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**Early maladaptive schemas and their relationship to psychopathology in  
adolescence**

by

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Doctorate in Clinical Psychology  
The University of Edinburgh

2012

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## **Thesis abstract**

Schema therapy was developed by Jeffery Young to treat adults with personality disorders, and has been evidenced to be effective in treating both Axis I and Axis II disorders. While Young stipulates that schemas are likely to be in place by adolescence, there is currently little agreement over the appropriateness of schema theory and therapy in understanding and treating psychopathology in adolescence. This thesis aims to explore the evidence–base and potential utility of applying schema theory to adolescent psychopathology, and consists of a systematic review and research article.

The review included published studies measuring Early Maladaptive Schemas (EMS) in 12 to 18 year olds, including those exploring relationships between EMS and psychopathology. The search of relevant literature from 1990 to 2012 yielded 19 articles for review, which were then subject to assessment of methodological quality. Most studies were assessed as ‘moderate’ in quality. Good quality evidence was found for the detection of higher rates of EMS in clinical or referred adolescent populations compared to non–clinical populations, as well as some evidence for effects of age and gender on EMS. Less consistent evidence was found for specific associations between individual EMS or domains and particular types of psychopathology or problem behaviour. Common limitations of the articles reviewed included poor control of confounding variables and little testing of EMS alongside contextual constructs to provide validation of findings.

The main research article used a quantitative, questionnaire–based cross–sectional design to test the dimensionality of the schema concept in a population of 12 to

18 year-olds, comparing levels of EMS between a referred and non-referred group. EMS were measured alongside attachment and interpersonal behaviours to test their unique predictive effect on psychopathology. Specific relationships between individual groups of EMS and type of psychopathology were also explored. Results showed that the referred group scored significantly higher than the non-referred group on overall schema score. Schemas were found to significantly predict level of psychopathology, over and above prediction by attachment or interpersonal behaviour scores. There was also evidence for the specific prediction of internalising and externalising problem behaviour, affective, anxiety, oppositional-defiant and conduct problems by clusters of EMS.

In conclusion, EMS appear to be a valid concept in predicting and understanding psychopathology in adolescence. A conceptual model is suggested for future research to explore the adaptation of schema theory more fully within developmental psychopathology. It is hoped that future research will test other aspects of schema theory in adolescents such as coping styles and modes. It is proposed that, following further validating evidence, this may result in the development of improved interventions for a range of presenting problems in adolescence.

# 1. A systematic review of the application of schema theory in adolescence

Makinson, J. E., McKay, R. H., Schwannauer, M. & Smith, R. (2012).

Written according to guidelines for submission to the journal *Clinical Psychology and Psychotherapy* (see Appendix 6.1).

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## 1.1. Abstract

**Background:** Schema therapy was originally developed to treat adults with personality disorders and patients with complex difficulties deemed ‘hard to treat’. It has since been evidenced to be effective in treating both Axis I and II disorders. Adolescence is a developmental stage where many severe and enduring mental health problems emerge such as bipolar affective disorder, eating disorders, psychosis and severe depression, as well as personality pathology. If inadequately understood and treated, difficulties can strengthen and re-occur throughout adolescence and into adulthood. Evidence from attachment theory and similar developmental perspectives on psychopathology support the notion that schema theory may prove useful in conceptualising adolescent psychopathology, and lead to new approaches to treatment. The aim of the current review was to assess the methodological characteristics of studies exploring Early Maladaptive Schemas (EMS) in adolescence, and explore their main findings.

**Method:** Articles published between January 1990 Week 1 and April 2012 Week 1 were identified from Medline, Embase, PsycInfo, PsycArticles and CINAHL databases.

Identified articles were then used for reference and citation searches. Inclusion criteria stipulated studies measured EMS using a version of the Young Schema Questionnaire and involved participants aged 12–18 or with a mean age between 12 and 18 years. To assess methodological quality of identified papers, a quality criteria rating scale was developed based on existing guidelines.

**Results:** From the 19 studies identified for review some support was evident for the detection of EMS in adolescents, and the dimensionality of the schema model, where EMS were generally higher in clinical, versus non-clinical groups. Less consistent evidence was available regarding specific relationships between EMS and types of psychopathology, however, a predictive role of EMS on general symptoms of psychopathology was supported. Several methodological and theoretical limitations of studies were identified, such as the lack of validation of effects of EMS using other psychological constructs.

**Key Practitioner Message:**

- The evidence regarding the applicability of schema theory to adolescent psychopathology is promising, and it appears that high levels of EMS may indicate a risk for psychopathology.
- Schema theory may be limited by lack of developmental validity, however, the assessment of EMS has the potential to aid the conceptualisation of psychopathology.
- Future research should concentrate on improving the construct validity of EMS and their effects, with the potential of leading to interventions for severe and

complex adolescent problems, such as those associated with personality pathology.

**Keywords:** early maladaptive schemas, developmental psychopathology, young people

## **1.2. Introduction**

With the advent of an ever-increasing focus on providing accessible, effective, patient-centered, evidence-based interventions for psychological disorders in adolescents, the mental health profession relies upon continued research addressing the development of psychopathology. This area of research enables the formation of theoretically-underpinned psychological therapies which are developmentally informed, appropriate and effective. Several therapies originally developed for adult populations have been adapted to effectively treat younger patients, including cognitive-behaviour therapy (Lewinsohn, Clarke, Hops, & Andrews, 1990), interpersonal psychotherapy (Mufson et al., 1994; 2004) and psychodynamic psychotherapy (Trowell et al., 2007).

Schema therapy (Young, Klosko, & Weishaar, 2003) was originally developed to treat adults with personality disorders; helping patients who presented with chronic, complex difficulties often deemed ‘hard to treat’. It aimed to provide a gap that Young felt was left by more traditional forms of cognitive therapy. Schema therapy has since been evidenced to be effective in treating both Axis I and II disorders in adults (see Masley, Gillanders, Simpson, & Taylor, 2011) and is currently in Scottish practice guidelines as a recommended treatment for adult borderline personality disorder (BPD; Scottish Government, 2011).

Adolescence is a developmental stage where many severe and enduring mental health problems emerge such as eating disorders, bipolar affective disorder, psychosis and severe depression. If inadequately understood and treated, such symptom profiles can strengthen and reoccur throughout adolescence and into adulthood. Common mental health problems among adolescents include anxiety, depression, behavioural difficulties and emotional distress (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003), and deliberate self harm and suicide (Hawton & James, 2005).

There is also a growing recognition of emerging BPD symptoms in young people (Bradley, Conklin, & Westen, 2005; Westen & Chang, 2000). Applying this diagnosis to adolescents, by definition still forming their personalities, is controversial, and there are uncertainties regarding the stability and co-morbidity of current diagnostic criteria as applied to this age-group. While it is acknowledged that further research regarding early presentations and age of onset is required (Stepp, 2012), an age-appropriate conceptualisation of BPD, and evidence-based treatments are necessary. Specifically, potential early-intervention approaches targeting its social, behavioural, emotional and psychiatric precursors (Burke & Stepp, 2012). These approaches are lacking, in line with the limited evidence-base for effective interventions for other complex psychological problems in adolescence, including post-traumatic stress disorder (PTSD), self-harm and anorexia nervosa (Scottish Government, 2011).

Improving the accessibility and quality of treatments for young people with mental health difficulties is currently part of Scottish and UK-wide mental health targets and strategies (HM Government, 2011; Scottish Government, 2011a). In aiding this

process, reviews play an important role in providing necessary theory–practice links and synthesizing a dynamic and diverse field of research (SIGN, 2008).

To our knowledge, there is currently no formally published version of an adapted form of schema therapy for young people, however, theoretical papers addressing the application of the theory to this age group are amassing. The aim of this review is to collate and describe this body of research, and explore implications for applying the model to the treatment of psychopathology in adolescents.

### **1.2.1. Schema theory**

Early Maladaptive Schemas (EMS) are the central theoretical construct of schema therapy devised by Jeffrey Young (Young, 1994; Young et al., 2003). Young states that while EMS are present in all people they are detectable in more extreme, resistant forms in clinical groups.

Drawing similarities with attachment theory (Bowlby, 1969) EMS are akin to internal working models formed within key early relationships with caregivers and peers. When these early environments are negative, or fail to meet the core needs of the child, particular EMS develop in response to which particular needs are frustrated. Young states that some EMS can develop through too much of something (such as indulgence), as well as too little (i.e. deprivation).

The development of EMS are grouped into five domains: Disconnection and Rejection, Impaired Autonomy and Performance, Impaired Limits, Other–Directedness and Overvigilance and Inhibition. Currently there are 18 EMS (see Appendix 6.2).

EMS are defined as pervasive patterns or themes created during childhood and further strengthened over the transition into adulthood. In contrast to the automatic

thoughts, underlying assumptions and core beliefs of traditional cognitive models (Beck, Rush, Shaw, & Emery, 1979), EMS are proposed to contain memories, emotions and physiological sensations in addition to cognitions. As an individual encounters ongoing activation of their EMS, ultimately this blocks disconfirmation of the schema, and the individual's core emotional needs continue to be perceived as being unmet. Therefore, while formed in an initial attempt to cope with and assimilate information and emotional experience within early negative environments, they are seen as dysfunctional through their perpetuation into new environments and relationships. When activated in an individual, EMS drive coping styles of avoidance, surrender or overcompensation, which is the observable behaviour related to the schema.

The model also includes schema modes, or the precise emotional state of the individual in a given moment, also driven by underlying EMS. Through their strength, rigidity and consequences (experienced through coping styles and modes), Young states that EMS create a vulnerability to psychopathology (McGinn & Young 1996; Young et al. 2003), and therefore accurate identification and healing of these schemas is the central feature of treatment.

### ***1.2.2. Assessment of early maladaptive schemas***

To accompany the clinical assessment of EMS, Young developed a self-report measure, the Young Schema Questionnaire (YSQ: Young & Brown, 1990). This utilises a six point Likert scale for each item, where higher scores indicate greater EMS severity.

Originally in a long form testing 16 schemas within six domains, the YSQ has been subject to several revisions. Following an examination of the original YSQ's hierarchical structure, 15 EMS emerged from the analyses (Schmidt, Joiner, Young, &

Telch, 1995), which were then used for a shortened, 75 item version (YSQ-SF; Young & Brown, 1999). Lower-order factor analyses have yielded most support for this 15 EMS model (Calvete, Estévez, López de Arroyabe, & Ruiz, 2005; Hoffart, et al., 2005; Schmidt et al., 1995), although there is significant variation in agreeing on the higher order structure.

Whilst the most recent clinical versions (YSQ-L3: Young & Brown, 2003; YSQ-S3: Young & Brown, 2003a) assess 18 EMS within five domains, it is of note that the majority of research conducted on the schema model utilizes the 15 EMS model and related YSQ versions. A research version has been produced (Early Maladaptive Schema Questionnaire—Research Version; EMSQ-R: Ball & Young, 2001), however factor analysis of this also failed to provide support for the precise EMS or domain structures proposed by Young (Samuel & Ball, 2012).

Despite the structural disagreements both long and short versions of the YSQ show adequate test-retest reliability, internal consistency and discriminant validity in both clinical and non-clinical populations, both in English and other languages (e.g. Baranoff, Oei, Cho, & Kwon, 2006; Calvete et al., 2005; Cecero, Nelson, & Gillie, 2004; Glaser, Campbell, Calhoun, Bates, & Petrocelli, 2002; Rijkeboer & van den Bergh, 2006; Riso et al., 2006; Schmidt et al., 1995; Waller, Meyer, & Ohanian, 2001). However, there is less evidence on the construct validity of EMS in adults, with few studies testing effects of EMS alongside other psychological constructs.

### ***1.2.3. Early maladaptive schemas and psychopathology***

Many studies have explored comparisons of EMS in clinical and non-clinical populations within the context of different forms of problem including personality

disorders (Petrocelli, Glaser, Calhoun, & Campbell, 2001), anxiety and social phobia (Pinto–Gouveia, Castilho, Galhardo, & Cunha, 2006), depression (Renner, Lobbestael, Peeters, Arntz, & Huibers, 2012), eating disorders (Deas, Power, Collin, Yellowlees, & Grierson, 2011; Meyer & Gillings, 2004), anger (Calvete et al., 2005), trait aggressiveness (Tremblay & Dozois, 2009), sexual dysfunction (Quinta Gomes & Nobre, 2012) and substance misuse (Brotchie, Meyer, Copello, Kidney, & Waller, 2004).

These studies consistently propose that high levels of EMS confer vulnerability for developing psychological disorders; the presence of increased EMS differentiating individuals with psychological disorders from those without. While this is encouraging, the majority of this evidence is correlational, or fails to explore predictive relationships either in statistical analyses or longitudinal designs.

Within the adult literature, there is some preliminary support for the cognitive content–specificity hypothesis outlined by Beck, in that specific core beliefs characterize particular forms of psychopathology (see Beck & Perkins, 2001). Furthermore, other studies have successfully tested EMS within mediation models. Schemas were found to mediate the relationship between childhood emotional maltreatment and psychological distress in a sample of young adults (O’Dougherty Wright, Crawford, & Del Castillo, 2009), and the relationship between attachment and psychopathology (Bosmans, Braet, & Van Vlierberghe, 2010).

#### ***1.2.4. Schema theory and adolescent psychopathology***

Young proposes that EMS are developed during childhood and adolescence and continue to be elaborated throughout an individual’s lifetime (Young et al., 2003). While

being less than 18 years of age is stated as a contraindication of using schema therapy (Young et al., 2003), the rationale for exploring schema theory in adolescence lies within a developmental perspective of psychopathology.

Bowlby (1969) states that the attachment process becomes the basis for future personality, producing problems and symptoms largely referred to as ‘psychopathology’. The link between attachment and psychopathology has been extensively explored and evidenced (Brumaraiu & Kerns, 2010), however, the role of mediating factors is also proposed. These include perceptions of social relationships and support (Anan & Barnett, 1999; Larose & Boivin, 1997), emotion regulation and peer relationships (Bosquet & Egeland, 2006), negative thinking (Margolese, Markiewicz, & Doyle, 2005) and self-perception (Kenny, Moilanen, Lomax, & Brabeck, 1993; Wilkinson, 2004). These factors add a conceptual link from the primary attachment relationship through the developmental trajectory and towards potential for psychopathology. The specific role of unhelpful beliefs in the development of psychopathology has been evidenced in adolescent depression (McGee, Wolfe, & Olson, 2001), post-traumatic responses (Meiser-Stedman, Dalgleish, Glucksman, Yule, & Smith, 2009), and non-suicidal self-injury (Guerrya & Prinsteina, 2009).

In their review, Brumaraiu and Kerns (2010) grouped mediating factors into three areas of maladaptive cognitions, emotion regulation processes and self-concepts. While these constructs pre-date the schema model, all have been incorporated within it, indicating that schema theory has strong potential in conceptualising vulnerability to psychopathology. In addition to EMS referring to aspects other than cognitions, coping styles for EMS (of avoidance, surrender or over-compensation), and modes (child,

parent and adult modes, see Young et al., 2003) together encapsulate these three areas. As EMS, coping styles and modes were defined through clinical observation of adult psychopathology they conceptually lie at the other end of the developmental trajectory from early attachment experiences. They thus create a useful framework for conceptualising and treating levels of personality dysfunction and psychopathology which Bowlby predicted arise out of insecure attachment. In a similar manner to internal working models of attachment, schema theory therefore conceptualises more than cognitive content; referring also to the intra- and interpersonal constructs encapsulating beliefs, emotions, behaviours, images and physiological sensations (Young et al., 2003).

A rationale for exploring schema theory in adolescence also comes from the growing evidence which supports the recognition, diagnosis and need for treatment of personality pathology in adolescence, as well as the need to focus on the early precursors of this (Bradley et al., 2005; Crowell, Beauchaine, & Linehan, 2009; Shiner, 2009; Stepp, Burke, Hipwell & Loeber, 2012; Westen & Chang 2000).

Crowell, Beauchaine and Linehan's (2009) biosocial developmental model of BPD provides a framework for understanding how schema theory could be applied to similar presentations in adolescence. The model describes how chronic and ongoing patterns of emotion deregulation produce maladaptive social, cognitive, emotional and behavioural outcomes described as 'trait-like', and the basis for the 'borderline' personality. These patterns are thought to be observable before adolescence, and reflect clinical presentations of combined internalising and externalising problems, such as co-morbid mood and conduct disorders. The developmental model is similar to schema theory in that it conceptualises maladaptive traits and behaviours such as self-injury,

disordered eating, substance abuse and purging behaviours as serving a primary function of emotional regulation/avoidance. These rigid and persistent patterns of behaviour further increase the risk for BPD through dynamic negative effects on interpersonal relationships, and interference with healthy emotional development (Crowell et al., 2009).

Schema theory parallels this and other developmental models of severe psychopathology and personality disorders in adolescence (e.g. Blatt & Luyten, 2009; Shiner, 2009). It conceptualises the importance of the early invalidating environment and states that this differentially affects the developing individual, in combination with other risk factors such as temperament and genetic vulnerabilities. Through persistent reactivation and elaboration of EMS and maladaptive coping styles, the adolescent develops negative relationships with others, as well as increasingly deregulated emotional systems and impulsive behavioural patterns. Schema therapy therefore has the potential of directly addressing these core features of BPD in young people. It creates idiosyncratic formulations of pathology theoretically most useful in treating adolescents, where unique patterns of EMS may relate to personality pathology (Lawrence, Allen & Chanen, 2011). Furthermore, it explicitly targets the primary function of repetitive maladaptive behaviours (created through coping styles and related modes).

#### **1.2.5. The current review**

If Schema theory can be applied to adolescents then it is necessary for EMS to be detectable in adolescents, in a dimensional form, being evident in more severe forms in young people experiencing psychological disorders than those who are not. It is also necessary that different EMS relate to distinct types of psychopathology. To ensure that

this review captured the most comprehensive range of studies, any study of EMS in individuals aged from 11 to 19 years was considered for inclusion, including studies published in languages other than English.

In summary, this systematic review aims to answer the following questions:

1. What is the state of the evidence–base concerning the identification of EMS in adolescents?
2. What evidence is there regarding relationships between EMS and different types of adolescent psychopathology?

### **1.3. Method**

#### **1.3.1. Search strategy**

Articles for review were identified using an electronic search of Medline, Embase, PsycInfo, PsycArticles and CINAHL databases. Initial searches ran from January 1990 (year of publication of the schema therapy model) to April 2012, and were carried out by the main author (JEM). The following search terms were applied, utilising truncations [\*] to increase search sensitivity, in combination with the Boolean operator ‘AND’:

1. schema\*
2. schema therapy or schema theory
3. adolescen\* or child\* or young people or youth or girl or boy or youngster or teen or juvenile

Abstracts of the identified articles were reviewed by JEM and RHM, and inclusion and exclusion criteria applied to ascertain eligibility. To ensure identification of any missed articles, a hand search was conducted of reference and citation lists of all

short-listed articles, including those newly identified through this process. Two main authors of the included papers were also contacted (Esther Calvete and Caroline Braet). Any articles found by either reviewer were discussed with the other reviewer to verify reasons for inclusion.

