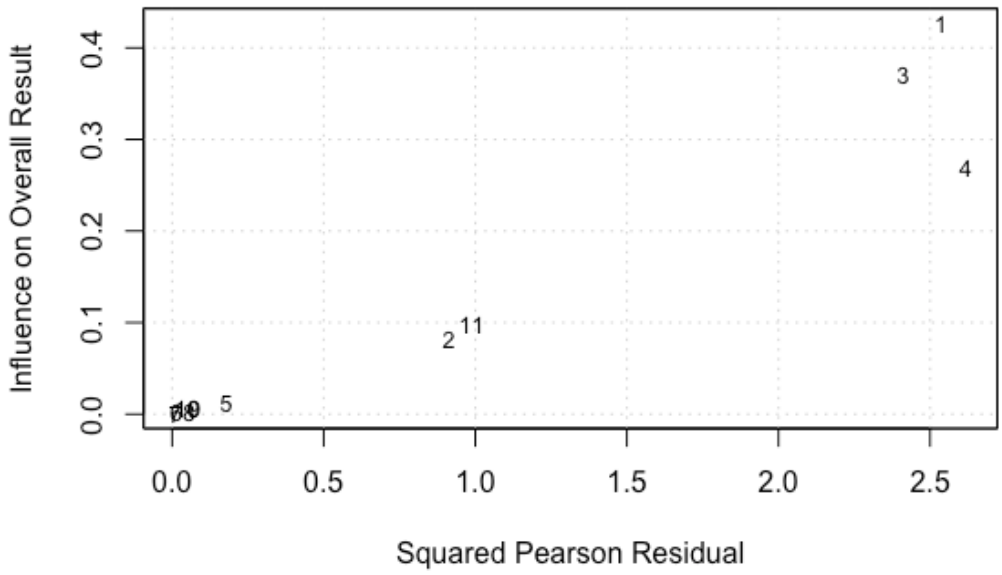

Fig. Baujat plot providing details of studies contributing to heterogeneity results of Hyper-vigilance schemas and Depression Meta-analysis with studies lying in top quadrant contributing the most

APPENDIX- A

Supplementary Material for Article

Relationship between Early Maladaptive Schemas and Anxiety in Adolescence and Young Adulthood: A systematic review and meta-analysis

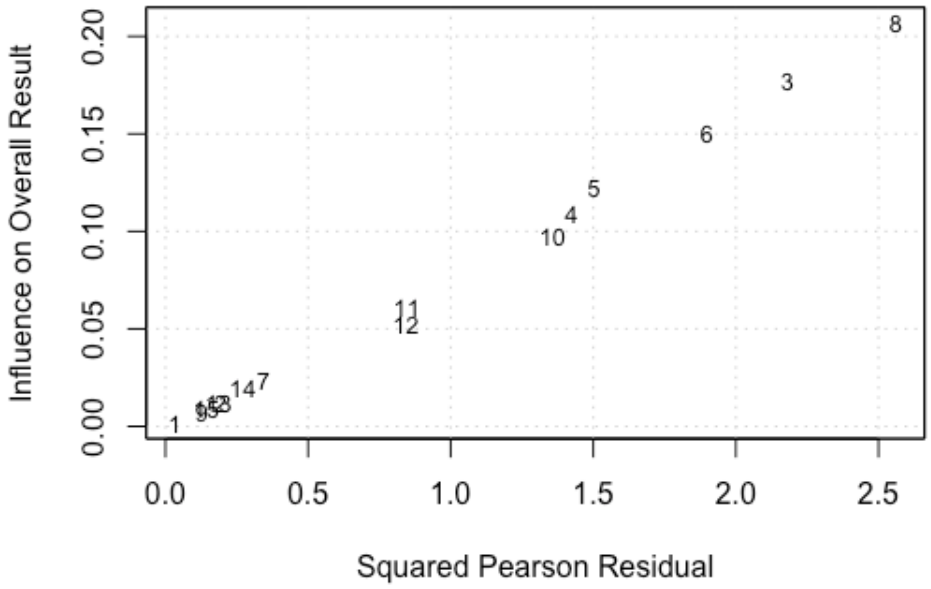

Fig. Baujat plot providing details of studies contributing to heterogeneity results of Disconnection/Rejection and Anxiety Meta-analysis with the one lying in top quadrant contributing the most

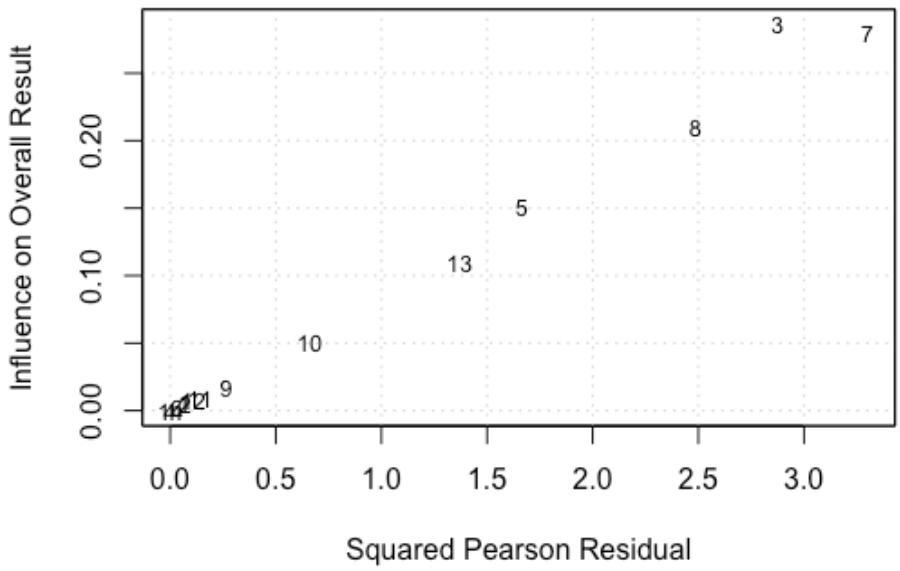

Fig. Baujat plot providing details of studies contributing to heterogeneity results of Impaired Autonomy and Anxiety Meta-analysis with studies lying in top quadrant contributing the most

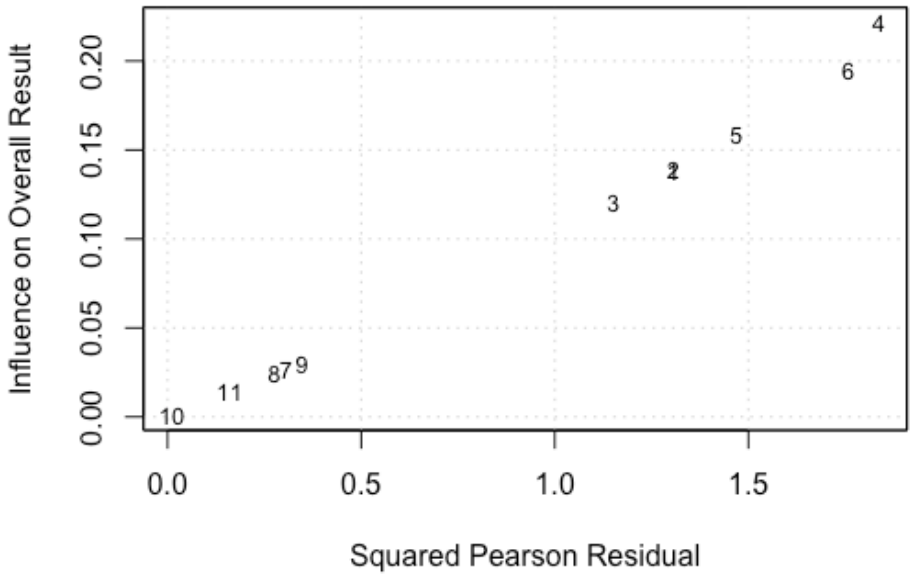

Fig. Baujat plot providing details of studies contributing to heterogeneity results of Other directedness and Anxiety Meta-analysis with studies lying in top quadrant contributing the most

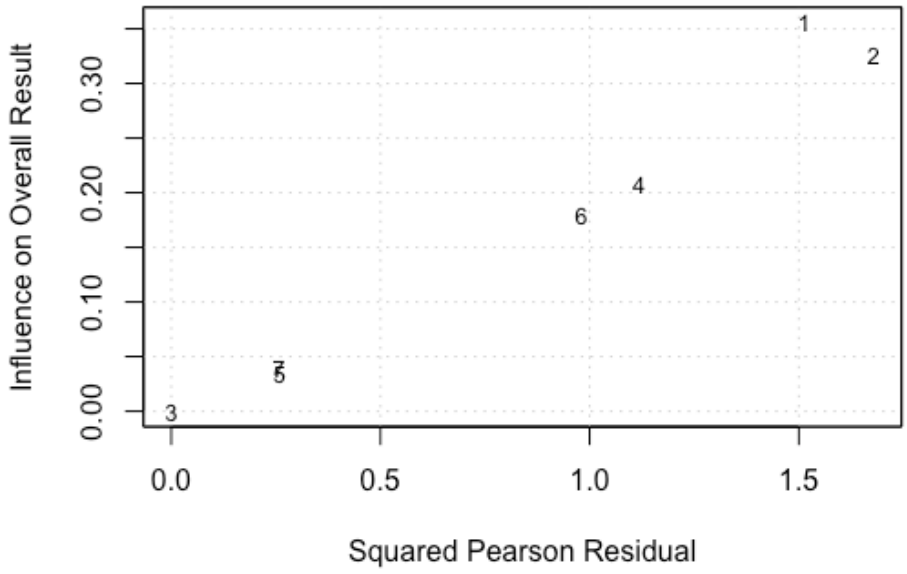

Fig. Baujat plot providing details of studies contributing to heterogeneity results of Impaired Limits and Anxiety Meta-analysis with the ones lying in top quadrant contributing the most

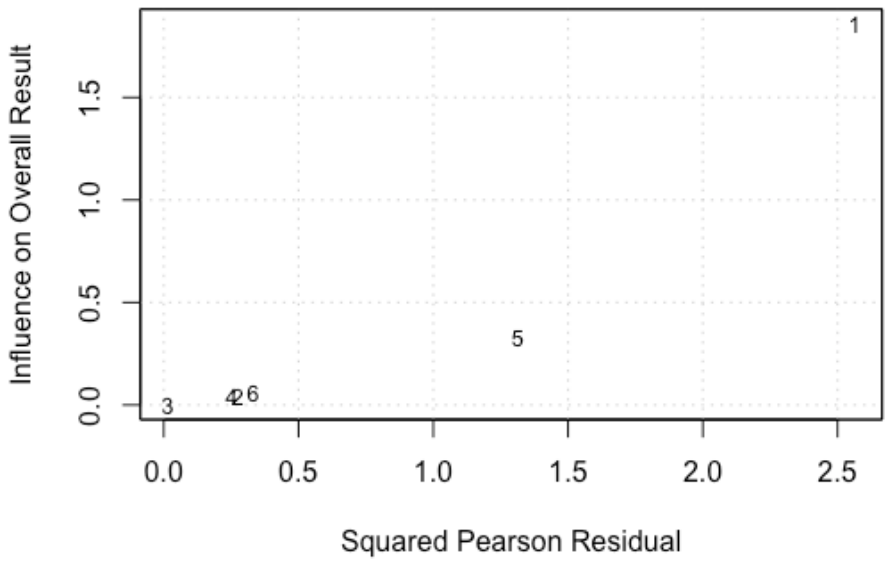

Fig. Baujat plot providing details of studies contributing to heterogeneity results of Hyper-vigilance schemas and Depression Meta-analysis with studies lying in top quadrant contributing the most

Appendix- B

Permission for using articles in Dissertation

RE: Request to include my published article in my PhD dissertation:

Permissions Sales <permissions@cambridge.org>
Mon 08/08/2022 11:58

To: Asnea Tariq <A.Tariq-6@sms.ed.ac.uk>

Dear Asnea,

Tariq, A., Reid, C., & Chan, S. (2021). A meta-analysis of the relationship between early maladaptive schemas and depression in adolescence and young adulthood. *Psychological Medicine, 51*(8), 1233-1248. © The Author(s), 2021. Published by Cambridge University Press

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Re: Request to include my published article in my PhD dissertation [220804-023301]

Permissions Helpdesk <permissionshelpdesk@elsevier.com>
Fri 05/08/2022 15:05

To: Asnea Tariq <A.Tariq-6@sms.ed.ac.uk>

Dear Dr. Asnea Tariq,

Thank you for your query.

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Kind regards,

Kaveri Thakuria
Senior Copyrights Coordinator
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APPENDIX- C

Risk of Bias Tool for Meta-analyses

To be used in conjunction with the adapted AHRQ checklist

Study Name:
Reviewer:
Date:
Checked by Lead Researcher:

Items	Descriptor	Decision (Yes/No/Partially/Can't Tell)	Notes
1	Unbiased Selection of Participant Sample?		
2	Selection minimizes baseline differences. (Controlled studies)		
3	Sample Size Calculated (controlled studies and population studies only)		
4	Adequate description of cohort?		
5	Validated method for ascertaining level of early maladaptive schemas?		
6	Validated method of ascertaining depression or anxiety outcomes?		
7	Blinded outcome assessment?		
8	Adequate follow-up period (longitudinal studies only)?		
9	Missing data/drop-out		
10	Analysis controls for confounding (in controlled studies and where studies test for predictors/correlates of level of early maladaptive schemas)		
11	Analytical methods appropriate?		

Adapted from: Williams et al. (2010). Preventing Alzheimer's Disease and Cognitive Decline. Evidence Report/Technology Assessment No. 193. (Prepared by the Duke evidence-based practice center under contract No. HHSA 290–2007-10,066-I). Agency for Healthcare Research and Quality: Rockville, MD.

General instructions: Grade each criterion as **"Yes," "No," "Partially,**" or **"Can't tell."**

Where item is not applicable write: **N/A.**

Factors to consider when making an assessment are listed under each criterion. Note that some criteria will only apply to specify types of study.

Note: Where a criterion only applies to a specific design, it is in italics.

1. Was the selection of the participant sample unbiased?

Factors that help reduce selection bias:

- Inclusion/exclusion criteria is clearly described
- Recruitment strategy is clearly described
- The nature of the population (typical or clinical) is clearly detailed

Also: the sample is representative of the population of interest: adolescents.

2. Selection minimizes baseline differences between samples (controlled studies only)?

Factors to consider:

- Was selection of the comparison group appropriate? Consider whether comparable participant samples are likely to differ on factors related to the outcome. Matching on key demographics (e.g., gender and population sample type) would be required to minimize bias.
- Did the study investigators do other things to ensure that comparable groups were similar, e.g., by using stratification or matching techniques?

3. Sample size calculated (for controlled studies and where studies test for predictors/correlates of self-compassion)?

Factors to consider:

- Did the authors report conducting a power analysis or describe some other basis for determining the adequacy of study group sizes for the primary outcome(s) of interest to us?
- Did the eventual sample size deviate by ≤ 10% of the sample size suggested by the power calculation?

4. Adequate description of the cohort?

- Consider whether the cohort is well-characterized in terms of baseline demographics.

- Consider key demographic information such as age, gender and country of origin.

- Inclusion of information regarding education or socio-economic characteristics is also important.

5. Validated method for ascertaining level of self-compassion?

Factors to consider:

- Was the method used to ascertain level of self-compassion clearly described? (Details should be sufficient to permit replication in new studies)

- Was a valid and reliable measure used to ascertain level of self-compassion?

6. Validated method for ascertaining psychological distress outcomes?

Factors to consider:

- Were psychological distress outcomes assessed using valid and reliable measures? Note that measures that consist of single items of scales taken from larger measures are likely to lack content validity and reliability.

- Were these measures implemented consistently across all study participants?

7. Blinded outcome assessment?

- In studies using experimental designs or comparing cohort outcomes, were investigators blind to sample group when assessing outcome data?

8. Adequate follow-up period (longitudinal studies only)?

Factors to consider:

- A justification of the follow-up period length is preferable.

- Follow-up period should be the same for all groups

- If differences in follow-up time were present, was this difference adjusted for using statistical techniques?

9. Missing data/drop-out

Factors to consider:

- Did missing data from any group exceed 20%?

- In longitudinal studies consider attrition over time as a form of missing data. Note that the criteria of <20% missing data may be unrealistic over longer follow-up periods.

- If missing data is present and substantial, were steps taken to minimize bias (e.g., sensitivity analysis or imputation)?

10. Analysis controls for confounding (in controlled studies and where studies test for predictors/correlates of level of self-compassion)?

Factors to consider for controlled studies:

Does the study identify and control for important confounding variables and effect modifiers? These may include demographic and clinical variables.

11. Were analytic methods appropriate?

Factors to consider:

- Was the kind of analysis done appropriate for the kind of outcome data (categorical, continuous, etc.)?

- Was the number of variables used in the analysis appropriate for the sample size? (The statistical techniques used must be appropriate to the data and take into account issues such as controlling for small sample size, clustering, rare outcomes, multiple comparison, and number of covariates for a given sample size)

APPENDIX- D

Ethical Approval Letter from School of Health in Social Science, Research Ethics Committee, University of Edinburgh (Study 3)

SCHOOL of HEALTH IN SOCIAL SCIENCE
CLINICAL AND HEALTH PSYCHOLOGY

The University of Edinburgh
Medical School
Doorway 6, Teviot Place
Edinburgh EH8 9AG

Telephone 0131 651 3969
Fax 0131 650 3891
Email submitting.ethics@ed.ac.uk

Asnea Tariq
PhD Student
Department of Clinical and Health Psychology
School of Health in Social Science
University of Edinburgh

23 August 2019

Dear Asnea,

Application for Level 2 Approval

Reference: CLIN666
Project Title: Early Life Experiences and Psychological Health in Young Adults
Academic Supervisor: Stella Chan / Corinne Reid

Thank you for submitting the above research project for review by the Department of Clinical and Health Psychology Ethics Research Panel. I can confirm that the submission has been independently reviewed and was approved on the 12th August 2019.

Should there be any change to the research protocol it is important that you alert us to this as this may necessitate further review.

Yours sincerely,

Kirsty Gardner

Administrative Secretary
Clinical Psychology

APPENDIX- E

Participant's Information Sheet

Early Life Experiences and Psychological Health in Young Adults

We would like to invite you to take part in a research study. Before you decide you need to understand why the study is being done and what you will be asked to do. Please read the following information carefully and ask us if there is anything you are not sure about or if you would like more information. Please take time to decide whether you want to take part.

Why the study is being done?

This research study will explore the relationship between individual beliefs, thoughts, relationship experiences, and mood and feelings in young adults Understanding these will help us think about how best to enhance wellbeing in young adults in the future.

Why have I been asked to take part?

For this study, we aim to recruit about 1500 young adults aged from 16 to 25 years of age to take part. In other to take part, you need to have sufficient fluency in English to understand this information sheet, consent form and the questionnaires that you need to fill in.

Do I have to take part?

It is entirely up to you. If you decide to take part, please complete the Consent Form to show that you understand your rights in relation to the research, and that you are happy to participate. If you change your mind later, you are free to withdraw from the study at any time and without having to give a reason.

What will happen to me if I decide to take part?

If you agree to take part in the study, you will be asked to complete a number of questionnaires about your thoughts, feelings, emotions and relationships lasting approximately 20-30 minutes. You can leave the survey at any time, but your answers from the previous pages will be saved.

What are the possible benefits of taking part?

By sharing your experiences with us, you will be helping researchers to better understand how different psychological factors contribute towards the development of psychological distress and wellbeing among young adults

Are there any risks associated with taking part?

There are no significant risks associated with the participation.

What if I want to withdraw from the survey?

Agreeing to participate in the research survey does not oblige you to remain in the study nor have any further obligation to this study. If, at any stage, you no longer want to be part of the study, please leave the survey. Your data may be used in the production of formal research outputs (e.g. journal articles, conference papers, theses and reports) prior to your withdrawal and so you are advised to contact the research team at the earliest opportunity about your decision to withdraw from the study. On specific request, we will destroy all your identifiable answers.

Date protection and confidentiality

Your data will be processed in accordance with Data Protection Law. Your answers are recorded purely for research purposes. All information collected about you will be kept strictly confidential. Individual responses will be anonymised and will not be shared. Your data will be referred by a unique participant number rather than by your name and will only be reviewed by the research team. All electronic data will be stored and processed on a password-protected computer file within the premises of University of Edinburgh, UK.

What will happen with the results of the study?

The data from this survey will be used for the researcher's doctoral thesis in Clinical Psychology. The results of the study may also be summarised in academic articles, reports and presentations in academic conferences. However, your identification details will never be disclosed. The anonymised data will be kept for a minimum of 5 years and may be used in future ethically approved research After five years, your data will be disposed of securely.

Whom can I contact for further information?

If you have, any further questions about the study, or if you have any concerns, please contact the lead researcher: Asnea Tariq at

If you wish to speak with the researcher's supervisors, please contact: Dr. Stella Chan at or +44 (0)131 651 3935.

If you wish to make a formal complaint, please contact Prof. Matthias Schwannauer, Head of School, School of Health in Social Science, University of Edinburgh, at or +44(0)131 651 3969.

APPENDIX- F

Participant Consent Form

Study Title: *Early Life Experiences and Psychological Health in Young People*

Name of Researcher: Asnea Tariq

By clicking the button at the bottom, you are agreeing that

1.	You are aged between 16 and 25 years of age
2.	I confirm that I have read and understood the Participant Information Sheet for the above study.
3.	I have been given the opportunity to consider the information provided, ask questions and have had these questions answered to my satisfaction.
4.	I understand that my participation is voluntary and that I can withdraw at any time prior to submitting my answers, without giving a reason and without any consequences.
5.	I understand that my anonymised data will be stored for a minimum of 5 years and may be used in future ethically approved research.
6.	I consent to use of the data in research, publications, sharing and archiving as explained in the Participant Information Sheet,
7.	I agree to take part in this study.

◯ Agree

◯ Disagree

APPENDIX- G

Measuring Instruments

Young Schema Questionnaire-Short Form, 3rd Edition (YSQ-S3; Young, 2005)

YSQ – S3

Jeffrey Young, Ph.D.

Name		Date	

Instructions

Listed below are statements that people might use to describe themselves. Please read each statement, then rate it based on how accurately it fits you ***over the past year***. When you are not sure, base your answer on what you ***emotionally feel***, not on what you think to be true.

A few of the items ask about your relationships with your parents or romantic partners. If any of these people have died, please answer these items based on your relationships when they were alive. If you do not currently have a partner but have had partners in the past, please answer the item based on your most recent significant romantic partner.

Choose the *highest rating from 1 to 6* that best describes you, and write the number in the white box to the left of each statement.

Rating Scale

1 Completely untrue of me	3 Slightly more true than untrue	5 Mostly true of me
2 Mostly untrue of me	4 Moderately true of me	6 Describes me perfectly

1		I haven't had someone to nurture me, share him/herself with me, or care deeply about everything that happens to me.
2		I find myself clinging to people I'm close to because I'm afraid they'll leave me.
3		I feel that people will take advantage of me.
4		I don't fit in.
5		No man/woman I desire could love me once he or she saw my defects or flaws.
6		Almost nothing I do at work (or school) is as good as other people can do.
7		I do not feel capable of getting by on my own in everyday life.
8		I can't seem to escape the feeling that something bad is about to happen.
9		I have not been able to separate myself from my parent(s) the way other people my age seem to.
10		I think that if I do what I want, I'm only asking for trouble.

