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**D.CLIN. PSYCHOL.  
UNIVERSITY OF EDINBURGH / NHS (SCOTLAND)  
TRAINING PROGRAMME**



**Does self-compassion or self-esteem mediate the relationship  
between attachment and symptoms of depression and anxiety in a  
clinical adolescent population?**

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## Thesis Abstract

**Background:** Self-compassion which may be shaped by early attachment experiences involves being kind to oneself at times of difficulty and is consistently linked to psychological well-being. Self-compassion may be particularly useful in adolescence during which, difficulties associated with physiological and psychosocial transitions can lead to psychological distress.

**Aims:** The aims of this thesis were twofold. First: to review the literature exploring the relationship between self-compassion and psychological distress in adolescents. Second: a research study to investigate the emerging theory that self-compassion may offer a healthier self-relating construct than self-esteem. The study examined whether self-compassion or self-esteem mediated the relationship between attachment and depression and anxiety in adolescents attending child and adolescent mental health services (CAMHS).

**Method:** A systematic search of articles related to the relationship between self-compassion and psychological distress in adolescents was conducted. The quality of included papers was assessed. In the research study, 53 adolescents (mean age 15.52 years; 75% female) attending CAMHS presenting with symptoms of anxiety and/or depression were asked to complete five self-report questionnaires measuring: self-compassion, self-esteem, quality of life, satisfaction with attachment relationship and current symptoms of depression and anxiety.

**Results:** The systematic review revealed 25 studies for inclusion. Studies reported an inverse relationship between self-compassion and psychological distress in adolescents. Quality ratings illustrated variation in methodological quality of included studies. In the research study self-compassion and self-esteem were both negatively correlated with depression and anxiety. The mediating impact of self-compassion was only apparent in the relationship

between attachment availability and depression, but not anxiety. Contrary to the hypothesis, self-esteem mediated the relationship between attachment security and depression and anxiety to a greater extent than self-compassion.

**Conclusions:** Self-compassion may have clinical implications in improving psychological well-being among adolescents. Future studies with different measures of self-compassion; varying study designs and consideration of contextual factors would increase understanding of the relationship between self-compassion and psychological distress in adolescents.

# **A systematic review of the association between self-compassion and psychological distress in adolescents.**

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(Excluding: figures & tables = 2220 words)

This study has been written in accordance with Journal of Self and Identity (Appendix 1)

## **Abstract**

**Aim:** Adolescence involves physiological and psychosocial transitions which can be difficult to navigate leading to psychological distress. Self-compassion is a proposed protective factor which may be relevant for adolescents. This review explored the relationship between self-compassion and psychological distress in adolescents.

**Method:** The literature was systematically searched for research related to this relationship. Included papers were assessed for methodological quality.

**Results:** 25 studies met inclusion criteria. Studies reported an inverse relationship between self-compassion and psychological distress in adolescents. Quality ratings illustrated variation in methodological quality of studies.

**Conclusions:** Increasing self-compassion may improve adolescents' psychological well-being. Future research with different self-compassion measures and varying study designs would increase understanding of the relationship between self-compassion and psychological distress in adolescents.

**Key words:** self-compassion, psychological distress, adolescents

## **Introduction**

### **Depression & Anxiety in Adolescence**

Adolescence, typically defined as the developmental stage between 10-20 years (Dick & Ferguson, 2015) is a period of multiple and rapid physiological and psychosocial transitions (Susman & Dorn, 2009). Cognitive development leads to teens developing increasingly complex and sophisticated ways of relating to the world. For some, this can cause greater negative self-evaluation (Barry, Loflin & Doucette, 2015) and feelings of self-doubt and self-criticism (Steinberg, 1999). Youths can also experience stress associated with the onset of puberty and a changing body-image (Archibald, Graber, & Brooks-Gunn, 1999), issues around sexuality and forming romantic relationships (Steinberg & Morris, 2001), stress related to academic performance (Terry, Leary, & Mehta, 2012) and problems in parental and peer relationships (Neff & McGhee, 2010).

The potential challenges of adolescence and the potential lack of appropriate coping skills to manage such challenges (Horwitz, Hill, & King, 2011) may indicate why adolescence is a core risk phase for the development of several mental health problems (Gladstone, Beardslee, & O'Connor, 2011). Indeed, depression is recognised as the predominant cause of illness and disability for both males and females aged 10 to 19 years across the world (World Health Organization, 2016). The prevalence of depression in adolescents aged 13 to 18 years is estimated to be 5.6 % (Clark, Jansen & Cloy, 2012) however, ranges of 0.2% to 17% for major depression have been reported (Costello, Erkanli, & Angold, 2006). Depression is often a recurring mood disorder (DSM-IV; American Psychiatric Association, 2000) causing significant personal suffering and substantial impairments in daily functioning and can potentially lead to suicide (WHO, 2012). Beyond the individual, adolescent depression typically has a detrimental impact on the wider family (Asarnow et al., 2005) and economic

and societal costs including decreased educational attainment and there is an increased risk for a downward life trajectory (Bluth, Gaylord, Campo, Mullarkey, & Hobbs, 2015). Furthermore, when adolescent depression becomes chronic repeated cycles of treatment may be required increasing health care costs (Jaycox et al., 2009).

Adolescent depression is highly co-morbid with anxiety (Garber & Weersing, 2010). A number of anxiety disorders typically develop during adolescence including: social phobia, panic disorder, agoraphobia and GAD (Kessler, Berglund, Demler, Jin, & Walters, 2005). Anxiety has a global prevalence among adolescence between 15% to over 30%; this is in contrast to prevalence rates between 10% and 20% among adults (Tassin, Reynaert, Jacques, & Zdanowicz, 2014). Similarly, to depression, anxiety disorders are associated with considerable developmental, psychosocial, and psychopathological complications (Beesdo et al., 2009). Moreover, anxiety disorders are highly co morbid with depression and substance misuse (Wu et al., 2011). Many adolescents who develop a threshold anxiety disorder will be affected by the same condition into adulthood (Nolte, Uiney, Fonagy, Mayes, & Luyten, 2011).

Given the personal and societal burden incurred by depressive and anxiety disorders in adolescents, it is crucial that effective prevention strategies are investigated. It is increasingly recognised that in order to understand the development of depression and anxiety in young people it is important to gain an awareness of individual protective factors rather than exclusively focusing on individual risk factors (Masten, Cutuli, Herbers & Reed, 2009). As established, depression and anxiety are currently considered significant problems for adolescents; however, there is accumulating evidence that the majority of teenagers do not develop significant social, emotional, or behavioural difficulties (Steinberg, 1999). This

raises the question as to which individual traits allow some adolescents to navigate the challenges of adolescence without developing psychopathology and Conversely, actually flourish during this developmental stage (Keyes, Dhingra & Simoes, 2010).

Self-compassion which involves self-kindness and understanding to oneself at times of difficulty and personal failure (Neff, 2015) is a proposed protective factor which can be effective in the face of adversity (Játiva & Cerezo, 2014). The construct has received increasing empirical attention within western psychology in the last decade (Yarnell et al., 2015).

### **Conceptualising Self-Compassion**

Neff (2003a) who drew from Buddhist philosophy originally defined self-compassion as encompassing three components. The first component 'self-kindness' involves treating oneself with care, love and affection even at times of failure. This is in contrast to treating oneself with negative self-judgment where one is hostile, demeaning, and critical of one's failures. The second component 'common humanity' involves recognising that failure is a common human experience and therefore, one should not feel isolated in their suffering. The third component 'mindfulness' involves being aware and accepting of the present moment by taking a balanced perspective to painful emotions rather than trying to avoid or over-identify with such emotions. Mindful attention is thought to help one deeply experience and learn from the present without the distractions of self-evaluations or non-present worries.

Self-compassion has also been conceptualized from an evolutionary neuro-scientific stance (Gilbert & Procter, 2006). It is proposed that through genetics and learning, individuals have evolved threat-detection and protection systems which assess all presenting stimuli for potential threat. The contentment/social safeness system is an internally wired regulator of

this system: when someone is self-compassionate the threat system (associated with the limbic system and feelings of insecurity and defensiveness) is deactivated and the self-soothing system is activated. Self-compassion enhances well-being as the self-soothing system is associated with the oxytocin-opiate system leading to feelings of secure attachment and safeness helping individuals feel cared for, connected and emotionally calm (Gilbert & Irons, 2005).

Self-compassion is typically operationalized as the total score on the self-compassion scale, SCS (Neff, 2003) or on the abbreviated version the SCS-SF which has been found to have an almost perfect correlation with the long form (Raes, Pommier, Neff, & Dinska, 2010). These measures assess the various thoughts, emotions, and behaviours that map on to the different dimensions of self-compassion: self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification.

### **Self-Compassion & Psychopathology**

There is a growing body of research illustrating that self-compassion relates positively to positive affect and negatively to negative affect (Körner et al., 2015). Self-compassion has consistently been found to negatively correlate with symptoms of anxiety and depression (e.g. Barnard & Curry, 2011). The association between higher rates of self-compassion and reduced symptoms of depression and/or anxiety has predominantly been investigated in adult populations. MacBeth & Gumley's (2012) meta-analysis synthesized this empirical literature and found a large effect size when examining the link between self-compassion and depression, anxiety, and stress across 20 studies with adult samples. This illustrated that higher self-compassion is related to lower levels of psychological stress, anxiety and depressive symptoms. It is acknowledged that there is demand for longitudinal data sets investigating changes in compassion over time (Raes, 2011) and further review of

interventions designed to increase compassion within treatment settings (Bluth, Gaylord, et al., 2015).

### **Self-compassion in Adolescents**

Although the relationship between higher levels of self-compassion and reduced rates of depression and/or anxiety is established in adult samples, it cannot be assumed that such findings can be generalised to adolescent populations. However, it is proposed that fostering self-compassion might be particularly worthwhile for adolescents (Muris et al., 2015). Erikson (1968) outlined that identity formation is central to adolescent developmental where teens' establish their identity and position in a social hierarchy through social comparison (Steinberg & Morris, 2001). When this comparison is unfavourable, this can negatively impact on an adolescent's sense of worth (Neff & Vonk, 2009), and many adolescents may feel isolated believing that their negative experience is unique, and not understood by others. Therefore, the principle of common humanity whereby failure is considered a common human experience may be particularly pertinent (Neff, 2003a). Cognitive development during adolescence involves the emerging capacity for meta cognition (Keating, 2004). This increased capacity to see the perspective of others, and to understand how one may be perceived by others can potentially lead to heightened self-consciousness (Elkind, 1967) and the concepts of success and failure can take on notable importance (Barry, Loflin & Doucette, 2015). The construct of self-compassion which promotes principles such as self-kindness and positive change through a nonjudgemental, self-compassionate attitude may be highly relevant as youths navigate the challenge of potentially feeling negatively perceived by others (Neff & McGehee, 2010).

In response to the rationale for increasing understanding of the protective nature of self-compassion in adolescents there are an increasing number of studies investigating the

construct at this developmental stage. Studies have been conducted across various adolescent populations including: students (e.g., Bluth & Blanton, 2013); youths with a history of maltreatment (Tanaka, Wekerle, Schmuck, & Paglia-Boak, 2011) adolescents exposed to a potentially traumatic event (Zeller, Yuval, Nitzan-Assayag, & Bernstein, 2014) and an adolescent substance misuse population (Vettese, Dyer, Li, & Wekerle, 2011). Furthermore, this relationship has been illustrated in adolescents from different cultures (e.g. Neff, Pisitsungkagarn, & Hsieh, 2008).

In a brief synthesis of the adolescent literature, Muris (2015) concluded there was a large effect size for the relationship between self-compassion and symptoms of psychopathology in young people in a meta analysis including nine studies. This conclusion is in line with findings in the adult literature (Macbeth & Gumley, 2012) and is consistent with the notion that self-compassion is a protective factor against psychopathology. However, Muris' (2015) synthesis of the adolescent literature was to an extent methodologically limited. Unlike MacBeth & Gumley (2012); Muris did not report a detailed inclusion and exclusion criteria potentially limiting the value of the report (Liberati et al., 2009). Moreover, Muris (2015) used only one database to search the literature (Macbeth & Gumley used three databases) and used a relatively brief search terminology perhaps restricting the literature search and therefore, not capturing the breadth of current research. Additionally, it is possible Muris' focus on critically evaluating the SCS distracted from his overview of research examining the relationship between self-compassion and psychopathology in young people. Given the limitations of Muris' analysis, further review of the empirical literature into self-compassion in adolescents is warranted.

**Objective:**

In light of the literature outlined above, this review aimed to expand on the quantitative findings from the meta-analyses' conducted by MacBeth & Gumley, (2012) and Muris, (2015). While these analyses usefully added to the literature, their relatively narrow inclusion criteria resulted in several methodologically heterogeneous studies being excluded, for example studies that used compassion as process measure of change in psychological interventions. Therefore, a systematic review of the adolescent self-compassion literature with a broader literature search and a wider inclusion criterion to fully capture the expansion of empirical studies is warranted. A synthesis of this empirical literature will allow conclusions to be drawn as to the potential benefit and applicability of self-compassion to adolescents. In particular, this review aimed to determine the relationship between level of self-compassion and psychological distress in adolescents. Additionally, unlike previous reviews, this review will aim to thoroughly qualitatively critique included studies in order to answer the specific review question.

## Method

### Search Strategy

A literature search was carried out using three electronic databases in February, 2016: **Embase** (1980 to 2016 Week 08), **Ovid Medline(R)** (1946 to February Week 2 2016) and **PsycINFO** (1806 to February Week 2, 2016). There was no early date restriction. The search terminology used was: Component 1: “self-compassion” OR self compassion; and Component 2: depression OR depressed OR anxious OR anxiety OR stress\* OR mood\* OR symptoms OR distress OR affect OR psychological OR negative OR Psychopathology OR disorder\* OR "mental illness\*" OR "well being" OR rumination OR wellbeing OR isolat\*; and Component 3: adolescen\* OR teenage\* OR undergraduate\* OR college OR university OR juvenile OR young OR youth OR sample OR male OR female OR people. Searches were confined to the domains of title, abstract and keywords.

### Inclusion criteria

Studies were included if: (i) they were empirical studies published in English and in a peer reviewed journal; (ii) included administration of the standardised Self-Compassion Scale, (SCS) in either its original 26-item (Neff, 2003a) or validated 12-item short form (SCS-SF) (Raes et al., 2010). This is the primary measure of self-compassion and is widely used throughout the research allowing clear comparisons across studies (MacBeth & Gumley, 2012). Studies also had to administer (iii) a measure of psychological distress. To ensure the review was as inclusive as possible, studies administering standardised measures of negative psychological affect as well as specific measures of symptoms of depression or anxiety were eligible for inclusion in the study. This allowed inclusion of the Positive and Negative Affect Schedule (PANAS); (Watson, Clark & Tellegen, 1988). The PANAS been shown to significantly relate to standardised outcome measure(s) of depression and anxiety (Crawford & Henry, 2004) e.g. the Depression Anxiety and Stress Scales (DASS); (Lovibond &

Lovibond, 1995) and the Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983). Furthermore, the review allowed inclusion of measures or checklists of general symptoms of psychological distress whereby a sub scale for depression or anxiety was included, for example the Personality Inventory for Youth (PIY) (Lachar & Gruber, 1995) which provides a multidimensional, psychometrically sound measure of emotional and behavioural adjustment, family interaction, and academic functioning and also includes a depression and a fear and worry subscale. Studies were also included if (iv) participants were adolescents. The World Health Organization outlines that the age range of adolescence is 10-20 years, often divided into early adolescence (10–13 years), middle (14–16 years) and late (17–19 years) (Dick & Ferguson, 2015). Therefore, studies which included participants aged between 10-19 years or studies with a participant mean age between 10-19 years were eligible for inclusion in the study.

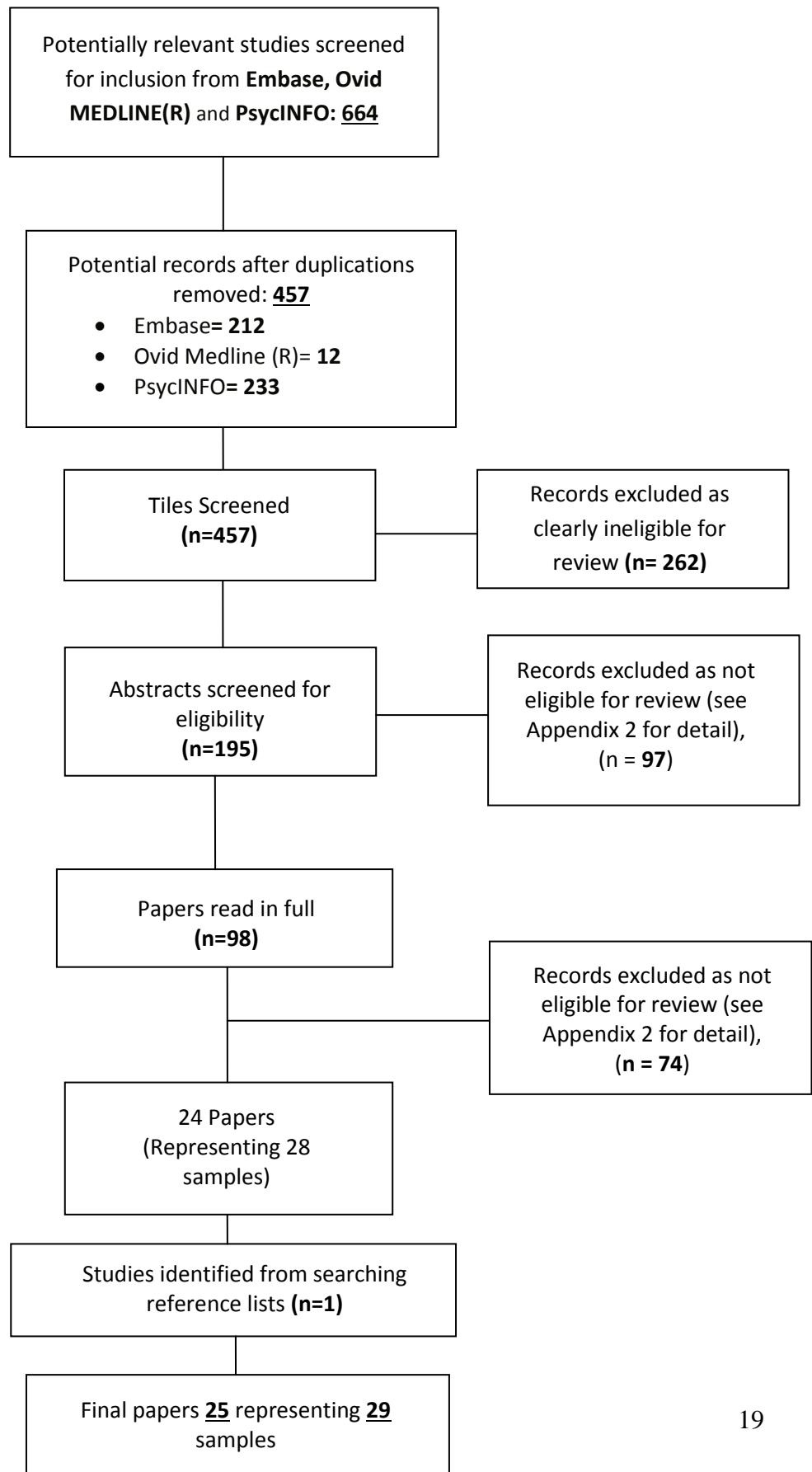
### Exclusion Criteria

Studies were excluded if (i) they did not clearly assess the relationship between self-compassion and psychological distress (e.g. did not include a measure of psychological distress). Studies which (ii) exclusively focused on the relationship between self-compassion and eating disorders, PTSD, psychosis or disorders not defined as psychological distress were excluded. Moreover, studies which (iii) focused exclusively on the relationship between self-compassion and psychological well-being (i.e. did not consider psychopathology also) were excluded. Furthermore, studies were excluded (iv) if the researchers did not administer either the SCS or the SCS-SF in its full-format or modified these original versions potentially risking established validity and reliability.