### **1.3.2. Inclusion criteria**

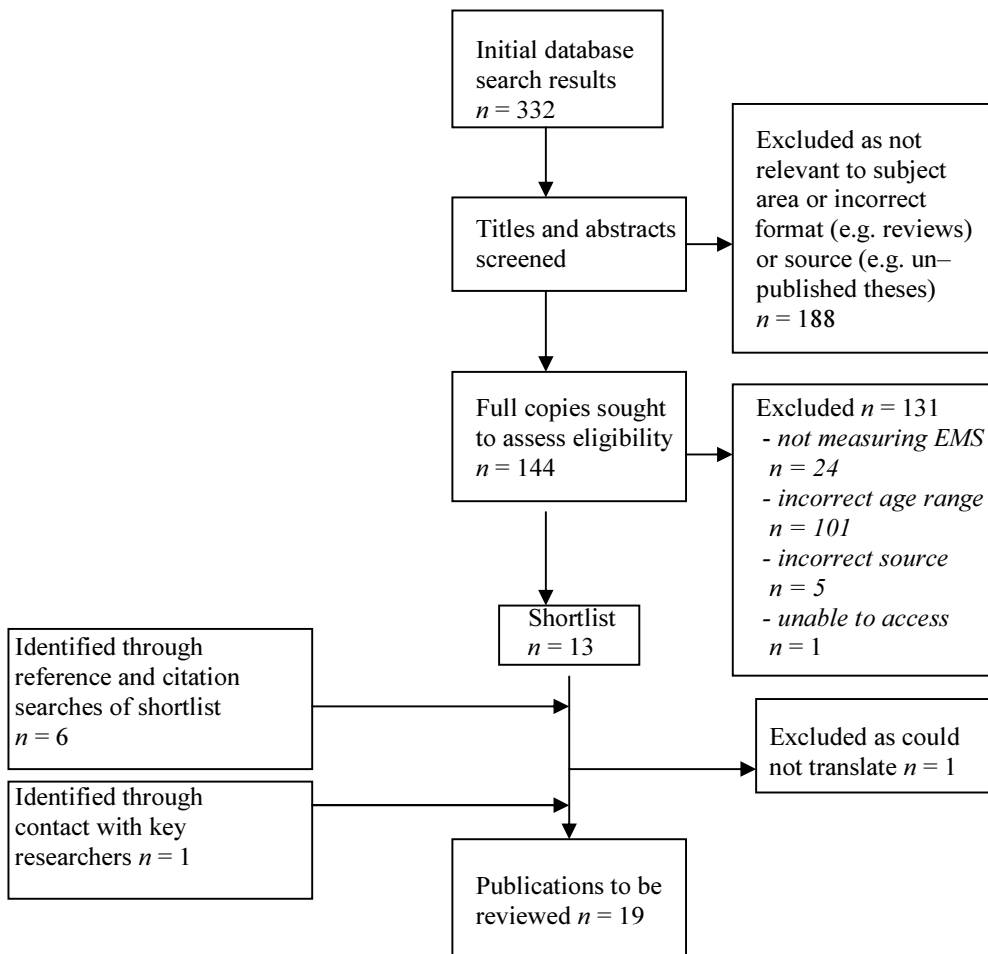
1. Participants aged between 12 and 18 years, or studies with a mean age between 12 and 18 years and a range stretching one year more or less than this (e.g. 11 to 18 years or 12 to 19 years).
2. Studies explicitly measuring Young's Early Maladaptive Schemas, identified using a version of the Young Schema Questionnaire (YSQ)

### **1.3.3. Exclusion criteria**

1. Studies measuring schemas as a general concept / other constructs which are not explicitly Young's Early Maladaptive Schemas (EMS)
2. Book chapters, conference proceedings, theoretical papers or reviews
3. Unpublished dissertations

The selection procedure is presented in Figure 1.1.

**Figure 1.1.** Flow chart of the study selection process



#### **1.3.4. Quality rating**

To assess methodological quality of the identified papers, a quality criteria rating scale was developed based on existing guidelines (Guidelines for completing the Clinical Research Evaluation Sheet for Trainees: CREST, Peck, Dow and Goodall, unpublished; Scottish Intercollegiate Guidance Network: SIGN, 2008). It was adapted to be relevant to studies included in this review, including the use of a specific item for version of YSQ used (see Appendix 6.3).

Studies were rated on 18 items under the areas of study objectives, sample selection, sample description, design / measures, statistics and results / discussion. A maximum score of 2 or 1 was awarded if a criterion was met, 1 for some items if it was partially met, and 0 if it was not reported or not met. The total possible score was 30, and studies were then given a quality classification of 'high' if they achieved over 75%, 'moderate' for 50% to 75%, and 'low' for under 50% of the total possible.

All studies were reviewed in alphabetical order and rated by JEM. Eleven (58%) of the included articles were randomly selected for rating by a second reviewer (RHM). Overall classification agreement was good (82%), and total scores were rated the same, or within one mark of each other for 73% of the articles. Inter-rater agreement was calculated as  $r = .98$  ( $p < .001$ ). Discrepancies were resolved between the reviewers through discussion, whereby 100% agreement was reached for all scoring and classification (see Table 1.1 for study scores).

The inclusion of low-scoring studies was further discussed by JEM and RHM. It was decided that while omission of such papers could be made on the basis of poor methodological quality, each study offered unique aspects (such as type of clinical group, design). At such an early stage of the evidence-base, and in the absence of known, published reviews in the same area, it was decided that this consideration warranted the inclusion of such studies.

#### **1.4. Results**

A total of 19 studies were identified and reviewed. The main characteristics of these studies are presented in Table 1.2

**Table 1.1** Study scores from methodological quality assessment

<b>Study</b>	<b>Total score (0-30)</b>	<b>Quality rating</b>
Braet et al., 2012	26	High
Calvete, 2008	26	High
Calvete et al., 2011	22	Moderate
Calvete & Estevez, 2009	22	Moderate
Calvete & Orue, 2010	19	Moderate
Calvete & Orue, 2012	24	High
Cooper et al., 2005	12	Low
Dozois et al., 2012	19	Moderate
Gongora et al., 2009	19	Moderate
Lumley & Harkness, 2007	27	High
Muris, 2006	21	Moderate
Roelofs et al., 2011	23	Moderate
Simmons et al., 2006	21	Moderate
Stallard & Rayner, 2005	19	Moderate
Turner et al., 2005	9	Low
Turner et al., 2005a	14	Low
Van Vlierberghe et al., 2009	23	Moderate
Van Vlierberghe et al., 2010	28	High
Van Vlierberghe & Braet, 2007	23	Moderate

**Table 1.2** Summary of included studies

Authors (year); country	Sample (mean & range of age were provided); gender (Male/Female)	Design/relevant comparisons	EMS assessment	Other measures	Relevant findings
Braet et al. (2012); Belgium	Clinically referred; non-referred; 12-18yrs ( $M = 15.05$ , $SD=1.72$ ); $n=228$ M/F	3 age cohorts (12-14, 14-16, 16-18), regression analyses of each age cohort for each stressor, adding in gender & EMS for effect on depression	YSQ-A; ED, FA, DS, DI	KID-SCID; YSR; CBCL; EMBU-A; QLE-P; OBVQ-A	4 EMS together correlated with depression score: 12-14 yrs ( $r=.48$ ), 14-16yrs ( $r=.39$ ) 16-18yrs ( $r=.62$ ), all***; EMS mediated interaction of peer rejection and depression in 16-18yr-olds
Calvete (2008); Spain	Community; 14-18yrs ( $M= 15.80$ , $SD=1.08$ ); $n=974$ ; M/F	6 month longitudinal design, EMS between groups compared for age & gender; correlations between all variables, structural equation modelling for aggression prediction	YSQ-SF; ET	IBSA; YSQ-SF; SPSI-R; YSR	ET predicted aggressive & delinquent behaviour at base-line & 6 months ( $r=.50-.60$ ) all ***; moderated by impulsivity in males only
Calvete & Estevez (2009); Spain	Community; mean age 15.99yrs ( $SD=1.08$ ); $n=657$ ; M/F	Multiple regression using EMS, impulsive style & stressors predicting drug-use; test of gender effects	YSQ-SF; ET; IS	APES; SPSI-R; DUA	Correlations of drug use & ET ( $r=.63^{**}$ ), IS ( $r=.26^{*}$ ); moderated by gender
Calvete & Orue (2010); Spain	Community; 12-16yrs ( $M=14.20$ , $SD= 1.34$ ); $n=1371$ ; M/F	Structural equation modelling for cognitive variables predicting aggressive behaviour via information processing; test of gender effects	YSQ-LF; ET; MA	SIPQ; IBSA; RPQ	ET related to proactive (.16) & MA to reactive (.16) aggression; only ET direct association with anger (.11); MA related to hostile interpretation (.24) & negative aggression response (-.24); ET higher in males
Calvete et al. (2011);	Community; 12-17yrs;	Correlation between child-	YSQ-SF; ET	CTS-CP; CTS-PC;	Correlation between total

**Table 1.2 (continued)**

Authors (year); country	Sample (mean & range of age were provided)	Aims/Design	EMS assessment	Other measures	Relevant findings
Spain	<i>n</i> =1427; M/F	parent violence & ET; multiple regression analyses for ET predicting violence		SEV; MSPSS; DDI; YSR; DUA; RSE; SPSI-R	violence & ET ( $r=.32$ ); verbal > physical (.33 > .14) all ***; ET predicted child-parent violence
Calvete & Orue (2012); Spain	Community; mean age 14.07yrs ( <i>SD</i> =1.38); <i>n</i> =650; M/F	Correlations between all variables; structural equation modeling for information processing as mediator between EMS & aggressive behaviour	YSQ-LF; ET; MA	SIPQ; IBSA; RPQ	ET related to higher levels of anger than MA (.31>.21) both ***; MA related to higher levels of hostile attributions than ET (.22*** > .12*) at baseline
Cooper et al. (2005) UK	Community; 17-18 yrs (M=17.6-17.9yrs, <i>SD</i> = 42-.44, reported by group); <i>n</i> =367; F	4 different BDI/EAT groups compared for EMS using ANOVA; discriminant function analyses for YSQ/EDBQ score predicting group	YSQ-SF	EAT; BDI; EDBQ	YSQ did not distinguish 'healthy' group from groups high on eating disorder symptoms, or identify beliefs specific to eating disorders
Dozois et al. (2012) Canada	Clinical; non-psychiatric controls; 13-17yrs; (M=14.68, <i>SD</i> =2.33); <i>n</i> =47; M/F	MANOVA of EMS in depressed versus non-psychiatric groups; correlation of cognitive distance & EMS	YSQ-SF	DICA-IV; BDI-II; SPSA; PDST	Schemas in DR <sup>a</sup> , IA <sup>a</sup> & IL domains higher in depressed versus non-depressed group, all***
Gongora et al. (2009) Argentina	Community; 13-18yrs (M=14.83, <i>SD</i> =2.8); <i>n</i> =553; M/F	T-tests comparing EMS in eating disorders by gender & age group (13-15 & 16-18 years)	YSQ-SF	ICA; MAC	Higher EMS in females & 16-18 year-olds compared to males and 13-15 year-olds (see Tables 1.2-3)
Lumley & Harkness (2007); Canada	Depressed referred; non referred; 13-19yrs (M=	Anxious versus anhedonic symptom profile groups	YSQ-SF	K-SADS; BDI-II; MASQ; CECA	ED mediated relationship between physical abuse &

**Table 1.2 (continued)**

Authors (year); country	Sample (mean & range of age were provided)	Aims/Design	EMS assessment	Other measures	Relevant findings
	15.80, SD=1.56); n=76; M/F	compared for EMS; mediation regression analyses between types of adversity & depression symptom profile			anhedonic symptoms (Mean effect = 1.41, SE=.90, CI = .07-3.57); SS (Mean effect = 2.81, SE=1.57, CI= .30-6.40) & SI (Mean effect=3.70, SE = 1.92, CI=1.62-8.07) the relationship between emo- tional maltreatment & an- hedonic symptoms; VH between physical abuse (Mean effect=2.62, SE=.95, CI=.93-4.63), & emotional maltreatment (Mean effect= 5.94, SE=2.52, CI=1.49 – 11.47) & anxious-depressed symptoms
Muris (2006); The Netherlands	Non-clinical; 12-15yrs (M=13.32, SD=.95); n=173; M/F	Correlation between perceived parental rearing & EMS controlling for age & gender; correlation between personality & EMS; regression analyses of neuroticism & parental rearing predicting EMS, & EMS predicting psycho- pathology	YSQ with age-adapted wording; 16 EMS	EMBU-C; BFQ-C; PQY	Correlations of EMS with varied negative perceived parenting except for DI;EMS & neuroticism (r values .27- .53, all***); regression analyses revealed neuroticism & parental rearing predicted EMS & various EMS predicted depression, anxiety & eating disorder symptoms, disrupt- ive behaviour & substance misuse; see Tables 1.2-3 for age & gender effects

**Table 1.2 (continued)**

Authors (year); country	Sample (mean & range of age were provided)	Aims/Design	EMS assessment	Other measures	Relevant findings
Roelofs et al. (2011); The Netherlands	Community; 12-18yrs (M=14.7, SD=1.6); n=222; M/F	Correlations between EMS & quality of attachment & depressive symptoms; regression analyses for mediation of EMS in relation between quality of attachment & depressive symptoms	YSQ-A	IPPA; BDI-II	Varied strength of correl- ations between EMS & symptoms ( $r=.26-.57$ ); DR & OD domains mediated relat- ionship between quality of attachment & symptoms, specifically MA & SI in 'trust in parents', and SI & SS in 'peer rejection'
Simmons et al. (2006); UK	Referred; non-clinical controls.; 13-17yrs (M=15.9, SD=1.12); n=29; F	Mann Whitney U test of EMS in depressed versus control group; correlation between adolescents' & mothers' EMS scores; hierarchical regression of EMS predicting depression controlling for DAS & AFQ scores	YSQ-SF	DAS-24; ATQ; MFQ; SCID	Higher EMS in depressed versus control group for total EMS & 9 EMS*; only VH added significant contribution to prediction of depression in context of DAS & ATQ scores
Stallard & Rayner (2005); UK	Community; 11-16yrs (M=12.91, SD=1.56) n=46; M/F	Correlation of YSQ-SF & SQC; Mann Whitney U test of EMS scores for 11- 12 versus 13-16 yr olds	YSQ-SF; SQC	-	Correlation of YSQ-SF & SQC significant for 10 items & total EMS ( $r=.76$ )***; 11-12yrs vs.13-16 yrs group compared (see Table 1.2)
Turner <i>et al.</i> (2005)*; UK	Community; 17-18yrs; n=367; F	Multiple regression analyses of EMS mediating prediction of eating disorder symptoms by perceived parental bonding	YSQ-SF	PBI; EAT	EMS uniquely predicted eating disorder symptoms; DI & DS mediated relation- ship between parental parental bonding & eating disorder symptoms

**Table 1.2 (continued)**

Authors (year); country	Sample (mean & range of age were provided)	Aims/Design	EMS assessment	Other measures	Relevant findings
Turner et al. (2005a); UK	Community; 17-18yrs; ( $M=17.7$ ); $n=46$ (from*) F	T-test comparing index (BMI>25) & control (BMI in normal range) groups on EMS; within-group correlations for PBI & EMS	YSQ-SF	EAT; BDI; EDBQ; PBI	Overweight group scored higher on 3 EMS compared to non-overweight group: ED( $t=-2.7^{**}$ ), AB( $t=-2.8^{**}$ ) SUB( $t=-2.1^*$ )
Van Vlierberghe & Braet (2007); Belgium	Referred; non-referred controls; 12-18yrs; ( $M=14.91$ , $SD=1.53$ ); $n=182$ ; M/F	MANOVA between EMS & weight; exploratory ANOVAs for each EMS; hierarchical regression analyses for EMS predict- ing internalising & external- ising symptoms, SES, age & gender controlled for	YSQ-A	CBCL; YSR	MANOVA showed that obese group differed to control group on EMS $F_{(15,158)}=1.85^*$ ; scoring higher on 6 EMS; SI & VH predicted internalising, & ET & DI externalising symptoms
Van Vlierberghe et al. (2009); Belgium	Referred; non-referred; 12-18yrs ( $M=14.97$ , $SD$ $=1.52$ ); $n=64$ ; M/F	EMS compared for over- weight with no 'loss of control over eating' (LC) & those with LC using ANOVA; correlation of EMS & eating, weight & shape attitudes, & EMS & depressive symptoms	YSQ-SF	ChEDE; CDI	ANOVA showed LC group scored higher than no LC group on 6 EMS; EMS correlated with eating disorder cognitions, dietary restraint attitudes & depress- ive attitudes
Van Vlierberghe et al. (2010); Belgium	<i>Study 1</i> : Non referred; 12-18yrs ( $M=14.87$ , $SD$ $=1.65$ ); $n=635$ ; M/F	Confirmatory factor analysis & internal consistency of YSQ-A	YSQ-A	-	First (15EMS) & second (3-5 domain) order models confirmed; all schema subscales internally consis- tent & inter-correlated***
	<i>Study 2</i> : Referred; non- Referred; 12-18yrs ( $M=$	MANCOVA comparing EMS for referred versus	YSQ-A	YSR; CBCL; KID-SCID	EMS higher in referred, versus non-referred group

**Table 1.2 (continued)**

Authors (year); Country	Sample (mean & range of age were provided)	Aims/Design	EMS assessment	Other measures	Relevant findings
	14.60, <i>SD</i> =1.60); <i>n</i> =216; M/F	non-referred group, age controlled; multiple regression analyses for EMS predicting internalising & externalising symptoms; logistic regression analyses between EMS & DSM- orientated scores, & EMS & KID-SCID diagnoses			( $F_{15,198}=1.86^*$ ); EMS pre- predicted 29.8% of total internalising, & 21.3% of total externalising symptoms & unique prediction of types of problem/diagnosis by specific EMS

\* $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ ; *APES* Adolescent Perceived Events Scales; *ATQ* Automatic Thoughts Questionnaire; *BDI/BDI-II* Beck Depression Inventory; *BFQ-C* Big Five Questionnaire for Children; *CBCL* Child Behaviour Checklist; *CDI* Child Depression Inventory; *CECA* Childhood Experience of Care and Abuse interview; *ChEDE* The Eating Disorder Examination – Child version; *CTS-CP* Conflict Tactic Scales – Child-Parent; *CTS-PC* Conflict Tactic Scales – Parent-Child; *DAS-24* Dysfunctional Attitude Scale-24; *DDI* Dimensions of Discipline Inventory; *DICA-IV* Diagnostic Interview for Children and Adolescents-IV; *DUA* Drug Use in Adolescents; *EAT* Eating Attitudes Test; *EDBQ* Eating Disorders Belief Questionnaire; *EMBU-A / EMBU-C* Egnä Minna Beträfande Uppfostran – Adolescent / Child version; *EMS* Early Maladaptive Schemas: *DI* Dependence/Incompetence; *DS* Defectiveness/Shame; *ED* Emotional Deprivation; *ET* Entitlement/Grandiosity; *FA* Failure; *IS* Insufficient Self-Control; *MA* Mistrust/Abuse; <sup>a</sup>Some Schema Domains used in Dozois et al., (2012) contain different EMS from other studies: *DR<sup>a</sup>* (*ED, EI, MA, SI, DS*), *IA<sup>a</sup>* (*SUB, DI, FA, VH, AB, EN, IS*) *ES<sup>a</sup>* Exaggerated Standards (*SS, US*); *IBSA* The Irrational Beliefs Scale for Adolescents; *ICA* Inventory of eating behaviours; *IPPA* Inventory of Parent and Peer Attachment; *KID-SCID* Structured Clinical Interview for DSM-IV – Childhood version; *K-SADS* Schedule for Affective Disorders and Schizophrenia, Child and Adolescent version; *MAC* Mizes Anorexic Cognitions Questionnaire; *MFQ* Mood and Feelings Questionnaire; *MSSPS* Multidimensional Scale of Perceived Social Support; *OBVQ-A* Olweus Bully/Victim Questionnaire – Adolescent version; *PBI* Parental Bonding Instrument; *PDST* Psychological Distance Scaling Task; *PQY* The Psychopathology Questionnaire for Youths; *QLE-P* Questionnaire of Life Events; *RPQ* Reactive-Proactive Aggression Questionnaire; *RSE* Rosenberg Self-Esteem Inventory; *SCID* Structured Clinical Interview for DSM-IV; *SEV* Scale Exposure to Violence; *SIPQ* The Social Information Processing Questionnaire; *SPSA* Harter Self-Perception Scale for Adolescents; *SPSI-R* Short Form of the Social Problem-Solving Inventory Revised; *SQC* Schema Questionnaire for Children; *YSQ-A* Young Schema Questionnaire – Adolescent Dutch version; *YSQ-SF* Young Schema Questionnaire – Short Form (S2; 75 items); *YSR* Youth Self Report.