11		I'm the one who usually ends up taking care of the people I'm close to.
12		I am too self-conscious to show positive feelings to others (e.g., affection, showing I care).
13		I must be the best at most of what I do; I can't accept second best.
14		I have a lot of trouble accepting "no" for an answer when I want something from other people.
15		I can't seem to discipline myself to complete most routine or boring tasks.
16		Having money and knowing important people make me feel worthwhile.
17		Even when things seem to be going well, I feel that it is only temporary.
18		If I make a mistake, I deserve to be punished.
19		I don't have people to give me warmth, holding, and affection.
20		I need other people so much that I worry about losing them.
21		I feel that I cannot let my guard down in the presence of other people, or else they will intentionally hurt me.
22		I'm fundamentally different from other people.
23		No one I desire would want to stay close to me if he or she knew the real me.
24		I'm incompetent when it comes to achievement.
25		I think of myself as a dependent person when it comes to everyday functioning.
26		I feel that a disaster (natural, criminal, financial, or medical) could strike at any moment.
27		My parent(s) and I tend to be over-involved in each other's lives and problems.
28		I feel as if I have no choice but to give in to other people's wishes, or else they will retaliate, get angry, or reject me in some way.
29		I am a good person because I think of others more than myself.
30		I find it embarrassing to express my feelings to others.
31		I try to do my best; I can't settle for "good enough."
32		I'm special and shouldn't have to accept many of the restrictions or limitations placed on other people.
33		If I can't reach a goal, I become easily frustrated and give up.

34		Accomplishments are most valuable to me if other people notice them.
35		If something good happens, I worry that something bad is likely to follow.
36		If I don't try my hardest, I should expect to lose out.
37		I haven't felt that I am special to someone.
38		I worry that people I feel close to will leave me or abandon me.
39		It is only a matter of time before someone betrays me.
40		I don't belong; I'm a loner.
41		I'm unworthy of the love, attention, and respect of others.
42		Most other people are more capable than I am in areas of work and achievement.
43		I lack common sense.
44		I worry about being physically attacked by people.
45		It is very difficult for my parent(s) and me to keep intimate details from each other without feeling betrayed or guilty.
46		In relationships, I usually let the other person have the upper hand.
47		I'm so busy doing things for the people that I care about that I have little time for myself.
48		I find it hard to be free-spirited and spontaneous around other people.
49		I must meet all my responsibilities.
50		I hate to be constrained or kept from doing what I want.
51		I have a very difficult time sacrificing immediate gratification or pleasure to achieve a long-range goal.
52		Unless I get a lot of attention from others, I feel less important.
53		You can't be too careful; something will almost always go wrong.
54		If I don't do the job right, I should suffer the consequences.
55		I have not had someone who really listens to me, understands me, or is tuned into my true needs and feelings.
56		When someone I care for seems to be pulling away or withdrawing from me, I feel desperate.

57		I am quite suspicious of other people's motives.
58		I feel alienated or cut off from other people.
59		I feel that I'm not lovable.
60		I'm not as talented as most people are at their work.
61		My judgment cannot be counted on in everyday situations.
62		I worry that I'll lose all my money and become destitute or very poor.
63		I often feel as if my parent(s) are living through me - that I don't have a life of my own.
64		I've always let others make choices for me, so I really don't know what I want for myself.
65		I've always been the one who listens to everyone else's problems.
66		I control myself so much that many people think I am unemotional or unfeeling.
67		I feel that there is constant pressure for me to achieve and get things done.
68		I feel that I shouldn't have to follow the normal rules or conventions that other people do.
69		I can't force myself to do things I don't enjoy, even when I know it's for my own good.
70		If I make remarks at a meeting, or am introduced in a social situation, it's important for me to get recognition and admiration.
71		No matter how hard I work, I worry that I could be wiped out financially and lose almost everything.
72		It doesn't matter why I make a mistake. When I do something wrong, I should pay the consequences.
73		I haven't had a strong or wise person to give me sound advice or direction when I'm not sure what to do.
74		Sometimes I am so worried about people leaving me that I drive them away.
75		I'm usually on the lookout for people's ulterior or hidden motives.
76		I always feel on the outside of groups.
77		I am too unacceptable in very basic ways to reveal myself to other people or to let them get to know me well.
78		I'm not as intelligent as most people when it comes to work (or school).

79		I don't feel confident about my ability to solve everyday problems that come up.
80		I worry that I'm developing a serious illness, even though nothing serious has been diagnosed by a doctor.
81		I often feel I do not have a separate identity from my parent(s) or partner.
82		I have a lot of trouble demanding that my rights be respected and that my feelings be taken into account.
83		Other people see me as doing too much for others and not enough for myself.
84		People see me as uptight emotionally.
85		I can't let myself off the hook easily or make excuses for my mistakes.
86		I feel that what I have to offer is of greater value than the contributions of others.
87		I have rarely been able to stick to my resolutions.
88		Lots of praise and compliments make me feel like a worthwhile person.
89		I worry that a wrong decision could lead to disaster.
90		I'm a bad person who deserves to be punished.

The Self-compassion Scale (SCS; Neff, 2003)

HOW I TYPICALLY ACT TOWARDS MYSELF IN DIFFICULT TIMES

Please read each statement carefully before answering. To the left of each item, indicate how often you behave in the stated manner, using the following scale:

Almost **never**				Almost **always**
1	**2**	**3**	**4**	**5**

_____ 1. I'm disapproving and judgmental about my own flaws and inadequacies.

_____ 2. When I'm feeling down, I tend to obsess and fixate on everything that's wrong.

_____ 3. When things are going badly for me, I see the difficulties as part of life that everyone goes through.

_____ 4. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.

_____ 5. I try to be loving towards myself when I'm feeling emotional pain.

_____ 6. When I fail at something important to me, I become consumed by feelings of inadequacy.

_____ 7. When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.

_____ 8. When times are really difficult, I tend to be tough on myself.

_____ 9. When something upsets me, I try to keep my emotions in balance.

_____ 10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.

_____ 11. I'm intolerant and impatient towards those aspects of my personality I don't like.

_____ 12. When I'm going through a very hard time, I give myself the caring and tenderness I need.

_____ 13. When I'm feeling down, I tend to feel like most other people are probably happier than I am.

_____ 14. When something painful happens I try to take a balanced view of the situation.

_____ 15. I try to see my failings as part of the human condition.

_____ 16. When I see aspects of myself that I don't like, I get down on myself.

_____ 17. When I fail at something important to me, I try to keep things in perspective.

_____ 18. When I'm really struggling, I tend to feel like other people must be having an

easier time of it.

_____ 19. I’m kind to myself when I’m experiencing suffering.

_____ 20. When something upsets me, I get carried away with my feelings.

_____ 21. I can be a bit cold-hearted towards myself when I'm experiencing suffering.

_____ 22. When I'm feeling down, I try to approach my feelings with curiosity and openness.

_____ 23. I’m tolerant of my own flaws and inadequacies.

_____ 24. When something painful happens I tend to blow the incident out of proportion.

_____ 25. When I fail at something that's important to me, I tend to feel alone in my failure.

_____ 26. I try to be understanding and patient towards those aspects of my personality I don't like.

FFMQ-15: 15-item Five-Facet Mindfulness Questionnaire

Instructions

Please use the 1 (never or very rarely true) to 5 (very often or always true) scale provided to indicate how true the below statements are of you. Circle the number in the box to the right of each statement which represents your own opinion of what is generally true for you. For example, if you think that a statement is often true of you, circle '4' and if you think a statement is sometimes true of you, circle '3'.

	Never or very rarely true	Rarely true	Some-times true	Often true	Very often or always true
1. When I take a shower or a bath, I stay alert to the sensations of water on my body.	1	2	3	4	5
2. I'm good at finding words to describe my feelings.	1	2	3	4	5
3. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.	1	2	3	4	5
4. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.	1	2	3	4	5
5. When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.	1	2	3	4	5
6. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.	1	2	3	4	5
7. I have trouble thinking of the right words to express how I feel about things.	1	2	3	4	5
8. I do jobs or tasks automatically without being aware of what I'm doing.	1	2	3	4	5
9. I think some of my emotions are bad or inappropriate and I shouldn't feel them.	1	2	3	4	5
10. When I have distressing thoughts or images I am able just to notice them without reacting.	1	2	3	4	5
11. I pay attention to sensations, such as the wind in my hair or sun on my face.	1	2	3	4	5
12. Even when I'm feeling terribly upset I can find a way to put it into words.	1	2	3	4	5
13. I find myself doing things without paying attention.	1	2	3	4	5
14. I tell myself I shouldn't be feeling the way I'm feeling.	1	2	3	4	5
15. When I have distressing thoughts or images I just notice them and let them go.	1	2	3	4	5

Baer, R. A., Smith, G. T., Lykins, E., Button, D., Krietemeyer, J., Sauer, S., Walsh, E., Duggan, D. & Williams, J. M. G. (2008). Construct validity of the Five Facet Mindfulness Questionnaire in meditating and nonmeditating samples. *Assessment, 15*, 329–342. doi: 10.1177/1073191107313003

Gu, J., Strauss, C., Crane, C., Barnhofer, T., Karl, A., Cavanagh, K., & Kuyken, W. (2016). Examining the factor structure of the 39-item and 15-item versions of the Five-Facet Mindfulness Questionnaire before and after Mindfulness-Based Cognitive Therapy for people with recurrent depression**.** *Psychological Assessment.* doi: 10.1037/pas0000263

DASS21

Name: Date:

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you **over the past week**. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree or a good part of time
3 Applied to me very much or most of the time

1 (s)	I found it hard to wind down	0	1	2	3
2 (a)	I was aware of dryness of my mouth	0	1	2	3
3 (d)	I couldn't seem to experience any positive feeling at all	0	1	2	3
4 (a)	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5 (d)	I found it difficult to work up the initiative to do things	0	1	2	3
6 (s)	I tended to over-react to situations	0	1	2	3
7 (a)	I experienced trembling (e.g. in the hands)	0	1	2	3
8 (s)	I felt that I was using a lot of nervous energy	0	1	2	3
9 (a)	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10 (d)	I felt that I had nothing to look forward to	0	1	2	3
11 (s)	I found myself getting agitated	0	1	2	3
12 (s)	I found it difficult to relax	0	1	2	3
13 (d)	I felt down-hearted and blue	0	1	2	3
14 (s)	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15 (a)	I felt I was close to panic	0	1	2	3
16 (d)	I was unable to become enthusiastic about anything	0	1	2	3
17 (d)	I felt I wasn't worth much as a person	0	1	2	3
18 (s)	I felt that I was rather touchy	0	1	2	3
19 (a)	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0	1	2	3

20 (a)	I felt scared without any good reason	0	1	2	3
21 (d)	I felt that life was meaningless	0	1	2	3

APPENDIX- H

Study Debriefing Form

Thank you for participating in the study. Your contribution is greatly appreciated. The present study aims to investigate and explore how early experiences, beliefs (evaluations) about oneself and intimate relationships may lead to psychological distress and affect our mental wellbeing. Further, it also seeks to explore the association of individuals' self-awareness and acceptance regarding oneself when encountered with difficulties and stressful situations.

It is expected that the findings of the current investigation will lead researchers to identify and evaluate the self-help strategies to reduce the effect of schemas and enhance well-being and mental health. If you wish to take part in another part of this study, you are requested to leave your email address, to allow us to contact you in future. If you would like to learn, more about this research or if you would like to receive a summary report of the findings of the research, please contact the research team:

Researcher: Asnea Tariq
Supervisors: Dr. Stella Chan

Sometimes filling in questionnaires may make you more aware of difficult feelings or experiences. If you are concerned about your mental health, you may like to discuss it with your GP. You may also find the following organisations and hotlines helpful in providing information and support:

	Phone Numbers
The Samaritans	**116 123**
NHS 24	**111**
Breathing Space	**0800 83 85 87**

Thank you once again for taking part in the study.
Those who wish to be contacted in future for further research, please leave your email address:

_____

APPENDIX- I

The University of Edinburgh, Sponsorship letter (Study 4)

University of Edinburgh
College of Arts, Humanities and Social Sciences
Research Governance Office
55 George Square
Edinburgh
EH8 9JU

17th May 2021

Asnea Tariq
c/o School of Health in Social Science
University of Edinburgh

Dear Asnea,

Study Title: An Experimental Investigation of Self-help material based on Self-compassion / Mindfulness to Reduce the Effects of Distressing thoughts

Sponsor number: CAHSS2104/02

Under the requirements of the UK policy framework for health and social care research, the University of Edinburgh agrees in principle to act as Sponsor for this project. Sponsorship is subject to you obtaining institutional ethics for the project.

As Chief Investigator, you must ensure that the study does not commence until all applicable approvals have been obtained. Following receipt of all relevant approvals, you should ensure that any amendments to the project are notified to the Sponsor.

Yours sincerely

Charlotte Smith

Research Governance Manager

APPENDIX- J

Ethical Approval Letter from Research Ethics team at the School of Health in Social Science, University of Edinburgh (Study 4)

SCHOOL of HEALTH IN SOCIAL SCIENCE

The University of Edinburgh
Medical School
Doorway 6, Teviot Place
Edinburgh EH8 9AG

Email ethics.hiss@ed.ac.uk

30 July 2021

Dear Asnea Tariq,

Reference: CLPS047
Project Title: An Experimental Investigation of Self-help material based on Self-compassion/Mindfulness to Reduce the Effects of Distressing thoughts

Thank you for submitting the above research project for review by the School of Health in Social Science Research Ethics Committee (REC). I can confirm that the submission has been independently reviewed and has received a favourable opinion on 24th June 2021.

The standard conditions of this are:

I. Conduct the project strictly in accordance with the proposal that you have submitted and that has been granted ethics favourable opinion, including any amendments made to the proposal required by the REC.
II. Advise the REC (by email to ethics.hiss@ed.ac.uk) of any complaints or other issues in relation to the project, which may warrant review of the favourable opinion granted to the project.
III. Make submission for approval of amendments to the project before implementing such changes.
IV. Advise in writing if the project has been discontinued.

The School's Research Ethics Policy and further information and resources are available on the School's website.

Best of luck with your project.

Yours sincerely,

Sanni Ahonen
Administrative Secretary
School of Health in Social Science

APPENDIX- K

Participant's Information Sheets (2, 3 and 4 weeks)

Participant Information Sheet (2 weeks)

An Experimental Investigation of Self-help material based on Self-compassion/Mindfulness to Reduce the Effects of Distressing thoughts

We would like to invite you to take part in our research study. Before you decide, it is important that you understand why the study is being done and what you will be asked to do. Please read the following information carefully and ask us if there is anything you are not sure about or if you would like more information. Please take time to decide whether you want to take part. You can also talk to anyone you feel comfortable with about the research, before making a decision.

Why the study is being done?

This research study will evaluate the feasibility and effectiveness of self-help material that aims to enhance self-compassion and mindfulness. This study further aims to explore if enhancing self-compassion and mindfulness can help in reducing the distressing effects of negative beliefs, thoughts, mood and feelings in young adults.

Why have I been invited to take part?

You are receiving this information sheet as you took part in a research survey titled *"Early Life Experiences and Psychological Health among Young adults"* and gave permission for us to contact you again about future research. You have been invited to take part in this research study because you are between the ages of 16-25 years.

Do I have to take part?

No. Your participation in this research is entirely voluntarily. It is your choice whether to participate or not. If you change your mind later, you are free to withdraw from the study at any time and without having to give a reason. Deciding not to take part or withdrawing from the study will not affect you in any way.

If you decide to take part, please complete the attached Consent Form to show that you understand your rights in relation to the research, and that you are happy to participate and return to the research team via email.

What will happen to me if I decide to take part?

If you agree to take part in the study, you will be asked to complete a number of online questionnaires followed by a self-help intervention phase which will last for approximately 12 weeks. The detailed procedures are explained below:

(i). After returning the consent for participation, you will be emailed a link to an online survey that includes questions about your thoughts, feelings, emotions and mood that will take approximately 15 minutes to complete.

(ii). Once you have completed the online survey, the primary investigator will arrange a short online individual orientation session with you at a time that is convenient for you. This orientation session will be conducted on Zoom, Skype or Microsoft teams which will last about 20-30 minutes, during which the researcher will explain more about the research and what will happen next.

(ii). After you have understood the structure and required tasks, you will be asked to complete daily measures of mood on alternate days for 2 weeks (Week 1 and Week 2) which will take around 5-7 minutes each time. These will also be completed online. You will be provided with a calendar to give you an overview of the tasks to be completed each week.

(ii). Week 3 to Week 9 is the intervention phase. During these 7 weeks you will be provided with self-help material based on self-compassion and mindfulness activities. You will receive one module at the beginning of each week (which can be any day of your choice). This will be sent to you via email. You will be asked to read the material provided and complete the tasks based on this material once a week, at your own pace (approximately, each session will take you around 45 minutes to complete). The sessions will be entirely confidential without the involvement of researchers, and you will not be asked to share any of your materials completed with the research team. After the completion of each session, you will be asked to rate your daily mood using a short online measure.

(iii). After the end of the intervention phase (Week 10), you will be asked to complete the online measures which will include questions similar to the previous ones and will again take around 15 minutes. You will be contacted again via email after two weeks (in Week 12) to repeat the same measures online, which will again take around 15 minutes of your time.

What are the possible benefits of taking part?

There are no direct benefits, but by sharing your experiences with us, you will be helping researchers to better understand the effectiveness of self-help material as "low intensity

help" based on evidence based effective psychological treatment. Although we won't know whether the materials, we provide here will significantly enhance your wellbeing, the materials we use are drawn from techniques used in compassion focused therapy and mindfulness therapy, both of which have been shown in previous research to be effective strategies to help enhance wellbeing. The findings will further help researchers to identify the role of self-compassion and mindfulness in reducing distressing thoughts and moods and increasing well-being among young people.

Are there any risks associated with taking part?

There are no significant risks associated with the participation. However, questions on beliefs, mood, and distress will be asked. This has the potential to make you more aware of your own mood or other difficulties. The questionnaires used are validated standardised questionnaires that have often been used in research and we do not anticipate any significant distress or discomfort beyond temporary sense of unease. Nevertheless, we will provide you with information regarding who you contact should you wish to discuss your health and wellbeing. In addition, the study requires your engagement for 12 weeks, which needs your time commitment, however, the materials are for you to use at your own pace and availability.

What if I want to withdraw from the survey?

Agreeing to participate in the research survey does not oblige you to remain in the study or have any further obligation to this study. You may decide that you do not want your data used in this research. If you would like your data removed from the study and permanently deleted, please contact the lead researcher at the earliest opportunity. Please note that once the data has been anonymized, it may no longer be possible to remove your data.

Will my taking part be kept confidential?

All the information we collect during the course of the research will be kept confidential and there are strict laws which safeguard your privacy at every stage. Your data will only be viewed by the researcher and the research team.

How will we use information about you?

We aim to collect your demographic information along with responses provided on different measures. This information will include your name, gender, age, email address and contact number. We require your email address in order for us to send weekly self-help

materials. In addition, with your consent, your contact details will be used to send reminders regarding completing the online tasks and self-help materials.

The Researchers and Sponsorship team at University of Edinburgh will use this information to do the research or to check your records to make sure that the research is being done properly. People who do not need to know who you are will not be able to see your name or contact details. Names and personal information will be kept separate from all other information. The identifiable information will be kept in separate encrypted file and linked to participant codes only. All the other data collected will be anonymized and stored against participant code only, with no identifiable information contained within the file. Electronic data will be stored on a password-protected computer file within the secure University of Edinburgh's network. Your consent information will be kept separately from your responses in order to minimise risk of participant identification. Once we have finished the study, we will keep some of the data so we can check the results. We will write our reports in a way that no-one can work out that you took part in the study.

What are your choices about how your information is used?

You can stop being part of the study at any time, without giving a reason, but we will keep information about you that we already have. Your data will be anonymised and may be used in the production of formal research outputs (e.g., journal articles, conference papers, theses and reports) prior to your withdrawal. We need to manage your records in specific ways for the research to be reliable. This means that we won't be able to let you see or change the data we hold about you.

Where can you find out more about how your information is used?

You can find out more about how we use your information at https://www.ed.ac.uk/records-management/privacy-notice-research

- by asking one of the research team
- by sending an email to dpo@ed.ac.uk,

The University of Edinburgh is the sponsor for this study based in the United Kingdom. The sponsor will be using information in order to undertake the study and will act as the data controller for this study. This means that we are responsible for looking after your information and using it properly. The University of Edinburgh will keep anonymised information about you for a minimum of 5 years after the study has finished.

What will happen with the results of the study?

The data from this study will be used for the researcher's doctoral thesis in Clinical Psychology. The results of the study may also be summarised in academic articles, reports and presentations in academic conferences. Please note you will not be identifiable in any of the published results. The identifiable information (contact details and emails) will be kept for a minimum of 6 months after the completion of research. The anonymised data will be kept for a minimum of 5 years and may be used in future ethically approved research.

Who is organising and funding the research?

The study has been organised by research team at School of Health in Social Science, and sponsored by the University of Edinburgh, UK.

Who has reviewed the study?

The study proposal has been reviewed by School Ethics committee, Health in Social Science, University of Edinburgh. The University of Edinburgh is the sponsor for this study

Whom can I contact for further information?

If you have, any further questions about the study, or if you have any concerns, please contact the lead researcher: Asnea Tariq at

If you wish to speak with the researcher's supervisors, please contact: Prof. Ethel Quayle at or +44 (0)131 651 3943.

If you would like to speak to someone independent of the study, please contact: Dr. Melina Kyranides, Career Development Fellow, School of Health in Social Science, University of Edinburgh, at or +44(0)131 651 3969.

If you wish to make a formal complaint, please contact Prof. Matthias Schwannauer, Head of School, School of Health in Social Science, University of Edinburgh, at or +44(0)131 651 3969.

Participant Information Sheet (3 weeks)

An Experimental Investigation of Self-help material based on Self-compassion/Mindfulness to Reduce the Effects of Distressing thoughts

We would like to invite you to take part in our research study. Before you decide, it is important that you understand why the study is being done and what you will be asked to do. Please read the following information carefully and ask us if there is anything you are not sure about or if you would like more information. Please take time to decide whether you want to take part. You can also talk to anyone you feel comfortable with about the research, before making a decision.

Why the study is being done?

This research study will evaluate the feasibility and effectiveness of self-help material that aims to enhance self-compassion and mindfulness. This study further aims to explore if enhancing self-compassion and mindfulness can help in reducing the distressing effects of negative beliefs, thoughts, mood and feelings in young adults.

Why have I been invited to take part?

You are receiving this information sheet as you took part in a research survey titled *"Early Life Experiences and Psychological Health among Young adults"* and gave permission for us to contact you again about future research. You have been invited to take part in this research study because you are between the ages of 16-25 years.

Do I have to take part?

No. Your participation in this research is entirely voluntarily. It is your choice whether to participate or not. If you change your mind later, you are free to withdraw from the study at any time and without having to give a reason. Deciding not to take part or withdrawing from the study will not affect you in any way.

If you decide to take part, please complete the attached Consent Form to show that you understand your rights in relation to the research, and that you are happy to participate and return to the research team via email.

What will happen to me if I decide to take part?

If you agree to take part in the study, you will be asked to complete a number of online questionnaires followed by a self-help intervention phase which will last for approximately 13 weeks. The detailed procedures are explained below:

(i). After returning the consent for participation, you will be emailed a link to an online survey that includes questions about your thoughts, feelings, emotions and mood that will take approximately 15 minutes to complete.

(ii). Once you have completed the online survey, the primary investigator will arrange a short online individual orientation session with you at a time that is convenient for you. This orientation session will last about 20-30 minutes, during which the researcher will explore more about the research and what will happen next.

(ii). After you have understood the structure and required tasks, you will be asked to complete daily measures of mood on alternate days for 3 weeks (Week 1-Week 3) which will take around 5-7 minutes each time. These will also be completed online. You will be provided with a calendar to give you an overview of the tasks to be completed each week.