### Search Results

The literature search process is detailed in Figure 1. The search strategy initially identified 664 publications; these publications were exported to 'Endnote online' reference management software which was used to remove all duplicates. The titles of publications were manually screened and if this signified that the article was eligible for inclusion the abstract was then screened to determine eligibility. In the case of uncertainty over the inclusion of a paper after screening of the abstract; the full article was read. Articles which did not meet the review's criteria were excluded (see Appendix 2 for detail). Reference lists of the final identified papers were searched for possible papers that were not included in the original database search. One was identified as a paper for inclusion; therefore, 25 papers were included in this systematic review which represented 29 participant samples. The 29 samples that met inclusion criteria were reviewed in detail.

**Figure 1.** Flow chart of literature search process



### Assessment of quality of included studies

Studies were rated according to their suitability to address the aim of the current review to determine the relationship between symptoms of depression and/or anxiety and level of self-compassion in adolescents.

Many of the studies had a cross-sectional and correlation design. Therefore, the ‘Strengthening the Reporting of Observational Studies in Epidemiology’ (STROBE) framework (Van Elm et al., 2008) was used as a guide for developing an appropriate quality criterion for these studies. Since STROBE offers recommendations to ensure credible quality reporting rather than a measure of study quality, the author also considered the methodology checklists outlined in the Scottish Intercollegiate Guidelines Network (SIGN) 50 Guideline Developers’ Handbook (SIGN, 2008). It has been indicated that such tools should be modified and adapted to measure specific review questions, (Gough, Oliver & Thomas, 2012). Therefore, guided by the STROBE and SIGN guidelines the lead author devised a rating checklist for the eligible cross-sectional studies specific to the review question (see Appendix 3).

The checklist included five domains: study design, methods, sample size, measurement and data analysis encompassing nine individual rating criteria to evaluate the quality of included cross-sectional studies. In guidance outlined by the centre for reviews and dissemination (CRD, 2008), The University of York ([www.york.ac.uk/inst/crd/](http://www.york.ac.uk/inst/crd/)) it is not recommended that quantitative scores be used to rate studies as high or low quality. Therefore, each criterion was rated according to the grading criteria proposed by the Scottish Intercollegiate Guidelines Network (SIGN; 2008) using the following qualitative outcome ratings: ‘well covered’, ‘adequately addressed’ and ‘poorly addressed’.

As a result of the relatively broad inclusion criteria, included studies were heterogeneous in design and several longitudinal, experimental and intervention studies were included. Many of the domains included in the checklist for evaluating quality of the cross-sectional studies also applied when evaluating the quality of these studies. Therefore, the author again considered SIGN guidelines, (SIGN, 2008) and the review question and review aims, (Gough et al, 2012). However, it is recognised that different study designs need to be evaluated for quality in different ways (NICE, 2012). Therefore, checklists for specific study designs were considered. The checklist within the ‘Quality of reporting of observational longitudinal research’ (Tooth, Ware, Bain, Purdie, & Dobson, 2005) which outlines recommendations to ensure good quality reporting of longitudinal studies was consulted. Furthermore, the Quality appraisal checklist for quantitative intervention studies as outlined by NICE (2012) was consulted. NICE proposes that the majority of study designs used to determine the effect of an intervention on a (quantitative) outcome will be amenable to critical appraisal with this revised tool. Thus, this tool was also consulted when considering quality assessment of studies which were an intervention or experimental study. The quality assessment tool for longitudinal, experimental and intervention studies in the current review (see Appendix 4) included the five domains of the cross-sectional quality criteria checklist and three additional ratings within these domains: (i) attrition (ii) reporting of attrition and (iii) timings of data collection.

It is acknowledged that there is potential for bias during the process of quality assessment as there is inevitably a degree of subjective analysis. Therefore, it is recommended that the quality assessment is conducted by two researchers (SIGN, 2008). Initially an appropriate qualified colleague reviewed and piloted the quality criteria tool on one of the included papers. This led to a discussion and some minor revisions being made to the quality criteria tool while continuing to adhere to guidelines. Following this, in line with recommendations

to enhance reliability of quality assessment, 13% of the cross-sectional articles (four studies) and 10% of the non cross-sectional articles (one study), selected at random were independently rated by the appropriately qualified colleague to ensure consistency. There was initial agreement between raters on 87% of items. The discrepancies in evaluations were discussed and 100% consensus was agreed on all items.

## **Results**

### **Characteristics of included studies**

The review included 25 articles representing 29 samples, as four of the articles included two samples (Arimitsu & Hofmann, 2015a; Bluth & Blanton, 2014; Johnson & O'Brien, 2013; Liss & Erchull, 2015). 17 of the articles (20 samples) had a cross-sectional design (table 1) and nine samples had a non cross-sectional design (table 2). Summary information from each article was presented in Table 1 and Table 2.

Participants were recruited from various settings, 16 samples were university students, six samples were school-attendees and one sample consisted of students ranging from high-school to university age. Three samples consisted of youths who had dropped out of school. Muris (2015) defined adolescents in these samples as 'at-risk' youths. Three of the samples included adolescents from clinical settings including youths involved with child protection services, many of whom had reported childhood physical abuse, youths seeking treatment for solvent misuse and trauma-exposed youths.

Collectively studies were conducted with a total of 7922 young people. The mean sample size was 273 participants with ranges from 23 to 2448. Within clinical samples the mean sample size was significantly lower: 87 (range 64-117). Across studies participants were predominantly of an adolescent age (range between 11 and 20 years), the lowest available mean age across studies was 14.65 years, (Marshall et al., 2015) and the highest 19.11 years (Arimitsu & Hofmann, 2015b). Across all studies, the mean average percent of females was 61%.

**Table 1. Characteristics and key findings of reviewed cross-sectional studies**

Study Country	Number of participants & Gender ratio	Mean Age (SD) Age range	Measure of Depression and/or Anxiety	Self-Compassion Measure	Key Findings
Arimitsu & Hofmann (2015a). Study 1, Japan	231 University Students 43% Female	19.11 years (SD = .88) **	-DACS - STAI - BDI-II	SCS Japanese Version, (Arimitsu, 2014)	S-C was negatively correlated with anxiety (STAI -.72; $p < .01$ ) and depression (BDI-II -.50; $p < .01$ .)
Arimitsu & Hofmann (2015b). Study 2, Japan	233 University Students 28% Female	19.00 years (SD = .97). **	-DACS - STAI - BDI-II	SCS Japanese Version, (Arimitsu, 2014)	S-C was not significantly correlated with depression but was negatively correlated with anxiety (STAI -.72; $p < .01$ )
Barry et al. (2015) USA	251 youths not attending school 100% male	16.78 years (SD = .73) 16-18 y	PIY	SCS	S-C was significantly negatively correlated with anxiety (-0.32; $p < .001$ ) & depressive (-0.27; $p < .001$ ) symptoms.
Bluth & Blanton (2013). USA	65 high school students. 49% female	*40% 14-15 years, 60% 16-18 y	PANAS	SCS	S-C was significantly negatively correlated with negative affect. (-0.64, $p < .001$ )
Bluth & Blanton (2014). 'Younger adolescents' USA	<u>Sample 1</u> ) 23 students grades 6–8 48% female	* 11- 12 years (57% of total sample)	PANAS	SCS	S-C was significantly negatively correlated with negative affect. (Negative affect -0.6, $p < 0.001$ )  Older female adolescents had significantly lower self-compassion than either older male
Bluth & Blanton	<u>Sample 2</u> ) 67 students	*13 -14 years (43% of	PANAS	SCS	

(2014). 'Older adolescents' USA	grades 9-12 58% female	total sample)			adolescents or early adolescents of either gender.
Bluth et al. (2015) USA	28 school aged Participants  76% female	*41% of participants aged 13–14 years, 38 % aged 15–16 y, 21 % aged 17–18 y	PANAS STAI	SCS	S-C was significantly negatively correlated with baseline anxiety & negative affect measures in the expected directions.
Budakoglu (2014)  Turkey	225 Medical students. 54% female	19.4 years (SD=1.1) 17-25 years	STAI BHS	SCS Turkish Version, (Deniz et al. 2010)	S-C was significantly negatively correlated with state anxiety (Anxiety -0.15; $p < 0.05$ ). There was a negative correlation between hopelessness and S-C but this relationship was not significant (-0.06; $p > 0.05$ )
Deniz (2008)  Turkey	189 university students 69% female;	19.06 years (SD = 1.13) **	PANAS	SCS Turkish Version, (Deniz et al. 2010)	There was a significant negative correlation between S-C and negative affect. (Negative effect $r = -.48$ , $p < .001$ )
Játiva & Cerezo (2014a). Spain	109 "poor school performers" 28% female	16.74 years (SD = 0.94) 15-18 y	YSR	SCS Spanish translation	S-C was significantly negatively correlated with externalizing problems (-0.24; $p < .01$ ) and internalizing problems (-0.52; $p < .05$ )
Johnson & O'Brien (2013) Study 1 Canada	335 university students 75% female, (0.6% not reported)	19.02 years	BDI	SCS	There was a significant negative correlation between S-C and depressive symptoms in students. (Depression -.49; $p < .001$ )
Liss & Erchull (2015). 'High SC' United States	106 university students 'highest in SC' 100% female	High SC = 19.23 years (SD=1.82) 18-25 y	PHQ-8	SCS-SF	Participants reporting high levels of S-C had lower levels of depression compared to participants reporting low levels of S-C.
Liss & Erchull	104 university students	Low SC = 19.28 years	PHQ-8	SCS-SF	Women who scored low on the measure of S-C

(2015). 'Low SC' United States	'lowest in SC' 100% female	(SD=1.85) 18-25 y			reported greater depression
Neff et al. (2008). Thailand sample	223 Thai university Students 45% female	19.8 years **	SRDS	SCS Thailand translated version	S-C was significantly negatively correlated with depression in Thailand, (Depression: $-.53(p < .01)$
Neff & McGehee (2010). USA	235 high school adolescents 52% female	15.2 years 14-17 y	BDI-II STAI	SCS	Adolescents with higher S-C were significantly negatively correlated with anxiety. ( $-0.60; p < .05$ ) and Depression ( $-0.73; p < .05$ ).
Raes (2010). Belgium	271 university students 79% female	18.14 years (SD = 1.25). **	BDI-II STAI	SCS Danish Version (Neff & Vonk, 2009)	S-C was significantly negatively correlated with anxiety ( $-0.75; p < .001$ .)and depression ( $-0.55 p < .001$ )
Tanaka et al. (2011a) Canada	117 adolescents receiving child protection services 55% female	18.1 years (SD= 1.0) 14-17 y	CES-D GHQ	SCS	Low S-C was significantly negatively correlated with psychological distress ( $-0.33; p < 0.05$ ) and depressive symptoms. ( $-0.37; p < .05$ )
Vettese et al. (2011) Canada	81 youths seeking treatment for solvent misuse 35% female	19.49 years; (SD=2.32) 16-24 y	BSI	SCS	There was a strong negative correlation between S-C and emotion deregulation/ psychological symptom severity ( $-.56; p < .001$ )
Yamaguchi et al. (2014) Japanese sample	1,200 university students 36% female	19.6 years (SD = .97) **	CES-D	SCS Japanese translation	S-C was significantly negatively correlated with depressive symptoms ( $-.370; p < .01$ )
Zhou et al. (2013) China	418 college students 74% female	19.17 Years (SD = 1.04) **	HDSQ	SCS Chinese version (Chen et al. 2011)	Greater S-C was negatively correlated with symptoms of hopelessness depression ( $-.45; p < .001$ )

\*=mean age not available; \*\*= age range not available

SC=Self-Compassion; SCS= Self-Compassion Scale (Neff, 2003b); SCS-SF= Self-Compassion Scale- Short Form (Raes et al., 2011); DACS= Depression Anxiety Cognition Scale (Fukui, 1998); STAI=Spielberger State-Trait Anxiety Inventory (Spielberger, Gorsuch, , Lushene, Vagg & Jacobs, 1983); BDI-II=Beck Depression Inventory-II (Beck, Steer & Brown, 1996); PIY=Personality Inventory for Youth (Lachar & Gruber, 1995); PANAS=Positive and Negative Affect Scale (Watson et al., 1988); BHS=Beck Hopelessness Scale (Beck, Weissman, Lester, & Trexler, 1974); YSR=Youth Self Report Measures (Achenbach, Dumenci, & Rescorla, 2001); PHQ=Patient Health Questionnaire 8 (Kroenke et al., 2009); SRDS=Self- Rating Depression Scale (Zung, 1965); CES-D= Center for Epidemiologic Studies Depression Scale (Radloff, 1977); GHQ=The General Health Questionnaire (Golderberg & Williams, 1988); BSI=The Brief Symptom Inventory (Derogatis & Melisaratos, 1983); BHS= Beck Hopelessness Scale (Beck, Weissman & Lester, 1974)

**Table 2. Characteristics and key findings of reviewed non cross-sectional studies**

Study Country	Participants Gender ratio (F/M)	Mean Age (SD)	Measure of Depression and/or Anxiety	Self-Compassion Measure	Study Design	Key Findings
Arch et al. (2014). USA	105 university students 100% female	19.53 years (SD=1.88) **	STAI	SCS	Experiment	The TSST dramatically increased anxiety across all groups, but the S-C training group reported lower mean state anxiety than controls at every data point collection.
Bluth et al. (2015). 'Making Friends with Yourself' USA	34 students from high school & university. 74% female	* Range: 14 -17 years	PANAS STAI	SCS-SF	Mixed methods inc. Intervention Design.	Compared with the wait list control, the intervention group had significantly greater self-compassion and significantly lower depression ( $\beta=-0.27$ , $p=0.004$ ), with trends for lower anxiety ( $\beta = -0.20$ , $p = 0.098$ ) When wait list crossover results were combined with that of the first intervention group, findings indicated significantly greater S-C, and significantly less anxiety, depression and negative affect post-intervention.
Edwards et al. (2014a) USA	20 students from School Based Health Centers 60% female	* Range 12–17 years	SCL–90–R	SCS	A quasi-experimental, extended baseline, repeated measures design	Learning mindfulness practices increased Latino adolescents' levels of S-C, which in turn could reduce their levels of stress. Their scores on the Depression sub scale of the SCL–90–R dropped significantly ( $p < .05$ )

					(Campbell & Stanley, 1977)	following the group (mean change = -3.55, $t = 1.82$ , $p < .05$ ). The reductions in students' scores on the Anxiety scale (mean change = -.99) of the SCL-90-R was not significant
Hope et al. (2014) Canada	159 university students 72% females	18 years (SD= 1.04) 17-27 y	PANAS	SCS	Longitudinal	Longitudinally, S-C was associated with decreases in negative affectivity over the academic year.
Johnson & O'Brien (2013) Study 2 Canada	90 university students 83% female	19.12 years 17-37 y	BDI	SCS	Experimental induction of self-compassion.	Actively practicing S-C toward shame-eliciting memories lower levels of negative affect. Those practicing self-compassion uniquely showed significant decreases from baseline in depressive symptoms greater than those in the control condition.
Marshall et al. (2015). Australia	2448 students in Grades 9 and 10 49.6% female;	14.65 years (SD = .45) **	GHQ	SCS-SF	Longitudinal	The regression of Time 1 S-C on Time 2 mental health was significant ( $b = .30$ , $SE = .04$ , $p < .001$ ) indicating S-C related to decreased mental health
Raes (2011). University of Leuven, Belgium	439 university students, 85% female (baseline) 347 students, 87% female - 79% of baseline(follow-up)	Baseline: 18.37 years (SD= 1.55). Follow-up: 18.27 years (SD= 1.55). 17-36 y	BDI-II	SCS-SF	Longitudinal follow-up	Higher levels of S-C at baseline were significantly associated with greater reductions and/or smaller increases in depression symptoms over the 5-month interval.

Smeets et al. (2014). Holland	52 psychology undergraduates, 100% female	19.96 years (SD = 1.33) **	PANAS	SCS-SF- Dutch version	Random assignment to intervention group  Cross-sectional design	The S-C intervention led to significantly greater increases in S-C and significantly greater decreases in negative affect (-.40; P<0.01) in comparison to the active control intervention.
Zeller et al. (2014). Israel	At-risk sample of 64 adolescents directly exposed to a potentially traumatic stressful event – (Mount Carmel Forest Fire Disaster). Female-26% At T2, 88% of T1 Pp At T3-70% of T1 Pp; 80 % of T2 Pp	17.5 years (SD=1.07) 15-19 y	IDAS	SCS- Hebrew Translation	Longitudinal design	The effect of SC was significant, indicating that higher levels of SC at T1 and T2 predicted lower levels of depressive symptoms at T2 and T3, respectively ( $\beta=-0.23$ , $SE=0.09$ , $t=-2.3$ , $p<0.05$ ).

\*=mean age not available; \*\*= age range not available

SCL-90-R =The Symptom Check List-90-R, (Derogatis, 1994); IDAS=The Inventory of Depression and Anxiety Symptoms, (Watson et al., 2007)

## **Review of Study Quality**

Tables 3 and 4 (see appendix 5 and 6) provide an overview of the quality ratings for each study. Throughout the review of quality findings, studies are categorised into cross-sectional and non cross-sectional and differences between clinical and non-clinical samples are considered.

### **Study design-objectives**

All but two studies addressed study objectives well. Budakoglu, Karaoglu, & Coskun (2014) only addressed the study objectives adequately as the previous research was not fully considered and thus the rationale for the study was not fully justified. Deniz & Sumer (2010) addressed the study objectives poorly, as there were unclear aims and the theoretical rationale for the study was deemed unclear.

### **Selection**

Intervention and experimental studies primarily used the methodologically robust sampling method of randomly assigning participants to a condition of the study. Conversely, cross-sectional and longitudinal studies primarily used the non-probability method of convenience sampling whereby eligible adolescents volunteered to participate. This potentially leads to selection bias where influences beyond the control of the researcher limit the conclusions that can be drawn about how representative the sample is of the source population (Barker, Pistrang, & Elliott, 2002). There appeared to be some discrepancy in the cross-sectional studies reporting random assignment of participants. Budakoglu et al. (2014) described systematic sampling by recruiting every fifth medical student. However, the authors also reported that a limitation of the study was that participants were self-selected. Moreover, Deniz et al. (2008) reported that university students were randomly selected with no further detail provided. Yu & Tse (2012) reported that a common bias in cross-sectional studies is the reporting of convenience sampling as random sampling which may have potentially

occurred in these studies. It is noteworthy that nine samples were rated as poorly addressing selection as no information on the sampling method was provided.

### **Eligibility**

A significant number of studies (62%) did not present clear eligibility criteria resulting in findings lacking accuracy and meaning (Cooper, Hedges & Valentine, 2009). Nine samples did clearly present an appropriate eligibility criteria and interestingly all studies with a clinical sample presented a clear and appropriate eligibility criteria. By enrolling participants with similar characteristics this helps ensure that results will be due to what is under study and not other factors (Appelbaum, Cooper, Maxwell, Stone, & Sher, 2008).

### **Description of participants**

Overall, most studies described participants thoroughly allowing inferences to be drawn about the generalisability of findings. Seven articles did this to a lesser degree but still adequately.