In total 7917<sup>1</sup> participants were included described as a mixture of community, referred, non-referred, clinical and non-clinical groups<sup>2</sup>. Clinical groups included adolescents referred for emotional and behavioural problems, depressed patients, overweight and obese groups and those with eating disorder symptoms. Community samples were mainly recruited from schools.

The mean age of participants ranged from 12.9 to 17.8 years (age range 11–19 years old). All studies reported gender where indicated by participants; 4274 were stated to be female (54%), and 3473 male (44%), leaving 170 unknown (2%). Social Economic Status (SES) was measured using the Hollingshead four-factor index (Hollingshead, 1975) in five studies (Braet, Van Vlierberghe, Vandevivere, Theuwis & Bosmans, 2012; Lumley & Harkness, 2007; Van Vlierberghe & Braet, 2007; Van Vlierberghe, Braet, & Goossens, 2009; Van Vlierberghe, Braet, Bosmans, Rosseel, & Bögels, 2010), and adolescents were reported to be mainly in lower middle and middle classes. Two studies carried out in Spain used SES criteria from the Spanish Society of Epidemiology (2000). These reported a more equal spread of SES levels from low, medium-low, medium, medium-high and high levels (Calvete, Orue, & Sampedro, 2011; Calvete & Orue, 2012). Three other Spanish studies reported that adolescents mostly came from low-medium and medium SES levels (Calvete, 2008; Calvete & Estevez, 2009), one using an unspecified measure (Calvete & Orue, 2010).

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<sup>1</sup> Turner, Rose & Cooper, 2005; 2005a are excluded from calculations in this section as this study used participants counted in Cooper, Rose & Turner, 2005. Discussion concerning inclusion of these studies was carried out by JEM and RHM, and a decision was reached on the basis that they included different measures and analyses, albeit on the same individuals, across the different studies.

<sup>2</sup> Such differences in describing these groups is a limitation of the studies in general, as participants within similar (e.g. referred and clinical) groups are likely to be heterogeneous. For ease, however, groups will be described using the terms used in the articles.

Ethnicity was described in four studies (Dozois, Eichstedt, Collins, Phoenix, & Harris, 2012; Muris, 2006; Roelofs, Lee, Ruijten, & Lobbestael, 2011; Turner, Rose & Cooper, 2005), and participants were referred to as mostly, or solely Caucasian or ‘white’ (90–100%).

Adolescents with learning difficulties and developmental disorders were excluded in three studies (Van Vlierberghe & Braet, 2007; Van Vlierberghe et al., 2009; 2010). Dozois and colleagues (2012) only included individuals who scored at, or above average on the Vocabulary subtest of the Wechsler Intelligence Scale for Children – 4<sup>th</sup> Edition (WISC–IV, Canadian Norms: Wechsler, 2004). The remaining studies did not provide explicit information on exclusion criteria.

#### **1.4.1. Assessment of early maladaptive schemas**

All EMS were assessed using self-report versions of the Young Schema Questionnaire (YSQ). No study used additional information from clinical interviews to validate schema measurement.

Two (Braet et al., 2012; Van Vlierberghe et al., 2010) of the five studies to receive a high quality rating used the age-adapted YSQ developed in Dutch (YSQ–A; Van Vlierberghe, Rijkeboer, Hamers, & Braet, 2004), and are presented as key papers in this review. The YSQ–A was first used to study schemas in adolescents by Van Vlierberghe and Braet (2007) and later by Roelofs and colleagues (2011), both studies receiving a moderate quality classification. Collectively, these four studies used the YSQ–A to measure 15 EMS in 1255 community and clinical participants (Roelofs et al., 2011; Van Vlierberghe & Braet, 2007; Van Vlierberghe et al., 2010), and four EMS in 228 adolescents (Braet et al., 2012).

The YSQ–A varied in terms of internal consistency; Cronbach alpha values ranged from ‘poor’, for example Enmeshment/Underdeveloped Self (alpha = .63), to ‘very good’ for Abandonment/Instability (.85) and Emotional Inhibition (.83). Stronger indications of overall internal consistency were found for schema domain scores in the YSQ–A; alpha coefficients ranging from .77 for Other Directedness, to .92 for Disconnection/Rejection (Van Vlierberghe et al., 2010). None of the studies reviewed assessed test–retest reliability of the YSQ–A.

All other reviewed studies used adult versions of the YSQ. One paper included details of psychometrics from a separate study testing the YSQ–SF in an adolescent population, noting that these were adequate (Lumley & Harkness, 2007). Other studies referred to YSQ psychometrics based on adult populations to support the selection of the scale, however, a few went on to provide psychometrics for the YSQ in their own results.

In general, internal consistency varied for individual items of the adult version of YSQ–SF. The Entitlement/Grandiosity scale was the least reliable, as evidenced in Van Vlierberghe and colleagues’ (2009) paper (alpha coefficient .59), compared to the superior Social Isolation scale (.92). Simmons and colleagues (2006) reported Cronbach’s alpha values between .78 and .98, however, did not specify to which EMS scales these referred. Calvete (2008) reported the alpha coefficient of Entitlement/Grandiosity as .69, compared to .78 and .80 elsewhere (Calvete & Orue 2010, 2012; Calvete et al., 2011). The Mistrust/Abuse schema scale was rated at alpha = .79 and .80 (Calvete & Orue, 2010; 2012). Lastly, Lumley and Harkness (2007) reported

that the alpha coefficient internal consistency estimate for the entire YSQ–SF in their study was .95.

Test–retest reliability of the adult YSQ–SF was assessed by Simmons and colleagues (2006) only, evidencing good reliability over a two week period. Convergent reliability was also tested in this study, and in comparison to semi–structured interviews, correlation were reported as being between .56 and .63. Despite these psychometrics being unique in the papers reviewed, this study received only a low to moderate rating, and was limited by a small sample size ( $n = 29$ ).

Three studies altered the wording to aid comprehension within the target age group or omitted items (Calvete & Orue, 2010; 2012; Simmons, Cooper, Drinkwater, & Stewart 2006), however, these appeared to be idiosyncratic versions without further validation outside of the individual studies. Stallard and Rayner (2005) created the Schema Questionnaire for Children (SQC) and used comparison with the 15 EMS YSQ to ascertain face, and convergent validity. The authors stated that face validity of the SQC was good, however, there was only support for 10, out of the 15 items relating to Young’s EMS. Internal consistency for the SQC (Cronbach’s  $\alpha = .82$ ) was found to be inferior to the YSQ ( $\alpha = .94$ ).

#### **1.4.2. Early maladaptive schemas in adolescence**

Some evidence was found regarding the presence, variation and dimensionality of EMS in adolescents, provided by the five studies receiving ‘high’ ratings of quality (Braet et al., 2012; Calvete, 2008; Calvete & Orue, 2012; Lumley & Harkness, 2007; Van Vlierberghe et al., 2010). Despite this, the largest samples consisted wholly of non-

clinical adolescents (Calvete, 2008; Calvete & Orue, 2012), and none of the studies used designs enabling construct validity of EMS to be assessed.

Two high quality studies compared a cross-section of clinically referred and non-referred groups of 12 to 18 year-olds (Braet et al., 2010, Van Vlierberghe et al., 2010), two included community samples of Spanish adolescents; one aged 14 to 18 years (Calvete, 2008) and the other with a mean age of 14 years (Calvete & Orue, 2012), and Lumley and Harkness (2007) used a sample of 13 to 19 year-olds who met a diagnosis of depression, recruited from a mixture of referred and non-referred populations.

In the only high quality study of both a referred and non-referred sample to assess all 15 EMS using the YSQ-A, Van Vlierberghe and colleagues' (2010) results offer most insight into the variation of EMS between samples. This study, however, is limited by the lack of control for similar, related variables, thus providing no construct validation that EMS and not a third variable explained between-group differences. The study did, however, outline explicit inclusion and exclusion criteria for participants (no presence of learning difficulties or pervasive developmental disorder); supporting the generalization of its findings. While scores on EMS were generally lower for the non-referred, compared to the referred group ( $F_{(15, 198)} = 1.86, p < .05$ ), this is noticeably a small effect. The inclusion of patients with disorders likely to have strong influences from neurobiological factors, such as attention deficit hyperactivity disorder (ADHD) may be one cause of this. In addition, significant effects were not found between groups for the schemas Dependence/Incompetence, Entitlement/Grandiosity, Insufficient Self-

Control/Discipline, Emotional Inhibition and Unrelenting Standards; potentially lowering the over all effect size.

Furthermore, while there is no information available on how scoring translates to the adolescent population, in scoring the adult YSQ short form Young notes that scores of two or more are considered 'meaningful'; nine of the 15 EMS in Van Vlierberghe and colleagues' (2010) study were at or above this level in the non-referred group. Hence, although the conclusions from the authors of this study claim these results support the dimensionality of the schema concept in adolescents, a significant number of EMS do not seem indicative of referred status. Better support for the schema model was evidenced in analyses testing the predictive effects of EMS on psychopathology. EMS were found to account for 20–30% of internalising and externalising problem behaviour, as well as being predictive of different types of psychopathology. During the initial part of the study measuring EMS in non-referred adolescents, confirmatory factor analyses evidenced Young's first order model of 15 separate EMS. No preferential evidence was found for the three-, four- or five-factor model, indicating that each was adequate.

The two studies undertaken by Calvete and Orue (Calvete, 2008; Calvete & Orue, 2012) exclusively measured the EMS Entitlement/Grandiosity and Mistrust abuse in community samples. Despite using a different scoring method from Van Vlierberghe and colleagues' (2010) study, these papers evidence very low mean EMS scores in this population. They found Entitlement/Grandiosity to positively correlate with related constructs of aggression, impulsivity and delinquent behaviour (Calvete, 2008), and Mistrust/Abuse with the conceptually related hostile attributions of social situations (Calvete & Orue, 2012).

Within depressed adolescents, Braet and colleagues (2012) evidenced further dimensionality of the schema concept, however, this is limited to a 'Depressive Schema score' consisting of Emotional Deprivation, Failure to Achieve, Defectiveness/Shame and Dependence/Incompetence schemas. In this study, comparisons were made between patients referred for 'assessment and treatment of emotional and behavioural problems', with non-referred individuals. Results showed the 'Depressive Schema score' was highest in inpatient referred ( $M = 0.40$ ,  $SD = 1.28$ ), following by outpatient referred ( $M = 0.02$ ,  $SD = 1.14$ ), and lastly non-referred ( $M = -0.22$ ,  $SD = 0.64$ ) adolescents. It is unclear how these scores were calculated, making it difficult to make comparisons between these, and other studies, however, schemas clearly varied in severity between groups. Levels of depressive symptoms were equally found to descend in severity between the inpatient-referred, outpatient-referred and non-referred groups respectively for all but parent-rated depressive symptoms, giving some further support for the dimensionality of schema scores between different levels of psychopathology.

The use of additional measures is evident in some papers (e.g. Calvete, 2008; Calvete & Orue, 2012; Simmons et al., 2006), however, it is a noticeable limitation of many of the otherwise high quality studies. This has considerable implications regarding construct validity of EMS, which remains unproven in the evidence-base reviewed.

Further evidence pertaining to the application of schema theory in adolescents was gained from the results of less high quality studies, however, the validity of these findings is less sound. Van Vlierberghe, with Braet (2007) and Braet and Goossens (2009) further demonstrated the dimensionality of the schema concept in overweight adolescents. Within two groups of overweight adolescents, those referred to an obesity

treatment centre for loss of control over eating evidenced more severe levels of EMS than those not referred for treatment (Van Vlierberghe et al., 2009). When compared to non-obese controls, adolescents referred for obesity treatment exhibited an overall greater severity of EMS,  $F(15, 158) = 1.85, p < .05$  (Van Vlierberghe & Braet, 2007). To add further support to the concept that EMS are dysfunctional, these studies evidenced that EMS were predictive of internalising and externalising symptoms (Van Vlierberghe & Braet, 2007), and correlated with depressive symptoms (Van Vlierberghe et al., 2009). Again, neither study tested EMS alongside other constructs to validate these findings, however, they offer an interesting and novel application of the model to overweight adolescents.

Muris (2006) incorporated a personality measure in his study of EMS and psychopathology, with the potential to add validation to effects of EMS, especially considering the role of temperament and personality in the development and action of EMS (Young et al., 2003), and their relationship to psychopathology (Shiner & Caspi, 2003). Indeed, neuroticism and perceived detrimental early parenting were found to predict EMS, and EMS also evidenced a predictive relationship to types of psychopathology. All three constructs were not, however, added together into a multiple regression analysis in the prediction of psychopathology, failing to add validity to the construct in the context of potentially confounding factors.

Simmons and colleagues (2006) was the only reviewed article to evidence the difference between clinical (depressed) and non-clinical groups using measurement of total overall schema score ( $U = 5.5, p < .001$ ), total percentage of clinically significant schemas ( $U = 0, p < .0001$ ), and total number of clinically significant schemas ( $U = 2,$

$p < .001$ ). This study was also uniquely included other measures of cognitive constructs, and added these into analyses predicting depressive symptoms. Only one EMS (Vulnerability to Harm/Illness) evidenced a unique contribution to this model, however, and the study suffered from a small sample size ( $n = 29$ ), potentially limiting these findings.

In another paper to assess the relationship between EMS and depressive symptoms, Dozois et al. (2012) evidenced a significant difference on four schema domains between groups,  $F_{(4,42)} = 35.75$ ,  $p < .001$ , and addressed EMS alongside additional measures of self concept and cognitive organisation. Their results indicated that schema domains produced different effects on measures of cognitive organisation and depressive symptoms from related indices of self-perception, indicating that these are separate constructs.

#### **1.4.3. Effects of age and gender on early maladaptive schemas**

Several effects of age and gender were evidenced within the five studies given a high quality rating. Van Vlierberghe et al. (2010) found effects of age in 12 to 18 year-olds for three EMS, two decreasing with age (Social Isolation and Defectiveness/Shame) and one increasing (Unrelenting Standards). The effects evidenced were small, though significant, and varied from those found by Lumley and Harkness (2007). This latter study evidenced larger effects of age, with the similar result in that Unrelenting Standards scores increased with age, however, conversely Social Isolation also increased with age, and an additional positive correlation was found for Emotional Inhibition.

Braet and colleagues (2012) used a unique design to further explore age differences, evidencing that the action of EMS may differ across ages within

adolescence. They evidenced that EMS acted as a cognitive diathesis in late, but not early or mid adolescence, indicating the potential complex quantitative and qualitative differences in EMS across adolescent development.

The key studies reviewed here suggested some effects of gender on presence of EMS. Within purely community samples, Calvete (2008; Calvete & Orue 2012) evidenced that higher Entitlement/Grandiosity schema scores were present in community males compared to females. Within a depressed sample, Lumley and Harkness (2007) found that the Vulnerability to Harm schema score was elevated in females compared to males.

All reviewed evidence regarding the effects of age and gender on EMS are presented in Tables 1.3 and 1.4.

**Table 1.3** Effect of age on various EMS

Study name	Test	EMS	Result
Calvete 2008	ANOVA: 14–15, ET versus 16–18 year-olds		No significant difference found (no values reported)
Gongora <i>et al.</i> 2009	t-test: 13–15, versus 16–18 year-olds	MA	Older > younger group score, $t_{(551)} = -2.95^*$
		US	Older > younger group score, $t_{(551)} = -2.29^*$
		EI	Older > younger group score, $t_{(551)} = -2.82^{**}$
		IS	Older > younger group score, $t_{(551)} = -2.48^*$
		SI	Older > younger group score, $t_{(551)} = -3.31^{**}$
		ET	Older > younger group score, $t_{(551)} = -3.07^{**}$
		DI	Younger > older group score, $t_{(551)} = 2.97^*$
		EN	Younger > older group score, $t_{(551)} = 2.20^*$
	–	No significant effect for 7 other EMS reported	
Lumley and Harkness 2007	Correlation of schema score with age	US	$r = .28^*$
		EI	$r = .24^*$
		SI	$r = .26^*$
		–	No significant effect for 12 other EMS reported
Muris 2006	Correlation of schema score with age	SS	$r = -.15^*$
		SU	$r = -.16^*$
		–	No significant effects for 14 other EMS reported
Stallard and Rayner 2005	Mann–Whitney U analysis: 11–12, versus 13–16 year-olds	VH	$Z = 2.09, p = .037$ No significant effects for 14 other EMS reported
Van Vlierberghe <i>et al.</i> 2010	Correlation of schema score with age	SI	$r = -.14^*$
		DS	$r = -.16^*$
		US	$r = .14^*$
		–	No significant correlation for other 12 EMS reported

\*  $p < .05$ ; \*\* $p < .01$ ; *ET* Entitlement/Grandiosity; *EI* Emotional Inhibition; *EN* Enmeshment; *DI* Dependence/Incompetence; *IS* Insufficient Self-Control; *MA* Mistrust/Abuse; *SI* Social Isolation; *SU* Social Undesirability; *SS* Self-Sacrifice; *US* Unrelenting Standards; *VH* Vulnerability to Harm – assessed using the SQC.

**Table 1.4** Effect of gender on various EMS

Study name	Test	EMS	Result
Calvete 2008	ANOVA	ET	Male > female score, $F_{(1, 973)} = 24.59^*$ , $d = -.29$
Calvete <i>et al.</i> 2009	t-test	ET IS	Male > female score, $t_{(655)} = -3.80^*$ No significant effect, $t_{(655)} = .98$
Calvete <i>et al.</i> 2010	Mean difference with-in model testing	ET MA	Male > female score, $Kappa = .28^*$ No significant effect reported
Calvete <i>et al.</i> 2012	ANOVA	ET MA	Male > female score, $F_{(1, 648)} = 10.98^*$ , $d = -.26$ Male > female score, $F_{(1, 648)} = 5.13$ , $p = 0.024$ , $d = -.18$
Gongora <i>et al.</i> 2009	t-test	AB SS VH EI –	Female > male score, $t_{(551)} = -5.16^*$ Female > male score, $t_{(551)} = -0.17^{**}$ Female > male score, $t_{(551)} = -2.50^{***}$ Male > female score, $t_{(551)} = 2.19^{***}$ No significant effect for 11 other EMS reported
Lumley and Harkness 2007	t-test	VH –	Female > male score, $t_{(73)} = 5.99^{***}$ No significant effect for 14 other EMS reported
Muris 2006	t-test	SI	Male > female score, $t_{(150)} = 2.50^{***}$

\* $p < .001$ ; \*\*  $p < .01$ ; \*\*\* $p < .05$ ; *AB* Abandonment/Instability; *EI* Emotional Inhibition; *ET* Entitlement/Grandiosity; *IS* Insufficient Self-Control; *MA* Mistrust/Abuse; *SI* Social Isolation; *SS* Self-Sacrifice; *VH* Vulnerability to Harm

#### **1.4.4. Early maladaptive schemas as mediating factors in the development of psychopathology**

In exploring the role of specific EMS in the depression, Braet and colleagues (2012) evidenced that schemas mediated the relationship between current perceived peer rejection and depressive symptoms in 16–18 year-olds.

Lumley and Harkness (2007) provide substantial support for the core assumption within schema theory that childhood adversity is related to the presence of EMS, and finally the presence of psychopathology. In a design which assessed adversity through semi-structured interviews and controlled for age and gender effects, significant

correlations were found between three types of adversity; emotional maltreatment, physical abuse and sexual abuse, and clusters of EMS. Furthermore, specific EMS mediated the relationship between types of adversity and depressive symptoms.