(ii). Week 4 to Week 10 is the intervention phase. During these 7 weeks you will be provided with self-help material based on self-compassion and mindfulness activities. You will receive one module at the beginning of each week (which can be any day of your choice). This will be sent to you via email. You will be asked to read the material provided and complete the tasks based on this material once a week, at your own pace (approximately, each session will take you around 45 minutes to complete). The sessions will be entirely confidential without the involvement of researchers, and you will not be asked to share any of your materials completed with the research team. After the completion of each session, you will be asked to rate your daily mood using a short online measure.

(iii). After the end of the intervention phase (Week 11), you will be asked to complete the online measures which will include questions similar to the previous ones and will again take around 15 minutes. You will be contacted again via email after two weeks (in Week 13) to repeat the same measures online, which will again take around 15 minutes of your time.

What are the possible benefits of taking part?

There are no direct benefits, but by sharing your experiences with us, you will be helping researchers to better understand the effectiveness of self-help material as "low intensity help" based on evidence based effective psychological treatment. Although we won't know

whether the materials, we provide here will significantly enhance your wellbeing, the materials we use are drawn from techniques used in compassion focused therapy and mindfulness therapy, both of which have been shown in previous research to be effective strategies to help enhance wellbeing. The findings will further help researchers to identify the role of self-compassion and mindfulness in reducing distressing thoughts and moods and increasing well-being among young people.

Are there any risks associated with taking part?

There are no significant risks associated with the participation. However, questions on beliefs, mood, and distress will be asked. This has the potential to make you more aware of your own mood or other difficulties. The questionnaires used are validated standardised questionnaires that have often been used in research and we do not anticipate any significant distress or discomfort beyond temporary sense of unease. Nevertheless, we will provide you with information regarding who you contact should you wish to discuss your health and wellbeing. In addition, the study requires your engagement for 13 weeks, which needs your time commitment, however, the materials are for you to use at your own pace and availability.

What if I want to withdraw from the survey?

Agreeing to participate in the research survey does not oblige you to remain in the study or have any further obligation to this study. You may decide that you do not want your data used in this research. If you would like your data removed from the study and permanently deleted, please contact the lead researcher at the earliest opportunity. Please note that once the data has been anonymized, it may no longer be possible to remove your data.

Will my taking part be kept confidential?

All the information we collect during the course of the research will be kept confidential and there are strict laws which safeguard your privacy at every stage. Your data will only be viewed by the researcher and the research team.

How will we use information about you?

We aim to collect your demographic information along with responses provided on different measures. This information will include your name, gender, age, email address and contact number. We require your email address in order for us to send weekly self-help

materials. In addition, with your consent, your contact details will be used to send reminders regarding completing the online tasks and self-help materials.

The Researchers and Sponsorship team at University of Edinburgh will use this information to do the research or to check your records to make sure that the research is being done properly. People who do not need to know who you are will not be able to see your name or contact details. Names and personal information will be kept separate from all other information. The identifiable information will be kept in separate encrypted file and linked to participant codes only. All the other data collected will be anonymized and stored against participant code only, with no identifiable information contained within the file. Electronic data will be stored on a password-protected computer file within the secure University of Edinburgh's network. Your consent information will be kept separately from your responses in order to minimise risk of participant identification. Once we have finished the study, we will keep some of the data so we can check the results. We will write our reports in a way that no-one can work out that you took part in the study.

What are your choices about how your information is used?

You can stop being part of the study at any time, without giving a reason, but we will keep information about you that we already have. Your data will be anonymised and may be used in the production of formal research outputs (e.g., journal articles, conference papers, theses and reports) prior to your withdrawal. We need to manage your records in specific ways for the research to be reliable. This means that we won't be able to let you see or change the data we hold about you.

Where can you find out more about how your information is used?

You can find out more about how we use your information at https://www.ed.ac.uk/records-management/privacy-notice-research

- by asking one of the research team
- by sending an email to dpo@ed.ac.uk,

The University of Edinburgh is the sponsor for this study based in the United Kingdom. The sponsor will be using information in order to undertake the study and will act as the data controller for this study. This means that we are responsible for looking after your information and using it properly. The University of Edinburgh will keep anonymised information about you for a minimum of 5 years after the study has finished.

What will happen with the results of the study?

The data from this study will be used for the researcher's doctoral thesis in Clinical Psychology. The results of the study may also be summarised in academic articles, reports, and presentations in academic conferences. Please note you will not be identifiable in any of the published results. The identifiable information (contact details and emails) will be kept for a minimum of 6 months after the completion of research. The anonymised data will be kept for a minimum of 5 years and may be used in future ethically approved research.

Who is organising and funding the research?

The study has been organised by research team at School of Health in Social Science, and sponsored by the University of Edinburgh, UK.

Who has reviewed the study?

The study proposal has been reviewed by School Ethics committee, Health in Social Science, University of Edinburgh. The University of Edinburgh is the sponsor for this study

Whom can I contact for further information?

If you have, any further questions about the study, or if you have any concerns, please contact the lead researcher: Asnea Tariq a

If you wish to speak with the researcher's supervisors, please contact: Prof. Ethel Quayle at or +44 (0)131 651 3943.

If you would like to speak to someone independent of the study, please contact: Dr. Melina Kyranides, Career Development Fellow, School of Health in Social Science, University of Edinburgh, at or +44(0)131 651 3969.

If you wish to make a formal complaint, please contact Prof. Matthias Schwannauer, Head of School, School of Health in Social Science, University of Edinburgh, at or +44(0)131 651 3969.

Participant Information Sheet (4 weeks)

An Experimental Investigation of Self-help material based on Self-compassion/Mindfulness to Reduce the Effects of Distressing thoughts

We would like to invite you to take part in our research study. Before you decide, it is important that you understand why the study is being done and what you will be asked to do. Please read the following information carefully and ask us if there is anything you are not sure about or if you would like more information. Please take time to decide whether you want to take part. You can also talk to anyone you feel comfortable with about the research, before making a decision.

Why the study is being done?

This research study will evaluate the feasibility and effectiveness of self-help material that aims to enhance self-compassion and mindfulness. This study further aims to explore if enhancing self-compassion and mindfulness can help in reducing the distressing effects of negative beliefs, thoughts, mood and feelings in young adults.

Why have I been invited to take part?

You are receiving this information sheet as you took part in a research survey titled *"Early Life Experiences and Psychological Health among Young adults"* and gave permission for us to contact you again about future research. You have been invited to take part in this research study because you are between the ages of 16-25 years.

Do I have to take part?

No. Your participation in this research is entirely voluntarily. It is your choice whether to participate or not. If you change your mind later, you are free to withdraw from the study at any time and without having to give a reason. Deciding not to take part or withdrawing from the study will not affect you in any way.

If you decide to take part, please complete the attached Consent Form to show that you understand your rights in relation to the research, and that you are happy to participate and return to the research team via email.

What will happen to me if I decide to take part?

If you agree to take part in the study, you will be asked to complete a number of online questionnaires followed by a self-help intervention phase which will last for approximately 14 weeks. The detailed procedures are explained below:

(i). After returning the consent for participation, you will be emailed a link to an online survey that includes questions about your thoughts, feelings, emotions and mood that will take approximately 15 minutes to complete.

(ii). Once you have completed the online survey, the primary investigator will arrange a short online individual orientation session with you at a time that is convenient for you. This orientation session will last about 20-30 minutes, during which the researcher will explore more about the research and what will happen next.

(ii). After you have understood the structure and required tasks, you will be asked to complete daily measures of mood on alternate days for 4 weeks (Weak 1-Week 4) which will take around 5-7 minutes each time. These will also be completed online. You will be provided with a calendar to give you an overview of the tasks to be completed each week.

(ii). Week 5 to Week 11 is the intervention phase. During these 7 weeks you will be provided with self-help material based on self-compassion and mindfulness activities. You will receive one module at the beginning of each week (which can be any day of your choice). This will be sent to you via email. You will be asked to read the material provided and complete the tasks based on this material once a week, at your own pace (approximately, each session will take you around 45 minutes to complete). The sessions will be entirely confidential without the involvement of researchers, and you will not be asked to share any of your materials completed with the research team. After the completion of each session, you will be asked to rate your daily mood using a short online measure.

(iii). After the end of the intervention phase (Week 12), you will be asked to complete the online measures which will include questions similar to the previous ones and will again take around 15 minutes. You will be contacted again via email after two weeks (in Week 14) to repeat the same measures online, which will again take around 15 minutes of your time.

What are the possible benefits of taking part?

There are no direct benefits, but by sharing your experiences with us, you will be helping researchers to better understand the effectiveness of self-help material as "low intensity help" based on evidence based effective psychological treatment. Although we won't know

whether the materials, we provide here will significantly enhance your wellbeing, the materials we use are drawn from techniques used in compassion focused therapy and mindfulness therapy, both of which have been shown in previous research to be effective strategies to help enhance wellbeing. The findings will further help researchers to identify the role of self-compassion and mindfulness in reducing distressing thoughts and moods and increasing well-being among young people.

Are there any risks associated with taking part?

There are no significant risks associated with the participation. However, questions on beliefs, mood, and distress will be asked. This has the potential to make you more aware of your own mood or other difficulties. The questionnaires used are validated standardised questionnaires that have often been used in research and we do not anticipate any significant distress or discomfort beyond temporary sense of unease. Nevertheless, we will provide you with information regarding who you contact should you wish to discuss your health and wellbeing. In addition, the study requires your engagement for 14 weeks, which needs your time commitment, however, the materials are for you to use at your own pace and availability.

What if I want to withdraw from the survey?

Agreeing to participate in the research survey does not oblige you to remain in the study or have any further obligation to this study. You may decide that you do not want your data used in this research. If you would like your data removed from the study and permanently deleted, please contact the lead researcher at the earliest opportunity. Please note that once the data has been anonymized, it may no longer be possible to remove your data.

Will my taking part be kept confidential?

All the information we collect during the course of the research will be kept confidential and there are strict laws which safeguard your privacy at every stage. Your data will only be viewed by the researcher and the research team.

How will we use information about you?

We aim to collect your demographic information along with responses provided on different measures. This information will include your name, gender, age, email address and contact number. We require your email address in order for us to send weekly self-help

materials. In addition, with your consent, your contact details will be used to send reminders regarding completing the online tasks and self-help materials.

The Researchers and Sponsorship team at University of Edinburgh will use this information to do the research or to check your records to make sure that the research is being done properly. People who do not need to know who you are will not be able to see your name or contact details. Names and personal information will be kept separate from all other information. The identifiable information will be kept in separate encrypted file and linked to participant codes only. All the other data collected will be anonymized and stored against participant code only, with no identifiable information contained within the file. Electronic data will be stored on a password-protected computer file within the secure University of Edinburgh's network. Your consent information will be kept separately from your responses in order to minimise risk of participant identification. Once we have finished the study, we will keep some of the data so we can check the results. We will write our reports in a way that no-one can work out that you took part in the study.

What are your choices about how your information is used?

You can stop being part of the study at any time, without giving a reason, but we will keep information about you that we already have. Your data will be anonymised and may be used in the production of formal research outputs (e.g., journal articles, conference papers, theses and reports) prior to your withdrawal. We need to manage your records in specific ways for the research to be reliable. This means that we won't be able to let you see or change the data we hold about you.

Where can you find out more about how your information is used?

You can find out more about how we use your information at https://www.ed.ac.uk/records-management/privacy-notice-research

- by asking one of the research team
- by sending an email to dpo@ed.ac.uk,

The University of Edinburgh is the sponsor for this study based in the United Kingdom. The sponsor will be using information in order to undertake the study and will act as the data controller for this study. This means that we are responsible for looking after your information and using it properly. The University of Edinburgh will keep anonymised information about you for a minimum of 5 years after the study has finished.

What will happen with the results of the study?

The data from this study will be used for the researcher's doctoral thesis in Clinical Psychology. The results of the study may also be summarised in academic articles, reports, and presentations in academic conferences. Please note you will not be identifiable in any of the published results. The identifiable information (contact details and emails) will be kept for minimum of 6 months after the completion of research. The anonymised data will be kept for a minimum of 5 years and may be used in future ethically approved research.

Who is organising and funding the research?

The study has been organised by research team at School of Health in Social Science, and sponsored by the University of Edinburgh, UK.

Who has reviewed the study?

The study proposal has been reviewed by School Ethics committee, Health in Social Science, University of Edinburgh. The University of Edinburgh is the sponsor for this study

Whom can I contact for further information?

If you have, any further questions about the study, or if you have any concerns, please contact the lead researcher: Asnea Tariq at

If you wish to speak with the researcher's supervisors, please contact: Prof. Ethel Quayle at or +44 (0)131 651 3943.

If you would like to speak to someone independent of the study, please contact: Dr. Melina Kyranides, Career Development Fellow, School of Health in Social Science, University of Edinburgh, at or +44(0)131 651 3969.

If you wish to make a formal complaint, please contact Prof. Matthias Schwannauer, Head of School, School of Health in Social Science, University of Edinburgh, at m.schwannauer@ed.ac.uk or +44(0)131 651 3969.

APPENDIX-L

Participant Consent Form

Participants Identification No: _____

Study Title: *An Experimental Investigation of Self-help material based on Self-compassion/Mindfulness to Reduce the Effects of Distressing thoughts*

Name of Researcher: Asnea Tariq

Contact details: +44-7904-939547

If you agree, please initial box

8. I confirm that I have read and understood the Participant Information Sheet (Version 1, DDMMMYYYY) for the above study.	
9. I have been given the opportunity to consider the information provided, ask questions, and have had these questions answered to my satisfaction.	
10. I understand that my participation is voluntary and that I can withdraw at any time, without giving a reason and without any consequences.	
11. I understand that my anonymised data will be stored for a minimum of 5 years and may be used in future ethically approved research.	
12. I understand that relevant sections of my data collected during the study may be looked at by individuals from the Sponsor (University of Edinburgh), where it is relevant to my taking part in this research. I give permission for these individuals to have access to my data	
13. I agree to be contacted via Email messages during the study to receive reminders for the completion of tasks.	
14. I agree to be contacted via Phone (e.g., text messages or WhatsApp messages during the study to receive reminders for the completion of tasks. (Provide your contact number _____)	
15. I agree to take part in the above study.	

_____	_____	_____
Name of participant	Date	Signature
_____	_____	_____
Name of the person taking consent	Date	Signature

APPENDIX- M

Participant's Invitation Email

Subject: Invitation to a Research Study

Dear Participant,

You are receiving this email as you took part in a research survey titled *"Early Life Experiences and Psychological Health among Young adults"* and gave permission for us to contact you again about future research.

My name is Asnea Tariq and I'm a doctoral student at University of Edinburgh Clinical Psychology Program. I am inviting you to take part in an extended project of the previous research survey entitled: *An Experimental Investigation of Self-help material based on Self-compassion/Mindfulness to Reduce the Effects of Distressing thoughts.*

If you decide to take part, you will be asked to complete some self-help tasks for which materials will be provided through email. Participation will take around 12-14 weeks (~45 minutes task per week). The tasks will be completed on your own pace and time of convenience, without any involvement of the researcher. You will not be asked to share the session material completed. Participation is completely voluntary, and you may withdraw from the study at any time.

Please find attached the Participant information sheet which provides more details of the study. Please feel free to ask me any questions. If you decide you would like to take part, please return the consent form enclosed to the researcher. We hope that findings from this study will help our team evaluate the self-help strategies in improving well-being.

If you have any questions, please contact me on the details provided below.

With Best Regards,

Asnea Tariq
School of Health in Social Science,
University of Edinburgh, UK
Email:
Contact: +44-7904939547

APPENDIX- N

Baseline Measures

Positive and Negative Affect Schedule (PANAS; Watson et al., 1988)

Positive and Negative Affect Schedule (PANAS-day version)

Indicate the extent you have felt this today		Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
PANAS 1	Interested	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 2	Distressed	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 3	Excited	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 4	Upset	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 5	Strong	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 6	Guilty	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 7	Scared	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 8	Hostile	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 9	Enthusiastic	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 10	Proud	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 11	Irritable	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 12	Alert	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 13	Ashamed	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 14	Inspired	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 15	Nervous	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 16	Determined	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 17	Attentive	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 18	Jittery	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 19	Active	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 20	Afraid	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Dysfunctional Attitude Scale (DAS-SF; Beevers et al., 2007)

DAS-SF1

The sentences below describe people's attitudes. Circle the number which best describes how much each sentence describes your attitude. Your answer should describe the way you think most of the time.

		Totally Agree	Agree	Disagree	Totally Disagree
1.	If I don't set the highest standards for myself, I am likely to end up a second-rate person.	1	2	3	4
2.	My value as a person depends greatly on what others think of me.	1	2	3	4
3.	People will probably think less of me if I make a mistake.	1	2	3	4
4.	I am nothing if a person I love doesn't love me.	1	2	3	4
5.	If other people know what you are really like, they will think less of you.	1	2	3	4
6.	If I fail at my work, then I am a failure as a person.	1	2	3	4
7.	My happiness depends more on other people than it does me.	1	2	3	4
8.	I cannot be happy unless most people I know admire me.	1	2	3	4
9.	It is best to give up your own interests in order to please other people.	1	2	3	4

APPENDIX- O

Tentative Participant's Calendar

Appendix – G--Tentative Calendar Sample, will be modified according to each person's availability and randomization

July 2021

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
27	28	29	30	1	2	3
4	5	6	7	8	9	10
11	12 Complete daily ratings Day 1	13	14 Complete daily ratings Day 2	15	16 Complete daily ratings Day 3	17
18 Complete daily ratings Day 4	19	20 Complete daily ratings Day 5	21	22 Complete daily ratings Day 6	23	24 Complete daily ratings Day 7
25	26 Complete Pre-intervention measures	27	28	29 Intervention Module 1 + Daily ratings	30	31

Self-help Interventions for Distressing Thoughts, Version 2, 13-05-2021

Appendix – G--Tentative Calendar Sample, will be modified according to each person's availability and randomization

August 2021

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2	3	4	5 Intervention Module 2+ Daily Ratings	6	7
8	9	10	11	12 Intervention Module 3+ Daily Ratings	13	14
15	16	17	18	19 Intervention Module 4+ Daily Ratings	20	21
22	23	24	25	26 Intervention Module 5+ Daily Ratings	27	28
29	30	31	1	2 Intervention Module 6+ Daily Ratings	3	4

Appendix – G--Tentative Calendar Sample, will be modified according to each person's availability and randomization

September 2021

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
29	30	31	1	2 Intervention Module 7+ Daily Ratings	3	4
5	6	7	8	9 Complete Post-Intervention Measures	10	11
12	13	14	15	16	17	18
19	20	21	22	23 Complete Follow-up Measures	24	25
26	27	28	29	30	1	2

APPENDIX- P

Study Debriefing Form & Hotlines for Support Organizations

Thank you for participating in our study. Your contribution is greatly appreciated.

Purpose of the study

As we explained at the start, the purpose of the study is to identify and evaluate the self-help strategies to reduce the effect of distressing thoughts and enhance well-being and mental health among young adults. The goal of our research is to evaluate the role of self-compassion and mindfulness in reducing the impact of maladaptive thoughts, behaviors, feelings and mood on overall mental health. We aim to achieve this by using self-help material which participants can use on their own without the need of any guidance or external support.

You may decide that you do not want your data used in this research. If you would like your data removed from the study and permanently deleted, please contact the lead researcher at the earliest opportunity. Please note that once the data has been anonymized, it may no longer be possible to remove your data. The data will be anonymized soon after the completion of study.

If you would like to learn, more about this research or if you would like to receive a summary report of the findings of the research, please contact the research team:

Researcher: Asnea Tariq

Supervisors: Prof. Ethel Quayle

Prof. Stephen M. Lawrie

Thank you once again for taking part in the study.

We realize that some of the questions asked or tasks performed may have provoked strong emotional reactions or may make you aware of difficult feelings and experiences. If you are concerned about your mental health, you may like to discuss it with your GP. As researchers, we do not provide mental health services. However, we want to provide every participant in this study with a list of support resources that are available, should you decide you need assistance at any time.

Please see information below regarding organizations and hotlines helpful in providing information and support:

Organizations	Phone Numbers	Website
The Samaritans	116 123	http://www.samaritans.org/
NHS 24	111	https://www.nhs24.scot
Breathing Space	0800 83 85 87	https://breathingspace.scot
Young Minds	Text YM to 85258	https://youngminds.org.uk/

APPENDIX- Q

Permission Email from Centre for Clinical Interventions (CCI; Australia)

RE: Request for Permission to use Self-compassion self-help tools for Research purpose

CCI, Info <Info.CCI@health.wa.gov.au>
Tue 16/03/2021 08:27
To: TARIQ Asnea <A.Tariq-6@sms.ed.ac.uk>

Dear Asnea

Thank you for taking an interest in the work of CCI.

Your request (*as per your email below*) has been reviewed by the Director of CCI (Dr Bruce Campbell) and you have been given permission from CCI to use our materials "providing our material is appropriately acknowledged/referenced in your research".

Examples only:
In text citation: (Centre for Clinical Interventions, 2003)
Reference citation: Centre for Clinical Interventions (2003). Back from the Bluez. Available at: https://www.cci.health.wa.gov.au/ [Accessed 6 Feb. 2020].

The reference and citation of the resource *will depend on which referencing system you are using*.

We are always keen to hear how our resources are being utilised and pleased you have chosen to use some of these resources in your research. We would, therefore, be ***very interested to hear about*** your research **outcomes.** Could you also please let us know your findings when your PhD study is completed?

We hope that this work may benefit your PhD Study and your participants.

Kind regards

Centre for Clinical Interventions
Psychological Therapy | Research | Training | Resources
North Metropolitan Health Service
Mental Health, Public Health and Dental Services
223 James Street, Northbridge Western Australia 6003
T: +61 8 9227 4399 | F: +61 8 9328 5911
E: info.cci@health.wa.gov.au
W: www.cci.health.wa.gov.au

Our Values | Care | Respect | Innovation | Teamwork | Integrity

We acknowledge the Noongar people as the traditional owners and custodians of the land on which we work, and pay respect to their elders both past and present.

North Metropolitan Health Service recognises, respects and values Aboriginal cultures as we walk a new path together.

APPENDIX- R

Weekly Self-help Modules

Building Self-Compassion

Module 1

Understanding Self-Compassion

Introduction

The old saying goes that, *"You are your own worst critic"*. It is very true that most of us are hard on ourselves, particularly if we get even the slightest hint that we don't 'match up' in some way – in our achievements, career or study, social standing, relationships, appearance, body image, financial status, etc. If we make even the minutest mistake, then we have a tendency to berate ourselves, and if we make a genuine medium or large mistake, then look out!

People seem to find it hard, and for some almost impossible, to treat or speak to themselves in a kind or caring manner. In fact, some recoil from the idea of it, like they were being asked to do something repulsive or painful. In this module we will look at what self-compassion is all about, why it is so vital to our well-being, and why we are great at self-criticism, but struggle when it comes to self-kindness.

Being able to cultivate self-compassion can be a stand-alone approach that might address all your mental health needs, or it may be a helpful starting point to then go on and address more specific issues that are covered in our other Infopax. Either way, if you identify with being your own harshest critic, then join us on the journey from self-criticism to self-kindness…

What is Self-Compassion?

To define *self-compassion*, we really need to start with what is *compassion*. The two are really one and the same. Compassion is an attitude that involves a certain set of feelings, thoughts, motives, desires, urges, and behaviours that can be directed towards any living thing (i.e., ourselves, another person, a group of people, a society, animals, the environment, etc.). Therefore, when we talk about self-compassion, we are specifying that this attitude is being directed internally towards ourselves.