### **Participant response rate**

Intervention and experimental studies were better at reporting participant response rate than longitudinal and cross-sectional studies. Moreover, intervention and experimental studies were better at reporting rate of attrition by providing information on the number of participants at each stage and explanation for loss. While longitudinal studies were also assessed on this domain Marshall et al. (2015) and Raes (2011) did not address this clearly which is problematic as readers are limited in making inferences about how representative results are of the whole sample.

### **Sample size -Power calculation**

A priori power/ sample size calculation was only reported in two of the samples included in

this review. Both samples were from Johnson & O'Brien (2013) and the power calculation ensured that an adequate number of participants were recruited to enable power of at least .8, where the effect size was medium and alpha was set at .05 based on a priori power calculation. The other 27 samples did not report a power calculation and therefore, it cannot be assumed that such a calculation was performed potentially biasing results (Kadam & Bhalerao, 2010).

## **Measures**

### Measure of self-compassion

As per inclusion criteria, 23 samples administered the standardised 26-item Self-Compassion Scale, (SCS) (Neff, 2003a) and five samples administered the validated 12-item short form (SCS-SF) (Raes et al., 2010). Arch et al. (2014) modified the SCS adding the instruction “over the past several days” to capture training-related changes. This was considered acceptable and in line with the review inclusion criteria. Across three samples (Bluth, Roberson, Gaylord, et al., 2015; Bluth & Blanton, 2014) the SCS was administered to adolescents below the age of fourteen years. In the original validation of the scale it was recommended that the scale should not be administered to adolescents below the age of age 14 years (Neff, 2003a). However, a recent study with a sample of Portuguese adolescents concluded that the scale was validated for use with those from 12 years (Cunha, Xavier, & Castilho, 2016). Translated versions of the SCS and SCS-SF were used in non-English speaking samples (n=12).

### Measure of Psychological Distress

In six samples psychological distress was measured using specific anxiety or depression measures. Within the studies reporting the use of these specific measures (i.e. BDI-II, STAI,

PHQ-8, CES-D, the Beck hopelessness scale and the Zung self-rating depression scale) the authors explained that they were chosen because of their established validity and reliability within adolescent samples. 14 studies administered a broader measure of psychological distress rather than a specific screening of depression or anxiety: The PANAS (Watson, David; Clark, Lee; Tellegen, 1988) was the most widely used measure throughout the review (n=6 samples). The PANAS has established validity and reliability (Joiner, Catanzaro, & Laurent, 1996) and is frequently used in self-compassion research including studies validating various translations of the self-compassion scale (e.g. Kotsou & Leys, 2016). Additionally, the GHQ (Goldberg & Williams, 1988) a screening device for identifying minor psychiatric disorders and the BSI (Derogatis & Melisaratos, 1983) a screening tool for determining psychological symptom severity were administered across two separate samples.

Three samples administered broader measures of general psychological health with a sub scale measuring either depression and/or anxiety. Barry et al. (2015) administered the PIY (Lachar & Gruber, 1995) a valid and reliable self-report measure of behavioural, social, and emotional functioning including sub scales measuring depression and worry. (Edwards et al., 2014) administered the SCL-90-R (Derogatis, 1994) which is considered a useful tool for screening overall psychopathology including: anxiety and depression symptoms in community and clinical adolescent populations (Rytilä-Manninen et al., 2016). Játiva & Cerezo (2014) administered the Spanish-adapted YSR which includes a scale measuring problem behaviours (Lemos, Vallejo, & Sandoval, 2002). 11 other studies administered a translated psychological distress measure, Yamaguchi, Kim, & Akutsu, (2014) was the only study using a translated measure which did not explicitly report the translation process.

### **Timing of data collection**

As recommended non cross-sectional studies were assessed on the presentation of the timing of data collection, this was considered useful as some of these studies investigated change in compassion as a result of psychological intervention. Although five non cross-cross sectional studies addressed this well, four studies did not and these studies had various designs: longitudinal-(Marshall et al. 2015); experiment- (Johnson & O'Brien, 2013) and intervention-(Smeets, Neff, Alberts, & Peters, 2014).

### **Analysis**

Overall included studies were relatively poor in addressing missing data as 20 samples did not recognise missing data nor consider in statistical analysis. This is problematic as missing data can lead to loss of statistical power and bias in parameter estimates (Roth, 1994). Missing data is considered particularly problematic when data collection is through the use of self-report measures (Fox-Wasylyshyn & El-Masri, 2005) as throughout this review. Collectively six samples addressed missing data well by statistically managing this and three studies acknowledge that data was missing and deleting this from analysis.

Studies were generally better at addressing confounding variables, 19 samples recognised and considered such variables in the statistical analysis. This included variables controlled for as part of mediation analysis. Due to the large amount of variation in possible covariates, it is impossible to directly compare the studies in relation to their covariates.

### **Summary**

According to quality ratings, Tanaka et al. (2011); Johnson & O'Brien (2013) and Bluth, Gaylord et al. (2015) were the strongest methodologically, closely followed by Arch et al. (2014) and Liss & Erchull (2015b) while Deniz et al. (2008); Yamaguchi et al. (2014) and Raes (2011) were the weakest methodologically with all other studies falling on a continuum between these.

### **Key findings in context of methodological quality of studies**

Overall all included studies reported an inverse relationship between self-compassion and symptoms of psychological distress in adolescents. Studies of higher quality within this review particularly support this association as increased effect sizes in these more methodologically strong studies imply that the effect observed is relatively robust.

A small amount of results were not significant. In two studies (Arimitsu & Hofmann, 2015b; Budakoglu et al., 2014) anxiety but not depression was significantly and negatively related to self-compassion. Both these studies included university student samples and both were rated as relatively weak methodologically and included limitations such as a sample which was not demographically diverse. Interestingly Budakoglu et al. (2014) measured depression with the Beck Hopelessness Scale, (BHS) (Beck, Weissman, Lester, & Trexler, 1974). It is therefore, plausible that while self-compassion is associated with non-hopeless depression symptoms it is not associated with hopelessness depression symptoms. Further investigation of this relationship is warranted.

Conversely, two intervention studies found that depression but not anxiety was significantly and negatively related to self-compassion. Bluth, Roberson, Gaylord, et al. (2015) found that youths attending a mindful self-compassion programme, demonstrated significantly greater self-compassion and significantly lower depression following intervention. While there was trends for lower anxiety this relationship was not significant. However, when waitlist crossover results were combined with that of the first intervention group, findings indicated significantly greater self-compassion and significantly less depression and anxiety. Although rated as relatively strong methodologically the study arguably included an element of deception as participants were not fully informed of the nature of the study until after their participation in the Trier Social Stress Test (TSST). However, the study received university

approval before commencing and it was concluded that results usefully added to the literature base. In a further non cross-sectional study (Edwards et al., 2014) self-compassion was associated with significantly reduced levels of depression but not significantly associated with reduced levels of anxiety amongst Latino adolescents' learning mindfulness practices. This study was rated as relatively strong methodologically however; it was limited in generalisability by only being a pilot. It is noteworthy that both these studies were characterised by relatively small sample sizes: 34 participants (Bluth, Roberson, Gaylord, et al., 2015) and 20 (M. Edwards et al., 2014).

It is noteworthy that across these four studies although there were some insignificant results increased rates of depression and anxiety were still negatively related to increased rates of self-compassion. Hence, these results are still consistent with overall findings.

### **Clinical studies**

The three studies in the review with clinical samples were rated as methodologically strong based on number of 'well-covered' ratings. In two cross-sectional studies low self-compassion was related to increased depressive symptoms in youths involved with child protection services and to emotion dysregulation in youths seeking treatment for solvent misuse. A longitudinal study with at-risk sample of adolescents directly exposed to the potentially traumatic Mount Carmel Forest Fire Disaster indicated that level of self-compassion was found to predict levels of depressive symptoms overtime (Zeller et al., 2014). Collectively causal inferences could not be made about the relationship between self-compassion and psychological distress in clinical samples as the study designs did not permit this. Additionally, clinical studies were characterised by relatively small sample sizes in contrast to non-clinical studies limiting generalisability of findings.

### **Studies comparing groups**

In studies comprising of two comparable groups of adolescents findings were as expected. Liss & Erchull (2015b) found that a group of female adolescents with high levels of self-compassion had lower levels of depression compared to a group of female adolescents reporting low levels of self-compassion. Although rated as methodologically robust the study was potentially limited by using the SCS-SF and conceptualizing self-compassion as a unified variable which is not in keeping with the majority of studies investigating self-compassion which tend to analyze self-compassion as a total score using the SCS (MacBeth & Gumley, 2012). In another study investigating the variation in self-compassion between younger and older adolescents, Bluth & Blanton (2014) found that across both groups self-compassion demonstrated a significant negative association with negative affect. Additionally, it was found that phase of adolescence, but not gender moderated the relationship between self-compassion and dimensions of well-being as older female adolescents had lower self-compassion than either older male adolescents or younger adolescents of either gender.

## Discussion

### **Overview of Results**

Adolescence is a period associated with a range of social, psychological and physical challenges (e.g. Steinberg & Morris, 2001) which can impact on mental well-being. Self-compassion is advanced as a protective factor which can be effective in the face of adversity (Játiva & Cerezo, 2014) and therefore, may be highly relevant during adolescence (Neff & McGehee, 2010). The current review offers a summary of the research into self-compassion in adolescents, specifically exploring the relationship between self-compassion and psychological distress in adolescents. Overall the review yielded findings demonstrating that self-compassion is inversely related to psychological distress in adolescents from various settings. This illustrates that adolescents with higher levels of self-compassion have lower levels of psychological distress. These findings are consistent with the reviews of MacBeth & Gumley (2012) and Muris (2015). The majority of studies reported a significant inverse relationship between self-compassion and psychological distress in adolescents from a variety of settings. The increased effect size in more methodologically strong studies implies that the effect observed is relatively robust.

This review aimed to determine the relationship between level of self-compassion and psychological distress by utilising a broader literature search and a wider inclusion criteria than previous reviews conducted by MacBeth & Gumley (2012) and Muris (2015). There were a number of strengths associated with this including the review not being restricted to exclusively reviewing studies with a particular design. This was a recognised limitation in previous reviews as MacBeth & Gumley (2012) acknowledged that their analysis excluded several methodologically heterogeneous studies including those that investigated compassion

as a process measure of change in psychological interventions. Indeed, within this review, intervention studies reported significant change in self-compassion over the course of treatment. Moreover, by including studies with various designs this prevented the review being limited by the restrictions of cross-sectional studies. Cross-sectional studies did not allow inferences to be made about the causality of self-compassion and psychological distress. Experimental studies, limitations withstanding did allow causal inferences to be drawn strengthening conclusions which can be drawn from this review. Additionally, the inclusive nature of the review resulted in studies with participants from various cultures being included. This has been noted as a limitation in other similar studies e.g. Yarnell et al. (2015) in a meta-analysis of self-compassion and gender. Furthermore, since various measures of psychological distress were used conclusions can be drawn about the relationship between self-compassion and various aspect of psychological distress in adolescents.

However, the heterogeneity across studies does make comparison difficult and prevents a parsimonious review of the relationship between a particular aspect of psychological distress (i.e. depression) and self-compassion in adolescents. Therefore, it was decided that meta-analysis would be inappropriate. By including clear and strict inclusion criteria this ensured a degree of homogeneity across studies allowing conclusions to be drawn in order to the answer the specific review question.

### **Quality of Included Studies**

Overall studies displayed relative strength in the domains of addressing study objectives, describing participants, use of psychological distress measures and managing confounding variables in analysis. Conversely, studies were relatively poor at managing missing data in analysis and very poor at addressing statistical power. Within the domains of sampling and eligibility of participants there was some variety in ratings. The majority of non cross-

sectional studies used convenience sampling while intervention and experimental studies tended to use a probability sampling method. There was also some variety in the reporting of response rate between studies, generally those with a non cross-sectional design addressed this well in contrast to cross-sectional studies.

When concluding overall findings it is important to do this with consideration of study quality (Liberati et al., 2009) Therefore, validity of the quality criteria tool should be considered. Review of quality ratings (tables 3 and 4) illustrates variance between studies demonstrating that the tool was able to differentiate between levels of quality in different studies. However, the quality criteria tool has not been validated as it has not been used in previous reviews. It is recommended that a quality criteria tool be developed from a tool used in a review in the similar topic area (Boland, Dickson, & Cherry, 2014). In order to increase the validity of the quality criteria tool, credible guidelines (STROBE and ‘Quality of reporting of observational longitudinal research’) and checklists outlined in SIGN 50 Guideline Developers’ Handbook (SIGN, 2008) were considered when developing the tool. Furthermore, a second appropriate rater reviewed and piloted the quality criteria tool. Additionally, in line with recommendations to enhance reliability of quality assessment the second rater independently rated a selection of papers.

### **Limitations**

This review includes a number of limitations which should be considered when interpreting findings. While inclusion of studies from different cultures is considered a strength of the review, within these studies translated versions of the SCS were used. In a meta-analysis investigating self-compassion and gender difference (Yarnell et al., 2015) studies using a translated version of the SCS were excluded because the translation procedure was inconsistently reported between studies making the validity of translated scales difficult to

ascertain. The majority of studies using a translated version of the SCS or the SCS-SF reported details of the translation process and robust psychometric properties. However, one study (Neff et al., 2008) reported potential problems resulting from variation in moderacy response styles along a Likert-type scale as used in the SCS across different cultures. Problems associated with translation may also apply to translated measures of psychological distress. 11 of the 12 translated psychological distress measures, reported sound psychometric properties, however, Játiva & Cerezo (2014) reported that the Spanish-adapted YSR which they administered had slightly different factorial structure is to that of the original U.S. questionnaire (Achenbach, 1991). This is problematic questioning the validity of some studies in measuring the variable of proposed interest.

The existing literature identified that measurement of compassion equated to the use of the SCS or the SCS-SF. While using a single measure allowed apparent comparisons across studies this limited exploration of the data to the SCS (MacBeth & Gumley, 2012). Moreover, there are a number of limitations associated with both the SCS and SCS-SF. On a basic level these are self-report measures and therefore, at risk of biases i.e. participants being untruthful; data idiosyncratic and therefore, potentially not a true reflection of reality, (Barker et al., 2002). However, on the contrary self-reports have been identified as the most adequate source of information regarding emotional states. (e.g., Ilies, Fulmer, Spitzmuller, & Johnson, 2009).

In further criticism of the SCS Muris, Meesters, Pierik, & Kock (2015) propose that the measure contains abstract statements which may not be clear for younger teens. In response to this Muris & colleagues (2015) developed a modified adolescent-friendly self-compassion measure: the 'shortened self-compassion scale for adolescents (S-SCS-A). This measure failed to be widely adopted in self-compassion research. Moreover, in a validation study of SCS in adolescents it was found that the SCS is a valid and reliable measure of self-

compassion among adolescents from 12 years onwards (Cunha et al., 2016). A further limitation of the SCS discussed within the self-compassion literature is that the 'negative' components of the SCS inflate the scales' relationship with negative affect potentially not capturing the proposed protective and positive nature of self-compassion (Petricchi, Ottaviani, & Couyoumdjian, 2013). Indeed, one of the included studies (Bluth & Blanton, 2013) considered that the relationship between self-compassion and negative affect may have been a result of adolescents relating more to negative items and therefore, responding more assuredly rather than a genuine effect of self-compassion on ameliorating negative outcomes. However, Neff (2016) argued that the SCS precisely measures self-compassion as originally defined, i.e., as a construct encompassing both positive and negative dimensions. Similarly, Gilbert (2014) conceptualises self-compassion as a construct with positive and negative components outlining that in order for one to experience self-kindness, one has to develop self-awareness of the detrimental effect of self-judgment. These arguments disrepute recommendations to remove the negative items from the scale (Muris, 2015). Overall, there continues to be emerging evidence that the SCS is a robust measure of self-compassion in various populations. Moreover, the scale is still relatively new, and it is plausible that it will be amended as understanding of self-compassion advances, (Barnard & Curry, 2011).

A further limitation of the study was that many included studies had participants who were university students. This has been recognised as a limitation within self-compassion research as it is acknowledged that university students are not representative of the general population and Indeed, adolescents in general (e.g. Arimitsu & Hofmann, 2015a). Furthermore, it has been proposed that studies investigating self-compassion have displayed bias by tending to recruit participants exposed to psychology in some way (e.g. psychology students, individuals receiving psychological support) (Körner et al., 2015). It is possible such samples are not representative of the general population with respect to their grasp of the concept of self-

compassion. While this review did include five samples of psychology university students and two of the clinical studies arguably included adolescents receiving some form of psychological support, many of the samples did not consist of adolescents exposed to psychology in some way, e.g., students in grades 6-8; (Bluth & Blanton, 2014) and non-school attendees, (Barry et al., 2015). In consensus with studies with ‘psychology samples’, these ‘non psychology sample’ studies found that greater self-compassion was related to reduced psychological distress. Furthermore, several studies highlighted gender imbalance as a limitation (e.g. Barry et al., 2015; Bluth, Roberson, Gaylord, et al., 2015; Johnson & O’Brien, 2013; Smeets et al., 2014). However, across all cross-sectional studies the average percentage of female participants was well-balanced with males (mean percent of females across cross-sectional studies = 56%).

### **Study implications and future research**

This review indicates that the construct of self-compassion may have clinical implications for adolescents experiencing psychological distress including symptoms of depression and/or anxiety. Findings promote the use of interventions which are directed at increasing self-compassion in adolescents (i.e. Gilbert, 2010; MacBeth & Gumley, 2009). Interestingly the two intervention studies included in this review indicated that self-compassion is a construct which can be developed and can lead to reduced psychological distress.

In responses to the limitations of the SCS and the SCS-SF future studies should consider alternative measurements of self-compassion. Within the literature researchers have used behavioural observations (Sbarra, Smith, & Mehl, 2012) and self-compassionate letter writing (Germer & Neff, 2013) as a means of conceptualising self-compassion. Furthermore, the evidence-base would benefit from further experimental studies and further review of interventions focused on improving self-compassion in adolescents and the implications of

this. Specifically there is demand for well-powered prospective studies with clinical populations.

## **Conclusion**

The current review aimed to investigate the relationship between self-compassion and psychological distress in adolescents. Previous meta-analyses' investigating self-compassion (MacBeth & Gumley, 2012; Muris, 2015) focused on critiquing the SCS (Muris, 2015) and quantitatively analysing adult cross-sectional self-compassion studies (MacBeth & Gumley, 2012). Therefore, there was a rationale for a methodologically driven review of the adolescent self-compassion literature whereby a broader search strategy was utilised. The current review aimed to usefully add to the self-compassion evidence base by capturing the heterogeneity of adolescent self-compassion studies. Furthermore, by qualitatively critiquing included studies, the current review was able to answer the specific review question as to the relationship between self-compassion and psychological distress in adolescents.

The current review provides some strong evidence that adolescents from a variety of settings with higher rates of self-compassion have reduced symptoms of psychological distress. Those studies of higher quality within this review supported this association. Findings indicate that the construct may have clinical implications in improving psychological well-being among adolescents. Future studies with varying measures of self-compassion, random recruitment of participants and further consideration of the influence of contextual factors upon this relationship would further aid understanding of the relationship between self-compassion and psychological distress in adolescents.

## **Conflict of Interests**

The authors declare no potential conflicts of interest.