Roelofs and colleagues (2011) explored the predictive power of EMS in conceptualising depression, within the context of its proposed mediating effect between attachment and psychopathology. All EMS showed significant associations with depression in a community sample, and individual domains and EMS significantly mediated the effect between indices of peer- and parent-related attachment and depressive symptoms. As noted by the authors, similarity between some items in the YSQ and attachment is apparent, and these variables may therefore highly confound each other. This study is also limited to non-clinical adolescents, and the attachment indices most clearly measure quality of current relationships and interpersonal problems, and not early attachment. A proven longitudinal relationship is necessary to add weight to these findings, especially considering the potential shared variance between schemas and perceptions of attachment. These findings are further limited somewhat in the failure to control for additional factors known to correlate with both attachment and psychopathology.

Although the findings are limited by methodological limitations of the study, Turner et al. (2005) also indicated that EMS mediate the relationship between early experiences and psychopathology, in the context of parental bonding and eating disorder symptoms.

#### **1.4.5. Early maladaptive schemas and types of psychopathology: The cognitive content–specificity hypothesis**

The reviewed studies also provided tests of the cognitive–content specificity hypothesis – that individual EMS reflect the cognitive nature of particular types of psychopathology. The findings relevant to this are outlined in Table 1.5.

Van Vlierberghe and colleagues (2010) reported evidence supporting the hypothesis for some problem types, using both dimensional and categorical measures of psychopathology across referred and non–referred 12 to 18 year–olds. They evidenced that EMS within the Impaired Limits domain (Entitlement/Grandiosity and Insufficient self–control/self discipline) were significantly and uniquely associated with externalising behaviour, and all schemas apart from those within this domain were significantly associated with internalising behaviour. The study also evidenced that specific EMS predicted four dimensionally–measured types of psychopathology (depression, anxiety, oppositional–defiant, and conduct disorder symptoms), and two categorically–assessed forms of psychopathology (depressive disorder and anxiety disorder). While these results offer some support for differential EMS cognitive content across problem types, some of these patterns were unexpected, and analyses of categorical, versus dimensional psychopathology yielded different results. The results of Van Vlierberghe and colleagues’ (2010) study indicated that Emotional Deprivation, Failure to Achieve, Defectiveness/Shame and Dependence/Incompetence were related to depressive symptoms, a finding replicated by Braet and colleagues (2012). The latter study, however, was limited in that it did not test for effects of other EMS, basing their analyses on *a priori* assumptions regarding these four EMS.

**Table 1.5 Relationships of EMS and domains with types of psychopathology/behaviour**

Type of psychopathology / behaviour	Study	EMS/domain showing specific effect	Analyses and results
Internalising symptoms	Van Vlierberghe et al. 2010	All schemas within DR, IA, OD, OI	Correlation of symptoms and EMS; DR: ED(.25), AB(.28), MA(.33), SI(.44), DS(.28), IA: FA(.34), DI(.29), VH(.35), EN(.30), OD: SU(.32), SS(.25), OI: EI(.30), US(.26) all***
	Van Vlierberghe and Braet 2007	SI, VH	Specifically accounted for 44.6% of variance in symptoms
Externalising symptoms	Van Vlierberghe et al. 2010	Both schemas within IL	Correlation of symptoms and EMS; IL: ET(.23***), IS(.25**)
	Van Vlierberghe and Braet 2007	ET, DI	Specifically accounted for 19.2% of variance in symptoms
Depression / depressive symptoms	Van Vlierberghe et al. 2012	ED, FA DS, DI	EMS predictive of depressive symptoms (dimensional measure) ED (t = 1.99*), FA(t = 2.38*) EMS predictive of depressive disorder (categorically assessed); DS (Wald = 4.29*), DI(Wald = 4.05*)
	Muris 2006 Braet et al 2012	SU, MA, US, FA ED, FA, DS, DI	EMS uniquely predicted depression symptoms, R2 = .52 Correlation of depression and 4 EMS together as 'Depressive Schema score' for ages 12-14yrs (r = .48), 14-16yrs (r = .39), 16-18yrs (r = .62) all***; EMS mediated interaction between peer rejection and depression in 16-18 yr olds ( $\beta = .33^*$ )
	Roelofs et al 2011	All 15 EMS	Varied strength of correlation between EMS and depressive symptoms; SI(.57), MA(.53), SUB(.53), DS (.52), EI(.49), VH(.48), FA(.47), DI(.46), IS(.44), AB(.39), ENT (.37), ED (.33), SS (.33), EN (.32), SUB (.26) all***

**Table 1.5 (continued)**

Type of psychopathology / behaviour	Study	EMS/domain showing specific effect	Analyses and results
		DR, OD, MA, SI, SS	DR mediated relationship between ‘trust in parents’ and symptoms of depression (CI .03-.20; 49% of variance), specifically MA (.01-.15) and SI (CI .01-.12); DR (CI .01-.16) and OD (CI .01-.05) mediated relationship between ‘alienation from peers’ and symptoms of depression, specifically SI (CI .02-.15) and SS (CI .01-.08)
	Simmons et al 2006	ED, AB, MA, SI, DS, VH, SUB, EI, IS	Higher EMS scores in depressed group specifically for: E ED(U=27.5), AB(U =21.5), MA(U =13.5), SI(U =21.0), DS(U =5.0), VH(U =24.5), SUB(U=23.0), EI(U=14.0), IS(U=24.5) all *
	Dozois et al. 2012	VH DR <sup>a</sup> , IA <sup>a</sup> , IL	Only significant predictor of depressive symptoms Schemas within DR <sup>a</sup> , IA <sup>a</sup> and IL domains higher in depressed, versus non-depressed group only, all differences ***
:depressed-anhedonic	Lumley and Harkness 2007	ED, SS, SI	ED mediated relationship between physical abuse and anhedonic symptoms (Mean effect=1.41, SE=.90, CI=.07-3.57); SS and SI mediated the relationship between emotional maltreatment and anhedonic symptoms (SS: mean effect=2.81, SE=1.57, CI=.30-6.40; SI:mean effect =3.70, SE=1.92, CI.62-8.07)
:depressed-anxious	Lumley and Harkness 2007	VH	VH mediated the relationship between physical abuse and depressed-anxious symptoms (Mean effect=2.62, SE=.95, CI=.93-4.63), and emotional maltreatment and anxious-depressed symptoms (Mean effect =5.94, SE=2.52, CI = 1.49-11.47)

**Table 1.5 (continued)**

Type of psychopathology / behaviour	Study	EMS/domain showing specific effect	Analyses and results
Anxiety / anxious symptoms	Van Vlierberghe et al 2010	VH, US, ED, IS	VH (t=1.99*), US (t=2.25*) positively, and ED (t=- 2.97**), IS (t= -2.73**) negatively predictive of anxiety symptoms (dimensional measure)
	Muris 2006	AB, DI, US, ET	EMS positively predictive of anxiety disorder (categorically assessed): AB(Wald=3.90*), DI (Wald=6.94**), US(Wald=4.45*), ET(Wald= 3.89*)
Oppositional defiant problems	Van Vlierberghe et al 2010	EI, AB, SI	EMS uniquely predicted anxiety symptoms, R2 = .38
		DS, US	DS positively predictive (t=2.10*), and US negatively predictive (t=-3.22) for oppositional defiant disorder symptoms (dimensional measure)
Conduct disorder problems	Van Vlierberghe et al (2010)	SI	EMS positively predictive for oppositional defiant disorder (categorically assessed): SI(Wald=8.46**), however no adequate fit of overall model
		US, ET	EMS positively predictive for conduct disorder symptoms (dimensional measure); US (t=2.00*), ET (t=2.48*)
Disruptive behaviour	Muris 2006	FA, ET	EMS positively predictive for conduct disorder (categorically assessed): FA(Wald=4.88*), ET (Wald=5.02*), however no adequate fit of over-all model
		DI, SI, FA, ET, SS, EN	EMS uniquely predicted disruptive behaviour symptoms; positively by DI, SI, FA and ET and negatively by SS and EN (R2 = .44)
Substance use	Muris 2006	FA	EMS uniquely predicted substance use (R2 = .11)
	Calvete and Estevez 2009	IS, ET	Varied correlation of substance use and EMS: IS(.26*), ET(.63**)

**Table 1.5** (continued)

Type of psychopathology / behaviour	Study	EMS/domain showing specific effect	Analyses and results
Proactive aggression	Calvete and Orue 2010	MA, ET	Only ET evidenced direct association with proactive aggression (.16)
Reactive aggression	Calvete and Orue 2010	MA, ET	Only MA evidenced direct association with reactive aggression (.16)
Anger	Calvete and Orue 2012	MA, ET	ET predicted higher levels of anger than MA at baseline (.31 > .24) both***
	Calvete and Orue 2010	MA, ET	Only ET evidenced direct association with anger (.11)
Aggressive response	Calvete and Orue 2012	MA, ET	ET predicted higher levels of aggressive response selection at base-line (.40 > .26), both***
	Calvete and Orue 2010	MA, ET	MA selectively related to negative aggression response (-.24)
Hostile attributions of social situations	Calvete and Orue 2012	MA, ET	MA predicted higher levels of hostile attributions than ET at baseline (.22*** > .12*)
	Calvete and Orue 2010	MA, ET	MA selective related to hostile attribution interpretation (.24)
Eating disorders	Cooper et al 2005	ED, AB, MA, SI, DS, FA, DI, VH, IS, SUB, EI	Significant differences found between groups varying in eating disorder and depressive symptoms for 11 EMS**
	Turner et al 2005	DS, DI	EMS uniquely predicted eating disorder symptoms (F=21.2***)
	Muris 2006	SI, US	EMS uniquely predicted eating problems (R <sup>2</sup> = .24)

**Table 1.5 (continued)**

Type of psychopathology / behaviour	Study	EMS/domain showing specific effect	Analyses and results
Overweight/obesity	Turner et al 2005a	ED, AB, SUB	Overweight group scored higher on EMS compared to non-overweight group: ED( $t=-2.7^{**}$ ), AB( $t=-2.8^{**}$ ), SUB( $t=-2.1^*$ )
	Van Vlierberghe and Braet 2007	ED, SI, DS, FA, DI, SUB	Obese group differed from non-obese controls for ED ( $F_{1,172}=4.67^*$ ), SI( $F_{1,172}=7.34^{**}$ ), DS( $F_{1,172}=6.23^{**}$ ), FA( $F_{1,172}=7.78^{**}$ ), DI( $F_{1,172}=6.12^{**}$ ), SUB( $F_{1,172}=3.97^*$ )
	Van Vlierberghe et al 2009	AB, MA, SI, FA, SUB, US	Loss of control (LC) group scored higher than non-LC group for AB ( $F=4.64^*$ ), MA ( $F=5.09^*$ ), SI( $F=5.90^*$ ), FA ( $F=4.70^*$ ), SUB ( $F=5.39^*$ ), US ( $F=7.87^{**}$ )

\* $p<.05$ ; \*\*  $p<.01$ ; \*\*\*  $p<.001$ ; EMS and Schema Domains: DR Disconnection/Rejection (ED Emotional Deprivation, AB Abandonment/Instability, MA Mistrust/Abuse, SI Social Isolation, DS Defectiveness/Shame); IA Impaired autonomy and performance (FA Failure to Achieve, DI Dependence/Incompetence, VH Vulnerability to Harm, EN Enmeshment/undeveloped self); IL Impaired Limits (ET Entitlement/Grandiosity, IS Insufficient Self-Control), OD Other-directedness (SUB Subjugation, SS Self-Sacrifice); OI Overvigilance and inhibition (EI Emotional inhibition, US Unrelenting Standards); <sup>a</sup>Some Schema Domains used in Dozois et al., (2012) contain different EMS from other studies: DR<sup>a</sup> (ED, EI, MA, SI, DS), IA<sup>a</sup> (SUB, DI, FA, VH, AB, EN, IS) ES<sup>a</sup> Exaggerated Standards (SS, US)

Lumley and Harkness (2007) showed that Vulnerability to Harm related to anxious profiles within depression, whereas Emotional Deprivation, Self-Sacrifice and Social Isolation schemas were more typical of anhedonic profiles. Similarly, Calvete and Orue (2010; 2012) evidenced that when aggression is split into reactive and proactive types, the schemas Mistrust/Abuse and Entitlement/Grandiosity have very different effects. Mistrust/Abuse was found to preferentially relate to hostile interpretation of ambiguous social situations, but negatively to selection of a aggressive response, which was typified by the Entitlement/Grandiosity schema.

Van Vlierberghe and colleagues' (2010) investigation into EMS predictive of anxiety disorders evidences further inconsistent results. Only one EMS, Unrelenting Standards, was significant across both analyses for dimensionally, and categorically assessed anxiety, with six other schemas only showing effects in one or the other analysis.

Elsewhere, some support was evidenced for specific relationships between EMS and other types of psychopathology, however, most studies suffered from lack of validation of the proposed effects of EMS, and other problems with methodological quality including poor control of demographic confounding variables. Despite this, some differential effect of EMS was evident in the context of loss of control over eating in obese adolescents (Van Vlierberghe et al., 2009), substance misuse (Calvete & Estevez, 2009; Muris, 2006), disruptive behaviour, oppositional defiant and conduct problems (Muris, 2006; Van Vlierberghe et al., 2010) and eating disorders (Cooper et al., 2005; Muris, 2006; Turner et al., 2005).

## **1.5. Discussion**

This review of 19 studies assessing the utility of Young's schema theory in adolescents set out to assess the state of the evidence-base in applying EMS to adolescents. Thus far, the studies' design and main findings have been presented as the results of this review. With regards to the central purpose of a review, these results will now be drawn together and discussed within core themes. In presenting the information in this manner, it is hoped that pertinent issues relevant to both clinical practice and research can best be synthesized.

### ***1.5.1. Methodological characteristics and quality of studies***

Methodological quality of the studies reviewed was mostly 'moderate'; only five received 'high' quality ratings to enable stronger conclusions regarding their findings. Samples were predominantly community, or non-referred, which while important in assessing EMS within the context of normal development, limit the findings of these studies without replication in clinical populations. Replication of design was sparse across all studies, with only four studies using the YSQ-A, and few applying consistent or comparable inclusion or exclusion criteria. In such an early stage of the research, where schema theory is yet to be fully proven as applied to adolescents, replication of design is crucial in order to increase validity of effects. Further validation of findings is also required considering the rarity of designs which controlled for potentially confounding effects of age and gender, as well as other, highly correlating psychological constructs which may relate to both EMS and psychopathology.

### **1.5.2. The detection and dimensionality of early maladaptive schemas**

Across the studies, the detection of EMS using both adult and adolescent versions of the YSQ seemed successful, in evidencing variability in scoring within individual samples, and dimensionality between referred and non-referred samples. Despite this, these findings are considerably limited by the lack of construct validity evidenced by these studies.

Van Vlierberghe and colleagues (2010) evidenced fit of the 15 EMS and three-, four-, or five-factor domain models, however, this was limited to a non-referred group and requires replication in both referred and non-referred samples.

Where groups of referred, or clinical, and non-referred, or non-clinical groups were compared, consistent effects of group on presence and strength of EMS further support the construct (Dozois et al., 2012; Simmons et al., 2006; Van Vlierberghe & Braet, 2007; Van Vlierberghe et al., 2010; Van Vlierberghe et al., 2009). Few of these studies were rated as high quality in their design, in particular tending to have small sample sizes, further indicating the need for additional, similar studies.

### **1.5.3. Developmental considerations**

The finding of Braet and colleagues (2012) that age may qualitatively and quantitatively alter the relationship between EMS and psychopathology has considerable implications. Not only should studies be testing distinct, narrow sections of adolescence (defined both chronologically and developmentally), control of age should be applied to designs as a minimum, and any effects evidenced in wider cohorts using the current taxonomy of EMS taken with caution. Their results also raise the issue of applicability of EMS in their current form to adolescents; something not explicitly claimed by Young. As

evidenced in younger children (Rijkeboer & de Boo, 2010), EMS may not be fully formed by the beginning of adolescence, and may develop at different rates. Indeed, adolescence is arguably defined by these psychological and cognitive aspects *not* being fixed, and the dynamic nature of this stage should be embedded into developmental theories of psychopathology accordingly.

Similarly, the finding that nine of the 15 EMS tested in Van Vlierberghe and colleagues' (2010) were at or above the adult 'meaningful' level in the non-referred group is important. It raises doubts over the accuracy of schema assessment, how far they can be deemed 'dysfunctional', or the appropriateness of these schemas as constructs in adolescents.

Moreover, the relative level of dysfunction that a single EMS infers is unlikely to be equal at different stages of adolescence. It is noted, for example, that the EMS Enmeshment/Undeveloped Self schema was only found to correlate positively with psychopathology in two studies, (Roelofs et al., 2011; Van Vlierberghe et al., 2010) one of which (Roelofs et al., 2011) failing to control for age. With this, and other EMS, such as Self-Sacrifice and Dependence/Incompetence having clear 'normative' aspects to their descriptions within some stages of early adolescence, it may be theoretically unsound to include them in a list of 'maladaptive' schemas. They may, however, be highly central to functioning at later stages of adolescence, such as relating to the development of autonomy (Thimm, 2010).

#### **1.5.4. Gender and early maladaptive schemas**

Significant, varied effects of gender were also found in some studies (Calvete, 2008; Calvete & Orue, 2012; Lumley & Harkness, 2007), also raising concerns over the

validity of findings in studies who failed to assess and control for this. The effect of gender may also relate to differences in temperament, personality or cultural norms, and it was a noted limitation of the studies that most occurred in Western European countries.

#### ***1.5.5. Early maladaptive schemas and adolescent psychopathology***

While a predictive relationship between EMS and psychopathology was tested in some studies, most used correlation to assess the relationship, lacking the validity of a directional effect necessary for schema-based treatment. Furthermore, universal assessment of EMS using self-report measures, as well as common use of this method of assessing psychopathology raise the risk of high amounts of shared variance inflating effects. Taken in the context of doubt over the developmental appropriateness of EMS to adolescents, clinical validation of EMS would add substantial weight to the evidence-base, and have the potential to adjust taxonomy to better reflect adolescent dysfunction.

Further clarity is required in delineating which EMS may serve as specific risk factors for certain types of psychopathology, and which may be globally related to psychopathology as a whole. It is also evident that certain disorders may be comprised of different symptom profiles, and different patterns of EMS. Two sets of researchers highlighted this, in relation to their findings regarding anhedonic- versus anxiously-depressed, and proactively, or reactively aggressive adolescents (Calvete & Orue, 2010; 2012; Lumley & Harkness, 2007). Assessing psychopathology dimensionally, and alongside more careful measures of core symptoms may therefore provide more insight into any precise relationship between EMS and psychopathology.

Assessment and validation of schema modes is also lacking from the reviewed evidence-base. While this would be required to further support schema theory in adolescence, it would have the added potential of incorporating other dimensions of the model beyond cognitive content, such as emotional and behavioural aspects. In attempting to explore cognitive-content of psychopathology, the literature has ignored these other dimensions to psychopathology, which are a clear strength of schema theory over traditional cognitive models (Young et al., 2003).

Lumley and Harkness (2007) reveal good support for both the theoretical link between early experiences and EMS in general, and specific pathways between different forms of adversity (which may relate to different core emotional needs, see Young et al., 2003) and specific EMS. In other tests of a mediating role for EMS there appears evidence for a role for EMS within developmental psychopathology, whereby Young's proposed relationship between attachment experiences, the development of schematic frameworks and psychopathology is somewhat supported (Braet et al., 2012; Roelofs et al., 2011).

#### ***1.5.6. The cognitive-content specificity hypothesis and early maladaptive schemas in adolescence***

Within the context of the limitations described thus far, the cognitive-content specificity hypothesis was partially supported, this being more apparent for certain types of problem. For example, Entitlement/Grandiosity schemas related to externalising problem behaviours in two studies (Van Vlierberghe et al., 2010, Van Vlierberghe & Braet, 2007), as well as the conceptually related conduct disorder (Van Vlierberghe et al., 2010), anger and aggression (Calvete & Orue, 2010, 2012), substance misuse

(Calvete & Estevez, 2009) and disruptive behaviour (Muris, 2006). This schema intuitively relates to themes of excessively high self-regard, with associated rage if this is threatened; a pattern typically found in narcissists (Baumeister, Bushman, & Campbell, 2000; Bushman & Baumeister, 1998); and the beliefs that typical social rules and boundaries do not apply to the self in conduct disorder. Similarly, Vulnerability to Harm/Illness refers to the feelings of impending catastrophe and global threat associated with anxiety, and was identified as being related to these symptoms across studies (Lumley & Harkness, 2007; Van Vlierberghe et al., 2010).