Paul Gilbert and Kristen Neff are two leading figures in the area of building self-compassion to improve mental health and well-being, and these modules draw heavily on their expertise and writing.

Kristen Neff defines compassion as:

> *"the recognition and clear seeing of suffering…feelings of kindness for people who are suffering, so that the desire to help – to ameliorate suffering – emerges… recognizing our shared human condition, flawed and fragile as it is"* (Neff, 2011, p10)

Similarly, Paul Gilbert defines compassion as:

> *"a basic kindness, with a deep awareness of the suffering of oneself and of other living things, coupled with the wish and effort to relieve it"* (Gilbert, 2009, p. xiii)

You will notice that these definitions emphasise four key things:

1. **Awareness.** Being attentive or sensitive to the fact that some sort of 'suffering' is occurring. Now suffering could mean some distressing struggle with emotional pain, mental pain, physical pain, or all of the above.
2. **Normalising.** Recognising that experiencing this sort of pain is universal, we all experience pain at some point to varying degrees. The fact that we experience pain isn't a fault or failing of ours, we are not to blame for our pain, and we are not alone in our pain.
3. **Kindness.** Not shying away from or ignoring the pain, but meeting this pain with feelings of kindness, care, warmth and concern.
4. **Alleviation.** Focusing our energy on ways to alleviate the pain, which may be via providing further comfort and caring actions, providing a helpful perspective regarding whatever the trouble is, or having the strength and courage to take other necessary actions to address the problem being faced.

So self-compassion is about doing all of these four things for ourselves when we are struggling. That is, being aware of our own pain, whatever that may be. Understanding that whilst feeling this pain is hard, this is a normal human experience, not a failing on our part and we are not alone. It then involves directing feelings of kindness and care towards ourselves, just as we might to someone else we care about who is struggling. And finally, focusing our attention and energy on how we might improve our own pain and move through the struggle we are facing.

You may think, well that all sounds very nice, but how exactly do I do that? The modules to come will help you develop the ability to take a deeply caring attitude towards yourself, particularly in times of struggle. Being self-compassionate is a skill that initially takes a lot of effort, so before we get to the 'nuts and bolts' of how to be more self-compassionate, let's first think about why it would be worth the effort.

Why is Self-Compassion Important?

Evolutionary Importance

The need to receive care and nurturing evolved as a strong need within all mammals, including humans. Being cared for from birth is vital to our survival, and without it we don't thrive. The success of the human race as a species has depended on us receiving care and being motivated to give care to others. When this is working well, humans work together, supporting each other and flourishing. Whilst receiving care from other people is of course very important, we now know that it is very narrow to think that we can only fulfil this need for care through other people. Fulfilling our need for care and nurture ourselves, can also be extremely valuable.

Mental Health and Well Being Benefits

Research has shown that self-compassion is strongly linked to our mental health and well-being. Studies have found that those who are more compassionate towards themselves tend to have less mental health problems, like depression, anxiety and stress. These people also tend to have a better quality of life, a greater sense of well-being, and less problems in relationships. Compassion is linked to the hormone oxytocin, often called the "love" hormone. This is a hormone that promotes bonding and closeness, and therefore is particularly active at childbirth, during physical affection, during sex, when parents play with their children, when people play with their pets, etc. It is suggested that directing compassion inwards can equally trigger the release of oxytocin, and the calming benefits it brings. In essence, self-compassion goes hand in hand with general life contentment, something we could all do with a dose of.

Balancing Our Emotions

The reason why self-compassion might bring us such wonderful benefits, is via its proposed vital role in helping to balance our emotions. Paul Gilbert has written extensively about the idea that our emotions are governed by three systems known as the **threat**, **drive** and **soothe** systems, with each playing an important role in regulating our emotions.

Threat: Generally speaking all living creatures are good at anticipating and avoiding threat in order to survive. This protective mechanism is hard wired within us all. Couple this with the human ability to think a lot, and we find that the human mind seems to have a default setting to look for, pay attention to and repetitively think about bad stuff. This results in our threat system being active and in overdrive a lot.

No longer are we in caveman times where the presence of a sabre tooth tiger is the type of thing that triggers our threat system. In today's society, small mistakes or perceived flaws in our abilities, appearance, social skills, etc, are all seen as threats. These sorts of things are seen as risks to our reputation, social status, relationships, career, finances, health, future or happiness. So our threat system seems to be on high alert for many of us most of the time, always on the lookout for potential dangers in order to protect ourselves.

When active the threat system leads to emotional responses such as anxiety, anger, or depression. These emotions are all about motivating us to protect ourselves, with anger prompting us to confront and defeat danger, anxiety prompting us to shy away from danger, and depression prompting us to shut down from danger. As such, the threat system also generates corresponding behavioural responses such as to 'fight' (i.e., aggression), 'flight' (i.e., avoidance) or 'freeze' (i.e., being submissive or passive).

When we are in threat mode our thinking becomes very narrow and negative. Our mind doesn't seem to budge easily from its narrow negative focus when it is in this state. It is very difficult to think in balanced, reasonable, rationale ways when in threat mode, as this requires quite sophisticated thinking by our brain. Our brain wasn't designed to be sophisticated when it thinks we are in danger. Sophisticated thinking takes up time, something you have little of if you really are in danger. By contrast, narrow negative thinking is very quick. This is really important to know, as people often berate themselves for their seemingly 'irrational' thinking when they are experiencing distressing emotions, not realising that essentially their mind was built to be irrational when it senses danger.

Now the threat system is not a bad thing. Remember, its purpose is to keep us safe from legitimate threats (e.g., getting out of the way of a moving car). However, many of our mental health problems relate to the threat system being active too much of the time when there is no real danger.

Drive: The drive system spurs us on to try new things, achieve things, set and work towards goals, and feel those ecstatic 'high five moments' when we have those 'wins' in life. The drive system is what energises us to get things done and be active in life. Having 'drive' is great, because it keeps us progressing in life. Without our drive system being active some of the time, we would be rather lifeless and directionless, a problem that can occur when we feel depressed.

The problem is that this system, like the threat system, can also kick into overdrive. This particularly happens if we live in a society that is highly competitive, and gives us the message that we always need to do more and be better, and if we don't achieve this then there is something wrong with us. What can happen is that when we don't succeed in our goals, which understandably is not always possible to do, then we can quickly flip from the drive system into the threat system. And so, we can become trapped in an unhealthy pattern of… *drive, drive, drive* (e.g., "I must achieve, achieve, achieve"), and when we hit a barrier then it is *threat, threat, threat* (e.g., "I've failed and so now lots of bad stuff is going to happen to me").

Soothe: The soothe system is very different, and has a calming influence on both the threat and drive systems, helping to quieten them down when they are overactive. The soothe system is at work when we are just chilling out, feeling safe, calm and content. You can't be in threat and soothe mode at the same time, and you can't be in drive and soothe mood at the same time.

Experiences of kindness and care tend to stimulate the soothe system. Whilst receiving compassion from others is one way to unlock the soothe system, self-compassion is another key. These modules are really about finding this key and using it whenever we need to calm the threat and drive systems, by bringing the soothe system online to balance our emotions.

Adapted from Gilbert (2010)

The Opposite of Self-Compassion...Self-Criticism

For most people, being compassionate towards themselves and therefore activating the soothe system doesn't come naturally. However the opposite of self-compassion, self-criticism, seems to very easily roll off the tongue. Self-criticism is a thinking style that involves our internal self-talk being highly negative, disparaging and berating. Self-criticism can therefore activate the threat system in and of itself, or once the threat system is active for other reasons, responding by being critical of ourselves can keep the threat system alive.

The content of self-critical thoughts can be very cruel and the tone very cold, harsh, and attacking. It is like we are telling off or reprimanding ourselves in a most unkind or punishing way. This thinking style occurs within us all to varying degrees, and is very common in our society. You will tend to hear most people refer to themselves as "stupid" or "idiot" when they make a small mistake. This may be at the milder end of self-criticism. Others may routinely speak to themselves harshly, while others may frequently hurl a barrage of abuse at themselves. Some harsh self-critics may experience a sense of self-loathing, self-hatred or self-disgust, where they believe they don't deserve to treat themselves any better.

Some common examples of self-critical statements might sound something like:

I am an idiot…what a moron…you are useless and pathetic…I am so hopeless…
You shouldn't have done that….why did I do that… you should have known better…
I never get it right… you may as well give up now…there is no point, why bother…

You will notice that some self-critics refer to themselves in the first person (*I am…*), whilst others may refer to themselves using a second person perspective (*you are…*). You will also notice that self-criticism often involves the following unhelpful thinking styles:

Labelling: making global and derogatory statements about ourselves on the basis of our behaviour in a specific situation;
Shoulding: using "should" statements to put unreasonable demands or pressure on ourselves; and
Overgeneralising: taking one negative instance and concluding that this applies to everything.

To gain more awareness of your own self-critical thinking style, consider the following questions:

What do you typically criticise yourself for?

_____
_____
_____

What sorts of things do you typically say to yourself/about yourself?

_____
_____
_____

How do you say these things? What does your internal voice sound like? Does it remind you of anyone?

_____
_____
_____

When you criticise yourself, how does it make you feel?

_____

_____

_____

What do you think the negative consequences are of speaking to yourself like this?

_____

_____

_____

I wonder what you noted for how self-criticism makes you feel and any other negative consequences you recognised. One big negative consequence is that self-criticism doesn't make you feel very good, and usually leads to feelings like anxiety, sadness, depression, guilt, shame or anger. Self-criticism is common across lots of mental health problems (e.g., depression, anxiety disorders, eating disorders, body image issues, low self-esteem, etc), and can contribute to staying stuck in these problems. Therefore, addressing self-criticism by building the ability to instead be self-compassionate, may play a role in improving some of these difficulties.

While you may have acknowledged some negative consequences of being self-critical, many people don't realise that they can often hold positive beliefs about the benefits of being critical towards themselves. Module 2 will look in more detail about why we talk to ourselves in a critical manner, and what our mind might be trying to achieve when it does this, as our mind typically doesn't do things for no good reason.

Why is it Hard to be Self-Compassionate?

So if self-criticism is just leading to more misery, then surely self-compassion is the answer. But, it ain't that simple. Most people struggle to be more compassionate towards themselves. If this applies to you, please know you are not alone and there can be a number of reasons for this.

Early Life Experiences

It is proposed that for some people, experiencing limited care, kindness and nurturing from others growing up, leads to the soothe system being underdeveloped. The soothe system thrives on and is stimulated by having compassionate experiences. Essentially, it is hard to learn something that you were never taught. So, if you didn't receive much compassion from others in earlier life, then it is understandable that is can be more difficult to develop the ability to be compassionate to yourself later in life.

The Threat System

As already mentioned, our brain is hard wired to shift into threat mode pretty easily to protect ourselves. Seeing the negative is our default attention bias. Turning our attention to more self-compassionate endeavours is therefore overriding this attention bias, which is not something that comes naturally to us.

Lack of Awareness

Many of us may not be aware that we are struggling, or aware of the unhelpful critical ways we may be treating ourselves. We can go through life on autopilot, doing what we have always done. We get tangled and stuck in our struggle, never pausing to consciously recognise we are struggling, and that maybe we could deal with this in the same way we might help others deal with something similar. It has just never even occurred to us that treating ourselves kindly is an option.

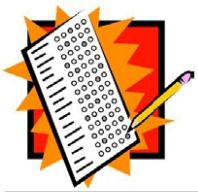
Negative Beliefs about Self-Compassion

Some of us may cringe at the idea of self-compassion. Being self-compassionate is not something we are taught about or talk about a lot, and so it can carry some negative connotations. Some people think being self-compassionate is too 'touchy feely', and will lead to laziness, self-indulgence or self-pity. Rest assured, self-compassion is none of these things, and we will address these sorts of beliefs that can be a barrier to being more self-compassionate in Module 2.

Do You Need to Build More Self-Compassion?

Everyone can benefit from a bit more self-compassion. It is not really something you can have too much of. However, this sort of approach was particularly developed for people who are very harsh self-critics, even to the extent of feeling self-loathing or hatred. For these people, developing self-compassion is especially important, and may also take more time and effort.

For some people, being more compassionate towards themselves can be a frightening experience often because of past traumatic experiences. If this is the case for you, and you are struggling to put into practice some of the strategies from the coming modules, then we would recommend being supported by a mental health professional as you work your way through these modules.



To help you make the decision about whether you want to proceed further into these modules, have a go at the following quiz to get a sense of how self-compassionate you are. The more items you tick, the more self-critical you are likely to be, indicating that you could benefit from an 'injection' of self-compassion.

	Tick if this applies to you
I find it hard to be kind to myself	
If something goes wrong I automatically blame myself	
I don't deserve to do nice things for myself	
I am very critical of myself when things aren't going well	
I am very critical of myself even when things are going well	
When I am having a hard time, I wouldn't even think to look after myself like I would a friend	
I focus a lot on my faults and flaws and can't let them go	
If I make a mistake I give myself a really hard time	
When I am struggling, I don't treat myself with much care	
I can't accept mistakes I've made or things I haven't done well	
I think over and over about things I don't like about myself	
I am not very gentle with myself when I am suffering emotionally	
If I make a mistake I feel like I should be punished	
I feel like I'm the only one who struggles or fails at things	

About These Modules...

Drawing together some of the concepts discussed in this module, the bottom line is this…

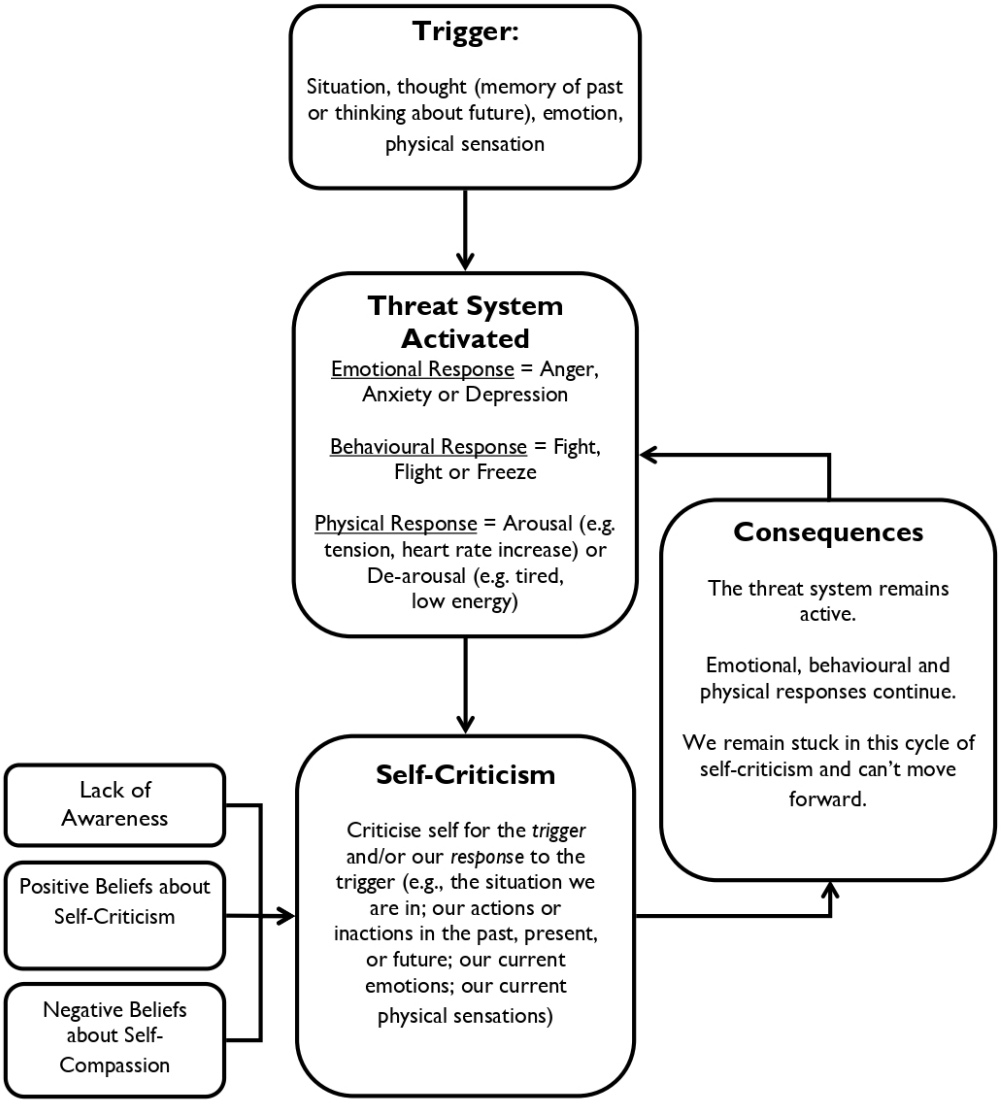
When our brain detects some sort of ***trigger*** or 'problem' (which could be a particular situation we are in, or just thinking about past or future negative events, or an uncomfortable emotion or physical sensation we may be experiencing), then it quickly and automatically shifts into threat mode.

With the ***threat system activated***, all sorts of ***emotional, behavioural and physical responses*** that can be quite unpleasant then follow. Many of us then deal with this via self-criticism, either criticising ourselves for the original trigger or our subsequent response to the trigger. Therefore, we may be criticising ourselves for the situation we find ourselves in; our actions or inactions in the past, present or future; or our own emotional and physical reactions in that moment.

Self-criticism tends to be our way of trying to deal with problems for a variety of reasons, including a ***lack of awareness*** of our own struggle and our self-critical way of dealing with things, holding ***positive beliefs about self-criticism*** as being a helpful thing to do, as well as holding ***negative beliefs about self-compassion*** that can make us reluctant to take a compassionate tone with ourselves.

However, the ***consequences*** of all of this, is that self-criticism only serves to keep the threat system active, and so our uncomfortable emotional, behavioural and physical responses continue. In essence, self-criticism prolongs our pain and suffering, keeping us stuck and unable to move forward from the struggle we are facing. The Self-Critical Cycle on page 9 summarises this trap we can find ourselves stuck in.

The Self-Critical Cycle



The solution to this unhelpful cycle is to step out of self-criticism and calm the threat system, by stimulating the soothe system. Self-compassion is a key way of activating the soothe system and its calming influence. There are many ways of building self-compassion, and the modules ahead will cover some of the main methods. It will be important to try the various methods with an open and curious mind, to discover which work well for you, as everyone is different. The aim of all of these modules is to find ways to stimulate the soothe system, to elicit an attitude of kindness, warmth, concern, understanding and strength within us, and then use this attitude to respond to our own struggles, rather than reverting to our usual self-critical habits.

With this in mind, the modules ahead are divided into 3 main aims. The first aim is **developing** self-compassion, by preparing you to find the method that works best for you in turning your soothe system on. The second aim is **applying** self-compassion, so that once the soothe system is switched on, it then positively guides how you think and behave. And the final aim is **maintaining** self-compassion in your day to day living, so that you know what to do to keep being self-compassionate over the long term. The following is a preview of what is to come in the modules ahead…

Developing Self-Compassion:
Module 2 Barriers to Self-Compassion
Module 3 Preparing for Self-Compassion
Module 4 Compassionate Imagery

Applying Self-Compassion:
Module 5 Self-Compassionate Thinking
Module 6 Self-Compassionate Behaviour

Maintaining Self-Compassion:
Module 7 Self-Compassionate Living

As already mentioned, building greater self-compassion can be useful in and of itself, or it can be a helpful addition to addressing other more specific issues we may be facing such as depression, anxiety, anger, eating disorders, body image issues, perfectionism, procrastination, low self-esteem, self-harm, etc. For some of these sorts of problems, we have more specific Infopax available that target these specific issues. Therefore, this *Build Self-Compassion* Infopax can complement the activities suggested in other Infopax, helping you to take a self-compassionate attitude when practicing the other strategies suggested, which may make these other strategies even more effective.

You could choose to work through this *Building Self-Compassion* Infopax first, and then move on to other Infopax that are relevant to you, so that you may get more out of them. Or vice versa. You could start with other more specific Infopax, and then use this *Building Self-Compassion* Infopax to enhance and make more powerful the skills you have already learnt in the other modules. There is no right or wrong way to go about this, but we would recommend completing one Infopax at a time.

If you do decide to work through these modules, we would recommend completing them in the order they are set out and completing all modules for maximum benefit. The time taken to complete each module will vary from person to person. When making the decision about whether it is time to move on to the next module, ensure that you are giving yourself enough time to become familiar with and practice the practical exercises suggested in a module before moving on to the next module.

Module Summary

- Self-compassion is compassion directed towards ourselves.
- Self-compassion involves being aware of our own pain and suffering, and understanding that this is a hard, but normal human experience. Directing feelings of kindness and care towards ourselves, and focusing our attention and energy on how we might alleviate our pain, are also crucial components of self-compassion.
- Self-compassion can bring great benefits for our mental health and well-being. Particularly, self-compassion can activate our soothe system, which calms the threat and drive systems. Our threat and drive systems tend to be overactive for many of us much of the time, and responsible for the difficult emotions we may be struggling with (e.g., anxiety, anger, depression).
- The opposite of self-compassion is self-criticism. This very negative thinking style often links to difficult emotions and mental health problems. Those who are highly self-critical particularly need to develop the ability to relate to themselves in a compassionate way.
- We can get stuck in a self-critical cycle, where any problem we face activates our threat system, and anxious, angry or depressive responses then follow. If we then use self-criticism as our way of dealing with whatever we are going through, that just keeps the threat system active, and keeps us stuck in the problem and our emotional suffering.
- An alternative to self-criticism is self-compassion, but being self-compassionate is hard for most of us for various reasons. However, these modules will help us to overcome these difficulties, allowing us to develop self-compassion, apply it in our daily lives to guide our thinking and actions, and maintain this new way of living over the long term.

Coming up next …
In Module 2, we will address any barriers that may get in the way of building self-compassion…

About The Modules

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BACKGROUND

The concepts and strategies in these modules have been developed from evidence based psychological practice, primarily Compassion Focused Therapy, which is an extension of and adjunct to Cognitive-Behaviour Therapy. These modules particularly draw on the work of Paul Gilbert and Kristen Neff.

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These are some of the professional references that informed the development of modules in this information package.

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"BUILDING SELF-COMPASSION"

This module forms part of:

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Building Self-Compassion

Module 2

Barriers to Self-Compassion

Introduction

If developing a sense of compassion towards yourself were simple, then reading Module 1 would be enough and you would be oozing self-compassion by now without any trouble. But self-compassion is not a simple or easy road. For most people there will be barriers that get in the way of their self-compassion journey. So to give yourself the best chance of being able to build self-compassion, it is helpful to check if these common obstacles apply to you too. If they do, then let's address them from the outset so they don't mess up your journey too much. If these barriers don't apply to you, well then you can be confident that you are commencing these modules from the best starting point to get the most out of them.

In this module, we will address the two key barriers to self-compassion that people are typically unaware of. These barriers relate to the beliefs we hold about what it means to us to be self-critical and what it means to us to be self-compassionate.

Positive Beliefs about Self-Criticism

"I am such an idiot, I can't believe I did that, I am so useless, I need to do better, I should be doing better, other people don't make such stupid mistakes. I am just not careful enough, I have never been careful enough, and now I am failing and getting what I deserve"

Does this sort of critical self-talk sound familiar to you? Now it may be obvious when we see it on paper in black and white that this is an unhelpful way of talking to ourselves. However, what we may not realise is that we can often be in two minds about this. We may not realise that whilst we acknowledge that self-criticism is unhelpful, at the same time deep down we may believe that self-criticism carries some benefits.