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## **Chapter 2: Journal Article**

**Does self-compassion or self-esteem mediate the relationship between attachment and depression and anxiety in a clinical adolescent population?**

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This study has been written in accordance with Journal of Self and Identity (Appendix 1)

## **Abstract**

Self-compassion which may develop from early attachment experiences is linked to psychological well-being and may offer a healthier self-relating construct than self-esteem. Research in non-clinical populations suggests that self-compassion mediates the relationship between attachment and psychopathology. This study examined whether self-compassion or self-esteem mediated the relationship between attachment and depression and anxiety in 53 adolescents (mean age 15.52 years; 75% female) attending child and adolescent mental health services. Self-compassion and self-esteem were negatively correlated with depression and anxiety. Self-compassion mediated the relationship between attachment availability and depression, but not anxiety. Contrary to hypothesis, self-esteem mediated the relationship between attachment security and depression and anxiety to a greater extent than self-compassion. Self-compassion interventions may reduce adolescent depression and anxiety. Furthermore, findings promote interventions enhancing adolescents' self-esteem. (125 words)

**Keywords:** Self-compassion, self-esteem, attachment, anxiety, depression, adolescents

## **Introduction**

### **Conceptualizing self-compassion**

Self-Compassion involves being compassionate and caring towards oneself. The concept has existed in Buddhist philosophy for centuries and it can enable someone to cope effectively with difficult emotions (Neff, Pisitsungkagarn, & Hsieh, 2008). Self-compassion is increasingly recognized as an important construct in understanding and enhancing mental well-being in western psychology (Baer, 2003) and has been operationalized for the purpose of empirical investigation (Leary, Tate, Adams, Allen, & Hancock, 2007)

Neff (2003b) defines self-compassion as including three interacting components. Firstly ‘self-kindness’: treating oneself with care and understanding rather than harsh self-judgment. Secondly ‘a sense of common humanity’, which involves acknowledging that imperfection is a common human experience and therefore, one should not feel isolated by their failures. The third component is ‘mindfulness’, which involves holding one’s present-moment experience in balanced perspective rather than over-identifying with one’s suffering. In contrast to this conceptualization, Gilbert (1997, 2009) conceptualized self-compassion in evolutionary terms. It was proposed that through genetics and learning, humans have evolved threat-detection and protection systems whereby any environmental stimuli are assessed for potential threat. According to this theory, when someone is self-compassionate the threat system is deactivated and the self-soothing system is activated (Gilbert, 2014).

Although Neff and Gilbert offer varying conceptualizations of self-compassion, their perspectives appear to be complimentary. Gilbert (2014) draws on Neff’s concept of

‘common humanity’ when outlining the origins of compassion focused therapy (CFT) in which the detrimental impact of feeling ‘alone’ is a key focus (Gilbert, 2014). Both theories proposed that an individual’s early relational experiences are predictive of their ability to be self-compassionate (Gilbert & Irons, 2005; Neff, Kirkpatrick, & Rude, 2007).

### **Impact of self-compassion on psychological well-being**

It has been consistently found that the positive components of self-compassion (self-kindness, common humanity, mindfulness) are associated with psychological well-being including improved quality of life (Van Dam, Sheppard, Forsyth, & Earleywine, 2011) and enhanced coping skills and emotional intelligence (Barnard & Curry, 2011). Conversely, the negative components (self-judgment, isolation, over-identification) are associated with psychological distress (Muris & Petrocchi, 2016) including anxiety (Muris et al., 2015); depression (Körner et al., 2015) and shame (Gilbert & Procter, 2006). While these findings are mainly based on cross-sectional studies, two longitudinal studies have shown that self-compassion is predictive of reduced depressive symptoms over time (Raes, 2011; Zeller et al., 2014). Moreover, experimental and intervention studies have illustrated that self-compassion is a construct which can be developed leading to decreased psychopathology (MacBeth & Gumley, 2012).

### **Mediating impact of self-compassion**

Several studies have investigated the potential mediating effect of self-compassion in reducing psychopathology. In a cross-sectional study with university students, self-compassion was shown to have a buffering effect on depression and anxiety through its

positive influence on rumination (Raes, 2010). In the general population, self-compassion was found to mediate the relationship between parental criticism and social anxiety, suggesting that interventions to increase self-compassion may potentially be effective in treating social anxiety particularly for individuals with a history of parental criticism (Potter, Yar, Francis, & Schuster, 2014). However, further studies are necessary to fully elucidate the mediating effect of self-compassion and the mechanisms by which it contributes to the reduction of emotional distress (Raes, 2010).

### **Self-compassion in Adolescents**

The positive impact of self-compassion has primarily been studied in adult populations (see meta-analysis: MacBeth & Gumley, 2012). Although it cannot be assumed that the proposed benefits of self-compassion in adults can also be applicable to adolescents, it is increasingly acknowledged that self-compassionate principles are likely to be relevant at the developmental stage of adolescence – a period marked by significant physiological and psychosocial transitions (Blakemore, Berenbaum, & Liben, 2009). Adolescence also involves identity formation (Neff & Vonk, 2009) and is characterized by increased social, educational and family stressors impacting on mental well-being (Bluth & Blanton, 2014).

Adolescence is associated with the onset of many major mental health problems (Steinberg & Morris, 2001). Indeed, depression is recognized as a considerable problem for adolescents which can have a significant detrimental impact on quality of life and overall well-being (Bluth, Gaylord, et al., 2015). Furthermore, there is frequently a negative interaction between adolescents' depressive symptoms and their social relationships (La Greca & Harrison, 2005). Adolescent depression is highly co-morbid with other mental health problems

including anxiety (Garber & Weersing, 2010). Of the range of anxiety disorders, social phobia, panic disorder and GAD are particularly prevalent during adolescence (Kessler et al., 2005). As with depression, anxiety disorders in adolescents are associated with significant functional impairment, significant reductions in quality of life and considerable developmental complications (Tassin et al., 2014). Moreover, the lifetime prevalence of depression and anxiety developing in adolescence and continuing to adulthood is around 20% (Beesdo et al., 2009; Thapar, Collishaw, Pine, & Thapar, 2012). Given the findings in other populations that self-compassion can buffer anxiety and depression (e.g. Körner et al., 2015; Muris et al., 2015), these principles may also be relevant to an adolescent population seeking help for these problems.

An increasing number of studies are investigating self-compassion in adolescents. Many of these studies have focused on non-clinical populations, especially university students (e.g. Arimitsu & Hofmann, 2015; Liss & Erchull, 2015; Neff et al., 2008; Raes, 2010). Although findings have consistently shown that self-compassion has a beneficial impact for adolescents, there has been limited evidence for the role of self-compassion in clinical levels of psychopathology. The few studies on clinical youth populations examined self-compassion in youths seeking treatment for solvent misuse (Vettese et al., 2011), at-risk of PTSD adolescents (Zeller et al., 2014) and adolescents receiving child protection services (Tanaka et al., 2011). Collectively these studies demonstrated an association between low self-compassion and increased psychopathology and simultaneously an association between high self-compassion and mental well-being. It is obvious however that research is patchy and further investigation of the application of self-compassion to adolescents experiencing clinical levels of emotional distress is likely to be of value.

### **Self-Compassion and Attachment in Adolescents**

The link between the development of self-compassion and one's early relationships is acknowledged (Gilbert & Irons, 2005). Attachment theories, (Ainsworth, Blehar, Waters & Wall, 1978; Bowlby, 1969) outline that from early relationships, individuals develop internal working models of one's own value and worthiness of care, and perceptions of others' ability to provide care and support in times of need. A 'secure attachment' develops from having a reliably available, attentive, and responsive caregiver who provides safety and effective affect regulation. Overtime the individual is able to regulate their stress-responses by mentally drawing upon past experiences through an 'internal-working model' of this attachment figure (Bowlby, 1969). Those with a secure attachment are happy to trust and depend on others (Cooper, Shaver, & Collins, 1998) and experience greater levels of psychological well-being (Love & Murdock, 2004). Attachment theory also outlines that those raised in inconsistent and threatening environments may develop 'insecure attachments' (Bowlby, 1969). Such individuals may adopt 'secondary strategies' such as "hyperactivating" or "deactivating" modes of stress in an attempt to regulate anxiety (Nolte et al., 2011). While these strategies can be evolutionary advantageous they are associated with maladaptive outcomes longer-term (Mikulincer & Shaver, 2007). Individuals with an 'anxious-insecure' attachment may excessively worry about others' availability and experience feelings of unworthiness (Campbell, Simpson, Boldry, & Kashy, 2005). In an attempt to gain others' comfort and support they may 'hyperactivate' their attachment system, and display exaggerated reactions to distress (Mikulincer, Shaver, & Pereg, 2003). Individuals with an 'avoidant-insecure' attachment view others as untrustworthy and undependable and may 'deactivate' their attachment system in order to maintain emotional distance from others. This can lead to individuals being self-reliant during times of distress (Brennan, Clarke & Shaver, 1998).

The relationship between attachment and self-compassion is increasingly considered within self-compassion literature (Pepping, Davis, O'Donovan, & Pal, 2014). Gilbert, (2009) outlines that when a secure attachment develops this leads to the development of the self-soothing system and the ability to be self-compassionate. In support of this Neff & McGehee, (2010) concluded that a secure attachment, maternal support and positive family functioning were all found to be associated with the development of self-compassion in an adolescent community sample. Conversely, individuals raised in insecure or threatening environments are likely to be more self-critical and lack self-kindness and are therefore, unlikely to be self-compassionate (Gilbert & Procter, 2006). Those with an insecure-anxious attachment may have exaggerated reactions to distress (Mikulincer et al., 2003), and may feel isolated in their suffering rather than being self-compassionate and understanding their suffering as part of 'common-humanity' (Neff, 2003b). Empirically Tanaka et al. (2011) concluded that adolescents with insecure attachments due to childhood maltreatment were found to be less self-compassionate. Within the literature it is recognised that "hyperactivating" and "deactivating" strategies adopted by those with insecure attachments can complicate the relationship between self-compassion and attachment (Wei, Liao, Ku, & Shaffer, 2011). Such individuals may lack self-awareness and therefore, the ability to be self-compassionate (Neff & McGehee, 2010). However, further research into the relationship between self-compassion and attachment is warranted (Vettese et al., 2011) particularly within adolescents (Tanaka et al., 2011).

Attachment to primary caregivers is typically transformed during adolescence as generally contact with parents decreases and peer interaction increases (Wilkinson, 2004). However, the adolescent-parent attachment continues to have profound effects on cognitive, social and emotional functioning (Dubois-Comtois & Cyr, 2013). Therefore, adolescence may be an important time for intervention strategies to support healthy adolescent-parent attachment

(Moretti & Peled, 2004). Research indicated that self-compassion may serve this role as the construct can have a mediating impact in the relationship between attachment and mental health (Raue-Bogdan, Ericson, Jackson, Martin, & Bryan, 2011).

### **Self compassion vs. Self-esteem**

Self-esteem can be defined as ‘an individual’s evaluation of themselves and their judgment of their competency in their life domains’ (James, 1890). This early definition is still widely accepted within the literature (Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004). The benefits of high self-esteem have been demonstrated in numerous studies (Haney & Durlak, 2010). Baumeister, Campbell, Krueger, & Vohs (2003) for example, concluded that self-esteem enhances determination, adventurous behaviour, and willingness to experiment.

There is an emerging theoretical argument that the construct of self-compassion offers a healthier and less counter-productive alternative to self-esteem when considering psychological functioning (Neff & Vonk, 2009; Neff, 2011). Self-esteem has come under negative scrutiny based on findings that when pursuing high self-esteem some ‘put others down’ to feel better about themselves and believe that ‘being average’ is ‘not good enough’ (Crocker & Park, 2004). This can create interpersonal distance undermining social connectedness (Neff, 2009). Baumeister et al. (2003) acknowledged that there can be vast heterogeneity amongst individuals with high self-esteem; while some may honestly accept their qualities others may display narcissistic and defensive traits. High self-esteem has also been linked to distorted self-perceptions (Sedikides, 1993), i.e. an individual may disregard others’ negative judgment as unreliable, leading to them lacking motivation to change for the better.

Self-compassion is proposed as a healthy alternative self-to-self relating concept (Neff & Vonk, 2009). Unlike self-esteem, which may involve comparing others negatively to protect individual ego (Neff, 2009); self-compassion involves holding a sense of common humanity and an acknowledgment of a shared human experience with an emphasis on similarities rather than differences (Neff, 2003b). Additionally since self-esteem is contingent on the successful attainment of goals, self-esteem is unlikely to enhance well-being at times of failure; this contrasts with self-compassionate, which involves treating oneself with kindness at such times. Therefore, self-compassionate individuals are theoretically predicted to be more resilient and have less need to defend themselves when feeling criticized or at times of failure (Neff & Vonk, 2009, Neff, 2011).

Gilbert proposed that self-esteem and self-compassion tap into different physiological systems (Gilbert & Irons, 2005) while self-compassion deactivates the threat system and activates the self-soothing system, self-esteem represents an evaluation of superiority/inferiority which establishes social rank stability and is related to competition (Gilbert, 2014). Neff (2011) argued that self-compassion promotes well-being by making people feel safe and secure, whereas self-esteem creates well-being by making people feel superior that may involve ‘puffing the self up while putting others down’.

Indeed, a few studies have demonstrated the benefits of self-compassion in contrast to self-esteem. In a large community sample, self-compassion was found to predict more positive, stable feelings of self-worth and had a stronger negative association with social comparison

than self-esteem. Compared with self-esteem, self-compassion was negatively associated with narcissism and was less contingent on particular outcomes than self-esteem (Neff & Vonk, 2009). In a study of undergraduates who were confronted by an ‘ego threat’ (i.e. they were asked to describe their ‘greatest weakness’ in a mock interview), self-compassion was found to have a larger buffering effect against self-evaluative anxiety than self-esteem (Neff et al., 2007).

### **Current study**

In summary, the existing evidence indicated that self-compassion can reduce emotional distress in adolescents. Specifically it has been suggested that self-compassion may mediate the relationship between an insecure-attachment style and subsequent psychopathology. There has also been an emerging debate to suggest that self-compassion may offer a healthier alternative to self-esteem. This study therefore, aimed to extend the research findings to clinical populations of adolescents with depression and anxiety. Specifically it aimed to test the following four hypotheses:

#### Hypothesis 1:

1a. Adolescents with higher levels of self-compassion will report lower levels of depression and anxiety than adolescents with lower levels of self-compassion.

1b. Adolescents with higher levels of self-esteem will report lower levels of depression and anxiety than adolescents with lower levels of self-esteem.

#### Hypothesis 2:

2a. Adolescents with higher levels of self-compassion will report higher rates of quality of life than adolescents with lower levels of self-compassion.

2b. Adolescents with higher levels of self-esteem will report higher rates of quality of life than adolescents with lower levels of self-esteem.

Hypothesis 3:

Adolescents with an insecure-attachment style will report higher levels of depression and anxiety than adolescents reporting a secure attachment.

Hypothesis 4:

Self-compassion will mediate the relationship between attachment and depression and anxiety; self-esteem will also mediate the relationship but to a lesser extent.

## **Method**

### Design

The current study was an exploratory cross-sectional study.

### Ethical Approval

Ethical approval for the research study was obtained from the South East Scotland Research Ethics Committee (Appendix 5).

### Participants & Procedure

Participants were male and female adolescents aged 14-18 years referred to Child and Adolescent Mental Health Services (CAMHS) within a Scottish NHS health board due to symptoms of depression and or anxiety. Clinicians were requested to identify any adolescents on their caseloads who fulfilled the following inclusion criteria: (i) fluent in written English, (ii) who did not have a pervasive developmental disorder or a learning disability or (iii) whose primary diagnosis was an eating disorder. A diagnosed eating disorder was an exclusion criterion because of the varying aetiology of an eating disorder in contrast with depression and anxiety among adolescents. It was presumed this would create too much heterogeneity within the sample preventing precise conclusions being drawn.

Eligible Adolescents who expressed an interest in participating were provided with a participant pack including an information sheet (appendix 6) with the chief investigators' contact details so any further questions could be answered. Once eligible adolescents had completed a consent form (appendix 7) countersigned by their treating clinician, they completed the six questionnaires in their own time and returned the packs in sealed envelopes to their treating clinician or the chief investigator.

A total of 53 questionnaire packs were returned out of approximately 325 distributed to CAMHS clinicians with the study having a response rate of 16%. The mean participant age of the final sample (n=53) was 15.52 years (SD=1.15; range 14-18 years) and 75% (n=40) of participants were female. The majority (96%) of participants reported that their ethnicity was white (2% self identified as mixed multiple ethnic groups; 2% reported as Asian / Asian British). 98% of participants reported that English was their first language and 73% of participants reported that they had previously experienced depression and anxiety prior to their current referral to CAMHS.

#### Measures:

**1. Adolescent Attachment Questionnaire (AAQ)** (West, Rose, Spreng, Sheldon-Keller, & Adam, 1998) is a brief 9-item self-report questionnaire including three scales measuring attachment characteristics in adolescents. The ‘availability scale’ assesses confidence in the availability of the attachment figure; and pertains to a positive and secure attachment style. The ‘goal-corrected partnership’ scale assesses how considerate and empathetic the adolescent is to the needs and feelings of the attachment figure and the ‘anger-distress’ scale assesses the amount of anger in the adolescent-parent relationship. The measure was designed for use with clinical adolescent populations and all scales have demonstrated satisfactory internal reliability and convergent validity with the adult attachment interview (West et al., 1998). The questionnaire includes a series of statements and the participant is asked to choose from four responses for each question from ‘strongly agree’ to ‘strongly disagree’ (scored 0-3). In the current study a total score was calculated and a higher total score indicated a more secure relationship with the attachment figure. Cronbach’s alpha in the current study was .81.

**2. Self-Compassion Scale (SCS)** (Neff, 2003) is a 26-item self-report measure suitable for use with participants from age 14 years and above. The SCS measures three components consisting of opposing pairs- the ability to treat oneself with kindness (Self-Kindness) vs. critical self-judgment (Self-Judgment); seeing one's experiences as part of a common shared humanity (Common Humanity) vs. isolating one's experiences (Self-Isolation); and finally being able to hold one's thoughts in a balanced awareness (Mindfulness) vs. over identifying with them (Over-Identification). Respondents indicate how often they behave in the stated manner from 'almost never' to 'almost always'. This measure was selected as it is the primary measure of self-compassion currently in existence and is widely used throughout the research (MacBeth & Gumley, 2012). The scale has been reported as a reliable measure in adolescents (Vettese et al., 2011). In the current study a total mean score was calculated in line with recent guidance from Neff (2016). Cronbach's alpha in the current study was .83.

**3. Rosenberg Self-Esteem Scale (RSE)** (Rosenberg, 1965, 1989) is a 10-item self-report scale that determines global self-worth by measuring both positive and negative feelings about the self, including feelings of: personal worth, self-confidence, self-satisfaction, self-respect and self deprecation. This measure was selected as it was designed for use with adolescents (Rosenberg, 1965) and is a widely used measure of self-esteem in this age group (Gray-Little, Williams & Hancock, 1997) with recognized validity and reliability in clinical adolescent populations (Manani & Sharma, 2013) and across different populations and ethnicities (Nho, 1999). Respondents are required to rate statements on a 4-point Likert scale format ranging from 'strongly agree' to 'strongly disagree' (scored 0-3). Total scale score can range from 0-30, scores between 15 and 25 are considered within a normal range; Conversely, scores below 15 suggest low self-esteem. Cronbach's alpha in the current study was .89.

**4. The Revised Child Anxiety and Depression Scale-Short Version (RCADS)** (Ebesutani et al., 2012) is a 25-item self-report measure that assesses adolescents' depressive symptoms and five subtypes of anxiety disorders. Respondents are required to rate statements such as 'I feel worthless' on a scale of 0-3 with 3 indicating higher symptom frequencies. The measure offers a total anxiety score, a total depression score and a combined total depression and anxiety score. Using a large school-based and a clinic-referred youth sample, Ebesutani et al. (2012) developed this briefer version based on the original RCADS 47-item measure (Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000). The shortened version exhibited reliable psychometric properties. Cronbach's alpha in the current study was .85.