Inconsistent evidence from studies infers that improvements to design and theory may be necessary in exploring the precise relationship between EMS and symptoms. For example, comparing results between studies with differences in age, gender, or type (clinical versus non-clinical) of sample is likely to create inconsistencies. Furthermore, there is evidence that different EMS may relate to specific symptom profiles within a single disorder (Lumley & Harkness, 2007) or problem behaviour (Calvete & Orue, 2010; 2012), and that the method of defining the type of psychopathology (i.e. dimensionally versus categorically) may dictate resulting relationships with EMS (see Van Vlierberghe et al., 2010). It is therefore likely that some studies may be limited in testing the cognitive-content specificity hypothesis too bluntly; viewing complex behaviours such as aggression too simplistically, or grouping together different types of disorder in analyses.

#### **1.5.7. Limitations of this review**

As a qualitative review, one inherent limitation is the subjective nature of both quality criteria ratings and consideration of findings presented by studies. It is also possibly that

the exclusion of unpublished studies meant that findings were subject to publication bias.

Efforts were made to decrease the level of subjectivity where possible through the use of an independent reviewer. A quantitative review of combined effect sizes would improve on this, and would be anticipated to follow in the future, especially in the event of further publication of studies.

Decisions were also made to provide a wide overview of the literature and prioritise certain findings. It is acknowledged that the studies reviewed contain more detailed results than described here. Further reviews could concentrate on individual schemas, types of psychopathology or samples of adolescents in more detail, as well as broadening the age range into earlier childhood and young adulthood.

#### **1.5.8. Conclusions**

Schema therapy was designed to offer an alternative approach to the understanding and treatment of complex psychological disorders based on taxonomy of schemas observed in clinical presentations in adult patients. The implications of the limitations outlined in this review highlight the need to further validate schema theory in adolescence. Findings from higher quality studies indicate worth in pursuing the model, in there being some good quality, preliminary evidence that EMS may be valid constructs in adolescence.

Age-appropriate adaptation of the YSQ, investigation of effects of age and gender, and exploration of the specific roles of EMS in predicting specific symptoms of psychopathology have improved the support for the model. While inconsistencies do exist within these findings, at such an early stage of research, the results reviewed here are promising, and point to the possibility of incorporating the tenets of schema theory in

conceptualizing and treating psychopathology in young people. More explicitly, based on the studies reviewed here an adapted form of schema therapy, used as an early intervention for severe and complex presentations of psychological and personality based pathology, does not appear to be counterintuitive.

## **1.6. References**

Anan, R.M., & Barnett, D. (1999). Perceived social support mediates between prior attachment and subsequent adjustment: A study of urban African American children. *Developmental Psychology, 35*, 1210–1222.

Ball S. A., & Young, J. (2001). *Early maladaptive schemas questionnaire—research version*. Unpublished test. New Haven, CT: Yale University School of Medicine.

Baranoff, J., Oei, T.P.S., Cho, S.H., & Kwon, S.M. (2006). Factor structure and internal consistency of the Young schema questionnaire (short form) in Korean and Australian samples. *Journal of Affective Disorders, 93*, 133–140.

Baumeister, R. F., Bushman, B. J., & Campbell, W. K. (2000). Self-esteem, narcissism, and aggression: Does violence result from low self-esteem or from threatened egotism? *Current Directions on Psychological Science, 9*, 26–29.

Beck, A.T. (1976). *Cognitive Therapy and the Emotional Disorders*. New York: International Universities Press.

Beck, J. S. (1995). *Cognitive Therapy: Basics and beyond*. New York: The Guilford Press.

Beck, R., & Perkins, T. S. (2001). Cognitive content–specificity for anxiety and depression: A meta–analysis. *Cognitive Therapy and Research*, 25, 651–663.

Beck, A. T., Rush, A. J., Shaw, B. E., & Emery, G. (1979). *Cognitive therapy of depression*. New York: John Wiley & Sons.

Blatt, S.J. & Luyten, P. (2009). A structural–developmental psychodynamic approach to psychopathology: Two polarities of experience across the life span. *Development and Psychopathology*, 21, 793–814. DOI: 10.1017/S0954579409000431

Bosmans, G., Braet, C. & Van Vlierberghe, L. (2010). Attachment and symptoms of psychopathology: Early maladaptive schemas as a cognitive link? *Clinical Psychology and Psychotherapy*, 17, 374–385.

Bosquet, M., & Egeland, B. (2006). The development and maintenance of anxiety symptoms from infancy through adolescence in a longitudinal sample. *Developmental and Psychopathology*, 18, 517–550.

Bowlby, J. (1969). *Attachment and Loss: Vol. 1 Attachment*. New York: Basic Books.

Bradley, R., Conklin, C., & Westen, D. (2005). The borderline personality diagnosis in adolescents: gender differences and subtypes. *Journal of Child Psychology and Psychiatry*, 46, 1006–1019.

Braet, C., Van Vlierberghe, L., Vandevivere, E., Theuwis, L., & Bosmans, G. (2012). Depression in early, middle and late adolescence: Differential evidence for the cognitive diathesis– stress model. *Clinical Psychology and Psychotherapy*. DOI: 10.1002/cpp.1789

Brotchie, J., Meyer, C., Copello, A., Kidney, R., & Waller, G. (2004). Cognitive representations in alcohol and opiate abuse: The role of core beliefs. *British Journal of Clinical Psychology*, *43*, 337–342.

Brumaraiu, L.E., & Kerns, K.A. (2010). Parent–child attachment and internalizing symptoms in childhood and adolescence: A review of empirical findings and future directions. *Developmental Psychopathology*, *22*, 177–203. DOI: 10.1017/S0954579409990344

Burke, J.D., & Stepp, S.D. (2012). Adolescent disruptive behavior and borderline personality disorder symptoms in young adult men, *Journal of Abnormal Child Psychology*, *40*, 35–44. DOI 10.1007/s10802–011–9558–7

Bushman, B. J., & Baumeister, R. F. (1998). Threatened egotism, narcissism, self–esteem, and direct and displaced aggression: Does self–love or self–hate lead to violence? *Journal of Personality and Social Psychology*, *75*, 219–229.

Calvete, E. (2008). Justification of Violence and Grandiosity Schemas as Predictors of Antisocial Behavior in Adolescents. *Journal of Abnormal Child Psychology*, *36*, 1083–1095. DOI 10.1007/s10802–008–9229–5

Calvete, E., & Estevez, A. (2009). Substance use in adolescents: The role of stress, impulsivity, and schemas related to lack of limits. *Adicciones, 21*, 49–56.

Calvete, E., Estévez, A., López de Arroyabe, E. L., & Ruiz, P. (2005). The schema questionnaire – Short form – Structure and relationship with automatic thoughts and symptoms of affective disorders. *European Journal of Psychological Assessment, 21*, 90–99. DOI: 10.1027/1015–5759.21.2.90

Calvete, E., & Orue, I. (2010). Cognitive schemas and aggressive behavior in adolescents: The mediating role of social information processing. *The Spanish Journal of Psychology, 13*, 190–201.

Calvete, E., & Orue, I. (2012). Social information processing as a mediator between cognitive schemas and aggressive behavior in adolescents. *Journal of Abnormal Child Psychology, 40*, 105–117.

Calvete, E., Orue, I., & Sampedro, R. (2011). Violencia filio–parental en la adolescencia: características ambientales y personales (Child to parent violence in adolescence: Environmental and individual characteristics). *Infancia y Aprendizaje, 34*, 349–363.

Cecero, J.J., Nelson, J.D., & Gillie, J.M. (2004). Tools and tenets of schema therapy: Toward the construct validity of the Early Maladaptive Schema Questionnaire—Research version (EMSQ–R). *Clinical Psychology and Psychotherapy, 11*, 344–357.

Cooper, M. J., Rose, K. S., & Turner, H. (2005). Core beliefs and the presence or absence of eating disorder symptoms and depressive symptoms in adolescent girls. *International Journal of Eating Disorders, 38*, 60–64. DOI: 10.1002/eat.20157

Costello, J. E., Mustillo, S., Erkanli, A., Keeler, G., & Angold, A. (2003). Prevalence and Development of Psychiatric Disorders in Childhood and Adolescence. *Archives of General Psychiatry, 60*, 837–844. DOI:10.1001/archpsyc.60.8.837

Crowell, S.E., Beauchaine, T.P., & Linehan, M.M. (2009). A biosocial developmental model of borderline personality disorder: Elaborating and extending Linehan’s theory. *Psychological Bulletin, 135*, 495–510. DOI: 10.1037/a0015616.

Deas, S., Power, K., Collin, P., Yellowlees, A., & Grierson, D. (2011). The Relationship between disordered eating, perceived parenting, and perfectionistic schemas. *Cognitive Therapy and Research, Cognitive Therapy and Research, 35*, 414–424.

Diamond, G.S., Reis, B.F., Diamond, G.M., Siqueland, L. & Isaacs, L. (2002). Attachment-based family therapy for depressed adolescents: A treatment development study. *Journal of the American Academy of Child & Adolescent Psychiatry, 41*, 1190–1196.

Dozois, D, Eichstedt, J., Collins, K., Phoenix, E., & Harris, K. (2012). Core Beliefs, Self-Perception, and Cognitive Organization in Depressed Adolescents. *International Journal of Cognitive Therapy, 5*, 99–112.

Glaser, B.A., Campbell, L.F., Calhoun, G.B., Bates, J.M., & Petrocelli, J.V. (2002). The Early Maladaptive Schema Questionnaire–Short Form: A construct validity study. *Measurement and Evaluation in Counseling and Development*, 35, 2–13.

Góngora, V., Grinhauz, A., & Suárez Hernández, N. (2009). Eating disorders in adolescents: A study of behaviours and cognitions. *Psicología Clínica y Psicopatología*, 16, 25–31.

Guerrya, J.D., & Prinsteina, M.J. (2009). Longitudinal prediction of adolescent non-suicidal self-injury: Examination of a cognitive vulnerability–stress model. *Journal of Clinical Child & Adolescent Psychology*, 39, 77–89. DOI: 10.1080/15374410903401195

H.M. Government (2011). *No health without mental health: A cross-government mental health outcomes strategy for people of all ages*. Retrieved 10<sup>th</sup> June 2012 from [http://www.dh.gov.uk/prod\\_consum\\_dh/groups/dh\\_digitalassets/documents/digitalasset/dh\\_124058.pdf](http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_124058.pdf)

Hawton, K., & James, A. (2005). ABC of adolescence: Suicide and deliberate self harm in young people. *British Medical Journal*, 330, 891–894. DOI: 10.1136/bmj.330.7496.891

Hoffart, A., Sexton, H., Hedley, L.M., Wang, C.E., Holthe, H., Haugum, J.A., Nordahl, H.M., Hovland, O.J., & Holte, A. (2005). The structure of maladaptive schemas: a confirmatory factor analysis and a psychometric evaluation of factor–derived scales. *Cognitive Therapy and Research*, 29, 627–644.

Hollingshead, A. (1975). *Four factor index of social status*. New Haven, CT: Yale University Press.

Kenny, M.E., Moilanen, D.L., Lomax, R., & Brabeck, M.M. (1993). Contributions of parental attachments to view of self and depressive symptoms among early adolescents. *Journal of Early Adolescents, 13*, 408–430.

Larose, S., & Boivin, M. (1997). Structural relations among attachment working models of parents, general and specific support expectations, and personal adjustment in late adolescence. *Journal of Social and Personal Relationships, 14*, 579–601.

Lawrence, K.A., Allan, J.S., & Chanen, A.M. (2011). A study of maladaptive schemas and borderline personality disorder in young people. *Cognitive Therapy and Research, 35*, 30–39. DOI: 10.1007/s10608-009-9292-4

Lewinsohn, P.M., Clarke, G.N., Hops, H., & Andrews, J. (1990). Cognitive-behavioral treatment for depressed adolescents. *Behaviour Therapy, 21*, 385–401.

Lumley, M. N., & Harkness, K. L. (2007). Specificity in the relations among childhood adversity, early maladaptive schemas, and symptom profiles in adolescent depression. *Cognitive Therapy and Research, 31*, 639–657. DOI: 10.1007/s10608-006-9100-3

Margolese, S.K., Markiewicz, D., & Doyle, A.B. (2005). Attachment to parents, best friend, and romantic partner: Predicting different pathways to depression in adolescence. *Journal of Youth and Adolescence, 34*, 637–650.

Masley, S.A., Gillanders, D.T., Simpson, S.G., & Taylor, M.A. (2011). A systematic review of the evidence base for schema therapy. *Cognitive Behaviour Therapy*. iFirst article, 1–18. DOI: 10.1080/16506073.2011.614274

McGee, R., Wolfe, D., & Olson, J. (2001). Multiple maltreatment, attribution of blame, and adjustment among adolescents. *Development and Psychopathology*, 13, 827–846.

McGinn, L. K., & Young, J. E. (1996). Schema-focused therapy. In P. M. Salkovskis (Ed.), *Frontiers of cognitive therapy* (pp. 182–207). New York: Guilford Press.

Meiser–Stedman, R., Dalgleish, T., Glucksman, E., Yule, W., & Smith, P. (2009). Maladaptive cognitive appraisals mediate the evolution of posttraumatic stress reactions: A 6–month follow–up of child and adolescent assault and motor vehicle accident survivors. *Journal of Abnormal Psychology*, 118, 778–787. DOI: 10.1037/a0016945

Meyer, C., & Gillings, K. (2004). Parental bonding and bulimic psychopathology: The mediating role of mistrust/ abuse beliefs. *International Journal of Eating Disorders*, 35, 229–233.

Mufson, L., Moreau, D., Weissman, M.M., Wickramaratne, P., Martin, J., & Samoilov, A. (1994). Modification of Interpersonal Psychotherapy with depressed adolescents (IPT–A): Phase I and II studies. *Journal of the American Academy of Child & Adolescent Psychiatry*, 33, 695–705.

Mufson, L., Pollack Dorta, K., Wickramaratne, P., Nomura, Y., Olfson, M., & Weissman, M.M. (2004). A randomized effectiveness trial of Interpersonal

Psychotherapy for depressed adolescents. *Archives of General Psychiatry*, *61*, 577–584.

DOI::10.1001/archpsyc.61.6.577

Muris, P. (2006). Maladaptive schemas in non-clinical adolescents: Relations to perceived parental rearing behaviours, big five personality factors and psychopathological symptoms. *Clinical Psychology and Psychotherapy*, *13*, 405–413.

DOI: 10.1002/cpp.

O'Dougherty Wright, M., Crawford, E., & Del Castillo, D. (2009). Childhood emotional maltreatment and later psychological distress among college students: The mediating role of maladaptive schemas. *Child Abuse and Neglect*, *33*, 59–68. DOI:

10.1016/j.chiabu.2008.12.007

Petrocelli, J. V., Glaser, B. A., Calhoun, G. B., & Campbell, L. F. (2001). Early maladaptive schemas of personality disorder subtypes. *Journal of Personality Disorders*, *15*, 546–559.

Pettit, G. S., Laird, R. D., Dodge, K. A., Bates, J. E., & Criss, M. M. (2001). Antecedents and behavior-problem outcomes of parental monitoring and psychological control in early adolescence. *Child Development*, *72*, 583–598.

Pinto-Gouveia, J., Castilho, P., Galhardo, A., & Cunha, M. (2006). Early maladaptive schemas and social phobia. *Cognitive Therapy and Research*, *30*, 571–584.

Quinta Gomes, AL., & Nobre, P. (2012) Early maladaptive schemas and sexual dysfunction in men. *Archives of Sexual Behaviour*, *41*, 311–320.

Renner F., Lobbestael J., Peeters F., Arntz A., & Huibers, M. (2012). Early maladaptive schemas in depressed patients: Stability and relation with depressive symptoms over the course of treatment. *Journal of Affective Disorders, 136*, 581–90. DOI: 10.1016/j.jad.2011.10.027

Rijkeboer, M.M., & de Boo, G.M. (2010). Early maladaptive schemas in children: Development and validation of the schema inventory for children. *Journal of Behavior Therapy and Experimental Psychiatry, 41*(2), 102–109.

Rijkeboer, M.M., & van den Bergh, H. (2006). Multiple group confirmatory factor analysis of the Young Schema–Questionnaire in a Dutch clinical versus non–clinical population. *Cognitive Therapy and Research, 30*, 263–278. DOI: 10.1007/s10608–006–9051–8

Riso, L.P., Froman, S.E., Raouf, M., Gable, P., Maddux, R.E., Turini–Santorelli, N., Penna, S., Blandino, J.A., Jacobs, C.H., & Cherry, M. (2006). The long–term stability of early maladaptive schemas. *Cognitive Therapy and Research, 30*, 515–529.

Roelofs, J., Lee, C., Ruijten, T., & Lobbestael, J. (2011). The mediating role of early maladaptive schemas in the relation between quality of attachment relationships and symptoms of depression in adolescents. *Behavioural and Cognitive Psychotherapy, 39*, 471–479. DOI: 10.1017/S1352465811000117.

Samuel, D.B., & Ball, S. (2012). The Factor Structure and Concurrent Validity of the Early Maladaptive Schema Questionnaire: Research Version. *Cognitive Therapy and Research*. DOI: 10.1007/s10608-012-9439-6.

Schmidt, N.B., Joiner, T.E., Young, J.E., & Telch, M.J. (1995). The Schema Questionnaire—Investigation of psychometric properties and the hierarchical structure of a measure of maladaptive schemas. *Cognitive Therapy and Research*, 19, 295–321.

Scottish Government (2011). *The Matrix 2011: A Guide to delivering evidence-based Psychological Therapies in Scotland*. Retrieved 22<sup>nd</sup> May 2012 from [http://www.nes.scot.nhs.uk/media/425354/psychology\\_matrix\\_2011s.pdf](http://www.nes.scot.nhs.uk/media/425354/psychology_matrix_2011s.pdf)

Scottish Government (2011a). *Mental Health Strategy for Scotland 2011–2015: A consultation*. The Scottish Government: Edinburgh.

Scottish intercollegiate guidelines network (SIGN) (2008). *SIGN 50: A guideline developer's handbook*. Retrieved 7<sup>th</sup> April 2012 from [www.sign.ac.uk](http://www.sign.ac.uk)

Shiner, R.L. (2009). The development of personality disorders: Perspectives from normal personality development in childhood and adolescence. *Development and Psychopathology*, 21, 715–734. DOI: 10.1017/S0954579409000406

Shiner, R., & Caspi, A (2003). Personality differences in childhood and adolescence: measurement, development, and consequences. *The Journal of Child Psychology and Psychiatry*, 44, 2–32. DOI: 10.1111/1469-7610.00101

Simmons, J., Cooper, M., Drinkwater, J. & Stewart, A. (2006). Cognitive schemata in depressed adolescent girls and their mothers. *Behavioural and Cognitive Psychotherapy*, 34, 219–232. DOI: 10.1017/S1352465805002766

Spanish Society of Epidemiology and the Spanish Society of Family Medicine. (2000). Una propuesta de medida de clase social [Proposal for a social class measure]. *Atención Primaria*, 25, 350–363.