Ask yourself the following questions to see if you hold any positive beliefs about the benefits of being self-critical:

- *Why is my mind critical?*
- *Why does it speak to me in this critical way?*
- *What is its motive?*
- *What is its aim?*
- *What is it trying to achieve?*
- *How might my mind be trying to protect or help me by criticising me?*
- *Or, let's come at it from the opposite angle, if I wasn't critical of myself, what do I fear might happen? Hence, what bad things might self-criticism prevent?*

Our minds aren't stupid and they don't do things for no good reason. Self-criticism usually occurs to fulfil at least one of two main aims:

1) **Self-improvement.** Self-criticism often occurs as an attempt at self-correction. It can be seen as a means of highlighting weakness and fixing them. It can be perceived as a means of trying to better ourselves, motivate ourselves, push ourselves to do better, be stronger, stop mistakes or address flaws. It can be intended to keep us down to earth, grounded and humble.

2) **Self-punishment.** For some, self-criticism is a form of self-punishment. Some people may have the sense that they are bad or they have done something bad, and may feel that the correct course of action to be absolved of this is via some form of punishment. And if there is no one else to dish out the punishment, then they will dish it out to themselves.

So, common positive beliefs that some people hold might sound something like,

Self-criticism…

Motivates me;
Helps me get things done
Toughens me up
Pushes me to excel
Makes me a better person

If you hold any positive beliefs about the benefits of being critical towards yourself, see if you can summarise your positive beliefs about self-criticism using the following sentence.

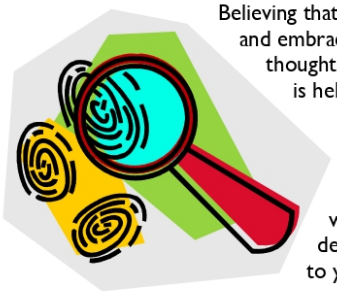
Being self-critical helps me because_____

_____

Now, before we start addressing your positive beliefs about self-criticism, we need to know how much you believe them.

How much do you believe self-criticism is helpful?
(Circle the percentage that best describes the strength of your belief)

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%



Believing that self-criticism is beneficial can create a barrier to giving up self-criticism and embracing self-compassion. After all, why would you give up something that you thought was good. So, rather than just blindly accepting the idea that self-criticism is helpful, we need to check this out a bit further.

One way of doing this is to have a go at challenging or disputing your beliefs. That means dissecting your beliefs about the benefits of self-criticism, by evaluating if they really are accurate and true, and examining what evidence you base your beliefs on. In this way you will be like a detective, trying to get to the facts of whether self-criticism really is helpful to you.

Challenging Positive Beliefs about Self-Criticism

Below is a list of questions you can ask yourself to challenge whether your positive beliefs about self-criticism are really true. These questions are to help you do your detective work. An example is given below of how to use these questions to challenge your beliefs, and on page 5 you will find a worksheet to help you do this for yourself.

Evidence For

What makes you think self-criticism is helpful?
What's the evidence for your positive beliefs?
Can you specifically describe how self-criticism helps?
Is the evidence for your beliefs good/solid/reliable?
Is there another way the evidence for your beliefs could be viewed?

Evidence Against

Is there any evidence that goes against your positive beliefs about self-criticism?
What is the aim of your self-criticism? Does self-criticism really achieve this aim?
Can you achieve your aims without self-criticism? (i.e., instead encouraging yourself or taking action)
Is it self-criticism that is helpful or something else? (i.e., taking action)
What are the negative consequences of being self-critical? How is self-criticism damaging to you? How do these things fit with the idea that it is helpful?
If being critical is so helpful, would you use it as a way of dealing with a friend or child who was struggling with something? If not, why not?
Have you ever conducted a proper experiment, comparing the outcome of being critical versus kind to yourself? If you haven't done this then how do you truly know that self-criticism is helping you?

EXAMPLE:

Evidence For	Evidence Against
Self-criticism motivates me to fix problems with myself. *Self-criticism helps me be in control and get things done properly.*	*But self-criticism often zaps my motivation so I feel unable to do things and I don't feel in control then.* *Maybe I could try encouraging myself and I might still be able to tackle my problems and get things done.* *It isn't the self-criticism that helps me, but taking action. It is possible to take action without criticising myself.* *Self-criticism gets me down, makes me feel anxious, and paralyses me, which completely contradicts the idea that it is helping me.* *I would think that criticism was a cruel and probably ineffective way to help a friend or a child with a problem they were dealing with.* *I have never properly compared self-kindness to self-criticism to see which is a more effective way to get things done*

Challenging Your Positive Beliefs

Belief: *Self-criticism is helpful*	
Evidence For	**Evidence Against**

Building Self-Compassion

An additional exercise that may be useful in rounding off the challenging of your positive beliefs about self-criticism, is to have a go at the following. What you learn from this exercise you might choose to add into your page 5 worksheet.

Think about an issue that you often criticise yourself about (e.g., your social skills, work ability, study habits, tidiness, appearance, etc.). Using the first column below, write the types of things you usually say to yourself about this issue. Also note the tone of voice with which you say them.

In the second column, pretend it was not you but a close and cared for friend who was struggling with the same issue. Now write out what you would say to them, and again note the tone of voice you would use with them.

In the third column pretend you were dealing with a child who was struggling with the same concerns. Again, write out what you would say to them, and again note the tone of voice you would use with them.

Me	Friend	Child
I would say…	I would say…	I would say…
Voice Tone:	Voice Tone:	Voice Tone:

What do you notice? If the way you talk to yourself is very different from how you would deal with a friend or child, think about why this is the case, and what it says about the helpfulness of self-criticism.

Negative Beliefs about Self-Compassion

So, if we give up being self-critical, and instead are more self-compassionate, we may fear a negative backlash. Some people fear they would become lazy, self-indulgent, self-absorbed, undisciplined and out of control. Some may be concerned that they would achieve nothing, get nothing done, make mistakes, stagnate in life and never progress forward.

There are a lot of misconceptions about what self-compassion truly involves. Many see it as being too 'wishy washy' or 'touchy feely', giving the impression that self-compassion equals being 'weak'. Others see it as equating to self-pity and side-stepping having to take responsibility in life.

See if you can summarise any negative beliefs about self-compassion you may hold using the following sentence.

The downsides of self-compassion are…_____

_____

Just like with your positive beliefs about self-criticism, we need to know how much you believe your negative beliefs about self-compassion.

How much do you believe self-compassion is unhelpful?
(Circle the percentage that best describes the strength of your belief)

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

To address misconceptions you may have about self-compassion, we need to come back to the definition of what true self-compassion is in the first place. A helpful way to do this is to think of people that you consider to be compassionate human beings.

Write a list of people that you would label as compassionate. These may be famous people, people from history or current figures in society. These may be people you know and have encountered over your life time, or people you don't know, maybe a stranger who's life story you heard about on a news report. Take a moment to write down the names of people that you think embody compassion. If none come to mind easily, then be on the lookout for acts of compassion in everyday life, either directly noticing or experiencing someone being compassionate, or noticing things on TV or in newspapers detailing compassionate acts by others.

Compassionate People: _____

_____

Now, write out the particular qualities these people have demonstrated that have led you to conclude that these are compassionate people.

Compassionate Qualities: _____

_____

_____

Now, have a look at the list of compassionate qualities you wrote down. How do these qualities fit with the negative qualities mentioned earlier like laziness, self-indulgence, self-absorption, undisciplined, lack of control, weakness, self-pitying, and under-achievement?

Hopefully the sorts of qualities you noted were quite the opposite of this, and reflected what true compassion is all about. Qualities like being kind, supportive, warm, caring, non-judgemental, accepting, generous, strong, stable, courageous, knowledgeable, understanding, insightful, resilient, persistent, tenacious, etc.

Kindness vs Criticism Experiment

So far, we have looked at both your positive beliefs about self-criticism and negative beliefs about self-compassion in detail. However, the best way to truly assess for ourselves whether self-criticism really helps and self-compassion really hinders, is to do an experiment to find out.

If you believe that self-criticism is helpful and/or self-compassion is unhelpful to you, then you need to compare what happens when you criticise yourself with what happens when you are kind towards yourself. This will allow you to judge which approach is more helpful, and see if there are any downsides of either approach.

In this experiment we want you to alternate between each day of the week, **being kind towards yourself** on one day, then **self-critical** the next day. It should look something like this:

Kind Day: On the first day, put all that usual self-criticism to the side as best you can, saving it up for the following day, and speak to yourself like you would someone you cared about. Now, this is not about being unrealistically positive (e.g., "everything will be great") or heaping yourself with praise (e.g., "I am awesome"), but instead being encouraging and kind in your words and tone of voice. Now this will be hard and foreign to you at first, but just do what you can. As you work further into these modules you will get better at being kind towards yourself.

Be clear about what sorts of things you will say to yourself and your tone of voice on your Kind Day (e.g., *I will say things like "I know this is really hard, everyone struggles with this, just do the best you can and hang in there", and I will have a soft warm tone to my voice*).

Critical Day: Now, on the second day, purposely be as critical towards yourself as you can. Berate and be harsh with yourself over every little thing, every mistake, everything you don't like about yourself and your efforts never being up to scratch.

Be clear about what sorts of things you will say to yourself and your tone of voice on your Critical Day (e.g., *I will call myself an "idiot" a lot, say that "nothing I do is good enough, and I should do better" and be very cold and hard in my tone of voice to myself*).

On Day 3, go back to it being a KIND DAY and on day 4, make it a CRITICAL DAY again, and so on. Keep alternating each day between kindness and criticism.

Before you start the experiment, complete the worksheet on page 10 in as much detail as you can and then continue filling it out as you go along.

Instructions for completing the worksheet:
First, write down what you think will happen on the days you criticise yourself, and what you think will happen on the days you are kind to yourself. If you think self-criticism has many positive benefits, then you should predict better outcomes on the days you criticise yourself (e.g., you will be more motivated, you will do a better job, get more things done, feel more in control, feel stronger, etc). If you think being kind to yourself has many downsides, then you should predict a poorer outcome on the days you are kind to yourself (e.g., not getting things done, being lazy, not dealing with daily duties, feel weak, etc).
If you are a person who doesn't believe that self-criticism has any benefits and you do believe that self-kindness will have many benefits and no real downsides, then you can either skip this experiment, or do the experiment anyway to make yourself even more confident of this.

Now it is time to just give the experiment a go and see what happens.

For each of the next 7 days, at the end of your day, assess any positive outcomes you noticed, negative outcomes you noticed, how much you got done, and note how you generally felt.

Then, compare what you predicted would happen with what actually happened on those 7 days. What tended to happen on Kind Days and what tended to happen on Critical Days?

- If you found poorer outcomes on the days you criticised yourself compared to the days you were kind, then hopefully this enhances your motivation to put all your efforts into building self-compassion in the modules to come.
- If you found no difference in outcomes between the two days, then it seems you won't be losing anything by trying a new kinder way of treating yourself. So, it might be worth giving self-compassion a try in the modules to come, and see if over time you start to experience the well-researched benefits of self-compassion. Also, if there was no difference, this could be because you struggled to be kind to yourself. After working through the coming modules and developing more skills in self-compassion, you could always revisit this experiment to see whether a difference in outcomes then emerges.
- If you found better outcomes on the days you were critical compared to the days you were kind to yourself, again we would question whether you really were being kind to yourself, and whether you need more practice to reap the benefits of self-kindness.

So, what did you find?

Kindness vs Criticism Experiment

Prediction 1: What do you think will happen on the days you are **critical** of yourself?

Prediction 2: What do you think will happen on the days you are **kind** to yourself?

Day:	____day	____day	____day	____day	____day	____day	____Day
	Kind Day	**Critical Day**	**Kind Day**	**Critical Day**	**Kind Day**	**Critical Day**	**Kind Day**
What positive outcomes occurred?							
What negative outcomes occurred?							
Did you get things done?							
How did you feel?							

Compare your two predictions with what actually happened. What did you learn about self-kindness and self-criticism?

Your Verdict…

Now that you have challenged and experimented with your positive beliefs about self-criticism and negative beliefs about self-compassion:

Rate again how much you believe self-criticism is helpful?
(Circle the percentage that best describes the strength of your belief)

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

AND

Rate again how much you believe self-compassion is unhelpful?
(Circle the percentage that best describes the strength of your belief)

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Ideally we would like these beliefs to be at zero, but that may not happen overnight. If there is some weakening (however small) of your beliefs compared to your earlier ratings, then congratulate yourself. If there's no change yet, that's OK. Changing your beliefs may take time and persistence. You may need longer than one week doing your Kindness vs Criticism Experiment to further weaken these beliefs and prove to yourself that self-criticism brings no real benefits and self-compassion has no significant downsides. The aim of this module is to ready you for the modules to come, renewing your enthusiasm to give up self-criticism and really throwing yourself into trying the various strategies that will be suggested for building your self-compassionate side.

As we move forward from here, keep in mind that to benefit from the modules to come it will be important to approach them with an open mind, with an attitude of curiosity, and a willingness to experiment with new ways of doing things. At times the strategies may seem unusual or foreign to you, but we would encourage you to have a go. Recognise that what you have been doing so far hasn't been working well for your mental health and well-being, so why not try something new. Be aware that the strategies recommended will need a lot of practice to be effective. Just like any skill, we need practice, practice, practice, to get better and fully discover if it works for us. Self-compassion is no exception. Self-compassion is a skill, and the modules to come will be your training program to develop and fine tune this skill.

Module Summary

- Without being aware of it, we can often hold positive beliefs about the benefits of self-criticism and negative beliefs about the downsides of self-compassion, which will create barriers to building self-compassion.
- Some people think that self-criticism can help them to improve themselves, motivating, toughening and pushing them to do better. But you have to truly ask yourself what is the evidence that self-criticism really brings these benefits? And if self-criticism really was beneficial, why is it that most people wouldn't use it as a way of dealing with a loved friend or child who was upset?
- Some people think that self-compassion leads to weakness, laziness, and self-pity. But if you think of people you admire for their compassionate nature, would you consider them to be weak, lazy or full of self-pity?
- The reality is that self-compassion reflects qualities most people desire such as being kind, supportive, warm, caring, non-judgemental, accepting, generous, strong, stable, courageous, knowledgeable, understanding, insightful, resilient, persistent, tenacious, etc.
- To prove the benefits of self-compassion and unhelpfulness of self-criticism to yourself, have a go at the Kindness vs Criticism Experiment, to really find out for yourself.

Coming up next ...
In Module 3, we will prepare you with some essential skills that lay the foundation for building self-compassion…

About The Modules

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Building Self-Compassion

Module 3

Preparing for Self-Compassion

Introduction

To be able to respond to ourselves compassionately, we must first be aware that we are struggling and aware when our mind leaps into self-critical thinking, which only worsens our struggle. We also need to be able to slow ourselves down, not getting caught in the whirlwind of our uncomfortable thoughts and feelings. Without this slowing down and heightened awareness, we can't make a choice to try something different…to try a new compassionate approach. Any new self-compassion strategies you go on to learn in the coming modules will likely be useless, without first slowing down and becoming aware of what is happening within you.

This module will help you cultivate these skills. Slow breathing will be introduced to help you slow down your automatic self-critical reactions, and stimulate the soothe system and its calming influence. Attention retraining will also be introduced, to help you become more aware of what your mind is doing, and be more deliberate in what you would like your mind to focus on, with compassion for yourself becoming a new focus of attention.

Slowing Down

Breathing plays an important role when it comes to our physical and emotional state. When we are in threat mode, our sympathetic nervous system is active. This is the system responsible for 'revving up' our body. As a result our breathing rate can get fast, and a number of other physiological changes begin to occur to prime us for fight, flight or freeze actions. Included in this process is that the part of our brain responsible for reasoning, logic and decision making (the prefrontal cortex) temporarily shuts down, making way for the more primitive part of our brain that detects and responds to danger (the amygdala).

With all this going on, our ability to think in helpful, balanced, self-compassionate ways is very difficult, as our mind becomes consumed by being on high alert for danger. So what do we do? Well we need to slow things down. We need to stimulate the opposing force of the parasympathetic nervous system. While our sympathetic nervous system is linked to the threat mode, the parasympathetic nervous system links to our soothe mode, quietening and calming our body and mind. This calmer state gives our prefrontal cortex the chance to get back up and running, allowing for more balanced and considered thinking. Without this calming effect first occurring, we have little hope of responding to what is going on for us with an attitude of self-compassion.

Slow Breathing

Slow breathing is our key to slowing down body and mind, kick starting the parasympathetic nervous system. Slow breathing helps us to put the 'pause button on' and reset. Slow breathing may seem simple, but it is actually a deceptively powerful strategy that can help in switching us from threat to soothe mode.

The normal rate of breathing is 10-14 breaths per minute. When we are anxious and feel under threat, our breathing rate can be much, much higher than this. The type of breathing rate we recommend you try will slow your breathing to about 5 breaths per minute, so we are really winding things down.

Slowing down involves both slowing your rate of breathing and changing your breathing style. Use the following steps to be well on your way to activating the soothe system and preparing yourself for the self-compassion strategies to come.

Step 1: Ensure that you are sitting in a comfortable chair or laying on a bed
Step 2: Take a breath in for 4 seconds (through the nose if possible)
Step 3: Hold the breath for 2 seconds
Step 4: Release the breath for 6 seconds (again through the nose if possible)
Step 5: Pause slightly before breathing in again
Step 6: Then practice, practice, practice!

Slow Breathing Tips

When you first begin changing your breathing, it may be difficult to slow your breathing down to this 4-in, 2-hold, 6-out rate. You might try using a 3-in, 1-hold, 4-out breathing rate to start off with. Play around and see what works for you, as long as you are slowing your breath down as much as you comfortably can, and your breath out is longer than the breath in.

When you are doing your breathing exercises, make sure that you are using a stomach breathing style rather than a chest breathing style. You can check this by placing one hand on your stomach and one hand on your chest. The hand on your stomach should rise when you breathe in, and fall when you breathe out. Don't get frustrated if this doesn't happen straight away, it often takes time and practice to be able to breathe from your belly. Just do your best and see how you improve over time.

Try to practice at least once or twice a day. You could choose one lengthy practice session a day (e.g., 20mins per day) or lots of smaller practice sessions (e.g., four lots of 5 minutes per day). Initially practice at a time when you can relax, relatively free from distraction. As you improve at the skill of slow breathing, you might then choose to practice anytime, anywhere, when you have a spare moment (e.g., waiting in a shopping queue, or travelling on the bus). The ultimate aim is that regardless of where you are and what you are doing, when you notice you are having a hard time emotionally, we want to build a new habit of being able to use your breath to activate a calming physical state. If you can do this, you are then in the best position possible to enlist some self-compassion during tough times.

Attention Retraining

What our mind pays attention to, and how it pays attention, is another factor that contributes to our emotional and physical state. Much of the time we lack awareness of what we are experiencing, just being pushed along through life by our thoughts and feelings. People often refer to this as being on autopilot or being 'mindless'.

To enlist self-compassion, we first need to be aware or *catch* that we are struggling and that we are fuelling our struggle with self-criticism.

We also need to be able to mentally stand back from what we are experiencing, to *watch* or observe what is going on with our thoughts and feelings, rather than getting too caught up in them. We need to stand back enough to be able to reflect on what is happening but not run away from our struggle, as a compassionate person would not run away from someone suffering.

Finally, we also need to be able to deliberately *redirect* our attention to more self-compassionate ideas in order to stimulate the soothe system when needed, meaning that where we place our attention is a more conscious choice.

Putting this all together means that we need to train our attention to: **catch**, **watch** and **redirect**. Catching where our attention has gone, watching in a detachment manner whatever it was caught on, and then purposely redirecting our attention to where we choose in that moment. And then of course repeat. Catching, watching and redirecting as many times as needed, because as we know, our attention wanders a lot!

So how do we get our attention to do these three things? Well, we need to give it regular exercise! Think of your attention as like a muscle… if you don't exercise it regularly, it will become weak and won't work so well.

There are two ways you can give your attention a regular workout, mundane task focusing and meditation, both of which are mindfulness-based attention retraining exercises. *Mindfulness* is a term that refers to deliberately paying attention to what is happening in the present moment, and doing so with an accepting attitude towards whatever you notice. In this way you become the watcher or observer of whatever you are experiencing (i.e., your breath, body sensations, thoughts, feelings, sounds, tastes, smells, sights, etc). Not judging as good or bad whatever you are experiencing. Not trying to stop or change whatever you are experiencing. Just watching.

Mindfulness also involves practising how to notice when your attention has wandered away from the present moment to something else, and then gently redirecting your attention back to the here and now. Mindfulness is not an attempt to control your thoughts and feelings or to make them go away. Instead it is about allowing these to be present within you, and at the same time choosing to shift your attention back on to something you would like to attend to in the present moment.

Mundane Task Focusing

You may have noticed that when you are doing everyday household jobs like the dishes or the ironing, your mind is not really on the task at hand, but likely on autopilot. With mundane task focussing, the goal is to gradually practice sustaining your attention on a mundane activity, thus giving your attention a good workout.

The good thing about mundane task focusing, is that you are not having to do anything extra in your day, it is just about changing the way you pay attention to the things you are already doing.

Write down the various routine tasks you do, that you could use as an opportunity to exercise your attention. Mundane tasks could even include sitting, walking, eating, showering, brushing teeth – not just household chores.

When doing your mundane tasks, try to become aware of all the sensory aspects of the task. Hone in on whatever senses (i.e., touch, sight, sound, smell, taste) are most appropriate given the nature of the task at hand. Each time you notice your mind has wandered off the task, which will of course happen for everyone, anchor your attention back to the task by focussing, non-judgementally, on one or more of the following:

Touch: What does the activity feel like? What is the texture like (e.g., rough, smooth)? Where on your body do you have contact with it? Are there areas of your body with more or less contact with the task?

Sight: What do you notice about the task? What catches your eye? How does the task appear? What about the light… the shadows… the contours… the colours?

Sound: What sounds do you notice? What kinds of noises are associated with the task?

Smell: What smells do you notice? Do they change during the task? How many smells are there?

Taste: What flavours do you notice? Do they change during the task? What is the quality of the flavours?

Meditation

Using a meditation exercise is another way that you can train yourself to be more aware of what your attention gets caught in (particularly thoughts and feelings), to redirected your attention to a present focus of your choice, and to deal with your inevitable wandering mind. A common meditation practice is to be mindful of your breathing, noticing any time your mind wanders away from the breath, catching its wandering, and redirecting it back to the breath as your anchor to the present moment. Your breath is something that is always with you, and something we typically are not aware of, so it is the perfect point of focus to use for some attention retraining.

Meditation Steps

1) To begin the practice, sit down in a chair and adopt a comfortable posture, then ask yourself, what am I experiencing right now? What thoughts are around, what feelings are around, and what body sensations? Allow yourself to just acknowledge, observe and describe these experiences to yourself, without judgment and without trying to change them or make them go away. Spend 30 seconds to 1 minute just doing this.

2) Now bring your focus of awareness to your breath, focusing on the sensations of your breath as you inhale and exhale. Bring your awareness to the back and forth movements of the sensations in your belly from moment to moment, letting thoughts go with each out breath. Maybe say to yourself 'relax' or 'let go' on each outward breath. If your mind wanders away to other thoughts, feelings and sensations – again do not try to change them or make them go away. Simply acknowledge their presence, allowing them to be there, then letting go with your attention and focusing back on your breath. Spend about 1 or 2 minutes doing this.

3) Now expand your awareness to sensing your whole body breathing, being aware of sensations throughout your body. If there are any strong feelings around, maybe saying to yourself "whatever it is, it is OK, just let me feel it." Allowing yourself to breathe with these feelings, and if your mind wanders to bothersome thoughts or sensations, just acknowledge and let go of these - focusing back on sensing your whole body breathing. Continue doing this for about another 1 or 2 minutes.