**5. The Youth Quality of Life-Short Form Instrument (YQOL-SF)** (Patrick, Edwards & Topolski, 2002) is a 15-item self-report quality of life measure for youths aged 11-18 years. The items measure the domains of sense of self, social relationships, environment, and general quality of life. Respondents are required to rate statements such as 'I am able to do most things as well as I want' on a scale of 0 = not at all, to 10 = a great deal or completely, in relation to how they feel about themselves generally. The scores are summed and then transformed to a 0 to 100 scale, with higher scores representing higher quality of life. The short form has been developed from the longer YQOL-R and is considered an appropriate tool for assessing and monitoring quality of life indicators in diverse adolescent populations (Edwards, Patrick, & Topolski, 2003). Cronbach's alpha in the current study was .90.

## **6. Demographic Information**

A short demographic questionnaire was used to collect information about gender, age, ethnicity, duration of depression and/or anxiety. Collecting and reporting this data will ensure

the study can be replicated and that findings can be generalized (Sifers, Puddy, Warren, & Roberts, 2002).

## **Statistical Analysis**

### **Power Analysis**

An *a priori* power calculation was undertaken to estimate the desired sample size for this cross-sectional study. Since no previous research has investigated the role of self-compassion in relation to adolescent depression or anxiety in a clinical setting, a medium effect size was assumed (Cohen, 1988) and a power level of 0.8 and a significance/alpha level of 0.05 were used (Sink & Stroh, 2006). Sample size calculation was carried out using Soper's online calculator version 3.0 (Soper, 2014, available from: <http://www.danielsoper.com/statcalc>), which is a statistical software designed to calculate sample size for multiple regression. The calculation indicated that a sample size of 67 was the minimum number required for a multiple regression analysis, with the desired probability level of 0.05, two predictor variables (attachment and either self-compassion or self-esteem). Several simulation studies indicated low bias for sample sizes of at least 50 in single-mediator models (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). In the multiple mediation models (self-compassion and self-esteem simultaneous predictor variables) a larger sample size was required to achieve statistical power. Hence, for single mediation models the current sample was considered acceptable but marginally underpowered. However, in the multiple mediation models the current sample was underpowered.

### **Description of analysis**

IBM SPSS Statistics (version 21), was used for all data analyses and all research data was anonymized before being inputted.

## **Data Screening**

Data was screened for normality of distribution and outliers to check that the assumptions of the analysis were met (Clark-Carter, 2010). To establish whether data was normally distributed, values of skewness and kurtosis for each dependent variable were converted to z-scores. It was suggested that z greater than +/-2.58 indicates significant skewness or kurtosis ( $p < .01$ ) (Field, 2013). All z-scores were non-significant indicating that the data could be assumed to be normally distributed, (Appendix 8). Review of histograms for each dependent variable ensured that each scale fulfilled normality assumptions.

## **Missing data**

Missing data from questionnaires was addressed as outlined in the questionnaire scoring manuals. The SCS score for four participants were excluded from analysis after applying the criteria that a SCS total mean score cannot be calculated when 25% of items were unanswered (Neff, 2003b). Additionally, YQOL-SF scores for three participants were excluded from analysis as fewer than 12 of the 15 items were answered (Patrick et al., 2002). One participant failed to answer any of the questions on the AAQ and one participant failed to answer any of the questions on the RSE. Minimal data missing at random ( $n=4$ ) was dealt with by mean replacement where the missing response was substituted with the individual mean of sub scales. This was as instructed in questionnaire scoring manuals. The sample size of each measure is indicated in Table 1.

Parametric correlation analysis was utilised to address hypothesis 1, 2 and 3 by exploring the relationships between all variables: attachment, self-compassion, self-esteem, depression and anxiety and quality of life.

Mediation analysis was used to address hypothesis 4; i.e. to test the potential mediating effect of self-compassion and self-esteem in the relationship between attachment and symptoms of depression and anxiety. Mediation analyses were conducted using the computational and modeling tool PROCESS v.2.15 developed by Hayes, (2013). The significance of indirect effects was tested using 95% confidence intervals based on 5000 bias-corrected bootstrap samples (Preacher & Hayes, 2008). Bias corrected confidence intervals (BC CI) that did not contain zero were regarded as significant as it could then be assumed that the indirect effect (the effect of the independent variable on the dependent variable) was mediated by the proposed mediating variable. This procedure is now recommended for testing the significance of indirect effects because it does not impose the assumption of normality of the sampling distribution and there is consensus that bootstrapping provides the most powerful and rational method of obtaining confidence limits for specific indirect effects under most conditions, (Williams & Mackinnon, 2008).

In this study a series of mediational analyses were conducted to test hypothesis 4: Self-compassion will mediate the relationship between attachment and depression and anxiety; self-esteem will also mediate the relationship but to a lesser extent.

## Results

### Descriptive Statistics

Descriptive statistics for the main study variables are presented in Table 1. Mean scores for the SCS and the RSE indicated low levels of self-compassion and self-esteem (see discussion for further information).

A series of Independent samples t-tests were conducted to determine whether there were any significant gender differences for the main study variables. There was not a significant difference between male and female self-compassion mean scores:  $t(47) = .913, p = .366$ ; male and female self-esteem mean scores:  $t(50) = .399, p = .692$ ; male and female RCADS mean scores:  $t(51) = -.713, p = .479$ ; male and female YQOL mean scores:  $t(48) = -1.479, p = .146$ ; or male and female AAQ mean scores:  $t(50) = -1.003, p = .32$ .

Table 1: Means & standard deviations of main study variables.

Measure	Mean	SD
<b>Self-Compassion Scale</b>	All: 2.17	.42
(SCS)	Male: 2.26	.41
n=49	Female: 2.14	.44
<b>Self-esteem</b>	All: 9.6	6.3
(RSE)	M: 10.31	8.02
n=52	F: 9.49	5.83
<b>RCADS</b>	All: 37.50	10.08
Total Score	M: 35.77	11.17
n=53	F: 38.08	9.78
<b>RCADS</b>	All: 16.58	5.53
Depression	M: 16.38	6.08
n=53	F: 16.65	5.42
<b>RCADS</b>	All: 19.57	5.85
Anxiety	M: 18.00	5.9
n=53	F: 20.08	5.81
<b>YQOL-SF</b>	All: 46.96	17.16
Total mean score	M: 40.97	16.85
n=50	F: 49.06	16.98
<b>AAQ</b>	All: 3.51	.66
Total Score	M: 3.34	.44
n=52	F: 3.56	.71
<b>AAQ</b>	All: 3.39	.95
Availability	M: 3.36	.86
n=52	F: 3.40	.99
<b>AAQ</b>	All: 3.81	.75
Goal-corrected partnership	M: 3.50	.63
n=52	F: 3.90	.76
<b>AAQ</b>	All: 3.33	.86
Anger-distress	M: 3.17	.61
n=52	F: 3.38	.92

RCADS= Revised Child Anxiety and Depression Scale-Short Version; YQOL= Youth Quality of Life-Short Form Instrument; AAQ = Adolescent Attachment Questionnaire.

### **Bivariate Correlations**

Parametric correlations among the major variables are presented in Table 2. Variables were mainly correlated in the expected directions; interestingly, however, overall attachment style (AAQ-full score) was not significantly correlated with self-compassion or self-esteem. The ‘attachment availability’ dimension of the AAQ which pertains to a positive and secure attachment style was significantly positively correlated with self-compassion and self-esteem.

Table 2: Correlations for Variables of Interest

	SCS	RSE	RCADS Total	RCADS Depression	RCADS Anxiety	YQOL	AAQ Total	AAQ 'Avail'	AAQ 'Goal-P'	AAQ 'Anger-D'
<b>1 SCS</b>	1.00									
<b>2 Self-esteem (RSE)</b>	.600** .000	1.00								
<b>3. RCADS Total</b>	-.702 ** .000	-.487** .000	1.00							
<b>4. RCADS Depression</b>	-.510** .000	-.436** .001	.825** .000	1.00						
<b>5. RCADS Anxiety</b>	-.682** .000	-.422** .002	.875** .000	.455** .001	1.00					
<b>6. YQOL</b>	.538 ** .000	.661** .000	-.603** .000	-.638** .000	-.417** .003	1.00				
<b>7. AAQ Total</b>	.149 .312	.220 .121	-.306* .027	-.390** .004	-.159 .259	.455** .001	1.00			
<b>8. AAQ Availability</b>	.324* .025	.344* .013	-.249 .075	-.384** .005	-.074 .602	.496** .000	.812** .000	1.00	.415** .002	.406** .003
<b>9. AAQ Goal-correct partnership</b>	.013 .933	.096 .504	-.237 .091	-.259 .064	-.172 .222	.326* .022	.740** .000	.415** .002	1.00	.379** .006
<b>10. AAQ Anger-distress</b>	-.015 .919	.038 .790	-.226 .107	-.250 .074	-.137 .334	.241 .095	.796** .000	.406** .003	.379** .006	1.00

RSE= Rosenberg Self-esteem Scale; RCADS= Revised Child Anxiety and Depression Scale-Short Version; YQOL= Youth Quality of Life-Short Form Instrument; AAQ = Adolescent Attachment Questionnaire.

\*Correlation is significant at the 0.05 level (one-tailed); \*\*.Correlation is significant at the 0.01 level (one-tailed).

### Hypothesis 1:

Consistent with Hypothesis 1a, significant negative correlations were detected between self-compassion and depressive symptoms ( $r = -.575$ ,  $p < 0.01$ ) and anxiety symptoms ( $r = -.633$ ,  $p < 0.01$ ) and also combined depression and anxiety symptoms ( $r = -.510$ ,  $p < 0.001$ ). These effects corresponded to large effect sizes (Cohen, 1988) demonstrating that adolescents with higher rates of self-compassion report lower rates of anxiety and depression in contrast to adolescents with low self-compassion.

Consistent with Hypothesis 1b, significant negative correlations were detected between self-esteem and depressive symptoms ( $r = -.436$ ,  $p < 0.01$ ) and anxiety symptoms ( $r = -.422$ ,  $p < 0.01$ ) and also combined depression and anxiety symptoms ( $r = -.487$ ,  $p < 0.001$ ). These results illustrated medium effect sizes and demonstrate that adolescents with higher rates of self-esteem report lower rates of anxiety and depression in contrast to adolescents with low self-esteem.

### Hypothesis 2:

2a. Results suggested a significant positive relationship between adolescent's self-compassion levels and reported quality of life ( $r = .541$ ,  $p < 0.01$ ). As hypothesized this finding demonstrates a large effect size indicating that adolescents with higher levels of self-compassion report higher rates of quality of life than adolescents with lower levels of self-compassion.

2b. Results revealed a significant positive relationship between adolescent's self-esteem levels and reported quality of life ( $r = .661$ ,  $p < 0.001$ ). As hypothesized this finding

demonstrates a large effect size indicating that adolescents with higher levels of self-esteem report higher rates of quality of life than adolescents with lower levels of self-esteem.

Hypothesis 3:

Adolescents with an insecure attachment style will report higher levels of depression and anxiety than adolescents reporting a secure attachment. Correlation analysis indicated that within this clinical sample there was a significant negative relationship between adolescent's attachment style and reported depressive symptoms ( $r = -.390$ ,  $p < 0.01$ ). Furthermore, there was a significant negative relationship between adolescents' attachment style and combined depression and anxiety levels as measured by total score on the RCADS variable ( $r = -.306$ ,  $p < 0.05$ ). These findings demonstrate medium effect sizes, demonstrating that a more insecure attachment is related to higher rates of depression and emotional distress. However, a significant relationship was not detected between attachment and self-reported anxiety.

Correlation analyses were conducted to determine the relationship between the varying dimensions of attachment and self-reported depression and anxiety symptoms. The only significant relationship detected was between 'attachment availability' and symptoms of depression ( $r = -.384$ ,  $p < 0.05$ ) indicating that higher rates of perceived availability of the attachment figure are associated with lower rates of self-reported depressive symptoms. There were no significant correlations between 'anger distress' and 'goal-partnership' attachment and symptoms of depression and anxiety.

### **Mediation Analysis**

Hypothesis 4:

It was hypothesized that self-compassion would mediate the relationship between attachment and depression and anxiety. It was further hypothesized self-esteem would also mediate the relationship but to a lesser extent. In the primary mediation analysis used to test this hypothesis (model 1): attachment (AAQ- total score) was entered as the independent variable (IV), self-compassion (SCS) and self-esteem (RSE) as the mediator variables and depression and anxiety (RCADS- Total score) as the dependent variable.

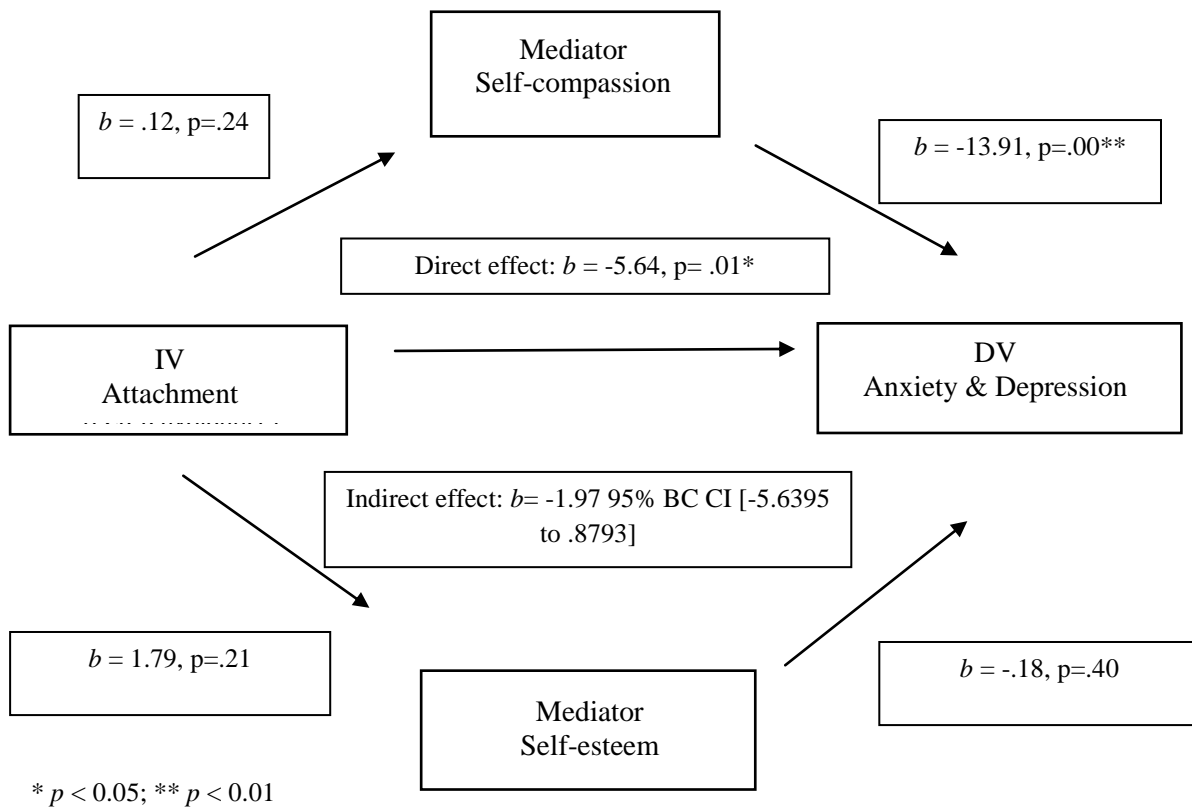
Secondary mediation analyses were conducted to further assess hypothesis 4. Based on results of correlation analyses two further mediation analyses were conducted. In mediation model 2: attachment (AAQ-total score) was entered as the independent variable, self-compassion (SCS) and self-esteem (RSE) as the mediator variables and depression (RCADS-depression score) as the dependent variable. In mediation model 3: attachment availability (AAQ- attachment availability score) was entered as the independent variable (IV), self-compassion (SCS) and self-esteem (RSE) as the mediator variables and depression (RCADS-Total score) as the dependent variable (DV).

Furthermore, following each multiple mediation model, single mediation models were conducted with self-compassion and self-esteem entered as single mediator variables. This allowed for further comparison of the two variables within the different mediation models.

### **Main Analysis**

In the initial analysis (model 1, illustrated in figure 1), the direct effect of attachment on levels of depression and anxiety was significant. The relationship between the first mediating variable self-compassion and depression and anxiety was significant, however, the relationship between the second mediating variable: self-esteem and depression and anxiety

was not significant. As displayed in figure 2, overall there was a non-significant indirect effect of attachment on levels of depression and anxiety through the mediating variables self-compassion and self-esteem based on the lower and upper confidence interval including 0:  $ab = -1.97$  BCa CI (-5.6395 to .8793).



**Figure 1:** Conceptual diagram of the mediation model 1: predicting depression and anxiety symptoms from attachment and mediating variables-self-compassion and self-esteem.

## Secondary Analysis

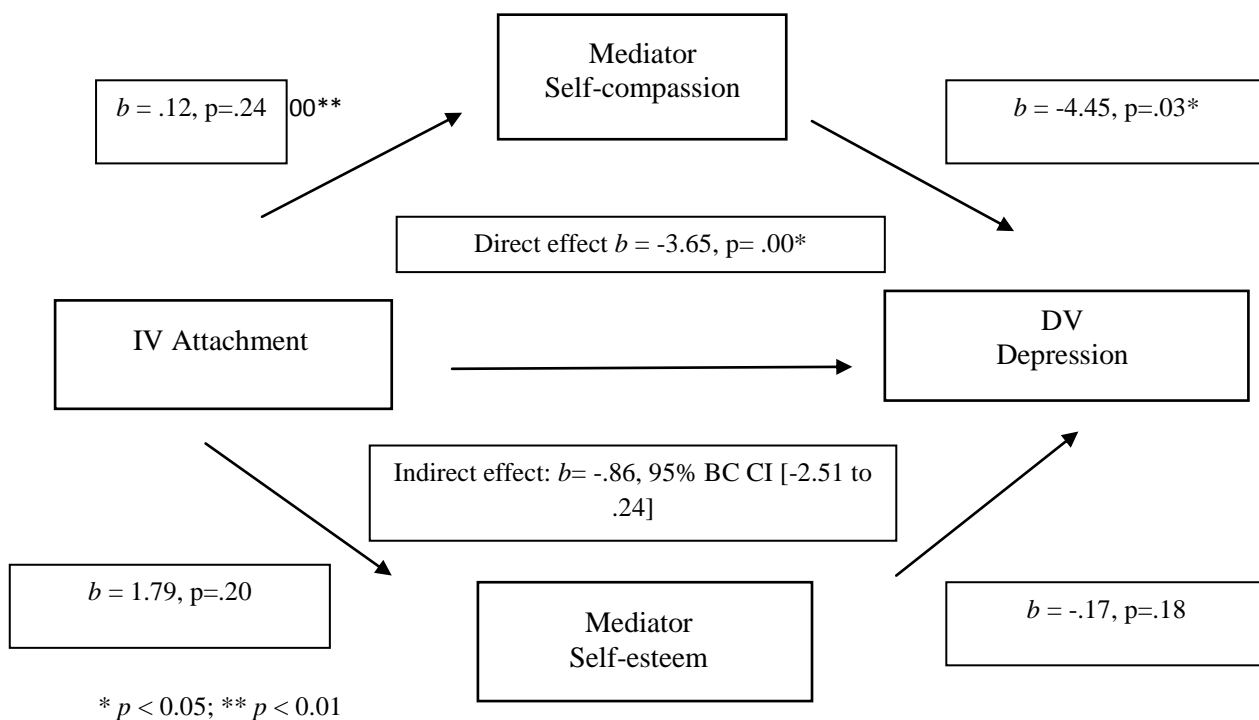
### Single Mediation Models: Depression & Anxiety as Dependent Variable

As previously outlined, following each multiple mediation model, separate mediation models were tested with self-compassion and self-esteem entered as separate mediator variables. (See appendix 9 for further details on single mediation models). In model 1a self-compassion did not have a significant mediating effect as a single mediator variable in the relationship between attachment and levels of depression and anxiety. In model 1b self-esteem did have a

significant mediating effect as an individual mediator in the relationship between attachment and depression and anxiety. Self-esteem accounted for 28% of the total effect.