Stallard, P., & Rayner, H. (2005). The development and preliminary evaluation of a schema questionnaire for children (SQC). *Behavioural and Cognitive Psychotherapy*, 33, 217–224. DOI: 10.1017/S1352465804001912

Stepp, S.D. (2012). Development of borderline personality disorder in adolescence and young adulthood: Introduction to the special section. *Journal of Abnormal Child Psychology*, 40, 1–5. DOI: 10.1007/s10802-011-9594-3

Stepp, S. D., Burke, J. D., Hipwell, A. E., & Loeber, R. (2012). Trajectories of attention deficit hyperactivity disorder and oppositional defiant disorder symptoms as precursors of borderline personality disorder symptoms in adolescent girls. *Journal of Abnormal Child Psychology*, 40, 7–20. DOI: 10.1007/s10802-011-9530-6

Thimm, J.C. (2010). Relationships between early maladaptive schemas and psychosocial developmental task resolution. *Clinical Psychology and Psychotherapy*, 17, 219-230. DOI: 10.1002/ccp.647

Tremblay, P.F., & Dozois, D.J.A. (2009). Another perspective on trait aggressiveness: Overlap with early maladaptive schemas. *Personality and Individual Differences, 46*, 569–574.

Trowell, J., Joffe, I., Campbell, J., Clemente, C., Almqvist, F., Soininen, M., Koskenranta–Aalto, U., Weintraub, S., Kolaitis, G., & Tomaras, V., (2007). Childhood depression: a place for psychotherapy: An outcome study comparing individual psychodynamic psychotherapy and family therapy. *European Child & Adolescent Psychiatry, 16*, 157–167. DOI: 10.1007/s00787–006–0584–x

Turner, H. M., Rose, K. S., & Cooper, M. J. (2005). Parental bonding and eating disorder symptoms in adolescents: The mediating role of core beliefs. *Eating Behaviors, 6*, 113–118. DOI: 10.1016/j.eatbeh.2004.08.010.

Turner, H. M., Rose, K. S., and Cooper, M. J. (2005a). Schema and parental bonding in overweight and non–overweight female adolescents. *International Journal of Obesity, 29*, 381–387.

Vlierberghe, L. V., & Braet, C. (2007). Dysfunctional schemas and psychopathology in referred obese adolescents. *Clinical Psychology and Psychotherapy, 14*, 342–351. DOI: 10.1002/cpp.546

Van Vlierberghe, L., Braet, C., Bosmans, G., Rosseel, Y., & Bogels, S. (2010). Maladaptive schemas and psychopathology in adolescence: On the utility of young's

schema theory in youth. *Cognitive Therapy and Research*, 34, 316–332. DOI: 10.1007/s10608-009-9283-5

Van Vlierberghe, L., Braet, C., & Goossens, L. (2009). Dysfunctional schemas and eating pathology in overweight youth: A case-control study. *International Journal of Eating Disorders*, 42, 437–442.

Van Vlierberghe, L., Rijkeboer, M.M., Hamers, P., & Braet, C. (2004). *Schemavragenlijst voor Jongeren [Schema Questionnaire for Adolescents]*. Ghent, Belgium: Ghent University, Department of Developmental Personality and Social Psychology.

Waller, G., Meyer, C., & Ohanian, V. (2001). Psychometric properties of the long and short version of the young schema questionnaire: Core beliefs among bulimic and comparison women. *Cognitive Therapy and Research*, 25, 137–147.

Wechsler, D. (2004). *WISC-IV Canadian manual*. Toronto: Harcourt Assessment.

Westen, D., & Chang, C. M. (2000). Adolescent personality pathology: a review. *Adolescent Psychiatry*, 25, 61–100.

Wilkinson, R.B. (2004). The role of parental and peer attachment in the psychological health and self-esteem of adolescents. *Journal of Youth and Adolescence*, 33, 479–493.

Young, J.E. (1994). *Cognitive theory for personality disorders: A schema-focused approach*. Sarasota, FL: Professional Resource Exchange.

Young, J. E., & Brown, G. (1990). *Young Schema questionnaire*. New York: Cognitive Therapy Center of New York.

Young, J. E., & Brown, G. (1999). *Young schema questionnaire: Short version*. New York: Cognitive Therapy Center of New York.

Young, J.E., & Brown, G. (2003). *YSQ-L3: Young schema questionnaire: Long version revised*. New York: Cognitive Therapy Center of New York.

Young, J.E., & Brown, G. (2003a). *YSQ-S3: Young schema questionnaire: Short version revised*. New York: Cognitive Therapy Center of New York.

Young, J.E., Klosko, J.S., & Weishaar, M. (2003). *Schema therapy: A practitioner's guide*. New York: Guildford Publications.

## **2. Thesis aims and hypotheses**

### **2.1. Aims**

#### Primary aim

In relation to the findings presented above the primary aim of this study is to investigate the applicability of Young's schema theory to adolescents. To achieve this, the study aims to measure and compare levels of Early Maladaptive Schemas (EMS) and psychopathology in adolescents. In enabling comparisons with key studies described above, the design of the study will reflect that of these studies, and aim to improve on limitations found across the existing evidence-base.

Two groups of 12 to 18 year-old adolescents referred, and not referred to psychological services will be included, and comparisons of levels of EMS between these groups will be made to assess the dimensionality of the schema concept. The explanatory value EMS have in conceptualising psychopathology in adolescents will also be assessed. The study aims to do this through the assessment of relationships between EMS and psychopathology in the context of attachment and interpersonal behaviour, to measure the predictive effect of EMS once these factors have been controlled. This enables a validation of the effects of EMS, a noticeable limitation of the studies reviewed.

#### Secondary aim

As a secondary aim, relationships will be measured between specific domains and EMS and types of psychopathology, in an attempt to explore the validity of the cognitive-content specificity hypothesis. Any schema domains which do appear to uniquely

contribute to the variance in psychopathology scores will be further explored in the context of individual EMS using secondary analyses.

## **2.2. Hypotheses**

Primary hypothesis one: Presence of EMS will be predicted by group, whereby adolescents in the referred group will score significantly higher on the mean schema scale than non-referred adolescents.

Primary hypothesis two: Total problem score on the dimensional measure of psychopathology will be significantly predicted by mean schema score, adding significant contribution to the model which also contains interpersonal problem and attachment variables.

Secondary hypothesis one: Scores on specific schema domains will differentially predict internalising, versus externalising problem behaviours. The Disconnection/Rejection domain will be most strongly predictive of internalising problem behaviours compared to the other four schema domains. Externalising problem behaviours will be best predicted by the Impaired Limits, and Disconnection/Rejection domains.

Secondary hypothesis two: Scores on specific schemas and domains will differentially predict four types of psychopathology: affective, anxiety, oppositional defiant and conduct problems. On an individual schema level within the related domains, affective problems will be significantly predicted by schemas referring to loss, worthlessness and social isolation; anxiety problems by schemas relating to vulnerability and inhibition; oppositional-defiant and conduct disorders by schemas relating to emotional deprivation, failure and entitlement.

### **3. Methodology**

#### **3.1. Design**

This cross-sectional questionnaire study made within-subjects comparisons, as well as comparisons between groups of referred and non-referred participants.

#### **3.2. Participants**

##### ***3.2.1. Inclusion and exclusion criteria for referred participants***

For participants in the referred group, the following inclusion criteria were applied:

- Aged between 12 and 18 years
- Referred to one of the two mental health services used as study sites, having been already seen a minimum of once by a clinician in order to ascertain suitability for the study and capacity to consent to participation

Participants were excluded if they met any of the following criteria:

- Diagnosis of a pervasive developmental disorder or learning disability
- Deemed not to have capacity to consent

Any potential patients deemed by their case manager likely to become upset by the content of the questionnaires were not invited to participate.

##### ***3.2.2. Inclusion and exclusion criteria for non-referred participants***

For participants in the non-referred group, the following inclusion criteria were applied:

- Aged between 12 and 18 years old

Participants were excluded if they met any of the following criteria:

- For consenting adolescents under 16 years of age, non-provision of consent to participate from their parent or guardian

- Disclosed current referral to, or attendance at a mental health service, either on the information sheet completed as part of the study, or through information provided by school staff
- Diagnosis of a pervasive developmental disorder. Adolescents recruited from the community who were known to have a pervasive developmental disorder or learning disability were not invited to participate in the study. Participants were also excluded if they indicated on the information sheet during participation that they had either of these diagnoses.

In total, two participants were excluded from the non-referred group as they indicated that they currently attended a mental health service.

### **3.2.3. Demographic information**

Demographic information was collected for all participants detailing age, gender, postcode and ethnic group or race. Socioeconomic status was defined using categories of the Scottish Index of Multiple Deprivation (SIMD) (1 = most deprived; 5 = least deprived) obtained from participants' postcodes.

## **3.3. Measures**

All participants completed four self-report measures as follows.

### **3.3.1. Adolescent version of the Young Schema Questionnaire (YSQ–A: Van Vlierberghe et al., 2004)**

The initial Young Schema Questionnaire–Short Version (YSQ: Young & Brown, 1998) consists of 75 self-report items assessing 15 of the 18 identified Early Maladaptive Schemas (EMS: Young *et al.*, 2003). This version was developed for adults and has

shown good psychometric properties in both clinical and non-clinical populations (Calvete *et al.*, 2005; Waller *et al.*, 2001, Welburn *et al.*, 2002).

Adult versions of the YSQ-SF have been used with adolescents to measure schemas (e.g. Calvete, 2008; Lawrence *et al.*, 2011; Lumley & Harkness, 2007), and have been found to have good test-retest validity over one year, as well as the ability to discriminate between individuals with and without a psychological disorder (Lumley & Harkness, 2006). Some studies have adapted the adult YSQ-SF to be more comprehensible to adolescents, however many of these versions have only been used in single studies, with limited psychometric evaluation.

Some of the more recent and influential studies measuring EMS in adolescents have used an adapted adolescent version of the YSQ. This was created in Dutch by Van Vlierberghe and colleagues (YSQ-A: Van Vlierberghe *et al.*, 2004) and approved for use in an English translation by Young (see Van Vlierberghe *et al.*, 2010). This (Dutch) version has been tested in clinical and non-clinical populations of adolescents, showing to be reliable in terms of internal consistency, and suitable for exploring relationships between EMS and psychopathology (Bosmans *et al.*, 2010; Roelofs *et al.*, 2011; Van Vlierberghe & Braet, 2007; Van Vlierberghe *et al.*, 2010). Factor analysis of the YSQ-A has confirmed both the first- (15 EMS) and second-order (five domain) models proposed by Young in 12 to 18 year olds (Van Vlierberghe *et al.*, 2010).

Like the adult version, the YSQ-A uses a Likert scale to indicate how much each item applies to an individual, from 1 (“completely untrue of me”) to 6 (“describes me perfectly”). Five items exist for each schema, forming separate domains of “Disconnection/Rejection” (Mistrust/Abuse, Emotional Deprivation,

Defectiveness/Shame, Social Isolation/Alienation and Abandonment/Instability schemas), “Impaired Autonomy/Performance” (Dependency/Incompetence, Vulnerability to harm/Illness, Enmeshment/Undeveloped self and Failure to Achieve schemas), “Impaired Limits” (Entitlement/Grandiosity and Insufficient Self-control/Discipline schemas), “Other-Directedness” (Subjugation and Self-Sacrifice schemas) and “Overvigilance/Inhibition” (Emotional Inhibition and Unrelenting Standards schemas).

While the YSQ-A does not include items relating to the three schemas included in the most recent adult YSQ version, it was selected as the most valid YSQ available, specifically adapted for adolescents. An English version of the YSQ-A was requested from the Dutch authors and from Young. Despite the authors noting that Young had approved an English version of the YSQ-A, no version was known to be currently available. Therefore, the author translated the Dutch version to English and sent it to Van Vlierberghe and colleagues for approval and consent to use in this study. A copy of the English version was also sent to Young.

**3.3.2. Relationship Scales Questionnaire (RSQ; Griffin & Bartholomew, 1994; adapted for adolescents by Scharfe, personal communication, 9 January 2012; 2012a)**

Adapted for adolescents from the original 30 item version, this is a self-report, continuous measure of attachment. It creates mean scores of four patterns of attachment: secure, insecure-fearful, insecure-preoccupied and insecure-dismissive from a total of 17 items scored using a Likert scale. Reflecting general theoretical and practical reservations in using categorical attachment classification tools, (Crowell *et al.*, 2008),

the RSQ and A–RSQ are therefore not intended to produce categorical classifications of attachment.

Problems with internal consistency have been a longstanding issue with the RSQ (see Griffin & Bartholomew, 1994a), and similar doubts exist over the adapted version (Scharfe, 2002). Despite these limitations, it was felt that the A–RSQ offered a brief and adequate measure of attachment to explore the additional research question of this study. The scale authors note that the RSQ can be worded to refer to both general and specific relationship styles, and it is not limited to romantic relationships as with some similar measures. This was felt a benefit of using the A–RSQ, as there were likely to be a range of important relationships within the age range tested. Furthermore, within the context of the schema model, Young notes that during adolescence peer relationships may have a significant effect on the development of early maladaptive schemas. It also has the advantage of being short and specifically adapted to suit adolescents.

### **3.3.3. Youth Self–Report (YSR; Achenbach & Rescorla, 2001)**

The revised 2001 version of the Youth Self Report was used as a measure of emotional and behavioural problems, as it shows good validity and reliability (Achenbach & Rescorla, 2001). It utilises a dimensional perspective of psychopathology to produce a total problem score, global internalizing and externalizing problem behaviour scores and DSM–orientated scale scores. These scales do not yield categorical diagnoses, but provide symptom–based scores reflective of dimensional approaches to psychopathology. This approach offers more advanced statistical testing, and intuitively may reflect the potentially more varied types of symptoms and presentations EMS may influence.

To enable comparison with similar previous research (Muris, 2006; Van Vlierberghe *et al.*, 2010), the same four DSM-orientated scales were used in this study: ‘affective problems’, ‘anxiety problems’, ‘oppositional defiant problems’ and ‘conduct problems’.

#### **3.3.4. Short form of the Inventory of Interpersonal Problems (IIP-32; Barkham *et al.*, 1996)**

This 32 item measure is an adaptation of the original 127 item Inventory of Interpersonal Problems (IIP; Horowitz *et al.*, 1988), based on an adapted, eight factor model. The eight indices of interpersonal problem behaviour are ‘domineering/controlling’, ‘vindictive/self-centred’, ‘cold/distant’, ‘socially inhibited’, ‘non-assertive’, ‘overly accommodating’, ‘self-sacrificing’ and ‘intrusive/needy’. The individual uses a five-point Likert scale to indicate aspects they consider ‘too hard’ to do in relationships, or that they do ‘too much’ (Barkham *et al.*, 1996). Higher scores indicate greater problem severity, and all scores together produce a total measure of interpersonal difficulty. The scale authors have found the IIP-32 to have high reliability (Cronbach’s alpha = .90). Its structure has been confirmed by subsequent factor analysis and as such the measure is presented as a brief measure assessing a variety of interpersonal problems (Barkham *et al.*, 1996). With particular relevance to its use in this study, in providing a validating measure for EMS within referred and non-referred populations, the measure is also effective in differentiating between clinical and non-clinical samples.

### **3.4. Ethics**

The Integrated Research Application System (IRAS) was utilised to seek ethical approval from the local Research Committee in August 2011, and the local NHS Research and Development Department in November 2011, following favourable ethical consideration by the Committee. In designing the study, due attention was given to a variety of potential ethical risks and concerns for participants, as discussed below.

#### **3.4.1. Consent**

It was felt most important, where possible, that participants should be supported to make informed judgements regarding consent themselves, rather than their parents or carers. This stance reflects Scottish legal recommendations regarding age of consent to medical treatment based on the Age of Legal Capacity (Scotland) Act 1991 (s.2), and the ‘Gillick Principle’, originally from case law, *Gillick v West Norfolk and Wisbech Area Health Authority* [1985] 3 All ER 402 (HL) and more latterly extended to refer to healthcare research.

To ensure that adolescents have the capacity to consent it is necessary to judge this on an individual basis. While this was not possible for the non-referred group, those attending mental health services had the benefit of being known by a mental health professional who was asked to judge their capacity to consent to participation. This enabled an additional ethical consideration to occur for the potentially more vulnerable referred group, of ensuring the adolescent was psychologically well enough to take part, and unlikely to become upset by the questions. All clinicians were made familiar with questionnaire items and aware of their patients’ participation to provide additional

support if necessary. Clinicians were requested only to invite those young people with capacity to consent to participate in the study, and for this reason no additional parental consent was sought for this group.

As well as requiring consent from the adolescent, all non-referred participants were required to have the additional written consent of a parent or guardian.

#### **3.4.2. Potential distress of participants**

All participants were informed about questionnaire content on initial approach, to minimise potential for distress. The researcher was also available to all participants during completion of the questionnaire, should they require any practical or emotional assistance. It was not, however, felt likely that any of the questionnaire items would be unduly distressing to participants. Other efforts to minimise potential for distress differed by group as outlined below.

When initially informed about the study, all non-referred adolescents were given a short presentation by the researcher during a class in personal and social education (PSE). The presentation gave an overview of the concept of mental health and well-being, the broad rationale behind the study, and what participation would involve. Additional time was given for adolescents to ask any questions, both in class and afterwards.

The presentation included advice over seeking help and support for concerns over their mental health and wellbeing, and all non-referred adolescents were advised to seek appropriate support if any concerns were raised through participation.

Case managers of referred participants were informed of their patients' participation, and any concerns which were raised through items of the YSR which

asked the adolescent about self-harm, suicidality and psychotic experiences. All referred participants were informed at time of consenting to the study that their case manager would be notified of any concerns in this way.

#### **3.4.3. Potential for acquiescence**

In view of the increased risk of acquiescence associated with children and young people, and those suffering from emotional, behavioural and social difficulties, the initial invitation to participate in the study was made by referred adolescents' clinician, and not the researcher. The non-referred group were provided with information about the study by the researcher, however, consent was collected later by school staff and only consenting individuals met with the researcher to participate. All participants were informed they were free to withdraw from the study at any time during, or after participation.

#### **3.4.4. Confidentiality**

The confidential nature of the data collected in the study was highlighted to all participants in the information packs, as well as providing details of procedures in place to protect this.

All participants were allocated an identification number, traceable only to their name by the researcher, in the event of withdrawal of consent to participate, or in the case of referred participants, should any risks be highlighted. Referred participants were informed that any such information would be shared with their case manager, and this was explicitly detailed on the consent form. The consent forms which enabled the link between identification number and name to be made were kept in a locked cabinet on National Health Service (NHS) premises, and in the case of referred participants, a

duplication consent form was also kept in their case notes, held under standard NHS regulations for protecting confidentiality.

All personal information (e.g. age, gender, postcode) was coded on NHS premises, ensuring that only non-identifiable data was analysed.

#### **3.4.5. Ethical approval**

Following amendments to study documentation and the inclusion of seeking parental permission for the non-referred group, the study was given ethical approval by the Research Committee on 3<sup>rd</sup> October 2011 (11/NS/-0019) and the local NHS Research and Development Department on 21<sup>st</sup> November 2011 (2011PC006; see Appendices 6.4-5).

### **3.5. Procedure**

#### **3.5.1. Participant identification and recruitment**

The non-referred group was identified from a secondary school approached in the community. The school Guidance Teacher identified one class per year who would be approached in the initial stage of recruitment. In registration, participants were given an age-appropriate invitation pack from the school Guidance Teacher, informing them of the study. This pack consisted of an invitation letter, information sheet and consent form. A pack for the adolescent was provided in all cases, with an additional pack for parents or guardians of adolescents under the age of 16 (see Appendices 6.6-8 for examples of all participant documentation which were adapted for parents, referred and non-referred adolescents, as well as those aged 12-15, and 16-18).

The adolescents were requested to return both consent forms to their form tutor, who passed them onto the Guidance Teacher in charge of the PSE classes. One to two weeks after the initial approach, the researcher attended a PSE class for each invited year–group to provide a brief overview of the study, and provide any additional information or packs as needed.

Participants in the referred group were identified by individual clinicians working in two separate mental health services.

All clinicians working at the two sites were informed of the study and provided with information about inclusion and exclusion criteria, and given copies of the questionnaires which participants would complete. They were asked to invite any adolescent fulfilling the inclusion criteria. Clinicians provided potential participants with an age–appropriate information pack comprising of an invitation letter, information sheet and consent form.