As you start to get more familiar with this meditation skill, you can try increasing the time of steps 2 & 3, until the meditation takes ten minutes or more.

It is important to remember the aim of attention retraining, which sometimes people lose sight of. Practicing mundane task focusing and meditation will over time:

- increase your awareness of where attention is at any moment so you can recognise when it is getting locked on pain, suffering and self-criticism;
- help you be able to flexibly re-direct your attention to where you would like it to be – perhaps some of the self-compassion strategies to come; and
- help you to notice when your attention inevitably wanders away from being self-compassionate, and be able to bring your attention back again.

It is also very important to remember that the goal of mundane task focusing and meditation is not to have perfect sustained attention in the present moment 100% of the time, or to have a blank mind or no thoughts and feelings. That is impossible! When you try to maintain your attention on the present moment you will notice that **your mind will wander**. You might start to think about the future or past, you may drift back into self-criticism or something else may capture your attention. **This is ok. This is what minds do**. The task is to notice when your mind wanders and gently escort it back to the present 'task at hand' (i.e., whatever it is that you were focused on – breath, the washing, cleaning your teeth, etc.). It is all about awareness of attention, noticing and watching where it is, and bringing it back to the present as often as is required.

When you notice that your mind has wandered during these attention retraining exercises, be careful not to criticise yourself for this. Instead see if you can bring some compassion to this. After all, it is completely normal. Instead, think about each and every "wander" as another opportunity to practice your skills of bringing your attention back to the here and now. Think of it this way, **the skill you are learning is not to have perfectly sustained attention, but instead to catch your attention when it wanders and bring it back.** As such, it really doesn't matter how many times your attention wanders, as that is an essential part of the training.

Practice, Practice, Practice

Attention retraining (i.e., *Mundane Task Focusing* and *Meditation*) and *Slow Breathing* are not quick fixes, nor easy, and so they all require regular practice. These are all skills and skills require time to develop. Also remember that your attention is like a muscle; if you stop the regular exercise your muscle won't work quite so well.

Some people find it easier to practice slow breathing and meditation while listening to a voice providing prompts. There are many of these sorts of audios available from various sources which you may wish to try. There are also guided breathing and attention retraining audios available on the CCI website.

Given the importance of practice, it is good to plan specific times each day when you will do your practice, as you would with any skill you were trying to improve. You can use the *Slow Breathing & Attention Retraining Diary* to keep track of your practice with all three suggested exercises.

We recommend that you practice slow breathing, mundane task focussing and meditation each at least once daily. As already mentioned, for slow breathing this could be one long session a day or lots of little sessions throughout the day. Likewise meditation sessions can be lengthy or brief. If you are really struggling to find time to meditate, you could instead increase the number of mundane task focussing workouts you do per day. Remember, mundane task focussing isn't asking you to do anything extra, only to approach the activities you are already doing in a particular way.

Practice of all three skills is essential to help you slow down and increase your awareness. They lay a solid foundation for the other self-compassion strategies to come. Without regular and consistent practice of these, the other strategies may not be as effective. So while it might be tempting to say something like "*Ah, it is just breathing, I've done breathing before, it isn't that important, it won't hurt to just skip this and get to the other bits…*" Please take the time to complete this module thoroughly, and hence put yourself in the best position to gain maximum benefit from the rest of the *Building Self-Compassion* modules.

Slow Breathing & Attention Retraining Diary

You can use this sheet to plan your slow breathing, mundane task focusing and meditation practice and to record your progress along the way. The last column asks you to jot down any comments about the experience – What did you notice? What was your practice like? What impact did it have on you? How does it compare to previous times you have practiced?

Date & Time	Task	Duration	Comments
e.g., Monday 5th, 9:00am	*Meditation*	*6 mins*	*My mind kept drifting, but I just kept refocusing on my breath*
Monday 5th, 12:30am	*Slow Breathing*	*10mins*	*I did it during my lunch break. It really slowed me down. I felt a lot calmer when I got back to work.*
Monday 5th, 6.00pm	*Mundane task focussing (while doing the dishes)*	*10 mins*	*I noticed lots of things I don't usually notice. It was probably a little easier than the meditation as I had something specific to focus my mind on.*

Module Summary

- To build self-compassion we must first be able to slow down, kick-start the parasympathetic nervous system, and switch on our soothe mode to calm our body and mind. We use slow breathing to achieve this calming state, placing us in the best position to then be able to think and behave in self-compassionate ways.
- Slow breathing involves breathing through the nose, breathing from the belly, and breathing to a 4-in, 2-hold, 6- out rhythm, or whatever adaptation feels comfortable and slowing to you.
- To be able to be self-compassionate we must also be aware when we are struggling and when our mind leaps into self-critical thinking, and instead deliberately redirect our attention to self-compassionate ideas. We use mindfulness based attention retraining exercises to achieve this awareness and flexibility with our attention.
- Mundane task focusing and meditation exercises teach us to be aware of where our attention is at any given moment, gently redirect it back to a particular present task focus, and when our attention inevitably wanders, being able to catch it and bring it back to the present task again.
- Slow breathing and attention retraining are both important skills for laying the foundation for self-compassion, and require lots of daily practice. Without these skills under your belt, the other self-compassion strategies to come won't work as well.

Coming up next ...
In Module 4, we will introduce the central skills for building self-compassion, which involve developing compassionate imagery…

About The Modules

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Building Self-Compassion

Module 4

Compassionate Imagery

Introduction

We are now ready for some compassion! So far we have been setting the scene for self-compassion. Through your attention retraining exercises you should now be more aware when you are going through a difficult experience and are in need of some compassion, and ideally you can now mentally step back enough to be in a position to provide this for yourself. You can also slow yourself down, by using your breathing to create a calming physical state that is conducive to being compassionate towards yourself. But how do you actually send some compassion your way?

This module will teach you some novel strategies for being able to further the work that your slow breathing will have started. That is, to further activate your soothe system, by stimulating compassionate feelings within you. Triggering compassionate feelings within you will rely on developing your very own compassionate image. The goal of these modules will be to find a compassionate image that works for you in unlocking compassionate feelings. These feelings can then be directed towards yourself when you most need them.

Why Use Imagery?

You may be wondering what we mean by an *image*, and why *imagery* would be used to stimulate compassionate feelings? We think in images all the time, often without even realising it. Below is a list of words. As you read each one pause before moving to the next and notice what is triggered off in your mind by each word:

Beach
Flower
Bicycle
Holidays
Apple

What did you notice? Chances are that certain pictures flashed through your mind, in other words images popped into your head. For the word 'beach', it may have been a memory of childhood holidays at a particular beach, or an imagined tropical beach paradise that you haven't as yet visited, or your local beach that you go to regularly, or a less pleasant beach image may have come to mind, like something treacherous and dangerous. It may have been a sustained picture almost like a movie playing in your head, or just brief flashes and glimpses that passed through your mind. It may not have just been a picture image either. For some of us the image might be multisensory where you can almost hear what the wave's sound like, or smell the salt air, or feel the cool water or warmth of the sun on your skin.

Hopefully you get a sense that images are not that unusual, they are just a form of thinking that is very rich in terms of sensory information (i.e., visual pictures, sounds, touch sensations, tastes, smells). But, why use imagery?

Research shows that imagery can be very powerful in triggering emotions. Our brain is not very good at distinguishing an image from reality, so it will often process and respond to an image, as if it is something occurring for real. As an example, think of a food that you really love…in my case it would be chocolate cake!

Now close your eyes and imagine that you have that food in front of you. Imagine getting up close and having a smell of it…what do you notice…how do you feel…do you notice any physical sensations…how does your mouth feel?

Many people notice they have a physical reaction when they imagine their desired food, often noticing that their mouth even starts to salivate! That is because our brain is processing the image and responding to it as if the food were really in front of us.

But what do images of chocolate cake have to do with self-compassion? To build self-compassion we need to first stimulate compassionate feelings, and then direct those feelings towards ourselves when we are struggling. If we know that images are a really effective way to activate feelings, then let's be strategic and use this knowledge to our advantage. With this in mind, if we can find an image that elicits compassionate feelings within us, we can use this as a tool to help direct compassion towards ourselves.

Our aim is to develop an image that triggers a compassionate attitude or mindset within us – prompting us to feel, think and act in compassionate ways. We will now look at two types of compassionate images that may work for you. We would recommend having a go at each imagery exercise, trying each image 'on for size', and seeing which is most effective for triggering feelings of compassion within you. The following exercises are adapted from Paul Gilbert's Compassion Focused Therapy approach.

Imagine Giving Compassion

See if you can bring to mind someone you care about, someone that you feel great warmth towards, someone that you always want to be there for unconditionally, to be on their side supporting them through the trials of life. This could be a family member, or a friend, or even a pet.

Write down the name of the person that springs to mind _____

Close your eyes and go through a few rounds of your slow breathing to get yourself prepared. Now imagine that this special person is in front of you and that they need your help. Don't get caught up in the details of what is happening for the other person, instead just focus on giving them the unwavering compassion that they need. Allow yourself to feel a deep sense of caring and concern for them. Allow your desire for them to be happy and free from struggle to come to the forefront.

Now notice what emotions are you feeling? Notice what physical sensations accompany those feelings? What is your facial expression like towards this other person? What is your body posture like towards the other person? What things are you saying to them? What is your tone of voice like as you say those things? What are you doing to comfort and help this person?

Spend a few minutes just appreciating this image of giving compassion to another. Pay particular attention to the compassionate feelings this image generates. See if you can allow these feelings to take over, to grow inside you, almost feeling your whole body fill with compassion. When you open your eyes, fill in the following details regarding what you experienced.

Emotions: _____

Physical Sensations: _____

Facial Expression: _____

Body Posture: _____

Advice: _____

Voice Tone: _____

Actions: _____

_____

If you found this exercise useful in triggering feelings of compassion within you, then practice bringing this image to mind regularly, so that the image becomes easily accessible and can be used as your compassion 'on' button. You could even carry a photo of this person with you, in your phone or printed in your wallet, as a visual reminder. You could even frame a photo of them and place it somewhere in your daily life where you notice you tend to be your most self-critical (e.g., next to your bathroom mirror if you notice you tend to criticise your appearance a lot).

If you found that the compassionate feelings weren't very strong, or that it was difficult to come up with an image that works for you, it may mean that you need more practice to strengthen this image. If feelings unrelated to compassion popped up (e.g., sadness, guilt, longing, regret, anger, loss, loneliness, etc.), then either you may need to pick a different person to direct your compassion to, or maybe this isn't the most helpful method for you for generating compassionate feelings. Don't worry, the next option might be more useful for you.

Creating the Ultimate Compassionate Image

Relationships are complicated, and some of us may not have people in our life who we feel pure compassion towards, hence it is hard for us to really benefit from the imagery exercise we have just covered. If this is the case, then the previous image may not be effective in triggering pure untainted compassion, which is really what we are looking for.

Because of this, we often find that this imagery exercise is more useful, as it involves creating your very own ultimate compassionate image from your imagination. This fantasy compassionate image can be whatever you want. There is no right or wrong when it comes to creating your own personalised image that represents pure compassion. In fact, the actual image you develop is irrelevant. It doesn't matter how fanciful or realistic the image is. Remember, we are just using this image to activate feelings of pure compassion within us, so whatever image achieves this aim is okay.

Start by closing your eyes and slowing your breath as you are now very familiar with…

Now, when you think of compassion notice what images, thoughts or feelings arise in you? Don't try too hard, just allow whatever is there to be there, or allow things to come and go as they please…

Now allow an image to arise that represents compassion for you. Take your time to develop an image that symbolises all the things that go with compassion. If nothing comes immediately, that's ok, just take your time and see what emerges no matter how strange it may seem. It doesn't have to be a vivid picture, just a felt sense of the image is ok too. If numerous images come up (a bit like a slide show), that's ok too, we can see which one you settle on as time goes on.

See if you can start to develop an image that holds warm feelings towards you…

Allow an image that conveys a sense of understanding for you, for your struggles and your feelings…

Allow an image that shows kindness, care and concern for your well-being…

Allow an image that is strong and wise as it supports you…

Allow an image that is completely accepting of you just as you are…

Now, notice if the image is of a person or not, something real or imagined, an animal, some other being or an aspect of nature. Is it young or old? Male or female? What colours or light are associated with it? How does this image make you feel? What physical sensations in your body go with these feelings? What facial expression does the image display towards you? What body posture or stature does it convey towards you? How does it sound or communicate with you? What things does it say to you? What tone does it use? What does it do to help or comfort you?

When you feel ready you can let go of the image and open your eyes.

Now have a go at describing your ultimate compassionate image below in words and/or pictures.

My Ultimate Compassionate Image is…(describe in words and/or draw a picture)

Also below note the various experiences that went with this image. How did the image make you feel emotionally and what physical sensations did the image generate within you? What facial expression and body posture/stature did the image convey? What sorts of advice was the image giving? What voice tone did the image use? What comforting actions did the image offer?

Emotions: _____

Physical Sensations: _____

Facial Expression: _____

Body Posture/Stature: _____

Advice: _____

Voice Tone: _____

Actions: _____

When people do this exercise, some automatically bring to mind religious figures or a wise grandparent who is no longer with them. Keep in mind that for the compassionate image to be truly compassionate, you need to feel that you could tell it your deepest darkest secrets, thoughts, desires and feelings, and that they would not judge you, they would not turn away from you, but instead would accept you unconditionally. If your image has a judgemental bone in its body or it conjures up feelings other than compassion, then try the imagery exercise again and shop around for a different image.

Creating your ultimate compassionate image will typically take a few attempts. Try to treat this as a creative and fun process. Some people will easily stumble on an image that works for them straight away, but then when they repeatedly bring the image to mind, it might evolve and change as more detail is added to enrich the image. Others may struggle to settle on a specific image at the start, and they might try a few different images on for size before settling on one that works for them. It is ok for this to be a work in progress that takes some time to fully develop.

My compassionate image is of a large rock, almost a mini-mountain emerging from a beautiful pool of calm ocean water. My rock is indented at the top with mossy soft grass, the perfect size to curl up in and be supported and comforted, and at the same time standing on the rock looking out gives a sense of strength and security. I know other people who have developed images of a wise tree that has been standing for hundreds of years, with sprawling warm green foliage that provides shelter and protection. Others have created a very wise old woman or man, not someone from real life but a fantasy person, who has experienced all of life and provides unconditional care and support. Others have an animal as their compassionate image, for example a steadfast beautiful stallion that is always on their side. Hopefully from these examples you can see there is no right or wrong, just your imagination and what works for you in triggering feelings of compassion.

My Compassionate Image

By now you have tried two different compassionate images on for size. It is now time to pick the one that fits best for you and be clear about how you are going to strengthen this image, so that it can be used as an effective and efficient compassion 'on' button when you need it. So first write down which of the two images you want to use as your compassionate image. Is it your fantasy ultimate compassionate image or is it imagining that special person in your life that you have unconditional compassion for. The choice is yours.

My Compassionate Image is_____

_____

Now note how you will practice this image. When will you bring it to mind? How often will you do this? For how long will you do this?

For now, try to bring this image to mind regularly, daily, and at times when you aren't struggling. That is, when you aren't in threat mode, but instead when you are relatively calm. Once you have strengthened this image and it is effective in sparking compassionate feelings within you, you will then be in a better position to use it to do the same thing during tough times when we are experiencing emotional pain. Also, regardless of which image you have chosen, always remember to start your imagery practice with a few rounds of slow breathing to get you in the mood for compassion.

I will practice my Compassionate Image *(when/how often/how long)* _____

_____

Finding other ways to elaborate this image can also be very useful in strengthening the image. By elaborate we mean doing more than just closing your eyes and bringing it to mind, but finding other ways to make it a part of your life and be regularly reminded of it. This can involve drawing or painting the image, or finding pictures that represent the image. These can then be carried with you or placed in strategic places so you see them regularly and when you most need it. Some people find a song that reminds them of their image, and they play the song regularly as a ring tone on their phone or an alarm wake-up call. Some people find objects that represent the image, like an ornament or piece of jewellery (e.g., pendants, a ring, etc.), to be very useful reminders that can be on hand at any time.

I will elaborate my Compassionate Image by _____

_____

_____

Compassionate Communication

In addition to developing an image that is effective in stimulating compassionate feelings within you, what else did you learn from the two imagery exercises you took part in? Each exercise asked you to reflect on the emotions, physical sensations, facial expression, body posture, advice, voice tone and actions that tended to accompany compassion. What did you notice across these two exercises about each of these elements? Did there tend to be some similarities?

Particularly what was the common facial expression, body posture and voice tone when someone was being compassionate?

Facial Expression: _____

Body Posture: _____

Voice Tone: _____

People will often note that compassion is accompanied by a soft attentive half-smile; a calm, shoulders-back, head-up stance whilst offering a caring touch; and a warm gentle tone of voice.

When we genuinely feel compassion we will naturally display these things. However, the reverse can also be true. Research shows that purposely adopting certain facial expressions, body postures and voice tones can have a big impact on how we feel. So these things can be signs that we are naturally in compassion mode, or can be purposely adopted to switch us into compassion mode when we need it.

Deliberately making the point to adopt a compassionate facial expression, body posture and voice tone more often in everyday life is another way we can build and enhance the compassionate side of ourselves. So the next time you are just walking down the street, walking about your house, or looking at yourself in the mirror, purposely adopt a compassionate facial, body and voice style, choosing to operate like a compassionate person to everyone (and that includes yourself), and projecting this stance to the world around you.

In essence, sometimes you may need to start by pretending to be compassionate in your outward appearance, and with enough practice, true feelings of compassion may then grow within you.

Module Summary

- Your soothe system has already been activated via your slow breathing practice. However, developing a compassionate image that is capable of stimulating compassionate feelings within you can take this a step further.
- Images are not that unusual, they are just a form of thinking that is very rich in terms of sensory information (i.e., visual pictures, sounds, touch sensations, tastes, smells).
- Research shows that imagery can be very powerful in triggering emotions. Here we want to use imagery to trigger feelings of compassion.
- Two options for developing an image that triggers compassionate feelings are: 1) imagining giving compassion to another person you care deeply about, or 2) creating your own ultimate compassionate image. Give both a try to see which works for you.
- Once you have a compassionate image, it is important to practice it regularly and elaborate it to make it a part of your daily life. This way it will become a very effective tool for switching compassionate feelings on when you most need them.
- Don't forget to always start your compassionate image with a few rounds of slow breathing first, to set the scene for some compassion.
- Also remember that pretending to be compassionate on the outside via your facial expression, body language and tone of voice, can sometimes trigger feelings of compassion inside.

Coming up next ...
In Module 5, we will look at how to let these compassionate feelings influence how you think…

About The Modules

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BACKGROUND

The concepts and strategies in these modules have been developed from evidence based psychological practice, primarily Compassion Focused Therapy, which is an extension of and adjunct to Cognitive-Behaviour Therapy. These modules particularly draw on the work of Paul Gilbert and Kristen Neff.

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"BUILDING SELF-COMPASSION"

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Building Self-Compassion

Module 5

Self-Compassionate Thinking

Introduction

Ideally you have been practicing your compassionate image, and when you slow your breathing down and bring this image to mind you notice it triggers a shift in how you are feeling. You may notice some warmth within, and feelings of calm, kindness and strength start to arise. So, now what?

Essentially by using your breathing and compassionate image you can shift gears and activate the soothe system and calm the threat system whenever you need to. We now want to take this a step further, and deliberately allow these compassionate feelings to influence the way you think about any difficult situation you find yourself in. This module will take you through two ways that you can do this (i.e., *Compassionate Thought Diaries* and *Compassionate Letter Writing*), showing you how to purposely bring a compassionate perspective or mindset to any specific struggle you face.

We will also finish this module by considering how you can train your attention in a manner that is a bit different to what you have already done in Module 3. That is, how you can train your attention to generally appreciate the positives in life. This can be a nice counterbalance to the threat system that is always on the lookout for the negatives, and hence might help us to spend more time in soothe mode.

The Thought-Feeling Connection

What you think, and the thoughts that go through your mind, are very important in determining how you feel. Stop for a moment and think: when you are feeling good, what sorts of thoughts roam around in your head? Conversely, when you are feeling bad, what sorts of thoughts are you having?

It makes sense to most people when we say that:

It is not the situation you are in that determines how you feel,
but the thoughts, meanings, and interpretations you bring to that situation.

Here is an example of what we mean. Imagine you are told that you will have a pop quiz on Monday. Below are three different ways of thinking about this same situation and the different emotions, behaviours, and physical sensations that would result from thinking in these different ways.

Example event: *Being told I have a pop quiz*			
	Emotions	Behaviour	Physical
Thought 1 *I love quizzes! I know this stuff quite well so I think I'll do fine.*	*Happy*	*Do a bit of revision*	*Quite relaxed*
Thought 2 *I am useless at quizzes. I am such an idiot. I don't know anything, I am going to fail for sure.*	*Anxious Sad*	*Try to study hard, but can't concentrate, give up, don't get much done*	*Sick in stomach Tense*
Thought 3 *So what? I don't care. This subject isn't important anyway.*	*Neutral*	*Do no study*	*Quite relaxed*

Can you see how what we think can be so important in determining how we feel emotionally and physically, and can influence what we do?

We have already discussed in Module 1 how self-critical thinking about any situation can leave us feeling a variety of uncomfortable emotions like anxiety, sadness, depression, guilt, shame or anger. Thought 2 ("*I am useless at quizzes. I am such an idiot. I don't know anything, I am going to fail for sure*") is an example of what self-criticism can do to us, showing how it generates difficult emotions, and can lead to unhelpful behaviours and uncomfortable physical sensations too.

As we have said previously, with self-critical thinking, our internal self-talk is highly negative, disparaging and berating. The content of self-critical thoughts can be very cruel, but also the tone of our internal voice when we speak to ourselves is usually very cold, harsh, and attacking.

Now remembering the idea that *how we think largely determines how we feel,* then one way to lift uncomfortable emotions is to change the way we are thinking. This means that you don't just accept your self-critical thoughts as true, but instead use your breathing and compassionate image to shift your mindset into self-compassion gear. Once you are in this more helpful gear, start to question the way you are thinking and see if you can't bring a more compassionate perspective to the situation. Doing this can then have a positive impact on how you are feeling.

Compassionate Thought Diaries

We would like to introduce you to a *Compassionate Thought Diary* to guide you in developing more self-compassionate ways of thinking. If this way of thinking is new to you, then following a step-by- step guide can be useful. Even if you are familiar with this approach, putting pen to paper can free your mind, making it less cluttered so you are able to think more clearly and compassionately.

On page 6 is an example of how to complete a thought diary, and following that is a blank copy for you to practice on. The diary guides you through how to put your self-critical thoughts out on paper, and how to bring a more compassionate perspective to whatever you are dealing with.

The diary will first ask you to write down information about your **Self-Critical Thinking**. For example:

- *What is the trigger?* The trigger can be a specific situation you are experiencing, or just thinking about something like a memory of the past or thinking about something in the future, or it could be a current emotion or physical sensation you are experiencing. The trigger is whatever you are struggling with.

- *What is the self-critical part of me saying?* This is where you list all the unhelpful or negative thoughts that might be running through your mind about the trigger. A number of these are likely to be unkind thoughts directed towards yourself.

- *What tone of voice is it using?* This acknowledges that it isn't just what we say to ourselves that can be hurtful, but the way we say it. The tone of our internal voice is important to recognise, because it has an effect on how we feel.

- *How much do I believe the self-critical thoughts?* Rate the strength of your belief between 0 and 100%. That is, how convincing the self-critical thoughts seem to you.

- *What emotion(s) am I feeling?* And rate the intensity of the main emotion you are experiencing, between 0 and 100%.

- *What physical sensations or behaviours go with these feelings?* This recognises that our thoughts don't just affect our emotions, but our physical feelings and what we do too.