### Model 2: Depression as Dependent Variable

Further secondary analyses was conducted based on results from correlation analyses, attachment was significantly associated with depression but not anxiety. Therefore, a mediation analysis was conducted to determine the indirect effect of attachment on levels of depression through combined mediating variables self-compassion and self-esteem (model 2, illustrated in figure 2). The direct effect of attachment on depression was significant. Additionally the relationship between self-compassion and depression was significant while the relationship between self-esteem and depression was not significant. Overall there was a non-significant indirect effect of combined mediating variables self-compassion and self-esteem on attachment and depression.

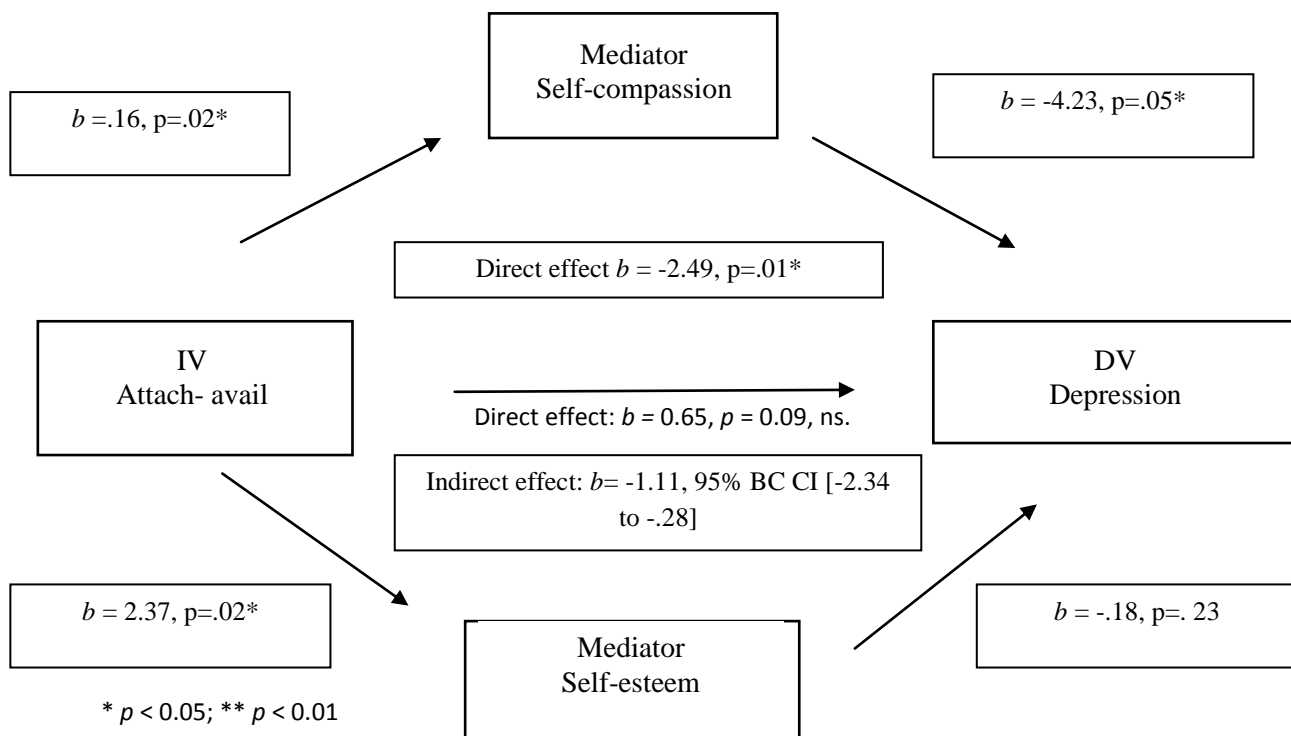


**Figure 2:** Conceptual diagram of the mediation model 2: predicting depression symptoms from attachment and mediating variables-self-compassion and self-esteem.

When single mediation models were run in model 2a, self-compassion did not have a significant mediating effect as an individual mediator on the relationship between attachment and levels of depression. In model 2b when entered in a single mediation model, self-esteem did have a significant mediating effect of attachment on levels of depression, accounting for 20% of the total effect. (See appendix 9 for further details on single mediation models).

### Model 3: Attachment Availability as an Independent Variable

Correlation analyses revealed a significant relationship between depression and the attachment availability dimension of the AAQ but not the other two dimensions. Therefore, a mediation analysis was conducted with attachment availability as the independent variable, depression as the dependent variable and self-compassion and self-esteem as the mediator variables (model 3 illustrated in figure 3). The direct effect of attachment availability on depression was significant. While the relationship between self-compassion and depression was also significant the relationship between self-esteem and depression was not significant. Overall self-compassion and self-esteem did have a significant mediating effect on the relationship between attachment availability and depression,  $ab = -1.11$  BCa CI (-2.34 to -.28). The two mediators accounted for almost half of the total effect,  $P_m = .45$ .



**Figure 3:** Conceptual diagram of the mediation model 3: predicting depression symptoms from attachment availability and mediating variables-self-compassion and self-esteem.

When single mediation models were run, as a single mediator self-compassion did have a significant mediating effect of attachment availability on levels of depression, with self-compassion accounting for 39% of the total effect (model 3a). In model 3b as a single mediator, self-esteem had a significant mediating effect of attachment availability on levels of depression. Self-esteem accounted for 32% of the total effect.

## **Discussion**

The benefits of self-compassion have primarily been investigated in non-clinical and adult settings. This study aimed to investigate self-compassion in adolescents experiencing symptoms of depression and/or anxiety within a clinical setting, a relatively novel population within the evidence-base. In contrast to comparable scores from non-clinical adolescent populations overall the current sample had lower self-compassion (Neff, 2003a), lower self-esteem (Rosenberg, 1989), were more insecurely attached (Carr, 2009) and had higher rates of depression and anxiety than a non-clinical adolescent sample (Ebesutani et al., 2012).

As hypothesized, adolescents with higher levels of self-compassion reported lower levels of depression and anxiety than those with lower levels of self-compassion. This finding is consistent with the few studies examining the self-compassion in clinical youth populations: youths seeking treatment for solvent misuse (Vettese et al., 2011); adolescents exposed to a potentially traumatic event (Zeller et al., 2014) and maltreated youths receiving child protective services (Tanaka et al., 2011). The current findings therefore, have greatly expanded the evidence base regarding the role of self-compassion in adolescent mental health.

The second hypothesis that adolescents with higher self-compassion will report higher quality of life than adolescents was also supported. This finding is in line with a study in an adult community sample (Van Dam et al., 2011). The present results therefore, suggested that the benefit of self-compassion on quality of life is evident across developmental stages and is also evident in a clinical sample as well as a community sample. However, it is proposed that levels of self-compassion may not be predictive of quality of life among adolescents, and

factors such as financial income may have greater impact on quality of life (Neff et al., 2008). It is therefore, important to consider further investigation of the relationship between self-compassion and quality of life within adolescents.

The third hypothesis of the current study that adolescents with an insecure attachment style (lower score on AAQ) will report higher levels of depression and anxiety than adolescents reporting a secure attachment (higher score on AAQ) was in part, accepted by the results of this study. As in previous studies this study also found that more securely attached adolescents experience fewer depressive symptoms and depression and anxiety symptoms measured simultaneously (Sund & Wichstrøm, 2002). Additionally when individual dimensions of the attachment measure were considered, the ‘attachment availability dimension’ which assesses confidence in the availability of the attachment figure was negatively related to depression. However, attachment availability was not significantly related to anxiety and in further contrast with other studies (e.g. Cooper, Shaver, & Collins, 1998) the current study did not find a significant relationship between an insecure attachment and increased rates of anxiety within adolescents. Additionally the anger-distress and goal-corrected dimensions of attachment were not significantly associated with symptoms of depression or anxiety. Such results are unexpected given the consensus within the literature that adolescents with insecure attachment styles exhibit higher levels of depressive and anxious symptoms (Dubois-Comtois & Cyr, 2013).

### **Mediation Analysis**

There were mixed results regarding the fourth hypothesis of this study: ‘Self-compassion will mediate the relationship between attachment and depression and anxiety; self-esteem will also mediate the relationship but to a lesser extent’.

In the main mediation model, as combined mediators self-compassion and self-esteem had no mediating effect on the relationship between overall attachment and combined symptoms of depression and anxiety. Furthermore, in the second mediation model, as combined mediators' self-compassion and self-esteem had no mediating effect on the relationship between overall attachment and symptoms of depression. These particular findings are inconsistent with studies concluding that self-compassion mediates the association between attachment orientation and mental health in undergraduate samples (Raque-Bogdan et al., 2011; Wei et al., 2011) and also in a community adolescent sample (Neff & McGehee, 2010). It is noteworthy that such findings are from non-clinical samples.

It is plausible that such mediation results (i.e. models 1 & 2) are inconsistent with existing findings because unlike prior studies, the current study is based on a clinical population. It is conceivable that varying attachment styles between clinical and non clinical samples has a significant impact on results. Indeed, attachment theory has proven to be a very fruitful framework for studying emotion regulation and mental health (Mikulincer & Shaver, 2012) and current results indicate that the current sample were more insecurely attached than a non-clinical adolescent sample (Carr, 2009).

Current findings revealed that overall attachment style, the goal-directed partnership and anger-distress dimensions of attachment were not significantly correlated with self-compassion. This finding is inconsistent with the proposal of Gilbert (2005) that the origin of self-compassion is one's attachment style. Those being raised in insecure or threatening environment are likely to be more critical towards themselves and hence, less self-compassionate (Gilbert, 2009; Gilbert & Proctor, 2006). Moreover, similar findings were

detected between attachment and self-esteem and such findings are also unexpected given evidence that attachment style is predictive of level of self-esteem (Sroufe, Carlson, Levy, & Egeland, 1999). Hence, it would be expected that there would be significant inverse relationships between insecure attachment style and self-compassion and self-esteem in the current sample.

Deactivating strategies are typically observed in individuals with avoidant attachment styles and are characterized by strategies such as affirmations of independence, and the denial of attachment needs (Cassidy & Kobak, 1988). Within self-compassion literature it is acknowledged that there is a complicated relationship between self-compassion and avoidant attachment styles. Indeed, this uncertainty led to Wei et al., (2011) not advancing a specific hypothesis about attachment avoidance and self-compassion. Similarly the mediating impact of self-esteem in the relationship between avoidant attachment styles and subsequent depression and anxiety can be unclear (e.g. Lee & Hankin, 2009). It is recognized that those with high attachment avoidance may view themselves negatively or positively (Pietromonaco & Barrett, 2000). Such individuals may actually report a high level of self-compassion due to their defensive denial or their suppressed inner sense of insecurity (Wei et al., 2011). This outwardly positive stance towards oneself is acknowledged to be qualitatively different from the positive stance of those who are securely attached with low avoidance (Mikulincer & Orbach, 1995). It is plausible that adolescents in the current study, who may have had a more insecure attachment style, adopted deactivating strategies (Mikulincer & Shaver, 2007) and actually reported higher rates of self-compassion (and potentially higher rates of self-esteem) due to defensive denial or insecurity. Furthermore, it is possible that because of the method of data collection via self-report the study was also at risk of social desirability whereby

participants felt compelled to provide an answer considered socially acceptable rather than an honest response (Kaminska & Foulsham, 2013).

Those with an insecure attachment adopting hyperactivating strategies can hold a negative view of their self, lack self-efficacy and have a tendency to avoid fears – all behaviours are negatively correlated with resilience (Cicchetti, 2010). Although only speculative, it is plausible that if the insecurely attached adolescents in the current study adopt hyperactivating strategies, behaviourally, such strategies are unlikely to correlate with the positive characteristics and attributes expected to be observed in those who are self-compassionate. Indeed, it is recognized that an insecure attachment style is related to a reduced capacity to mentalize (Nolte et al., 2011). Mentalization is a component closely associated with mindfulness (Choi, Lee, & Lee, 2014) and mindfulness is a component of self-compassion; this may explain the absence of any relationship between self-compassion and some dimensions of attachment.

In the third mediation model, self-compassion and self-esteem did have a combined significant mediating effect on the relationship between attachment availability and levels of depression. This finding is consistent with the aforementioned studies (Wei et al, 2011; Neff & McGehee, 2010) which also found evidence that self-compassion mediated the association between attachment and subjective well-being. It seems there is some consensus that the mediating impact of self-compassion is more apparent in the relationship with a secure attachment style (Wei et al, 2011). Indeed, the dimension of attachment availability measured in the current study pertains to a positive and secure attachment style. This is consistent with Gilbert's theory that being raised in a safe and supportive environment leads to the development of soothing qualities and the ability to be self-compassionate.

Furthermore, the second part of hypothesis four that: 'self-esteem will also mediate the relationship between attachment and depression and anxiety like self-compassion; but to a lesser extent' was to an extent rejected by the findings of the current study. Results of single mediation models in particular indicated that unlike self-compassion, self-esteem was effective in mediating the relationship between attachment and depression and anxiety.

These findings are contrary to Neff & Vonk (2009) and Neff et al. (2007) which found that self-compassion predicted more positive, stable feelings of self-worth and had a stronger negative association with social comparison and self-evaluative anxiety than self-esteem. Current results are consistent with the findings of Wilkinson, (2004) who found that among adolescents, self-esteem mediated the relationship between peer and parental attachment and subsequent psychological health. However, as previously mentioned the mediating impact of self-esteem in the relationship with avoidant attachment styles can be unclear (Lee & Hankin, 2009) indicating that further research is required.

### **Limitations**

Limitations of the present research need to be acknowledged. First, the cross-sectional design of the study did not allow conclusions to be drawn regarding the causal relationship between variables. There is consensus within the self-compassion literature that there is a need for further studies with a longitudinal design to enable more definitive conclusions to be drawn (MacBeth & Gumley, 2012). Indeed, Pepping, Davis, O'Donovan, & Pal, (2014) illustrated significant results for an alternative mediation model to the one used in the current study whereby self-compassion was a dependent variable rather than a mediator.

Furthermore, although strength of this study was that it recruited from the novel population of adolescents in a clinical setting, participants were mainly White British, English speaking and female. The narrow demographic composition of participants does not allow for generalizations of the findings to a more diverse population. More research is needed with a more representative sample.

The study was limited in that it was statistically underpowered potentially limiting the reliability of the results. Indeed, this may explain why some of the results are unexpected e.g., the lack of a significant relationship between attachment and self-compassion, a relationship widely established within self-compassion theory. A number of measures were taken to ensure the current study recruited an adequate number of participants including prior calculations being performed to determine if the number of participants required was an achievable target. Indeed, prior calculations indicated that only 13.4% of all eligible participants needed to participate for the study to achieve statistical power. Furthermore, a significant period of time was invested in recruitment during which time the chief investigator actively promoted the study to clinicians. However, it is widely recognized clinical samples are notoriously difficult to recruit (Amon, Campbell, Hawke, & Steinbeck, 2014). Moreover, other studies investigating self-compassion within a clinical adolescent population have also had relatively small samples e.g. (Zeller et al., 2014) recruited 64 youths at-risk of PTSD.

Additionally, as noted previously, the current study also relied on self-report measures. Although the questionnaires were shown to have excellent psychometric properties within this sample, they were not without limitations. Besides the general limitations of self-report

questionnaires e.g. social desirability, (Barker et al., 2002) individual measures also had associated limitations. For example, it has been proposed that the SCS is not a valid measure of self-compassion as the ‘negative’ components of the SCS inflate the scales’ relationship with negative affect potentially not capturing the proposed positive nature of self-compassion (Petricchi et al., 2013). While this proposal has been disputed based on the premise that self-compassion is a construct encompassing both positive and negative dimensions (Neff, 2016) future research may benefit from assessing self-compassion in alternative ways. The choice of the AAQ as the attachment measurement in this study may have been a limitation. Although the AAQ has recognized validity and reliability (West et al., 1998) other self-report measures of attachment are available. The Experiences in Close Relationship Scale (ECR; Brennan, Clark, & Shaver, 1998) has been used in similar studies (Raque-Bogdan et al., 2011; Wei et al., 2011) and would have allowed for comparison across studies. Additionally the ECR has been validated within adolescent populations (Wilkinson, 2011). However, both the AAQ and the ECR are self-report measures and therefore, are limited by the factor structure of self-report measures. The Adult Attachment Interview (AAI; George, Kaplan & Main, 1985) is considered the most robust measure of attachment (Scharf, Mayseless, & Kivenson-Baron, 2004). It is possible if such attachment measures had been used in the current study results related to attachment may have been different. However, the use of interviews to assess attachment style was beyond the scope of the current study.

### **Clinical Implications**

Despite methodological limitations, the findings here suggest that self-compassion can enhance mental well-being among adolescents. This study therefore, promotes consideration of interventions that aim to enhance self-compassion within adolescents. Although the research is still in its infancy there are promising results for such interventions both in a

group format i.e. ‘making friends with yourself’(Bluth, Gaylord, et al., 2015) and an individual format ‘Breathe mindfulness’ (Bluth, Roberson, & Gaylord, 2015). Both strategies are specifically designed for an adolescent population. Although the current study demonstrated mixed results for the relationship between self-compassion and attachment there is nonetheless an indication that self-compassion is still a construct can have a mediating impact in the relationship between attachment and mental health (Raque-Bogdan et al., 2011). A wealth of literature indicates that this may be a key focus area for improving mental well-being among adolescents (e.g. Dubois-Comtois & Cyr, 2013). This study also demonstrates the benefits of self-esteem in mediating the relationship between attachment and symptoms of depression and anxiety. This finding indicates that interventions that specifically aim to increase self-esteem in adolescents presenting in clinical settings are of value. CBT has been suggested to be effective in reducing various types/dimensions of self-esteem in depressed adolescents (Taylor & Montgomery, 2007).

## **Conclusion**

In summary, the current cross-sectional, self-report study points to the potential positive benefits of self-compassion in reducing symptoms of depression and anxiety in adolescents presenting in a clinical setting. These findings promote further investigation of compassion-focused interventions to increase the evidence-base for application to adolescents presenting with symptoms of depression and anxiety. The study also offers novel findings of the mediating role of self-compassion in the relationship between attachment style and subsequent symptoms of depression and/or anxiety. While findings are to some extent inconsistent with previous studies, the variance between results is considered in the context of varying attachment styles between clinical and non-clinical samples. This study also investigated the theory that the construct of self-compassion offers a healthier and less

counter-productive alternative to self-esteem when considering psychological functioning. Contrary to our hypothesis, self-esteem mediated the relationship between attachment security and depression and anxiety to a greater extent than self-compassion. This finding advances the use of interventions focused on improving self-esteem in adolescents experiencing symptoms of depression and anxiety. Future research with a balanced gender ratio, alternative measures of self-compassion and the implementation of experimental and treatment methodologies is required to overcome the limitations of the current study and further generalize findings.