Referred adolescents were requested to inform their clinician or case manager if they wished to participate, submitting a completed consent form which was then given to the researcher. They were given a minimum of one week to decide whether they wished to participate.

### **3.5.2. Study administration**

Following receipt of consent forms for the referred group, the researcher made an appointment with the adolescent to complete the self–report measures within the mental health department they attended. Non–referred adolescents completed the same measures as the referred group, in the same order (as listed above), during either one, or

if needed, two consecutive weekly PSE classes in the company of guidance staff and the researcher.

Completion of all questionnaires took between twenty to fifty minutes, depending on the individual. The researcher was available throughout completion to assist participants if required.

Letters were given to all case managers notifying them of patients' participation, and any items raising concerns over risk. This information was placed in patient files held in the department in addition to copies of signed consent forms.

### **3.6. Power analysis and sample size**

A prospective power analysis was undertaken to provide guidance over recommended sample size. As power analysis involves four constructs of sample size, effect size, power and level of significance, the consideration of power, alpha and effect size is necessary when estimating required sample size.

It is common practice to estimate the anticipated effect size of the main hypotheses from similar studies. Using Cohen's (1988) definitions of size of effect, studies comparing measures of EMS in referred versus non-referred groups of adolescents have found varied effect sizes, mostly depending on the type of index group and method of schema scoring used. As reviewed in the systematic review within this thesis, a key paper was identified which is similar to the current study (Van Vlierberghe *et al.*, 2010); other papers differing in design and sample. The study conducted by Van Vlierberghe and colleagues (2010) was rated as high quality, and also explored the effects of EMS on psychopathology, across referred and non-referred 12 to 18 year-

olds, using the YSQ–A. Effect sizes from this paper were therefore used in sample size estimations, using additional guidance on multiple regression power analysis from Brooks and Barcikowski (1994), Clark–Carter (2010) and Cohen (1988; Cohen *et al.* 2003).

It is recommended (Brooks & Barcikowski, 1994; Clark–Carter, 2010), that general rules of thumb are suitable for estimating sample size in multiple regression analyses, however, these may be limited when detecting small effect sizes, or using few predictor variables.

The first main hypothesis will test the effect of group (referred versus non–referred) on schema score using three predictor variables (group, age and gender). A small effect size was identified for differences in overall presence of EMS between groups by Van Vlierberghe and colleagues, of  $d = .187$ . Due to both the small effect size and use of three predictor variables a sample size calculation was used as recommended under these circumstances, setting acceptable absolute amount of shrinkage at .10 as advised (Brooks & Barcikowski, 1994):

$$N > [p (2-2R^2 + .10)] / .10$$

Using  $p$  (number of predictor variables) of three, and Cohen’s small  $R^2$  value of .02 (Cohen *et al.* 2003), this equation produces a minimum sample size ( $N$ ) of 62.

The remaining main hypotheses will be tested using two further sets of analyses testing the prediction of psychopathology by EMS, using seven and eight predictor variables. No test of the prediction of overall psychopathology score was provided by Van Vlierberghe and colleagues (2010), however, they did evidence that EMS predicted internalising and externalising symptoms, with  $R^2$  values of .29 and .21 respectively. As

these are considered to be medium to large effect sizes, it is reasonable to expect that a similar effect might be found in the current study. As these hypotheses will be tested using larger numbers of predictor variables, the rule of thumb regarding 10 participants per variable ( $8 \times 10 = 80$  participants) is likely to achieve sufficient power. In addition, Clark–Carter (2010) advises that when using a significance level of 0.05 to detect a medium effect size (a conservative estimate) using eight predictor variables, 80 participants achieves a power of .72. As this is below the level of .80 generally recommended, increasing the sample size to 100 participants achieves a power of .84.

In summary, to satisfy the power requirements for the all analyses for the testing of the main study hypotheses, this study aims to recruit a total of 100 participants, ideally split evenly between referred and non–referred groups.

### **3.7. Analysis**

The main aims of this study were to explore the differences in Early Maladaptive Schemas (EMS) between referred and non–referred groups of adolescents, and to investigate the predictive effects of EMS on types of psychopathology. All data analysis was conducted using a statistical software package developed for social sciences (SPSS for Windows, Version 19).

#### **3.7.1. Scoring**

Data were scored by the researcher to provide a mean total schema score (mean of all item scores) and mean schema score for each of the five schema domains and individual EMS, all ranging from 1 to 6. From the YSR, total psychopathology score (0–106), total internalising (0–62) and externalising (0–64) problem behaviour scores, and total scores

on the four DSM-orientated subscales of affective (0–26), anxiety (0–12), oppositional–defiant (0–10), and conduct (0–15) problems were obtained. Mean scores on the attachment dimensions of secure, insecure–fearful, insecure–preoccupied and insecure–dismissing were also calculated, as well as total problem score from the IIP–32.

### **3.7.2. Missing data**

For questionnaires which yielded a mean score, small amounts of missing data were omitted in mean subscale calculations, therefore the mean being computed from only the complete item scores. This applied to 0.19% of IIP–32, 0.37% of YSQ–A, and 0.53% of A–RSQ items. There were no missing data for the required subscales used in the YSR. Seven participants (three referred and four non–referred) failed to complete 50% of the IIP–32, and were therefore omitted from analyses using this measure.

### **3.7.3. Data analysis**

Descriptive data were examined for degree of normal distribution, using data distribution histograms, mean, mode and median, skew and kurtosis values. As several of the variables were not normally distributed, non–parametric Mann-Whitney U tests were computed for between-group differences, and Spearman’s correlation analyses were carried out on all pairs of main variables.

To test the main study hypotheses, eight standard linear multiple regression analyses were planned investigating the associations between EMS and psychopathology. Four additional regression analyses were planned in the event that particular schema domains showed unique contributions to the prediction of psychopathology score for the four separate problem types. In this case, all individual

EMS would be entered into the models to assess individual EMS contributions. In each regression analysis, all predictor variables were entered in the same stage.

Diagnostic checks were carried out following all regression analyses to ensure that assumptions of the regressions were tenable. All assumptions regarding linearity, normality and constant variance were met.

#### **4. Early maladaptive schemas and their relationship to psychopathology in adolescence**

Makinson, J. E., Schwannauer, M., & Smith, R. (2012).

Journal article written according to guidelines for submission to the *Journal of Abnormal Child Psychology* (see Appendix 6.9).

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##### **4.1. Abstract**

Schema theory and therapy offer an extension of traditional cognitive approaches to the conceptualisation and treatment of mental health problems. While created for adult psychopathology, several studies have revealed the model may be usefully applied to adolescents. Despite this, the evidence-base is considerably limited by the paucity of studies testing Early Maladaptive Schemas (EMS) and their relationship to psychopathology within the context of other psychological constructs. Such a study may have important implications for embedding schema theory into our knowledge of the development of adolescent psychopathology, potentially creating new treatments for a variety of severe and complex presentations. This study used a cross-sectional self-report design of referred ( $N=30$ ) and non-referred ( $N=70$ ) adolescents aged 12 to 18 years, measuring EMS, attachment, interpersonal problems and psychopathology. Participants in the referred group scored higher than the non-referred group on overall level of EMS, and EMS score was predictive of level of global psychopathology, after the control of attachment security, interpersonal problems, age and gender. Unique

clusters of EMS were also predictive of specific types of psychopathology. These findings indicate that schema theory does have explanatory value for adolescent psychopathology, and that further adaptation of the model may lead to the effective treatment of early presenting personality disorders and other types of severe and complex mental health problems in adolescence.

**Keywords:** adolescents, early maladaptive schemas, psychopathology, schema theory young people

## **4.2. Introduction**

Common mental health problems in adolescence include anxiety, depression, behavioural difficulties and emotional distress (Costello et al. 2003), deliberate self harm and suicide (Hawton and James 2005), and the emergence of core symptoms of Borderline Personality Disorder (BPD; Bradley et al. 2005; Miller et al. 2008; Westen and Chang 2000). While achieving a thorough understanding of these difficulties is key to the provision of effective, evidence-based interventions, the origins of many of these problems is still not fully understood.

Cognitive theory, originally proposed by Beck (1967) has substantially enhanced our understanding of the development and maintenance of emotional disorders. It assumes that negative schematic beliefs concerning ourselves, others and the world lie behind the symptoms of psychopathology, thus providing a framework for clinical intervention. More recently, Young's (1994) schema theory model has advanced the traditional cognitive model. It provides an effective method in the conceptualisation and

treatment of chronic and resistant forms of adult psychopathology, such as those associated with personality disorders (Young et al. 2003).

There has been a recent increase in studies which attempt to apply schema theory to the adolescent population, and this study aimed to add to this growing evidence-base.

#### **4.2.1. Schema theory**

Early Maladaptive Schemas (EMS) are the central theoretical construct of schema theory and therapy, devised by Jeffrey Young (Young 1994; Young et al. 2003). EMS are pervasive patterns or themes created during childhood within the context of the early care-giving environment, strengthened over development into adulthood through relationships with peers and the wider community. While present in all individuals, EMS are detectable in more extreme and rigid forms in clinical groups. They are proposed to contain memories, emotions and physiological sensations in addition to cognitions. While formed in an initial attempt to assimilate information and emotional experience within early negative environments, EMS become dysfunctional through their perpetuation into new experience.

When activated in an individual, EMS drive coping styles of avoidance, surrender or overcompensation, which is the observable behaviour related to the schema. The model also includes schema modes, or the precise emotional state of the individual in a given moment, also driven by underlying EMS. Through their strength, rigidity and consequences (experienced through coping styles and modes), Young states that EMS create a vulnerability to psychopathology (McGinn & Young 1996; Young et al. 2003), and therefore accurate identification and ‘healing’ of these schemas is the central feature of treatment.

A self-report measure was developed for the assessment of EMS; the Young Schema Questionnaire (YSQ: Young & Brown 1990), of which both long and short versions exist. Several higher- and lower-order factor analyses have been performed on the YSQ, yielding most support for a 15 EMS model (e.g. Calvete et al. 2005; Hoffart et al. 2005; Schmidt et al. 1995), although there is significant variation in agreeing on the higher order structure.

While there are now an additional three EMS, the 15 EMS and five domains used in most research to date are as arranged as follows: “Disconnection/Rejection” (Mistrust/Abuse, Emotional Deprivation, Defectiveness/Shame, Social Isolation/Alienation and Abandonment/Instability schemas), “Impaired Autonomy/Performance” (Dependency/Incompetence, Vulnerability to Harm/Illness, Enmeshment/Undeveloped self and Failure to Achieve schemas), “Impaired Limits” (Entitlement/Grandiosity and Insufficient self-control/Discipline schemas), “Other-directedness” (Subjugation and Self-Sacrifice schemas) and “Overvigilance/Inhibition” (Emotional Inhibition and Unrelenting Standards schemas).

The majority of research conducted on the schema model utilises the 15 EMS model and related YSQ versions. The YSQ shows adequate test-retest reliability, internal consistency and discriminant validity in both clinical and non-clinical populations, both in English and other languages (e.g. Baranoff et al. 2006; Calvete et al. 2005; Cecero et al. 2004; Glaser et al. 2002; Rijkeboer and van den Bergh, 2006; Riso et al. 2006; Schmidt et al. 1995; Waller et al. 2001). Despite this, use of additional measures or attention to construct validity is lacking in many studies. This is a

noticeable limitation of much of the evidence-base, and the construct validity of EMS remains largely unproven.

Evidence from adult samples relate EMS to increased risk for different forms of psychopathology, including personality disorders (Petrocelli et al. 2001), anxiety and social phobia (Pinto–Gouveia et al. 2006), depression (Renner et al. 2012), eating disorders (Deas et al. 2011; Meyer and Gillings 2004), anger (Calvete et al. 2005), trait aggressiveness (Tremblay and Dozois 2009), sexual dysfunction (Quinta Gomes and Nobre 2012) and substance misuse (Brotchie et al. 2004).

Furthermore, other studies have tested EMS within mediation models, for example, those finding that EMS mediate the relationship between childhood emotional maltreatment and psychological distress (O’Dougherty Wright et al. 2009), and the relationship between attachment and psychopathology (Bosmans et al. 2010). Some additional support exists regarding the cognitive content–specificity hypothesis outlined by Beck and colleagues (1992). This claims that specific core beliefs characterise particular forms of psychopathology (see Beck and Perkins 2001), and while some studies of EMS evidence this, others show that individuals sharing the same disorder evidence different patterns of EMS (Calvete et al. 2005). Collectively, these findings provide some support for Young’s model, however, they are limited by doubts over the validity of a unique role of EMS in the development of psychopathology.

#### **4.2.2. Schema theory and adolescence**

Although not as conclusive as the adult evidence–base, schema theory has been tested in adolescents to some good effect. The dimensionality of the schema model in adolescent populations is generally accepted, and there have been consistent findings of schemas

being positively associated with different forms of psychopathology (Braet et al. 2012; Lumley and Harkness 2007; Muris 2006; Roelofs et al. 2011; Van Vlierberghe et al. 2010).

Attempts to evidence consistent relationships between types of psychopathology and individual schemas or domains have been less successful. Anger and aggression, conduct problems and other externalising behaviours have been shown to relate most strongly to schemas in the Impaired Limits domain, containing schemas concerning lack of impulse control and poor adherence to social norms and boundaries (Cavlete and Orue 2010; 2012; Muris 2006; Van Vlierberghe et al. 2010). Schemas relating to feelings of defectiveness and failure have also been shown to predict oppositional-defiant problems, disruptive and antisocial behaviour in adolescents (Muris, 2006; Van Vlierberghe et al. 2007; 2010). Internalising problems have been evidenced to relate to all schemas apart from those in the Impaired Limits domain, most strongly the schemas Social Isolation and Vulnerability to Harm (Van Vlierberghe and Braet 2007; Van Vlierberghe et al. 2010). This indicates that EMS may confer a general vulnerability for some problems types, especially when these are measured without much sensitivity towards individual symptom profiles.

There is also evidence to support the specific roles of EMS relating to loss and deprivation, helplessness, worthlessness, perceived failure of the self and feelings of social isolation in depressive disorders and other mood problems (Braet et al. 2012; Dozois et al. 2012; Lumley and Harkness 2007; Van Vlierberghe et al. 2010; Roelofs et al. 2011; 2012; Simmons et al. 2006). Anxiety problems have also been evidenced to relate to EMS referring to themes of vulnerability, insecurity and instability, the need for

efficiency and responsibility, feelings of incompetence, shyness and inhibition (Lumley and Harkness 2007; Muris, 2006; Van Vlierberghe et al. 2010). Such findings have high face validity in reflecting the overestimation of threat, and underestimation of the ability to cope, as well as desire to control the environment common in anxiety disorders (Beck et al. 1985).

Despite the findings noted above, the current evidence-base concerning the validity of applying schema theory to adolescent psychopathology is limited, both by methodological and theoretical problems. While these issues are discussed in more detail elsewhere (Makinson et al. unpublished review), some will be outlined here insofar as they relate to the current study.

#### ***4.2.3. The application of schema theory to adolescence***

At the fundamental level of detecting EMS, only a handful of studies have used a standardised version of the YSQ adapted for adolescents (YSQ-A: Van Vlierberghe et al. 2004; see Van Vlierberghe et al. 2010). Far more studies have used adult versions of the YSQ on children as young as 12 years old. This has conceptual issues regarding understanding the questionnaire at a minimum, as well as the appropriateness of items corresponding to EMS in adolescents.

Beyond the lack of reporting of, and control for, demographic variables, statistical techniques such as multiple regression analyses are advised regarding high inter-correlation of schemas, and co-morbidity evident in many clinical samples. This preferential approach to testing cognitive theory hypotheses is described by Van Vlierberghe and colleagues (2010), who note that it has been lacking in many studies of schema theory in youth prior to their publication. More consistent use of methodology

and replication of research are both needed to highlight which findings indicate theoretical issues concerning applying schema theory in adolescence, and which are spurious.

The relationship between EMS and psychopathology seems further complicated by effects of gender and age; both on levels of schemas (Calvete 2008; Gongora et al. 2009; Lumley and Harkness 2007; Muris 2006; Van Vlierberghe et al. 2010) and their mediating role between stress and psychopathology (Braet et al. 2012). The development of EMS is likely to be highly affected by these factors, and several studies published to date have failed to account for these variables, potentially invalidating their findings.

While present to some degree in a handful of studies (Braet et al., 2012; Roelofs et al. 2011; Simmons et al. 2006; Turner et al. 2005), it is a considerable issue that effects of EMS have not generally been evidenced within the context of other psychological constructs. Many of these are known to correlate with psychopathology and have potential cross-over with the concepts contained within EMS. For example, attachment theory and the concept of internal working models incorporate schematic representations (Bowlby 1969) and were influential in Young's development of the model. Attachment style is also highly associated with a range of psychological problems in childhood and adolescence (DeKlyen and Greenberg 2008). The development and action of EMS also encapsulates interpersonal problems which has not explicitly been used to validate effects on psychopathology in adolescents to date. Therefore, any effect EMS may show on psychopathology could be explained by these other factors, EMS failing to add a new dimension to developmental psychopathology.

In summary, while there are some studies which enable stronger assumptions to be made, the evidence-base concerning the application of schema theory to adolescence is far from conclusive. More specifically, the construct validity of EMS in general, and more so in adolescence is unproven, and from a clinical perspective EMS are likely to present and act differently during this developmental stage compared to adulthood.

#### **4.2.4. The present study**

This study aims to test the predictive ability of EMS in adolescent psychopathology within the context of attachment and interpersonal behaviours. The addition of these factors aims to provide insight into the construct validity of EMS; a noticeable limitation of the existing evidence-base. The study will replicate aspects of other key studies in terms of design and sample to facilitate between-study comparisons (e.g. Van Vlierberghe et al. 2010).

An adolescent version of the YSQ will be used (YSQ-A; Van Vlierberghe et al. 2004) in a UK population aged 12 to 18. Inclusion of referred and non-referred participants will enable comparisons between groups in terms of psychopathology and schemas. This sampling method also has the potential to gain a range of presentations and levels of severity in both constructs. Multiple regression analyses will be employed to control for confounding factors of age and gender, and separate analyses will be run for different types of psychopathology. Psychopathology will be explored as a total score, and on scales of internalising, externalising, affective, anxiety, conduct and oppositional-defiant problems.

It is expected that mean schema score will be predicted by group, whereby adolescents in the referred group will score more highly than those in the non-referred

group. It is predicted that EMS will significantly contribute to total level of psychopathology, even when demographic variables (age and gender), and additional psychological constructs (attachment style and interpersonal problems) are present in the model.

In exploring support for the cognitive content–specificity hypothesis, it is predicted that different patterns of domains and EMS will be responsible for the prediction of different types of psychopathology as follows: The Disconnection/Rejection domain will be most strongly predictive of internalising problem behaviours compared to the other four schema domains and externalising problem behaviours will be best predicted by the Impaired Limits and Disconnection/Rejection domains. Within their respective domains, affective problems will be significantly predicted by schemas referring to loss, worthlessness and social isolation, anxiety problems by schemas relating to vulnerability and inhibition, and oppositional defiant and conduct disorders by schemas relating to emotional deprivation, failure and entitlement.

### **4.3. Method**

#### **4.3.1. Participants**

Participants were 100 adolescents (69 females, 31 males) with a mean age of 15.12 years (standard deviation [*SD*] = 1.67; range 12–18). Thirty of the adolescents currently attended an outpatient mental health service (one participant was receiving inpatient treatment at the time of participation), and 70 were community controls. Participants within the referred group had received diagnoses of anorexia nervosa, eating

problems/obesity, depression, affective disorder, general anxiety disorder, social anxiety, obsessive compulsive disorder (OCD) and trauma, as noted by their case managers. Participants in both groups were excluded if they had a diagnosis of a pervasive developmental disorder (PDD) or learning disability. Prior power analyses had indicated a recommended sample size of 100 in total.