This section of the diary will just help you to become more aware of how you are thinking and feeling. At this point nothing changes, we just have more clarity about what is going on for us, and hence are in a better position to meet this struggle with some self-compassion.

The next part of the diary will be about shifting perspective and injecting some **Compassionate Thinking** into the mix. To do this, you must first call upon your *Slow Breathing* and *Compassionate Image*. Once doing this has helped to activate the soothe system and calm the threat system, you will be in a much better frame of mind to bring a compassionate perspective to whatever you are dealing with. There are a number of questions listed in the diary to help you entertain more compassionate thinking. You don't necessarily have to use all the questions, but sometime the more options you have the better. Also, you may find that you answer a number of questions with the same sorts of ideas. This is not a problem, as repetition can be a good thing, especially when we are retraining our mind to think in more compassionate ways.

So with compassionate feelings of warmth, kindness, wisdom, and strength elicited within you, you can then ask yourself the following:

- *What does my compassionate image have to say about this?* If your compassionate image is your own fantasy creation of an ultimate compassionate being, what would it say to you about the problem you are struggling with? If instead your compassionate image involves imagining giving compassion to another person, then what would this side of yourself that can give such abundant compassion, have to say to you about your current difficulty?

- *What advice would I give to a friend I deeply care about who was thinking and feeling this way?* We have already seen how compassionate we can be to others. This question can help us draw out our compassionate side that we tend to reserve for others, and bring it to bear on our own difficulties.

- *What does the compassionate part of me want to say to the self-critical part?* This is about giving voice to the compassionate side of you that may have been sidelined for too long. The compassionate side may recognise that the self-critical part might just be scared and is only trying to help, but is misguided and cruel and only leads to misery.

- *What are some other ways of viewing this situation that might be more realistic, kinder or more helpful to me?* This question is about tapping into compassionate thinking as being more balanced, reasonable, and wise in the advice it gives. Rather than hot headed and irrational as self-criticism can often be.

- *How will I feel about this in 1 week, or 1 month or 1 year?* (If it won't matter much then, can I let go of it now?) This question can sometimes bring some new balanced perspective about the true importance of what we are dealing with.

- *What can I do to cope and look after myself now?* A compassionate response is always geared at taking care of someone who is struggling, so it is important to shift our energy to doing this for ourselves, recognising the ways we can cope and the ways we can look after ourselves when we feel vulnerable as a way of rebuilding our strength.

With all of these new compassionate ideas and thoughts available to us, the last step of the diary is to consider what new **Compassionate Conclusion** we might develop. Before making a conclusion, it is important to re-read all the compassionate thoughts you put down on paper, and be conscious of how you are reading these to yourself. Ensure you haven't slipped from the warm and caring voice tone that goes with your compassionate image. If you have lost it momentarily, again just refocus on your slow breathing and compassionate image to kick-start your self-compassion mode again.

Having read through your compassionate thoughts then consider:

- *What is a more compassionate and helpful conclusion to replace the self-criticism?*
- *How much do I believe the self-critical thoughts now?* Re-rate 0-100%
- *How intense is my initial main emotion now?* Re-rate 0-100%

If you follow through with this strategy, it is likely that you will experience a decrease in your belief in the original self-critical thoughts and a decrease in the intensity of your original emotional reactions. If it has been useful in this way, then great, you can put your concerns to rest.

If instead you are still struggling, there are two things that can be helpful. Firstly, keep engaging your slow breathing and compassionate image, and re-reading the more compassionate thoughts to yourself. Bringing a compassionate perspective to things will be new and foreign to you, and may require quite a bit of practice to get used to. Also, focus your energy on the question: *what can I do to cope and look after myself now?* Whatever you came up with as helpful ideas in this regard, make sure you are putting them into practice now. If you aren't able to change your thinking on a struggle you are facing, then taking care of yourself is the most important place to channel your attention and energy.

Compassionate Thought Diary (Example)

Self-Critical Thinking

What is the trigger? (i.e., a situation, thought - memory of past or thinking about future, emotion, physical sensation)	
Feeling anxious about an upcoming work presentation	
What is the self-critical part of me saying? What is wrong with me? I am so useless and pathetic. I am going to stuff everything up. Other people do presentations all the time with no problem. I am just so anxious and weak. Get it together or I will lose my job. **What tone of voice is it using?** Aggressive, shouty **How much do I believe the self-critical thoughts (0-100%)?** 90%	**What emotion(s) am I feeling? (Rate intensity of main emotion 0-100%)** Anxious (90%) Angry **What physical sensations or behaviours go with these feelings?** Tense, butterflies, hot Plan to call in sick to work

Compassionate Thinking

Slow Breathing and bring my ***Compassionate Image*** to mind, allowing compassionate feelings to arise, then…
What does my compassionate image have to say about this? This sounds really hard. I am sorry you are having to go through this. You are not alone. Everyone feels anxious at times. These are normal feelings. Just focus on what you need to do
What advice would I give to a friend I deeply care about who was thinking and feeling this way? It is ok. Everyone gets anxious about presentations. You are not alone in that. You can do this. It is just a presentation that will be over in a flash.
What does the compassionate part of me want to say to the self-critical part? I know you are just scared for me and trying to prepare me for the worst and push me harder, but you just make me more anxious and this doesn't help me to focus so I can do my best
What are some other ways of viewing this situation that might be more realistic, kinder or more helpful to me? I have done presentations before and they have mostly gone well. Even if it didn't go well, I won't lose my job over one presentation. I am valued for many other things I do at work.
How will I feel about this in 1 week, or 1 month, or 1 year? (If it won't matter much then, can I let go of it now)? I may still think about this in a week, but probably not in a month and definitely not in a year. Maybe it isn't as important in the big scheme of things.
What can I do to cope and look after myself now? I can focus on preparing my slides for the presentation, plus go and do something relaxing and fun to give myself a break from constantly thinking about this

Compassionate Conclusion

Re-read my compassionate thoughts, making sure I am using a compassionate tone of voice when I do this	
What is a more compassionate and helpful conclusion to replace the self-criticism? It is ok and normal to feel anxious. Balance my time between preparing and relaxing. It will probably go well. And who cares in a month anyway!	
How much do I believe the self-critical thoughts now (0-100%) 30%	**How intense is my initial main emotion now (0-100%)** 50%

Compassionate Thought Diary

Self-Critical Thinking

What is the trigger? (i.e., a situation, thought - memory of past or thinking about future, emotion, physical sensation)	
What is the self-critical part of me saying? What tone of voice is it using? How much do I believe the self-critical thoughts (0-100%)?	What emotion(s) am I feeling? (Rate intensity of main emotion 0-100%) What physical sensations or behaviours go with these feelings?

Compassionate Thinking

Slow Breathing and bring my ***Compassionate Image*** to mind, allowing compassionate feelings to arise, then…
What does my compassionate image have to say about this?
What advice would I give to a friend I deeply care about who was thinking and feeling this way?
What does the compassionate part of me want to say to the self-critical part?
What are some other ways of viewing this situation that might be more realistic, kinder or more helpful to me?
How will I feel about this in 1 week, or 1 month, or 1 year? (If it won't matter much then, can I let go of it now)?
What can I do to cope and look after myself now?

Compassionate Conclusion

Re-read my compassionate thoughts, making sure I am using a compassionate tone of voice when I do this	
What is a more compassionate and helpful conclusion to replace the self-criticism?	
How much do I believe the self-critical thoughts now (0-100%)	How intense is my initial main emotion now (0-100%)

Compassionate Letter Writing

A slightly different method of encouraging compassionate thinking when we are struggling with a problem, is by writing a compassionate letter to ourselves. This is really just a different way of doing the same thing that we did in our compassionate thought diary. That is, shifting our perspective from one that is self-critical to one that is self-compassionate. You may find you prefer compassionate letter writing to using the compassionate thought diary, or vice versa. Everyone is different. It is a good idea to try both on for size and see which one seems to be more effective for you.

To help with writing a compassionate letter to yourself, follow the suggested prompts below to guide you through the process.

The first step is to decide what the problem is that you are struggling with, which will become the focus of the letter. This is essentially the same as the trigger from your thought diary and can therefore be a difficult situation, thinking about a difficult past memory or some worries you have about the future, or a current uncomfortable emotion or physical sensation you might be struggling with. Once you know what the topic of your letter is, the next step is to use your Slow Breathing and Compassionate Image to shift yourself into self-compassion mode. Once this is achieved and you feel compassionate feelings arise within you, then you are ready to write a letter to yourself.

Really try to take the same stance you would if you were writing a deeply caring and kind letter to a friend who was having the same problem. If you notice yourself shift from this self-compassionate stance back into self-critical mode at any point while you are writing, just pause the letter writing, and use your *Slow Breathing* and *Compassionate Image* again, and then proceed with the letter writing once you feel you can approach it again from a compassionate mindset.

So, if you want to hand write the letter, get out a blank piece of paper, maybe even some beautiful writing paper if you have it. If typing it up on your computer, tablet or phone is more your style, then do that. Either way, use the following prompts to get you started with your writing. Feel free to change the prompts as you see fit, they are only suggestions, and you can write as much or as little as you like for each prompt. Remember you are writing this letter to yourself, and trying to bring a caring and kind perspective to whatever the problem is.

Dear.....[yourself]

I am writing to you because I understand that it is really hard for you at the moment. I know you are struggling with ....[the problem/trigger]

I am sorry you have to go through this.....

I hope you know that it is ok to feel....

I hope you know that everyone experiences.....

Human beings are imperfect and we all struggle, so I hope you know you are not alone in this.....

I am wondering if you have thought about...[add any helpful perspectives about the problem]

I really want your struggle to get easier. To help you feel better, address the problem and move on from it, I am wondering if it would help to.....[add any behaviours that might bring comfort or help solve the problem].

[Add anything else that needs to be said]

Please know I care about you and am here for you whenever you need.

Wishing you well,

…[sign off as yourself]

Below is an example to give you a feel for what compassionate letter writing might sound like. But remember, there is no right or wrong as long as you are approaching writing the letter with a deeply caring and non-judgemental mindset in place.

Dear Lisa,

I am writing to you because I understand that it is really hard for you at the moment. I know you are struggling with this work presentation that is coming up on Monday, and I know you are feeling really anxious about this. I am sorry you have to go through this and I want to help you get through it.

I hope you know that it is ok to feel anxious about the presentation. I hope you know that everyone experiences anxiety about all sorts of things in life, and anxiety about doing presentations is really common and normal. Human beings are imperfect and we all struggle, so I hope you know you are not alone in this. Many people have struggled with this sort of anxiety and many people will again. People do understand, even if this understanding is unspoken.

I am wondering if you have thought about all the positives that you have going for you that you might be forgetting. You have done presentations before and they have usually gone well. I can't think of one that went really badly. Even if it wasn't the greatest presentation, it will be over in a flash and will probably stand out more in your mind than anyone else's. Others will move on from it really quickly to the next thing, so you should feel free to do that too. You don't need to hold onto it. And just remember all the things you are valued for at work. One presentation doesn't change that.

I really want your struggle to get easier. To help you feel better, address the problem and move on from it, I am wondering if it would help to take some chill out time for yourself. Do something really relaxing and enjoyable like watching a movie or taking a bath. You deserve a break from all this. Then when you are feeling a bit refreshed, just focus on preparing your presentation one small step at a time. I know you can do that, remember that you have done it before.

Please know I care about you and am here for you whenever you need.

Wishing you well,

Lisa

Appreciating the Positives

Compassionate Thought Diaries and *Compassionate Letter Writing* are both about bringing compassionate thinking to the forefront when we are dealing with a specific issue that is troubling us and is generating emotional pain.

However, we can also foster compassionate thinking more broadly when we are not struggling with a specific situation, by training our mind to see, appreciate, and savour the positives in life. This is something that should be done regularly. Just like if you were training your muscles you would exercise them regularly, so if you want to train your attention to appreciate the positives, then your attention needs regular exercise in doing this.

There are two ways you can train your attention to appreciate the positives.

The first is through building on your *Mundane Task Focusing* from *Module 3*. This is about doing all the same things with your attention that were recommended for mundane task focusing (i.e., becoming aware of all the sensory aspects of the task at hand – touch, sight, sound, smell, or taste – and redirecting your attention back to these when your mind inevitably wanders). However, now we want to purposely choose pleasurable rather than mundane tasks as your focus (e.g., taking a bath, walking in nice scenery, eating a delicious meal, showing physical affection, listening to music, laughing, swimming, putting moisturiser on, etc.).

Now, what we find pleasurable in life will be different for each of us. This is about taking the small pleasures available to us in daily life, and not ignoring them, but maxing out our attention on these so we really appreciate them and all the sensory experiences that go with them. I guess we could call it **Pleasure Task Focusing**. List some of the common pleasurable tasks that you do, that from now on you can immerse your full attention in.

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The second way of training our attention is by noting the positives that happen in daily life. This involves on a daily basis noticing acts of kindness by others, appreciating the small things others might do for us that we can often take for granted, and noticing any nice or positive things that happen. Remember the threat system is always on the lookout for the negatives, so noticing the positives can be a good counterbalance to this bias we all have. People often say "if it's not written down, then it didn't happen". This is certainly the case when it comes to our attention. To retrain our attention we have to almost force it to look at the good stuff, so writing it down or keeping an **Appreciation Logbook** is a good way to force our attention to sit up and take notice.

People usually get a nice pad or notebook to be their Appreciation Logbook, and the most common place people keep it is on their bedside table. Then at the end of each day before going to bed, they record at minimum one thing they appreciated from the day (e.g., a meal their partner made for them, a work colleague offering to buy them a coffee, someone standing up for them on the bus, someone giving way to them in traffic, receiving a compliment, a beautiful sunny day, etc.).

As with all things recommended throughout these modules, try *Pleasure Task Focusing* and the *Appreciation Logbook* on for size, and be curious about the impact over time that regularly appreciating the positives can have on your general outlook on life. This is not about pretending that bad or negative stuff doesn't happen, but instead allowing some of the good stuff to filter through too.

Module Summary

- How we think can be so important in determining how we feel emotionally and physically, and can influence what we do. Self-critical thinking will tend to generate difficult emotions, and can lead to unhelpful behaviours and uncomfortable physical sensations too.
- Rather than just accept self-critical thoughts as true, instead use your breathing and compassionate image to shift your mindset into self-compassion gear, and once you are in this more helpful gear, you are then in a good position to start thinking in more compassionate ways. Doing this can then have a positive impact on how you are feeling.
- There are two ways to bring a more compassionate perspective and tone to the way you are thinking about a specific problem: 1) Compassionate Thought Diaries, and 2) Compassionate Letter Writing. Both are different methods of achieving the same thing, that is, a kinder, more balanced, and helpful perspective on whatever is troubling you in life.
- Appreciating the positives more generally in day to day life can be a great way to nurture a more compassionate way of seeing the world. Pleasure Task Focusing and an Appreciation Logbook done on a daily basis can help you with this.

Coming up next ...
In Module 6, we will look at how to use your new found compassionate feelings to influence how you behave…

About The Modules

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"BUILDING SELF-COMPASSION"

This module forms part of:

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Building Self-Compassion

Module 6

Self-Compassionate Behaviour

Introduction

Ideally you are now able to think in more compassionate ways, which is hopefully having a positive impact on how you feel emotionally, how you feel physically, and may also be having flow on effects to how you behave. In this module we will take a closer look at the 'doing' side of things, looking at what it means to be more compassionate in your behaviour.

Now this is a tricky one. There is no single behaviour that goes with being self-compassionate. Depending on your circumstances, very different types of behaviours will be helpful. So, to try to simplify this, we have divided self-compassionate behaviours into three categories, and it is likely that a little bit from each category will be needed by most people. These three categories of self-compassionate behaviours involve: taking care of ourselves, taking care of others, and taking care of business (i.e., attending to things that we need to, or have to, do). Let's look at each in turn now…

Taking Care of Ourselves

The idea of being kind and caring towards yourself, in how you treat yourself and how you spend your time, is probably the most obvious self-compassionate behaviour that comes to mind. Doing kind things for ourselves regularly can act as a sort of prevention or buffer when it comes to experiencing emotional pain. Doing kind things for ourselves particularly when we are struggling, just as we would do to try and help a friend in need, can help us to cope and move through difficult emotional experiences.

Taking care of ourselves by being very considered about the activities we engage in, is often referred to as self-soothing or self-nurturing. Self-soothing tends to involve purposely participating in activities that provide a sense of warmth and being cared for, and that help us to get through tough times.

People will differ greatly in terms of what they find self-soothing. One person's idea of treating themselves well could be someone else's nightmare. The idea is to experiment with various activities to find out what feels good to you, and find out what feels like you are showing care and kindness towards yourself. On page 3 is a list of possible self-soothing activities. The idea is not that you have to use each activity on the list, but that some may appeal to you to try and others won't. Also, by having a large list, it may help you to brainstorm other self-soothing activities that may work for you.

Look at the list and underline any activities you may like to experiment with generally or when you are next struggling in some way. Also feel free to add other activities that come to mind in the space provided. **The aim of these activities is not to take your emotional pain away or to solve the problem at hand, but to see what happens when you choose to be kind to yourself by involving yourself in self-soothing activities.**

SELF-SOOTHING ACTIVITIES:	
Make a nice meal or snack for yourself Go out for a nice meal or snack Enjoy a favourite drink (non-alcohol) Go to a favourite cafe Have a picnic Meet with a friend for coffee, lunch, a walk, etc. Phone a friend to chat Take a walk in lovely surroundings Look at beautiful art or scenery Go to a beautiful place Enjoy time in the sunshine Go to the beach Light a candle Watch the stars Put on soothing or enjoyable music Enjoy the sounds of nature Sing Use a favourite perfume or lotion Enjoy the smells of nature or flowers Have a bubble bath Have a long shower	Have a massage Pamper yourself Soak your feet Gently brush your hair Do your nails Read a good book or magazine Watch a good movie or TV show Pat your dog or cat Hug yourself Hug someone else Imagine a relaxing scene or safe place Do some relaxation or meditation Do some slow breathing Smile to yourself Laugh out loud Take a break (enjoy staying in bed for 20mins) Others:

When we try to change our behaviour by trying new activities, it is important to come up with a specific plan of what we are going to do and when we are going to do it.

Ideally it would be great to plan one specific self-soothing activity that you can try each day. Not every activity has to be time consuming, and some should be quite easy to incorporate into your day, it just requires a bit of planning. However, if one activity per day seems like too much at this stage, then pick whatever is manageable for you at the moment, and then build on that over the coming weeks.

At the end of this module you will see a weekly activity schedule that you can use to assist you in planning your new activities for the week. Have a look at the activities you underlined from the list of *Self-Soothing Activities*. From those that you underlined, start slotting some of these activities into your schedule for the coming week - these then become your **pre-planned self-soothing activities** for the week ahead.

Whilst it is very useful to have pre-planned self-soothing activities in your day, it is also helpful to have another relatively easy activity that you can use as required. That is, a self-soothing activity that you can try whenever you notice you are going through a tough moment throughout the day, and need to show yourself a little compassion. An example might be having a favourite song or meditation track saved on your mobile phone that you can play any time you need, or carrying a favourite hand lotion with you that you can apply at any time.

Identify which **as required self-soothing activities** you would consider experimenting with over the coming weeks whenever you need some compassion.

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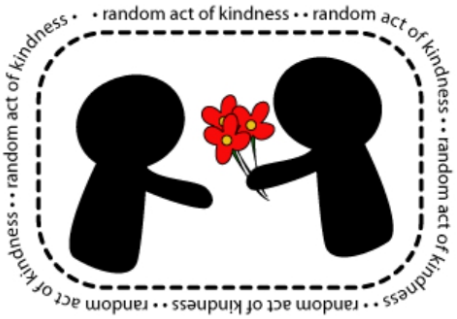
Try to remember that taking care of yourself is about showing yourself the same care and kindness you would show a friend who was upset. It is likely that if it was a friend who was struggling, you would try to comfort them and try to do something nice for them, to cheer them up. This is about behaving in that

same way towards yourself. Now the only way to get over the initial 'yuk' factor that can sometimes arise for people when they first try to treat themselves kindly, is to keep trying. Initially, treating yourself this way will be unfamiliar and therefore may feel a bit weird. But like anything, if you keep doing it you'll eventually get used to it. Hey, you may even like it at some point. So give it a go, what have you got to lose?

Taking Care of Others

Building our own self-compassion can also be helped along by showing compassion towards others. The more time we spend being compassionate, whether that be directed internally towards helping ourselves or externally towards helping others, the more our soothe system is active, and hence the better it is for our general mental health and well-being.

Now, let's think specifically about how we might show kindness and gratitude towards the people around us, both close loved ones and also perfect strangers. It is important to clarify that the idea of 'taking care of others' should never come at the expense of 'taking care of ourselves', both are equally important. It is often important to take care of ourselves, so we then have the energy and capacity to be able to take care of others. You know when you are on a plane and you hear the safety message about putting the oxygen mask on yourself first before helping others, well the same goes here. Make sure you have prioritised those self-soothing activities from the last section, and then you will be in a good position to show that same kindness to others.



Another important point to consider is that 'taking care of others' isn't the same as just being passive, unassertive, or submissive to other people's demands. It isn't just doing what others tell you to do. Taking care of others should be motivated from a kindness within us that we want to show others in some way through our kind behaviour. It is not about just surrendering to others and doing things others tell us to do, that we don't really want to be doing.

When thinking about the different ways we could go about taking care of others, below are a few ideas to help get you started. You may be able to think of other ways you could show kindness to a partner, family member, friend, or stranger, that aren't on the lists below.

- **Thank someone close to me for the things they do for me.** For example, giving a hug and telling the person how much I appreciate them for… making meals for me/ driving me places/ helping around the house/ listening to me/ spending time with me, etc.
- **Plan a kind act or gesture for someone I care about.** For example, making or organising a surprise dinner, an outing, or a pampering session, etc.
- **Do something caring to cheer-up someone I care about.** For example, making them a gift, or taking them for a picnic or beach walk or movie, or spending time showing interest and listening to their troubles, etc.
- **Compliment someone I care about.** For example, telling them what I like or love about them…their sense of humour, their caring nature, their intelligence, their loyalty, their integrity, their patience, their tenacity, etc.

- **Show kindness to strangers.** For example, offering to help someone struggling with heavy bags, offering my seat to someone on the bus, telling someone in customer service how helpful they have been, etc.

First think of specific people in your life you would like to show kindness towards (i.e., your partner, particular family members, particular friends, work colleagues or classmates, or certain strangers you tend to encounter in your daily life). When you have some people in mind, then list the things that you would like to do for these people more often over the coming weeks. Now, some of these things may need to be spontaneous as the opportunity arises (e.g., next time you see someone who needs a seat on the bus). But some will be able to be pre-planned into your week. Again where possible, use the weekly activity schedule at the end of this module to get more specific with what you will do, and also plan when you will do it.

People I would like to show kindness to are:

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What I can do to show kindness is:

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Once you start to do kind things for others, pay attention to the impact your compassionate actions have on yourself and on the people around you. How do you feel when you do kind things for others? How do people respond to you? What does it do for the quality of your relationships? Whilst we can certainly do with more compassion for ourselves, the world more broadly could do with a bit more compassion too, and your kind actions towards others will contribute to this.

Taking Care of Business

As we have said in earlier modules, compassion is not just about the warm and fuzzy kind stuff, which is of course very important and not to be underestimated. But being compassionate also involves some hard stuff, like courage and strength to face our struggles, and doing what is needed to alleviate our struggles. This is where the idea of 'taking care of business' comes in. This really relates to if there is a problem, then facing the problem rather than running away from it, and doing what we can to try to overcome it. This doesn't mean that all problems can be overcome, and under those circumstances, taking care of ourselves with self-soothing activities and self-compassionate thinking (see Module 5), will be particularly important to help us cope through a difficult time that we can't do much about.