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Last updated 27/2/2014

## Appendix 2- Papers Excluded in Search Process

<b>Abstract Review (195 papers)</b>	
<b>Reason for exclusion</b>	<b>Number of studies excluded</b>
Qualitative research	1
Eating Disorder Population	18
Review article, descriptive article or book chapter	19
Single case design	2
Not published in a peer review publication, e.g. dissertation	22
Does not fit age criteria	6
Wrong population	8
Does not include measure of depression or anxiety	18
Meta analysis or systematic review	3
Total papers needed to be read in full following abstract review	<b>97</b>
<b>Full Article Review (98 papers)</b>	
Does not fit age criteria	41
Details on age not reported- author did not respond to request for this information	5
Details on age not reported- email response indicated mean age did not fit age criteria	1
Does not include clearly defined self-report or interview based measure of self-compassion or SCS not administered correctly	4
Not in English language	5
Does not include measures of depression and anxiety	9
Does not examine relationship between self-Compassion and measures of depression and/or anxiety	1
Only investigates relationship between self-compassion and positive affect	1
Cannot access paper	7
<b>Total</b>	<b>74</b>
Total papers included in review after full article read	98-74= 24 papers  (representing 28 samples)

\*n=1; papers identified through search of reference lists

### Appendix 3: Quality Criteria for Cross-Sectional & Correlation Studies

1. Study Design			
1.1 Study Objectives	Is the study addressing a clear and focused questions, aims and/or hypotheses?	<p><u>Well covered</u> = aims and/or hypotheses are clearly stated and presented early in paper. Justification for study in context of previous research e.g.- sound theoretical basis for selecting the explanatory variables</p> <p><u>Adequately addressed</u> =Aims and/or hypothesis present but less explanation, and less discussion of background literature related to current study</p> <p><u>Poorly addressed</u>= study does not have clear aims and/or hypotheses. Theoretical rationale for study unclear</p>	

2. Methods			
2.1 How was the sample recruited?	Is the sample representative of target population - How was the sample recruited? (Is the method of selection of participants adequately described)	<p><u>Well covered</u>= The recruitment method ensures that minimal bias is introduced i.e. probability sampling is used (e.g. random allocation, systematic allocation of those recruited). Recruitment method must be explicitly stated.</p> <p><u>Adequately addressed</u>= The sampling method may include an element of bias as non-probability sampling is used (e.g. convenience sample- opportunity sampling, volunteering sampling). Recruitment method must be explicitly stated.</p> <p><u>Poorly addressed</u> = Sampling method is not clearly reported and/or not representative of population</p>	
2.2 Have eligibility criteria been specified?	Is the eligibility criteria adequately described?	<p><u>Well covered</u>= Eligibility criteria clearly presented (e.g. Source population &amp; inclusion/exclusion criteria) Eligibility criteria appropriate.</p> <p><u>Adequately addressed</u>= Eligibility criteria presented but may not be clear. Eligibility criteria may be inappropriate.</p> <p><u>Poorly addressed</u> = Eligibility criteria not adequately reported, (e.g. only source population presented).</p>	

2.3 Are participants adequately described?	Relevant demographics- (mean age, gender ratio etc) clearly presented.	<p><u>Well covered</u> = Participants clearly described. Three or more relevant participant characteristics are described: i.e. (i) participant mean age, (ii) gender ratio, (iii) ethnicity, (iv) socio-economic status and are representative of population</p> <p><u>Adequately addressed</u> = At least two relevant participant characteristics are described: i.e. (i) participant mean age, (ii) gender ratio, (iii) ethnicity, (iv) socio-economic status and are representative of population</p> <p><u>Poorly addressed</u> = One or no relevant patient characteristics are described or are not representative of population</p>	
2.4 who participated in the study? What was the rate of drop-out and/or withdrawal	In order for the results to be representative of the population, information must be available on number of participants invited to participate and number who actually participated	<p><u>Well covered</u>= Participant rate reported and equal or greater than 80% (Yu &amp; Tse, 2012), If drop-out or withdrawal reason for withdrawal and/or drop-out presented</p> <p><u>Adequately addressed</u>= Participant rate reported but may be less than 80%.</p> <p><u>Poorly addressed</u> = study does not clearly state how many people invited to participate and/or how many opted in. i.e. only number of people who actually participated reported.</p>	

<b>3. Sample size</b>			
3.1 Sample size	Is the sample size justified?	<p><u>Well covered</u>= A priori power/ sample size calculation was carried out.</p> <p><u>Adequately addressed</u>= Not-a priori calculation, but power addressed post hoc.</p> <p><u>Poorly addressed</u> = No power calculation.</p>	

4. Measure			
4.1 Measures of depression and/or anxiety	Are the measures of depression and/or anxiety used reliable and valid for use with adolescents?	<p><u>Well covered</u>= standardised outcome measure(s) used with well reported psychometric properties (i.e. valid and reliable) in adolescent population, e.g. Beck Depression Inventory-II (BDI-II; Beck et al, 1996); Spielberger State-Trait Anxiety Inventory (STAI; Spielberger et al, 1983)</p> <p><u>Adequately addressed</u>= Standardised outcome measure(s) with adequate psychometric properties. (e.g. translated version may have less robust psychometric value)</p> <p><u>Poorly addressed</u>= non-standardised outcome measure(s) used.</p>	

5. Data Analysis			
5.1 Statistical Analysis	Is the use of statistical analyses appropriate to the study design and the type of outcome measure?	<p><u>Well covered</u> = Statistical management of missing data.</p> <p><u>Adequately addressed</u> = Missing data identified but not considered in statistical analysis</p> <p><u>Poorly addressed</u> = Missing data not recognised and not considered in statistical analysis</p>	
5.2 Confounding variables	Are potentially confounding variables adequately considered and addressed in the study (e.g. participants gender)	<p><u>Well covered</u> = Potential confounding variables are adequately recognised and considered in the statistical analysis</p> <p><u>Adequately addressed</u> = Potential confounding variables are recognised but are not/ or only partially considered in the statistical analysis</p> <p><u>Poorly addressed</u> = Potential confounding variables are not recognised or considered in the statistical analysis</p>	

## Appendix 4-Quality Criteria for Non Cross-sectional studies

1. Study Design			
1.1 Study Objectives	Is the study addressing a clear and focused questions, aims and/or hypotheses?	<p><u>Well covered</u> = aims and/or hypotheses are clearly stated and presented early in paper. Justification for study in context of previous research e.g.- sound theoretical basis for selecting the explanatory variables</p> <p><u>Adequately addressed</u> =Aims and/or hypothesis present but less explanation, and less discussion of background literature related to current study</p> <p><u>Poorly addressed</u>= study does not have clear aims and/or hypotheses. Theoretical rationale for study unclear</p>	

2. Methods			
2.1 How was the sample recruited?	Is the sample representative of target population - How was the sample recruited? (Is the method of selection of participants adequately described)	<p><u>Well covered</u>= The recruitment method ensures that minimal bias is introduced i.e. probability sampling is used (e.g. random allocation, systematic allocation of those recruited). Recruitment method must be explicitly stated.</p> <p><u>Adequately addressed</u>= The sampling method may include an element of bias as non-probability sampling is used (e.g. convenience sample- opportunity sampling, volunteering sampling). Recruitment method must be explicitly stated.</p> <p><u>Poorly addressed</u> = Sampling method is not clearly reported and/or not representative of population</p>	
2.2 Have eligibility criteria been specified?	Is the eligibility criteria adequately described?	<p><u>Well covered</u>= Eligibility criteria clearly presented (e.g. Source population &amp; inclusion/exclusion criteria) Eligibility criteria appropriate.</p> <p><u>Adequately addressed</u>= Eligibility criteria presented but may not be clear. Eligibility criteria may be inappropriate.</p> <p><u>Poorly addressed</u> = Eligibility criteria not adequately reported, (e.g. only source population presented).</p>	

2.3 Are participants adequately described?	Relevant demographics- (mean age, gender ratio etc) clearly presented.	<p><u>Well covered</u> = Participants clearly described. Three or more relevant participant characteristics are described: i.e. (i) participant mean age, (iii) gender ratio, (iv) ethnicity, (v) socio-economic status and are representative of population</p> <p><u>Adequately addressed</u> = At least two relevant participant characteristics are described: i.e. (i) participant mean age, (iii) gender ratio, (iv) ethnicity, (v) socio-economic status and are representative of population</p> <p><u>Poorly addressed</u> = One or no relevant patient characteristics are described or are not representative of population</p>	
2.4 who participated in the study? What was the rate of drop-out and/or withdrawal	In order for the results to be representative of the population, information must be available on response rate and level of participant drop-out and/or withdrawal	<p><u>Well covered</u>= Participant rate reported and equal or greater than 80% (Yu &amp; Tse, 2012),</p> <p><u>Adequately addressed</u>= Participant rate reported but may be less than 80%,</p> <p><u>Poorly addressed</u> = study does not clearly state how many people invited to participate and/or how many opted in. i.e. only number of people who actually participated reported.</p>	
2.5 What was the number of participants at each stage/wave specified?	In order for the results to be representative of the population and in line with longitudinal design, information must be available on those who participated and/or dropped-out of the study at each stage/wave	<p><u>Well covered</u>= details given regarding number of participants at each stage and explanation for loss provided.</p> <p><u>Adequately addressed</u>= details given on number of participants at each stage specified but no explanation for loss provided</p> <p><u>Poorly addressed</u> = insufficient details given on study drop-out.</p>	

3. Sample size			
3.1 Sample size	Is the sample size justified?	<p><u>Well covered</u>= A priori power/sample size calculation was carried out.</p> <p><u>Adequately addressed</u>= Not-a priori calculation, but power addressed post hoc.</p> <p><u>Poorly addressed</u> = No power calculation.</p>	

4. Measures			
4.1 Measures of depression and/or anxiety	Are the measures of depression and/or anxiety used reliable and valid for use with adolescents?	<p><u>Well covered</u>= standardised outcome measure(s) used with well reported psychometric properties (i.e. valid and reliable) in adolescent population, e.g. Beck Depression Inventory-II (BDI-II; Beck et al, 1996); Spielberger State-Trait Anxiety Inventory (STAI; Spielberger et al, 1983)</p> <p><u>Adequately addressed</u>= Standardised outcome measure(s) with adequate psychometric properties. (e.g. translated version may have less robust psychometric value)</p> <p><u>Poorly addressed</u>= non-standardised outcome measure(s) used</p>	
4.2 Timing of data collection	Is the timing of data collection specified	<p><u>Well covered</u> = specific details of timing of data collection presented. Data collected at three time points, i.e. Pre, post and follow-up data collected.</p> <p><u>Adequately addressed</u>= details of timing of data collection adequate. Data collected at least two points in time.</p> <p><u>Poorly addressed</u> = Timings of data collection not reported</p>	

5. Data Analysis			
5.1 Statistical Analysis	Is the use of statistical analyses appropriate to the study design and the type of outcome measure?	<p><u>Well covered</u> = Statistical management of missing data.</p> <p><u>Adequately addressed</u> = Missing data identified but not considered in statistical analysis</p> <p><u>Poorly addressed</u> = Missing data not recognised and not considered in statistical analysis</p>	
5.2 Confounding variables	Are potentially confounding variables adequately considered and addressed in the study (e.g. participants gender)	<p><u>Well covered</u> = Potential confounding variables are adequately recognised and considered in the statistical analysis</p> <p><u>Adequately addressed</u> = Potential confounding variables are recognised but are not/ or only partially considered in the statistical analysis</p> <p><u>Poorly addressed</u> = Potential confounding variables are not recognised or considered in the statistical analysis</p>	

## Appendix 5

**Table 3. Quality ratings of included cross-sectional studies**

	Study Design	Methods				Sample Size	Measurement	Analysis	
	Objectives	Selection	Eligibility	Description	Response Rate	Power calculation reported	Depression/ Anxiety measure	Missing data	Confounding variables
Arimitsu & Hofmann (2015). Study 1,	Well covered	Poorly addressed	Poorly addressed	Adequately addressed	Poorly addressed	poorly addressed	Well covered	Poorly addressed	Well covered
Arimitsu & Hofmann (2015). Study 2	Well covered	Poorly addressed	Poorly addressed	Adequately addressed	Poorly addressed	Poorly addressed	Well covered	Poorly addressed	Well covered
Barry et al (2015)	Well covered	Adequately addressed	Poorly addressed	Well covered	Adequately addressed	Poorly addressed	Well covered	Poorly addressed	Adequately addressed
Bluth et al (2013)	Well covered	Adequately addressed	Well-covered	Well-covered	Adequately addressed	Poorly addressed	Well covered	Poorly addressed	Adequately addressed
Bluth & Blanton (2014)-younger	Well covered	Adequately addressed	Poorly addressed	Well-covered	Well-covered	Poorly addressed	Well-covered	Poorly addressed	Well covered
Bluth & Blanton (2014)-older	Well covered	Adequately addressed	Poorly addressed	Well-covered	Well covered	Poorly addressed	Well covered	Poorly addressed	Well covered

Bluth et al (2015) (Intervention)	Well covered	Adequately addressed	Well-covered	Well-covered	Well-covered	Poorly addressed	Well covered	Poorly addressed	Well covered
Budakoglu. (2014)	Adequately addressed	Well covered	Poorly addressed	Well covered	Well-covered	Poorly addressed	Well covered	Poorly addressed	Poorly addressed
Deniz (2008) Turkey	Poorly addressed	Well covered	Poorly addressed	Adequately addressed	Poorly addressed	Poorly addressed	Well covered	Poorly addressed	Poorly addressed
Játiva & Cerezo (2014a)	Well covered	Adequately addressed	Poorly addressed	Well covered	Adequately addressed	Poorly addressed	Adequately addressed	Well covered	Well covered
Johnson & O'Brien (2013)	Well covered	Adequately addressed	Adequately addressed	Well covered	Well-covered	Well covered	Well covered	Adequately addressed	Well covered
Liss & Erchull (2015). 'High SC'	Well covered	Poorly addressed	Poorly addressed	Well covered	Well covered	Poorly addressed	Well covered	Well covered	Well covered
Liss & Erchull (2015). 'Low SC'	Well covered	Poorly addressed	Poorly addressed	Well covered	Well covered	Poorly addressed	Well covered	Well covered	Well covered
Neff et al. (2008).	Well covered	Poorly addressed	Poorly addressed	Well covered	Poorly addressed	Poorly addressed	Well covered	Poorly addressed	Well covered
Neff &	Well	Adequately	Poorly	Well	Poorly	Poorly	Well covered	Poorly	Well covered

McGehee (2010).	covered	addressed	addressed	covered	addressed	addressed		addressed	
Raes (2010).	Well covered	Poorly addressed	Poorly addressed	Adequately addressed	Poorly addressed	Poorly addressed	Well covered	Poorly addressed	Well covered
Tanaka et al. (2011)	Well covered	Well covered	Well covered	Well covered	Adequately addressed	Poorly addressed	Well covered	Well covered	Well covered
Vettese et al. (2011)	Well covered	Adequately addressed	Well covered	Well covered	Well covered	Poorly addressed	Well covered	Poorly addressed	Well covered
Yamaguchi et al. (2014).	Well covered	Poorly addressed	Poorly addressed	Adequately addressed	Poorly addressed	Poorly addressed	Adequately addressed	Poorly addressed	Poorly addressed
Zhou et al. (2013)	Well covered	Adequately addressed	Adequately addressed	Adequately addressed	Well covered	Poorly addressed	Well covered	Poorly addressed	Poorly addressed

## Appendix 6

**Table 4. Quality ratings of included non cross-sectional studies**

	Study Design	Methods					Power	Measurement		Analysis	
	Objectives	Selection	Eligibility	Description	Attrition rate	Reporting of Attrition	Power calculation reported	Depression /Anxiety measure	Timing of data collection	Missing data	Confounding Variables
Arch et al. (2014)	Well covered	Well covered	Well covered	Well covered	Well covered	Well covered	poorly addressed	Well covered	Well covered	poorly addressed	Adequately addressed
Bluth et al. (2015)	Well covered	Well covered	Well covered	Well covered	Well covered	Well covered	poorly addressed	Well covered	Well covered	poorly addressed	Well covered
Edwards et al. (2014)	Well covered	Well covered	Well covered	Adequately addressed	Well covered	Well covered	poorly addressed	Well covered	Well covered	poorly addressed	Adequately addressed
Hope et al. (2014)	Well covered	Adequately addressed	poorly addressed	Well covered	Adequately addressed	Adequately addressed	poorly addressed	Well covered	Well covered	poorly addressed	Well covered
Johnson & O'Brien (2013)	Well covered	Well covered	Well covered	Adequately addressed	Adequately addressed	Well covered	Well covered	Well covered	Adequately addressed	Adequately addressed	Well covered
Marshall et al. (2015)	Well covered	poorly addressed	poorly addressed	Well covered	poorly addressed	poorly addressed	poorly addressed	Well covered	poorly addressed	Well covered	Well covered

Raes (2011)	Well covered	poorly addressed	poorly addressed	Adequately addressed	Adequately addressed	Well covered	poorly addressed	Well covered	Adequately addressed	poorly addressed	Well covered
Smeets et al. (2014)	Well covered	Well covered	poorly addressed	Well covered	Well covered	Well covered	poorly addressed	Well covered	Adequately addressed	Well covered	poorly addressed
Zeller et al. (2014)	Well covered	Adequately addressed	Well covered	Well covered	Well covered	Well covered	poorly addressed	Well covered	Well covered	Adequately addressed	poorly addressed

## Appendix 7- Ethical Approval

### University Hospitals Division



Queen's Medical Research Institute  
47 Little France Crescent, Edinburgh, EH16 4TJ

FM/TM/approval

22 April 2015

Miss Julie Graham  
School of Health in Social Science  
The University of Edinburgh Medical School  
Teviot Place  
Edinburgh  
EH8 9AG

Research & Development  
Room E1.12  
Tel: 0131 242 3330

Email:  
R&DOffice@nhslothian.scot.nhs.uk

Director: Professor David E Newby

Dear Miss Graham

**Lothian R&D Project No:** 2015/0198

**Title of Research:** Does self-compassion mediate the relationship between attachment and symptoms of depression and/or anxiety in a clinical adolescent population?

**REC No:** 15/SS/0033

**Participant Information Sheet:**  
version 2 dated 11 March 2015

**Consent Form:**  
version 2 dated 11 March 2015

**Protocol:** version 2 dated 11 March 2015

I am pleased to inform you that this study has been approved for NHS Lothian and you may proceed with your research, subject to the conditions below. This letter provides Site Specific approval for NHS Lothian.

Please note that the NHS Lothian R&D Office must be informed if there are any changes to the study such as amendments to the protocol, recruitment, funding, personnel or resource input required of NHS Lothian.

Substantial amendments to the protocol will require approval from the ethics committee which approved your study and the MHRA where applicable.

Please inform this office when recruitment has closed and when the study has been completed.

I wish you every success with your study.

Yours sincerely

*Fiona McArdle*

Ms Fiona McArdle  
Deputy R&D Director

cc Mr Tim Montgomery, Director of Operations, Royal Edinburgh and Associated Services  
Dr Helen Griffiths, University of Edinburgh  
Dr Stella Chan, University of Edinburgh

## Appendix 8- Participant Information Sheet

### INFORMATION SHEET FOR PARTICIPANTS

#### **What is the relationship between self-compassion and symptoms of depression and/or anxiety in adolescents seen by CAMHS?**

I would like to invite you to take part in this new research project. You should only take part if you want to. Before you decide whether you want to take part, it is important you understand why the research is being done and what taking part will involve. Please take time to read the following information carefully and ask if there is anything that is unclear.

#### Research aims

I am interested in studying how young people's' compassion and kindness towards themselves might affect how they feel. Self-compassion involves being kind to yourself even when you are having difficulties. We want to study this as we think self-compassion may prevent mental health problems from getting worse.