However, with many problems there may be things we can try, actions we can take, and doing these things may lead us to feel a bit less helpless and a bit less hopeless.

Different circumstances and different problems will call for different compassionate actions. But as a rule of thumb, a guiding principle that can sometimes help is the idea that if the situation is objectively safe (i.e., others do it with no real harm to them), then try '**acting opposite**' to what your threat system is telling you to do. That is, opposite to what the anxiety or anger or depression is telling you to do. See the following 'Acting Opposite Guide' to give you a few ideas…

'Acting Opposite' Guide

Threat System says…	Instead Do the Opposite…
***Avoid** things I need or would like to be doing, because it makes me anxious	Don't avoid situations that make you anxious. If it is realistically a safe situation, then find ways to gradually **face** these situations and **stay** in them, until you have ridden through the anxiety. By repeatedly doing this, you will slowly build confidence that the situation is safe and you can cope with anxiety.
Give up because there is nothing I can do about this problem	Don't give up, try **problem solving**. Be clear about what the problem is, and then think up all the possible ways of solving the problem. Shortlist a few of the best solutions and think through the pros and cons of each. Then pick one of the solutions you would like to try, and break it down into the steps involved in implementing the solution. Start with the first step and keep going. If it doesn't work, return to one of your other solutions and give that a try.
***Procrastinate** and put off things that need to be done because it is too hard, too scary, too boring, etc.	**Get started**. Break the task down into steps. What is the first smallest step that needs to be done? Start with that no matter how you feel. Once you get going you may find things get easier.
Escape or numb the problems and my feelings by using alcohol or drugs,* restricting my food or binge eating, self-harming, etc.	Instead show yourself **compassion** by thinking compassionately (e.g., compassionate thought diary or compassionate letter writing) and taking care of yourself (i.e., self-soothing activities, reduce alcohol and drugs use, healthy regular eating, etc).
Isolate myself from everyone and everything so I don't get hurt	Instead **take care of yourself** (i.e., self-soothing activities) and **take care of others** (i.e., connect with others by doing kind things for them).
*Be **passive** to others' demands or be **aggressive** towards others	Communicate with others **assertively**. Express your needs clearly and calmly, hear the other person's point of view, and then work together to negotiate a good outcome where your needs are considered and often met.
Don't forgive people, because they will just hurt me again	If not forgiving someone is causing you a lot of pain, consider accepting and letting go of past hurt. Thinking compassionately (e.g., compassionate thought diary or compassionate letter writing) might help you work through this past hurt. Remember, you can **forgive** yet still put **boundaries** in place to protect yourself from being hurt again.

* **Note:** This module gives some very general ideas about how to overcome general avoidance behaviours. If you identify very strongly with your avoidance being specifically related to social situations, or fear of having a panic attack, or fear of having a serious health problem, then you may want to look at the 'Shy No Longer', 'Panic Stations' and 'Helping Health Anxiety' Information packages respectively to target these specific problems. In addition, if you need further help with some of the acting opposite behaviours mentioned, there are other Infopax available that may be of assistance (e.g., 'Assert Yourself', 'Put Off Procrastinating', 'Overcoming Disordered Eating').

Now, let's think about how these 'Acting Opposite' ideas apply to you. What business do you need to take care of? Is there a certain problem or situation you need to be facing or addressing in your life? Is there something you need to deal with and overcome to make life better for you?

Here is an example of how to get clearer and more specific about what needs to be done. Have a read through and then have a go for yourself.

The problem area for me is: Socialising with people my age
The threat system tells me: Don't do it, they won't like me, I won't fit in
To act opposite I need to: Socialise more with people my age even though it scares me. It is the only way I will start to overcome this, and I really want to make some more friends.
The steps involved in starting to overcome this problem area are: 1) Accept invitations from my existing friends to go to social events 2) Start making small talk more with the people at work 3) Make an effort to talk more to general strangers when I am out and about, at the shops, etc. 4) Research a social/hobby/sport group I could join 5) Go along to a group and talk to at least 2 people 6) Go along to more groups and talk to the people I meet.

The problem area for me is:
The threat system tells me:
To act opposite I need to:
The steps involved in starting to overcome this problem area are:

Now plan at least the first step into your weekly schedule. If this step feels like too much too soon, see if you can break this step down even further to make it more manageable.

If you are struggling to know what the compassionate behaviour is for a particular situation, slow your breathing and get in touch with your compassionate image, and then see what advice your compassionate image would give about how to handle the situation or problem you are facing.

We understand that acting opposite is often challenging, and can bring up your self-critical thinking especially when things do not go as planned. Be aware if this is occurring and remember to use your slow breathing and compassionate image to activate a compassionate attitude when approaching the tasks you've set for yourself.

Weekly Activity Schedule

Use the schedule below to plan your activities for the coming week. Make sure self-soothing activities that are aimed at taking care of yourself are a priority. Also schedule any activities that involve taking care of others or taking care of business. Be clear about what you will do and when you will do it. If for some reason you don't end up completing a planned activity, don't criticise yourself. Instead treat yourself with compassion, and make a plan for when you will reschedule the activity.

	Mon	Tues	Wed	Thur	Fri	Sat	Sun
8 to 9am							
9 to 10							
10 to 11							
11 to 12pm							
12 to 1							
1 to 2							
2 to 3							
3 to 4							
4 to 5							
5 to 6							
6 to 7							
7 to 8							
8 to 10							
10 to 12 am							

Module Summary

- There is no single behaviour that goes with being self-compassionate. Depending on your circumstances, very different types of behaviours will be helpful. To simplify, we can break compassionate behaviours into three categories: taking care of ourselves, taking care of others, and taking care of business.
- Taking care of ourselves by purposely engaging in self-soothing activities is a priority when it comes to self-compassion. Self-soothing involves participating in nurturing activities that give us a sense of warmth, being cared for, and can help us get through tough times. It is important to pre-plan these regularly into our week, and have specific activities in mind that can be easily used as required when we are struggling emotionally.
- Behaving compassionately by taking care of others can also strengthen our compassionate side. Think of how you can show kindness to a partner, family member, friend or stranger, and notice the impact that your kindness has on you and the other person.
- Behaving compassionately can also require courage and strength as we need to take care of business. This means facing problems and taking action rather than avoiding, giving up, procrastinating, escaping or numbing our feelings, isolating ourselves, being passive or aggressive, and not forgiving others. As a rough guide, when the threat system is being unreasonable and oversensitive, try acting opposite to what it is telling you to do.
- When making changes to our behaviour it is important to plan what we are going to do and when we are going to do it. Use the Weekly Activity Schedule to help you with this process.

Coming up next ...

In Module 7, we will wrap things up and look at how you can maintain living a compassionate life over the long term…

About The Modules

CONTRIBUTORS

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Building Self-Compassion

Module 7

Self-Compassionate Living

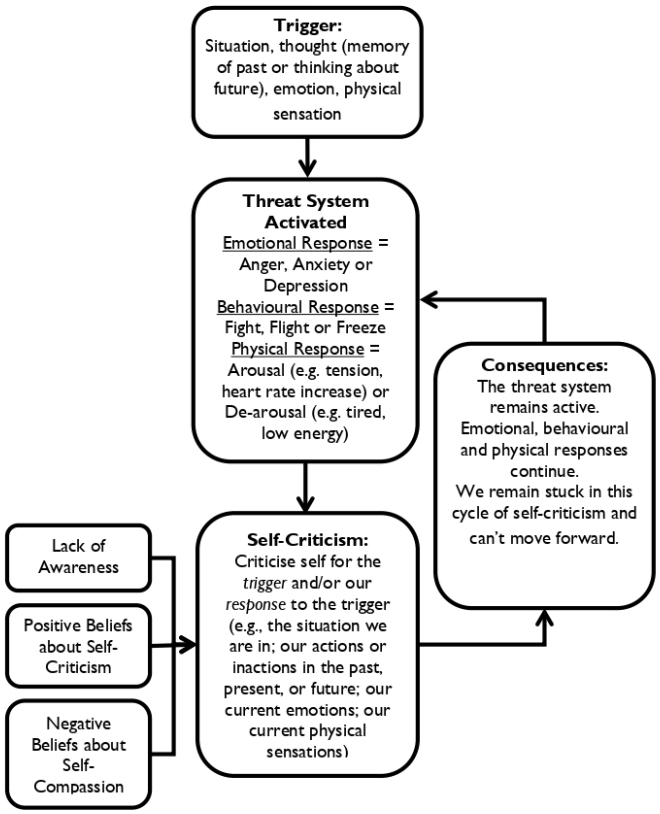
Introduction

As we have said, building self-compassion is not a quick fix. It is likely that by now you are well on your way to developing a more compassionate side to yourself, and you are able to activate and recruit this part of you to help out when you are struggling with life. However, it is likely that this is still a work in progress. It is likely that you are still experimenting with this new compassionate way of talking to and treating yourself, and some days it will work well and other days will be more difficult. All of this is normal and natural when we start to make changes to our usual way of being.

So for our final Module, we will consider how to maintain and further the self-compassion you have been developing, and over time strengthen this new part of yourself. Self-compassion is something we all constantly need to work at. During times when it is harder for us to take a compassionate tone with ourselves, it is important that we are clear about exactly what we need to do to get back on the self-compassion track, to get back to self-compassionate living.

From Self-Criticism to Self-Kindness

If you remember back to Module 1, we looked at the cycle of self-criticism which looked like this:



Through the work we have done over this series of modules, you are now in a position to be able to reverse this cycle, and take what was initially an unhelpful self-critical cycle and turn it into a healthy cycle of self-compassion.

To make this transition we have done a number of things. We have dealt with some of the factors contributing to our tendency to criticise ourselves. Firstly, we have addressed the positive beliefs about self-criticism and negative beliefs about self-compassion that can hinder giving up self-critical ways and embracing self-compassionate ways (Module 2).

We have also increased our awareness of our own suffering and self-critical responses, via mindfulness-based attention retraining exercises (i.e., *Mundane Task Focusing* and M*editation* in Module 3). With this increased awareness, we are now in a better position to choose to respond differently when our threat system is activated. We are now in a position to choose a more self-compassionate response.

Responding self-compassionately involves a number of steps, which are shown in the Self-Compassion Cycle on page 4.

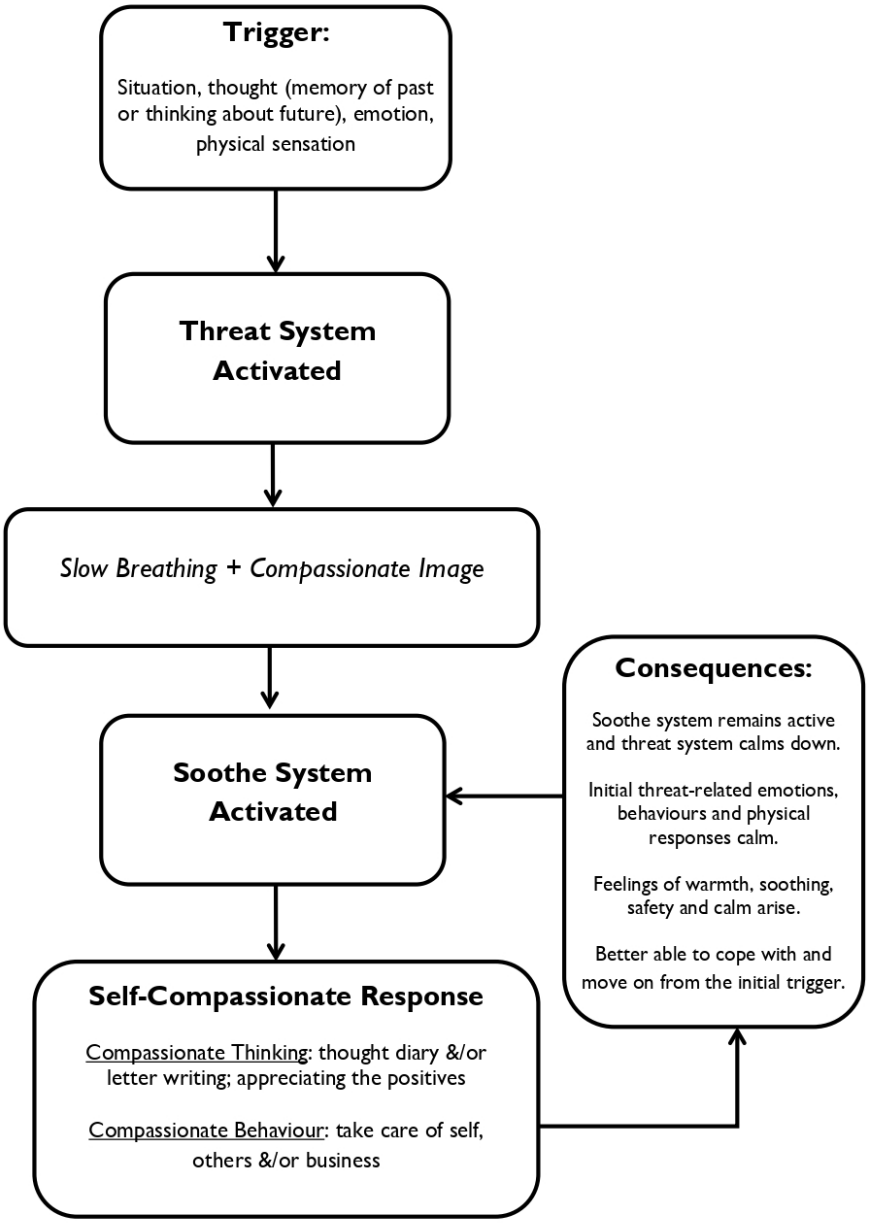
Firstly, we use our ***Slow Breathing*** (Module 3) and ***Compassionate Image*** (Module 4), as our 'key' to turning on a compassionate mindset within us, and **activating the soothe system**.

With the soothe system active, we are then in a better position to be able to **think in more self-compassionate ways**, using C*ompassionate Thought Diaries* and *Compassionate Letter Writing* when we are struggling with something in particular, and more broadly *Appreciating the Positives* in our general day to day life (Module 5).

We are also in a better position to **behave in more compassionate ways** by *taking care of ourselves* in self-soothing ways, *taking care of others* by being actively kind to people close to us as well as strangers, and *taking care of business* and facing the problems or situations in our life that need to be dealt with (Module 6).

The self-compassion cycle then shows the **consequences** of responding in this new self-compassionate manner. Remember, the threat and soothe systems can't be active at the same time as they are incompatible experiences. By responding in self-compassionate ways, the soothe system that was kick-started with our slow breathing and compassionate image, is then able to remain active and hence calm the threat system and all of its emotional (i.e., anger, anxiety, depression), behavioural (i.e., fight, flight, freeze) and physical responses (i.e., arousal or de-arousal). In doing so, we start to make room for feelings of warmth, soothing, safety and calm. Being in soothe mode, and hence being able to think and behave in self-compassionate ways, then allows for better coping. With better coping we can then move on from whatever triggered our threat system in the first place, rather than staying stuck.

The Self-Compassion Cycle



My Self-Compassion Action Plan

Stepping out of the self-critical cycle and stepping into the self-compassion cycle, will happen relatively easily at times and at other times will be more difficult. With this in mind, it is important to plan for the difficult times, when self-compassion isn't happening naturally for us. Developing a *Self-Compassion Action Plan* that details what to do at those difficult times can be really helpful. It is important to fill in the blanks below, and then place the action plan somewhere that you can access it easily whenever you need it, to remind yourself of what to do to get your self-compassion back up and running during hard times.

My Triggers (What are the sorts of things that trigger distress, suffering, pain, or self-criticism for me? These can be specific situations, problems or people, thinking about the past or the future, or experiencing certain emotions or physical sensations that I might struggle with.)

My Warning Signs (What are the signs that indicate I am suffering and/or criticising myself and need to be more compassionate towards myself? These could be the typical self-critical phrases I say to myself, particular unpleasant emotions or physical sensations, or how my behaviour changes and becomes unhelpful when I am having difficulties.)

My Action Plan (These are the things I need to do when I am struggling):

1. *Slow Breathing*
2. Use my *Compassionate Image* which is _____
3. Keep doing steps 1 & 2 until I start to feel a sense of calming
4. Practice brief compassionate thinking by saying something like the following comforting statements to myself (feel free to reword these to something you like more, as long as it is offering general words of comfort/encouragement):
   - *This is really hard and I am sorry this is happening*
   - *What I am feeling is ok, everyone experiences this, I am not alone*
   - *I need some compassion right now, focus on being kind to myself now*
5. *Take care of myself* by doing one of my *Self-Soothing Activities* such as _____

   _____

   _____
6. If I am still struggling practise more compassionate thinking by using a *Compassionate Thought Diary* and/or *Compassionate Letter Writing* to deal with whatever is bothering me.
7. If I am still struggling, ask myself if there is a problem I need to address and use *'Opposite Action'* to deal with this. This generally means breaking down the problem into steps and facing it rather than running away from it.
8. If I am still struggling, keep doing my breathing, compassionate image and self-soothing activities to help me get through this tough time.

My Self-Compassion Maintenance Plan

Your *Self-Compassion Action Plan* is really about what to do in times of struggle. In addition to this, it can be helpful to be clear about what you can do in your general day-to-day life when you aren't struggling, that might help you to maintain your ability to be self-compassionate when needed. Developing a *Self-Compassion Maintenance Plan* can help to make sure that self-compassion continues to be a priority in your daily life. Check in with your maintenance plan regularly to make sure you are still on the road to self-compassion and haven't drifted off track.

My Maintenance Plan (These are the things I need to do on a regular basis):

1. Regularly practice my ***Slow Breathing*** and ***Compassionate Image*** so that I can call on them whenever I need. A good time to do this daily practice is_____
2. Find something (an object, picture, song, etc.) that represents my compassionate image, and find a way that it can be regularly incorporated into my daily life as a reminder of being self-compassionate. I can do this by_____
3. Appreciate the positives on a daily basis.
   - My *Pleasure Focusing Tasks* will be _____
   - A good time to fill out my *Appreciation Logbook* is_____
4. Regularly practice my attention-retraining exercises:
   - *Mundane Task Focusing*. Tasks I will use to practice are _____
   - *Meditation*. A good time to do this practice is _____
5. Regularly plan *Self-Soothing Activities* throughout my week like_____
6. Regularly plan ways to *take care of others* and show kindness to people in my life like_____
7. If any *business needs to be taken care of*, make sure I am continuing to work on it over time, planning each week how I can make some progress on it, like _____

A Final Note...

Being self-compassionate involves an acceptance of human imperfection. Acknowledge that you can never be perfectly compassionate towards yourself or others all the time. Instead, the more time you spend in compassion mode with your soothe system in charge, the more your mental health and well-being will thank you.

As already mentioned in Module 1, this series of modules may have been enough to deal with whatever struggles you are facing, or they may complement modules in other Infopax available that cover other more specific problems. You may have already done these other modules or you may now go on to do them. Whatever your situation, these *Building Self-Compassion* modules come from the perspective that it is not just what you think and do that is important, but also the attitude you adopt when you are thinking or doing anything. We would recommend that before using any other helpful thinking or behaviour strategies that you already know of or may go on to learn…first things first. Always first focus on your slow breathing and bring your compassionate image to mind.

Your slow breathing and compassionate image are your key to self-compassion, and your key to switching on the soothe system. With the soothe system 'on' and a compassionate attitude in your mind and heart, whatever you go on to do should then be maximally effective and helpful to you. Bringing an attitude of self-compassion to anything we do in life can help us experience more general contentment, and make any struggles that we may face that bit easier to weather.

Module Summary

- Responding to our triggers with self-compassion rather than self-criticism involves using our *Slow Breathing* and *Compassionate Image* to activate the soothe system. With the soothe system active, we are then in a better position to be able to think and behave in more self-compassionate ways. The consequence of this self-compassionate response is that the soothe system can then remain active, calming the threat system, generating feelings of warmth, soothing, safety and calm, and helping us to cope and move forward from our suffering.
- It is important to use your *Self-Compassion Action Plan* to help you through difficult times, and your *Self-Compassion Maintenance Plan* to make sure that self-compassion is a priority in your daily life.
- Congratulations! Well done on making it through these Modules. Now all it takes is practice, practice, practice. So, go ahead and continue to live a compassionate life!

The End!

About The Modules

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BACKGROUND

The concepts and strategies in these modules have been developed from evidence based psychological practice, primarily Compassion Focused Therapy, which is an extension of and adjunct to Cognitive-Behaviour Therapy. These modules particularly draw on the work of Paul Gilbert and Kristen Neff.

REFERENCES

These are some of the professional references that informed the development of modules in this information package.

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"BUILDING SELF-COMPASSION"

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APPENDIX- S

Visual analysis worksheet (Ledford et al., 2017)

Appendix: Visual Analysis Worksheet

Part 1: Characteristics of Data

Characteristic	Questions	+	−
Level	Is a consistent level established in each condition prior to condition change?	Yes	No
	Is there a consistent level change between conditions, in the expected direction?	Yes	No
Trend	Are unexpected trends present that make determination of behaviour change difficult?	No	Yes
	Is there a consistent change in trend across conditions, in the expected direction?	Yes	No
Variability	Does unexpected variability exist in one or more conditions?	No	Yes
	Does within-condition variability impede determinations about level changes between conditions?	***No***	***Yes***
Consistency	Are data within conditions and changes between conditions consistent?	Yes	No
	If changes are inconsistent with regard to level, trend, or variability, was that expected?	Yes	No
	Does inconsistency impede confidence in a functional relation?	***No***	***Yes***
Overlap	Are data highly overlapping between conditions? (e.g., are there many points in the intervention condition that are not improved relative to baseline?)	No	Yes
	If overlapping, does the degree of overlap improve over time? (e.g., initial intervention data points are overlapping, but later ones are not)	Yes	No
	Is overlap consistent across comparisons? (e.g., Do approximately the same number or per cent of data points overlap across A→B comparisons?)	Yes	No
	Was overlap expected a priori? (e.g., Was variability or a delay in treatment effect expected, given knowledge about participant behaviour and past research?)	Yes	No
	Does presence of overlap impede confidence in a functional relation? *(Does the degree to which data are similar between conditions result in lower confidence for ≥1 comparisons?)*	***No***	***Yes***
Immediacy	Are changes between tiers immediate, in the intended direction?	Yes	No
	If no, are delays in change consistent across tiers (e.g., if there is a 3 session delay in Tier 1, is there a 2–4 session delay in Tier 2?)	Yes	No
	Does lack of immediacy impede confidence in a functional relation?	***No***	***Yes***

Part 2: Conclusions Regarding Functional Relation

Did the design allow for at least three potential demonstrations of effect? Examples include three-tiered multiple baseline or probe designs with three different intervention start points, A–B–A–B and B–C–B–C designs, and ATD designs with at least three data points per condition. Common non-examples are multiple baseline and multiple probe designs with two tiers or three tiers but only two intervention start points, non-concurrent multiple baseline designs, and multitreatment designs with inadequate replications (e.g., A–B–A–C–D). ***If no, STOP. No functional relation can be demonstrated.***	Yes	No

What is your determination regarding the presence of a functional relation?			Present	Not Present
How confident are you in your determination?	Not at all confident	Not very confident	Quite confident	Extremely confident
How large is the effect?	Negative or null	Small	Medium	Large

The visual analysis worksheet is intended for completion *for each dependent variable in each design;* in some manuscripts, multiple designs are present. For example, in an article with an A–B–A–B designs for each of two participants, one worksheet should be completed for each design. In an article with one multiple baseline design across participants, with two dependent variables (DVs), one worksheet should be completed for each DV.