#### "Do I have to take part?"

No. It is entirely up to you whether or not you would like to take part. If you decide not to take part this will not affect your CAMHS care in anyway.

#### Who has been asked to participate?

Young people aged between 14 and 19 years who have been referred to NHS Lothian CAMHS due to symptoms of depression and or anxiety have been invited to participate.

#### When and Where Will the Study Take Place?

The study will take place within CAMHS. You can decide where you answer the questionnaires. Once you have completed the questionnaire please put them and your signed consent form into the envelope you have been given which has this researchers name on (Julie Graham, Trainee Clinical Psychologist). Please hand this envelope to the person you see at CAMHS or hand-in to the reception desk at CAMHS.

#### How Long Will the Study Last?

It is estimated that it will take you around 20-30 minutes to complete the questionnaires

#### What Will You Be Asked to Do?

After you have read this form and signed the consent form showing you agree to take part you will be asked to complete five questionnaires. These questionnaires include questions about your mood and your relationships. All of these questionnaires will require you respond to statements on a numbered scale (e.g. 'I try to be loving towards myself when I'm feeling emotional pain' 0: Almost never- 5: Almost always). You will also be asked to complete a short form on personal information (e.g. gender and age) but this will not require you to report any information which would mean you could be identified.

#### Are There Any Risks Involved in Participating?

There is little risk involved in taking part. The questionnaires you will be asked to complete have been selected because they are short and don't ask you to go into a lot of detail about anything upsetting. If there are questions that you find distressing, you are free to not answer those questions or to withdraw from participating.

#### Are There Any Benefits Involved in Participating?

It is unlikely that you will notice any direct benefit from taking part. However it is hoped this project will provide new information on possible ways to help young people who have anxiety and depression

#### How Will We Maintain Your Privacy and Confidentiality?

Your responses to the questionnaires will be private and remain completely confidential within the limits of the law. However, if any of your responses indicate that you may be at risk your assigned CAMHS clinician will be notified so they can offer further support. Your GP will also be sent a brief letter notifying them that you have taken part in the study.

If you decide to take part in this study you will be asked to complete a consent form where you sign your name. This will be kept separate from your completed questionnaires to ensure that your responses remain private. This information will be stored in a locked filing cabinet in a locked office. Any publication resulting from this study will only report information which would mean you could not be identified.

#### Can I find out the results of the project?

If you are interested in the results of this study you can contact Julie Graham (details below) who will be happy to offer a summary of overall results, however, it will not be possible to offer feedback on your individual results.

#### Who is organising the research?"

Julie Graham, Trainee clinical Psychologist is the chief investigator of the research and the research is in fulfilment of a Doctorate in Clinical Psychology at University of Edinburgh.

#### Who has reviewed the study?

This study is sponsored by University of Edinburgh. All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee. A favourable ethical opinion has been obtained from (name will inserted) REC. NHS Lothian management approval has also been obtained.

#### What If I Have Questions about the Project?

Please contact: Julie Graham by email at [s13700097@sms.ed.ac.uk](mailto:s13700097@sms.ed.ac.uk), by phone at: [0131 537 6905](tel:01315376905)

If you would like to discuss this study with someone independent of the study team please contact: Emily Newman on: [emily.newman@ed.ac.uk](mailto:emily.newman@ed.ac.uk)

If you wish to make a complaint about the study please contact NHS Lothian:

NHS Lothian Complaints Team 2nd Floor Waverley Gate 2-4 Waterloo Place Edinburgh EH1 3EG Tel: 0131 465 5708; Email: [crafft@nhslothian.scot.nhs.uk](mailto:crafft@nhslothian.scot.nhs.uk)

**It is up to you to decide whether to take part or not. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form.**

**Thank you**

## Appendix 9- Participant Consent Form



### PARTICIPANT CONSENT FORM

Title of Project: **What is the relationship between self-compassion and symptoms of depression and/or anxiety in adolescents seen by CAMHS?**

Name of Researcher: Julie Graham, Trainee Clinical Psychologist

Please initial box

1. I have read the participant information sheet titled: 'What is the relationship between self-compassion And symptoms of depression and/or anxiety in adolescents seen by CAMHS?' version 2 (11.03.15)
2. I have had time to think about the information and ask any questions.
3. I understand that taking part in this study is voluntary. I am free to change my mind and stop taking part at any time, without giving any reason. This will not affect the care I receive in any way
4. I understand that relevant sections of my CAMHS notes may be looked at by the researcher and individuals from the Sponsors (NHS Lothian or 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 records for this purpose.
5. I understand that if the researcher is worried about a risk of harm to myself or someone else during the study, then they will speak to a member of my clinical team
6. I understand that information I give for this study will be published. I will not be able to be identified in any way
7. I understand that my GP will be told I am taking part in the study
8. I agree to take part in the above study.

\_\_\_\_\_  
Name of Participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name of Person  
taking consent

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

Original (x1) to be retained in site file. Copy (x2) to be included in patient notes.

### Appendix 10- Skewness & Kurtosis Z-Scores (Data Screening)

	Measure	Statistic	Std. Error	Z-Score
				Greater than +/- 2.58 (Field, 2013)
Skewness	Self-esteem	.758	.347	2.18
Kurtosis	Self-esteem	.180	.681	0.26
Skewness	RCADS total	-.391	.347	-1.12
Kurtosis	RCADS	.153	.681	0.22
	Total			
Skewness	SCS	.503	.347	1.45
Kurtosis	SCS	-.476	.681	-0.69
Skewness	YQOL	.395	.347	1.14
Kurtosis	YQOL	-.402	.681	0.59
Skewness	AAQ	-.030	.347	-0.09
Kurtosis	AAQ	-.888	.681	1.30

## Appendix 11- Single Mediation Models

**Model 1a**

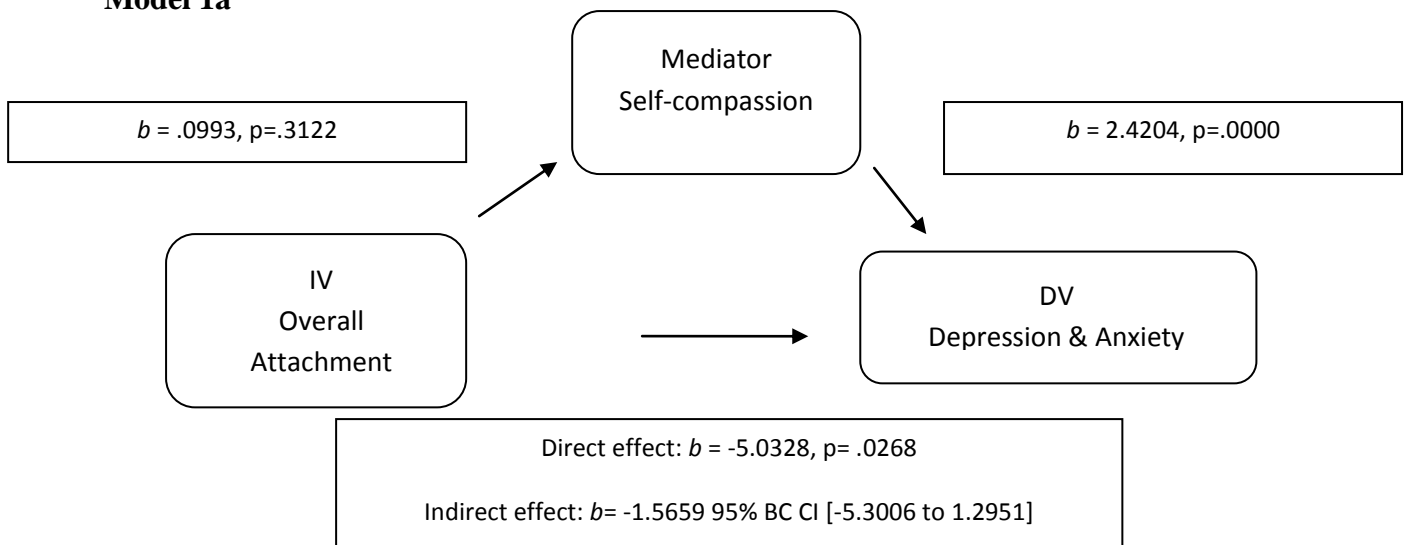


Figure 4: Conceptual diagram of mediation model 1a: predicting depression and anxiety symptoms from attachment and single mediating variable-self-compassion

**Model 1b**

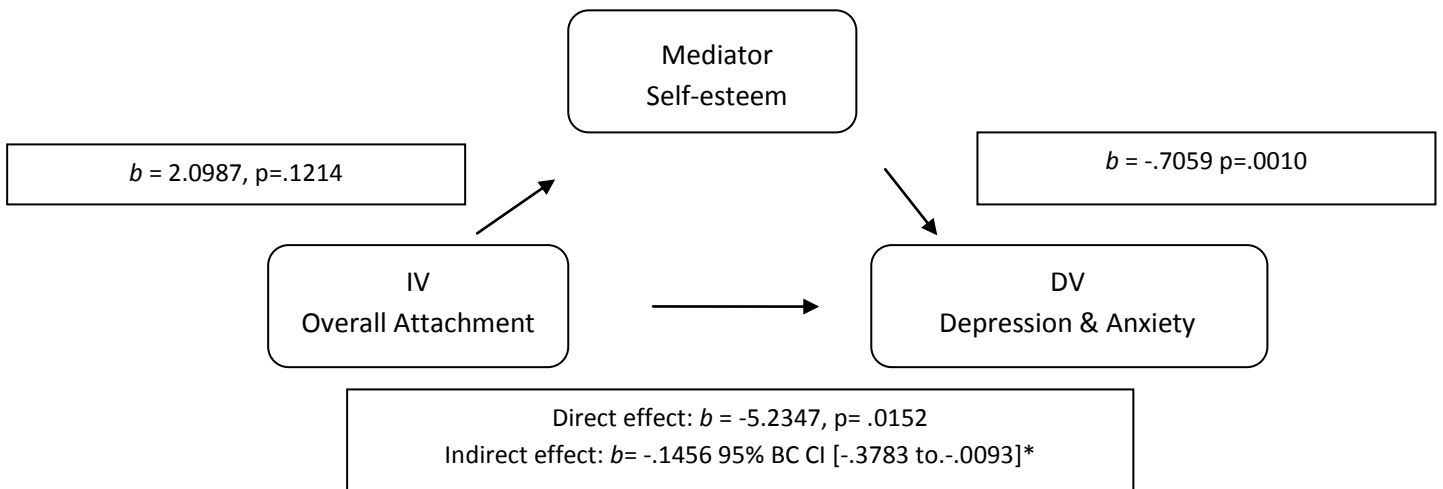
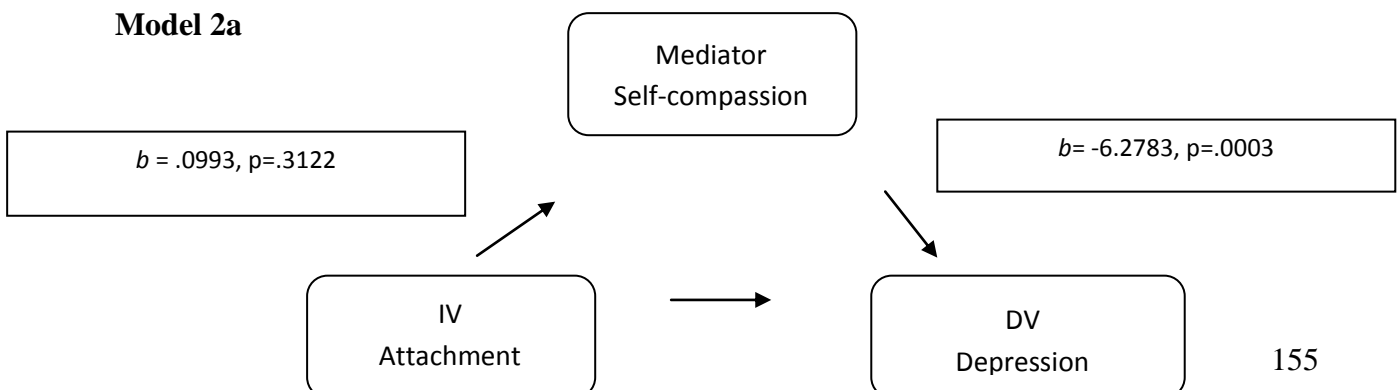


Figure 5: Conceptual diagram of mediation model 1b: predicting depression and anxiety symptoms from attachment and single mediating variable-self-esteem

\*significant mediator: mediating effect,  $P_m = .2830$ ; 28%

**Model 2a**



Direct effect:  $b = -3.2638$ ,  $p = .0095$   
 Indirect effect:  $b = -.6233$  95% BC CI [-2.1390 to .5145]

Figure 6: Conceptual diagram of mediation model 2a: predicting depression symptoms from attachment and single mediating variable-self-compassion.

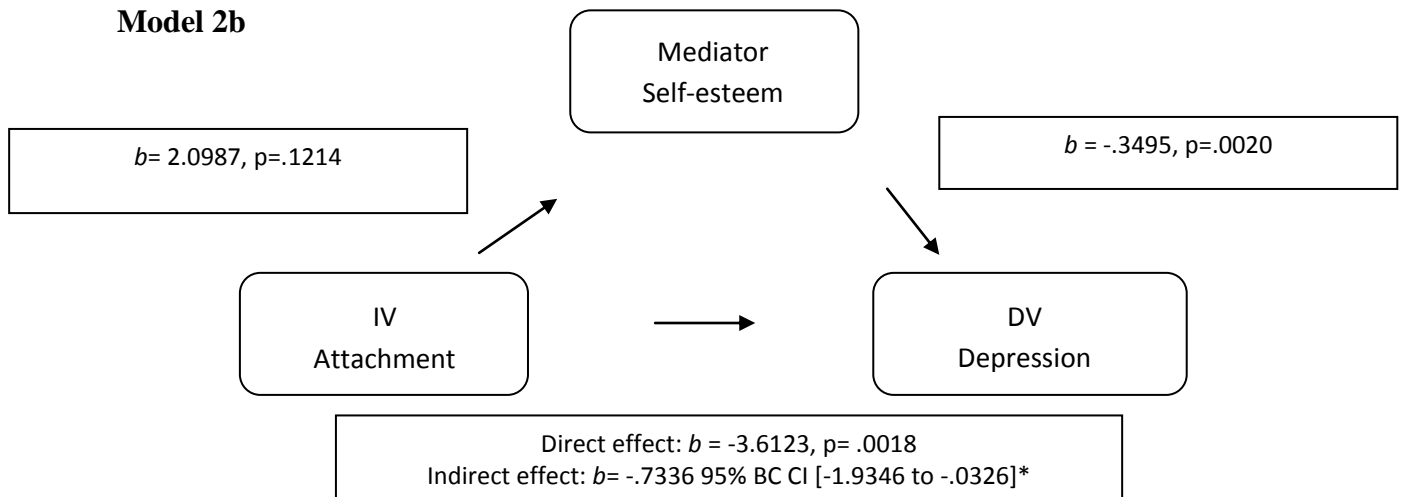


Figure 7: Conceptual diagram of mediation model 2b: predicting depression symptoms from attachment and single mediating variable self-esteem.

\*significant mediator: mediating effect,  $P_m = .2031$ ; 20%

**Model 3a**

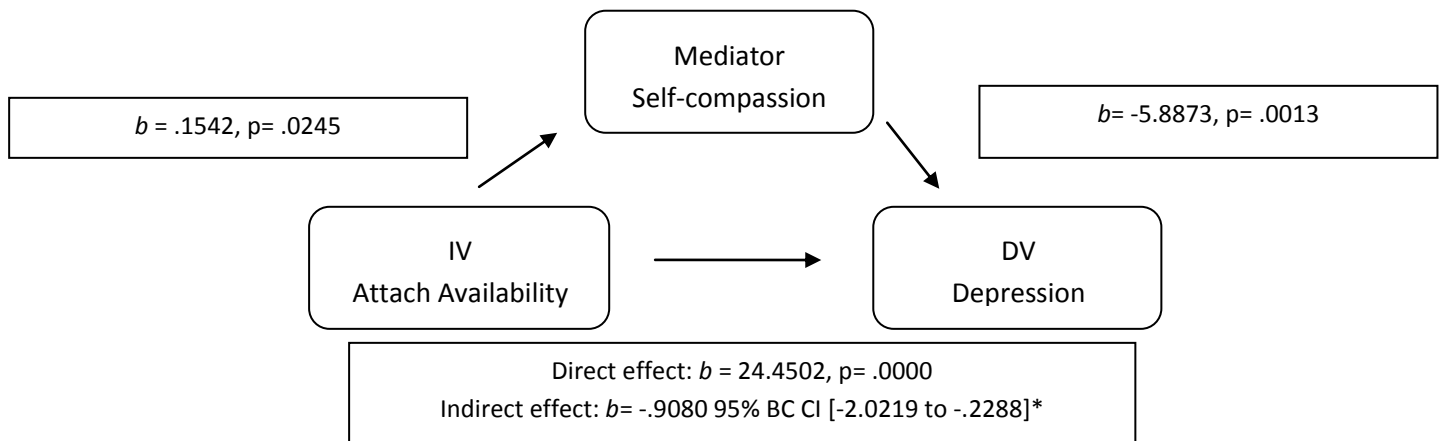


Figure 8: Conceptual diagram of mediation model 3a: predicting depression symptoms from attachment availability and single mediating variable self-compassion

\*significant mediator: mediating effect,  $P_m = .3868$ ; 39%

### Model 3b

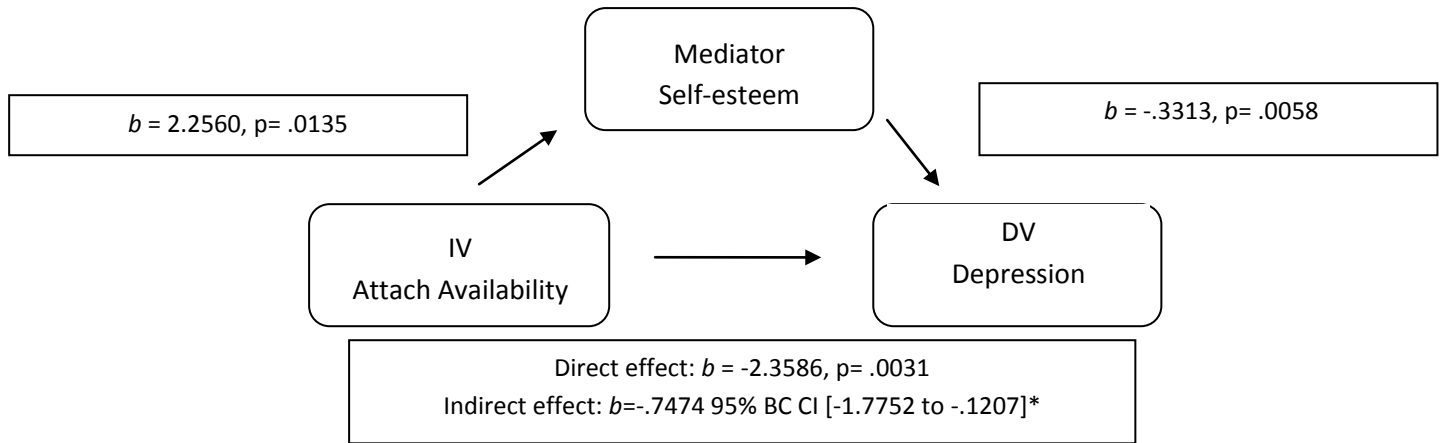


Figure 9: Conceptual diagram of mediation model 3b: predicting depression symptoms from attachment availability and single mediating variable self-esteem  
\*significant mediator: mediating effect,  $P_m = .3169$ ; 32%