The Scottish Index of Multiple Deprivation (SIMD) quintiles were used as an indicator of socio-economic status (1 = most deprived; 5 = least deprived). This indicated that 5% of participants were classified as living in one of the second most deprived areas in Scotland, 34% the third, 26% the fourth and 17% the least deprived. The remaining 18% of participants did not provide a valid postcode to enable SIMD classification. Average SIMD quintile score was slightly higher in the referred (*Mean* = 4.20, standard deviation [*SD*] = 1.04) compared to the non-referred group (*Mean* = 3.44, standard deviation [*SD*] = 0.68). Ethnic group or race was reported by 77% of participants, all of which describing themselves as ‘white’ or British (including English and Scottish).

#### **4.3.2. Recruitment and procedure**

The non-referred group was identified from a secondary school approached in the community. The school identified one class per year who would be approached in the initial stage of recruitment. In registration, participants were given an age-appropriate invitation pack from their Guidance Teacher, informing them of the study. A pack for the adolescent was provided in all cases, with an additional pack for parents or guardians of adolescents under the age of 16. The adolescents were requested to return both consent forms to their form tutor, who passed them onto the Guidance Teacher. One to

two weeks after the initial approach, the researcher attended a personal and social education (PSE) class for each invited year–group to provide a brief overview of the study, and provide any additional information or packs as needed.

Participants in the referred group were identified by individual clinicians working in two separate outpatient mental health services in the UK. All clinicians working at the two sites were informed of the study and provided with information about inclusion and exclusion criteria, and given copies of the study questionnaires. They were asked to invite any adolescent fulfilling the inclusion criteria. Clinicians provided potential participants with an age–appropriate invitation pack. Referred adolescents were requested to inform their clinician or case manager if they wished to participate, submitting a completed consent form which was then given to the researcher.

Following receipt of consent forms for the referred group, the researcher made an appointment with the adolescent to complete the self–report measures within the mental health department they attended. Non–referred adolescents completed the same measures as the referred group, in the same order (as listed below), during either one, or if needed, two consecutive weekly personal and social education (PSE) classes in the company of guidance staff and the researcher. Completion of all questionnaires took between twenty to fifty minutes, depending on the individual. The researcher was available throughout completion to assist participants if required.

For the non–referred group, 105 adolescents were invited. Of these, 25 did not return their consent forms, 73 provided consent to participate and seven indicated that they did not wish to participate. Two adolescents did not complete the study due to being absent from school, and one changed their mind and withdrew from participation,

giving a non-referred sample of 70 adolescents. No response rate was available for referred participants due to individual clinicians inviting their patients without a consistent record of numbers invited.

### **4.3.3. Measures**

*Demographics* Demographic information was collected for all participants detailing age, gender, postcode and ethnic group or race.

*Early Maladaptive Schemas* The Young Schema Questionnaire–Short Version (YSQ: Young & Brown, 1998) consists of 75 self-report items assessing 15 of the 18 identified Early Maladaptive Schemas (Young et al. 2003). A Dutch adolescent version has been created (Van Vlierberghe et al. 2004) and tested in clinical and non-clinical populations of adolescents, showing to be reliable in terms of internal consistency, and suitable for exploring relationships between EMS and psychopathology (Bosmans et al. 2010; Roelofs et al. 2011; Van Vlierberghe and Braet 2007; Van Vlierberghe et al. 2010). The YSQ–A uses a Likert scale to indicate how much each item applies to an individual, from 1 (“completely untrue of me”) to 6 (“describes me perfectly”).

An English version of the YSQ–A was requested from the Dutch authors and from Young. No version was known to be available, so the author translated the Dutch version and sent it to Van Vlierberghe and colleagues for approval and consent to use in this study.

*Attachment* The Adolescent Relationship Scales Questionnaire (A–RSQ) was used in its adapted form from the original 30 item Relationship Scales Questionnaire (Griffin and Bartholomew 1994; Scharfe, personal communication, 9 January 2012). It is a self-report, continuous measure of attachment yielding mean scores of four patterns

of attachment: secure, insecure–fearful, insecure–preoccupied and insecure–dismissive from a total of 17 items. There have been some issues with internal consistency of the RSQ and A–RSQ (see Griffin and Bartholomew 1994a; Scarfe 2002), however, it was felt that the A–RSQ offered a brief and adequate measure of attachment for the purpose of this study.

*Psychopathology* The revised 2001 version of the Youth Self Report (YSR; Achenbach and Rescorla 2001) was used as a measure of emotional and behavioural problems, as it shows strong validity and reliability. It utilises a dimensional perspective of psychopathology to produce a total problem score, global internalizing and externalizing problem behaviour scores and DSM–orientated scale scores. The scale has 112 items rated on a three point scale (0 = never, 1 = sometimes, 2 = often).

*Interpersonal problems* The Inventory of Interpersonal Problems (IIP–32; Barkham et al. 1996) is a 32 item measure adapted from the original 127 item Inventory of Interpersonal Problems (IIP; Horowitz et al. 1988). The eight factor model creates subscales of ‘domineering/controlling’, ‘vindictive/self–centred’, ‘cold/distant’, ‘socially inhibited’, ‘non–assertive’, ‘overly accommodating’, ‘self–sacrificing’ and ‘intrusive/needy’.

The individual uses a five–point Likert scale to indicate aspects they consider ‘too hard’ to do in relationships, or that they do ‘too much’ (Barkham et al. 1996). Higher scores indicate greater problem severity, and all scores together produce a total measure of interpersonal difficulty. The scale authors have found the IIP–32 to have high reliability, and is presented as a brief measure assessing a variety of interpersonal

problems. The tool is also effective in differentiating between clinical and non-clinical samples (Barkham et al. 1996).

#### **4.3.4. Data analysis plan**

Data were scored to provide a total mean schema score (mean of all item scores), mean schema score for each of the five schema domains and individual EMS, total psychopathology score, total internalising and externalising problem behaviour scores, and total scores on four DSM-orientated subscales of affective, anxiety, oppositional-defiant, and conduct disorder problems. Mean scores on the attachment dimensions of secure, insecure-fearful, insecure-preoccupied and insecure-dismissing were also calculated, as well as total problem score from the IIP-32.

For questionnaires which yielded a mean score, small amounts of missing data were omitted in mean subscale calculations, therefore the mean being computed from only the complete item scores. This applied to 0.19% of IIP-32, 0.37% of YSQ-A, and 0.53% of A-RSQ items. There were no missing data for the scores which were required for the scales used in the YSR. Seven participants (three referred and four non-referred) failed to complete 50% of the IIP-32, and were therefore omitted from the analysis which used this measure.

Descriptive data were examined for mean values for all main variables, and degree of normal distribution. Non-parametric Mann-Whitney U tests were conducted for between-group differences and Spearman's correlation analyses were run on all pairs of main variables. To test the main study hypotheses, eight standard linear multiple regression analyses were planned investigating the associations between EMS and psychopathology. Four additional regression analyses were planned in the event that

particular schema domains showed unique contributions to the prediction of psychopathology score for the four separate problem types. In this case, all individual EMS would be entered into the models to assess individual EMS contributions. For all multiple regression analyses, predictor variables were entered simultaneously in one stage. Diagnostic checks were carried out following all regression analyses to ensure that assumptions of the regressions were tenable. All assumptions regarding linearity, normality and constant variance were met.

#### **4.4. Results**

##### ***4.4.1. YSQ–A reliability***

Cronbach alphas for the English translation of the YSQ–A are depicted in Table 4.1. As can be seen, the internal consistency levels of 13 schema subscales ranged from acceptable (alpha = .73) to excellent (alpha = .95). One EMS demonstrated poor internal consistency; Emotional Deprivation (alpha = .69) and the Enmeshment/Undeveloped Self scale was below acceptability level (alpha = .47). All schema domain subscales had adequate (alpha = .77) to excellent (alpha = .95) internal consistency, and the full scale also showed excellent internal consistency (alpha = .96).

##### ***4.4.2. Descriptive statistics and preliminary analyses***

Following examination of the data for normal distribution, Mann-Whitney U tests were performed between groups, the results of which for age and all main variables by group are provided in Table 4.2.

**Table 4.1** Cronbach alphas for referred and non-referred adolescents ( $N = 100$ ) on subscales of the YSQ-A (English version).

	alpha
Disconnection / Rejection	.95
Emotional Deprivation	.69
Abandonment/Instability	.84
Mistrust/Abuse	.87
Social Isolation/Alienation	.92
Defectiveness/Shame	.90
Impaired Autonomy/Performance	.89
Failure to Achieve	.95
Dependence/Incompetence	.73
Vulnerability to Harm/Illness	.79
Enmeshment/Undeveloped Self	.47
Other-Directedness	.81
Subjugation	.81
Self-Sacrifice	.76
Overvigilance/Inhibition	.77
Emotional Inhibition	.84
Unrelenting Standard/Hypercriticalness	.76
Impaired Limits	.82
Entitlement/Grandiosity	.79
Insufficient Self-control/Self-Discipline	.78
All schema subscales	.96

**Table 4.2** Comparison between groups for age and all main variables

	Non-referred ( <i>N</i> =70)		Referred ( <i>N</i> =30)		Mann-Whitney U test statistic ( <i>U</i> )	Significance ( <i>p</i> , two-tailed)
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Age (years)	14.8	1.78	15.8	1.14	2.39	.017
Mean schema score	2.19	0.52	3.32	0.61	6.70	<.001
<i>Disconnection/Rejection</i>	1.84	0.56	3.43	0.88	6.58	<.001
Emotional Deprivation	1.77	0.65	2.73	0.85	4.89	<.001
Abandonment/Instability	2.00	0.84	3.31	1.48	4.22	<.001
Mistrust/Abuse	1.90	0.87	3.45	1.17	5.52	<.001
Social Isolation/Alienation	1.84	0.86	4.07	1.22	6.61	<.001
Defectiveness/Shame	1.69	0.64	3.57	1.32	6.29	<.001
<i>Impaired Autonomy/ Performance</i>	2.16	0.65	3.38	0.78	6.17	<.001
Failure to Achieve	2.36	1.11	4.17	1.45	5.20	<.001
Dependence/Incompetence	2.00	0.78	3.29	1.13	5.11	<.001
Vulnerability to Harm/Illness	2.18	0.87	3.39	1.26	4.39	<.001
Enmeshment/Undeveloped Self	2.11	0.72	2.59	0.87	2.88	.004
<i>Other-Directedness</i>	2.57	0.76	3.36	0.85	4.23	<.001
Subjugation	2.04	0.85	3.34	1.19	5.15	<.001
Self-Sacrifice	3.09	0.95	3.38	1.01	1.64	.102
<i>Overvigilance/Inhibition</i>	2.65	0.83	3.47	0.88	4.11	<.001
Emotional Inhibition	2.13	0.98	3.51	1.15	4.95	<.001
Unrelenting Standards	3.16	1.12	3.47	1.48	0.92	.358
<i>Impaired Limits</i>	2.28	0.81	2.75	0.92	2.56	.010
Entitlement/Grandiosity	1.96	0.85	2.35	1.07	1.81	.071
Insufficient Self-control	2.61	1.04	3.16	1.19	2.20	.028
YSR total problem score	20.60	10.63	44.57	15.84	6.19	<.001
Internalising problem score	12.39	7.47	31.57	11.88	6.48	<.001
Externalising problem score	10.34	8.00	18.68	9.13	4.29	<.001
Affective problem score	4.64	3.26	14.20	6.64	6.06	<.001
Anxiety problem score	2.46	2.17	7.23	3.14	6.10	<.001
Opposition-defiant problem score	2.99	2.52	2.57	2.40	2.96	.003
Conduct problem score	3.09	3.46	6.23	4.25	3.67	<.001
Secure attachment	3.21	.59	2.57	.67	-4.04	<.001
Insecure-fearful attachment	2.28	.78	3.41	1.05	4.70	<.001
Insecure-preoccupied attachment	2.70	.72	3.08	.85	2.17	.030
Insecure-dismissing attachment	2.74	.70	3.06	.78	2.09	.036
Mean interpersonal problem score	1.03	.69	1.57	.55	3.40	.001

**Table 4.3** Correlations between the study variables for all participants.

Variable	22	23	24	25	26	27	28	29	30	31	32	33	34
1. YSQ-tot	0.70**	0.53**	0.73**	0.70**	0.58**	0.37**	0.41**	0.55**	-0.55**	0.60**	0.34**	0.43**	0.23*
2. YSQ-DR	0.63**	0.48**	0.68**	0.68**	0.52**	0.31**	0.36**	0.52**	-0.57**	0.59**	0.25*	0.40**	0.19
3. YSQ-ED	0.64**	0.51**	0.57**	0.61**	0.38**	0.33**	0.42**	0.49**	-0.47**	0.57**	0.12	0.28**	0.02
4. YSQ-AB	0.58**	0.40**	0.62**	0.60**	0.44**	0.27**	0.22*	0.50**	-0.57**	0.51**	0.33**	0.20*	0.12
5. YSQ-MA	0.57**	0.45**	0.55**	0.49**	0.43**	0.29**	0.37**	0.33**	-0.48**	0.61**	0.31**	0.42**	0.34**
6. YSQ-SI	0.60**	0.40**	0.64**	0.61**	0.45**	0.24*	0.29**	0.47**	-0.42**	0.43**	0.13	0.42**	0.12
7. YSQ-DS	0.68**	0.50**	0.66**	0.62**	0.52**	0.32**	0.42**	0.49**	-0.57**	0.53**	0.22*	0.36**	0.15
8. YSQ-IAP	0.62**	0.44**	0.66**	0.61**	0.54**	0.28**	0.33**	0.46**	-0.50**	0.56**	0.28**	0.35**	0.20*
9. YSQ-FA	0.69**	0.55**	0.62**	0.55**	0.38**	0.43**	0.48**	0.37**	-0.47**	0.51**	0.27**	0.38**	0.24*
10. YSQ-DI	0.50**	0.27**	0.56**	0.52**	0.42**	0.15	0.19	0.40**	-0.34**	0.44**	0.14	0.31**	0.07
11. YSQ-VH	0.52**	0.26**	0.65**	0.55**	0.58**	0.15	0.14	0.43**	-0.50**	0.53**	0.27**	0.22*	0.06
12. YSQ-EN	0.19	0.02	0.31**	0.10	0.31**	-0.12	-0.01	0.28**	-0.17	0.07	0.23*	-0.01	0.05
13. YSQ-OD	0.49**	0.38**	0.53**	0.46**	0.48**	0.26**	0.30**	0.44**	-0.42**	0.44**	0.42**	0.25*	0.20*
14. YSQ-SB	0.62**	0.44**	0.64**	0.52**	0.50**	0.30**	0.44**	0.49**	-0.59**	0.54**	0.31**	0.23*	0.12
15. YSQ-SS	0.13	0.09	0.20*	0.21*	0.24*	0.11	0.51	0.23*	-0.11	0.21*	0.41**	0.18	0.16
16. YSQ-OI	0.41**	0.28**	0.51**	0.44**	0.45**	0.23*	0.21*	0.32**	-0.37**	0.37**	0.16	0.44**	0.23*
17. YSQ-US	0.06	-0.10	0.19	0.15	0.26*	0.04	-0.12	-0.07	-0.03	0.08	0.16	0.37**	0.25*
18. YSQ-EI	0.59**	0.44**	0.61**	0.53**	0.47**	0.28**	0.40**	0.56**	-0.51**	0.49**	0.08	0.33**	0.09
19. YSQ-IL	0.53**	0.48**	0.43**	0.48**	0.29**	0.36**	0.41**	0.39**	-0.32**	0.35**	0.41**	0.21*	0.11
20. YSQ-ET	0.38**	0.39**	0.26**	0.39**	0.19	0.35**	0.31**	0.22*	-0.19	0.19	0.19	0.05	0.03
21. YSQ-IS	0.50**	0.38**	0.44**	0.41**	0.27**	0.24*	0.35**	0.36**	-0.34**	0.37**	0.43**	0.23*	0.08
22. YSR-tot	–	0.82**	0.84**	0.88**	0.65**	0.68**	0.68**	0.47**	-0.57**	0.56**	0.26**	0.30**	0.28**
23. YSR-ext	0.82**	–	0.48**	0.59**	0.29**	0.87**	0.89**	0.38**	-0.43**	0.47**	0.20*	0.27**	0.18
24. YSR-int	0.84**	0.48**	–	0.90**	0.88**	0.34**	0.33**	0.51**	-0.59**	0.59**	0.25**	0.31**	0.35**
25. YS-aff	0.88**	0.59**	0.90**	–	0.69**	0.48**	0.43**	0.51**	-0.59**	0.61**	0.24*	0.34**	0.34**
26. YSR-anx	0.65**	0.29**	0.88**	0.69**	–	0.18	0.17	0.39**	-0.54**	0.50**	0.23*	0.15	0.26*
27. YSR-odd	0.68**	0.87**	0.34**	0.48**	0.18	–	0.71**	0.17	-0.23*	0.37**	0.08	0.21*	0.14
28. YSR-cond	0.68**	0.89**	0.33**	0.43**	0.17	0.71**	–	0.32**	-0.40**	0.44**	0.13	0.29**	0.14
29. IIP-tot	0.47**	0.38**	0.51**	0.51**	0.39**	0.17	0.32**	–	-0.47**	0.47**	0.21*	0.11	0.10

**Table 4.3 (continued)**

Variable	22	23	24	25	26	27	28	29	30	31	32	33	34
30. RSQ–S	-0.57**	-0.43**	-0.59**	-0.59**	-0.54**	-0.23*	-0.40**	-0.47**	–	-0.56**	-0.24*	-0.21*	-0.16
31. RSQ–F	0.56**	0.47**	0.59**	0.61**	0.50**	0.37**	0.44**	0.47**	-0.56**	–	0.27**	0.41**	0.20*
32. RSQ–P	0.26**	0.20*	0.25**	0.24*	0.23*	0.08	0.13	0.21**	-0.24**	0.27**	–	-0.01	0.31**
33. RSQ–D	0.30**	0.27**	0.31**	0.34**	0.15	0.21*	0.29**	0.11	-0.21*	0.41**	-0.01	–	0.19
34. Age	0.28**	0.18	0.35**	0.34**	0.26*	0.14	0.14	0.10	-0.16	0.20*	0.31**	0.19	–

YSQ–tot = Young Schema Questionnaire mean total schema score. YSQ–DR = Young Schema Questionnaire Disconnection/Rejection domain subscale. YSQ–ED = Young Schema Questionnaire Emotional Deprivation schema subscale. YSQ–AB = Young Schema Questionnaire Abandonment/Instability schema subscale. YSQ–MA = Young Schema Questionnaire Mistrust/Abuse schema subscale. YSQ–SI = Young Schema Questionnaire Social Isolation schema subscale. YSQ–DS = Young Schema Questionnaire Defectiveness/Shame subscale. YSQ–IAP = Young Schema Questionnaire Impaired Autonomy/Performance domain subscale. YSQ–FA = Young Schema Questionnaire Failure to Achieve schema subscale. YSQ–DI = Young Schema Questionnaire Dependence/Incompetence schema subscale. YSQ–VH = Young Schema Questionnaire Vulnerability to Harm/Illness schema subscale. YSQ–EN = Young Schema Questionnaire Enmeshment/Undeveloped self schema subscale. YSQ–OD = Young Schema Questionnaire Other–Directedness domain subscale. YSQ–SB = Young Schema Questionnaire Subjugation schema subscale. YSQ–SS = Young Schema Questionnaire Self–Sacrifice schema subscale. YSQ–OI = Young Schema Questionnaire Overvigilance/Inhibition domain subscale. YSQ–US = Young Schema Questionnaire Unrelenting Standards schema subscale. YSQ–EI = Young Schema Questionnaire Emotional Inhibition schema subscale. YSQ–IL = Young Schema Questionnaire Impaired Limits domain subscale. YSQ–ET = Young Schema Questionnaire Entitlement/Grandiosity schema subscale. YSQ–IS = Young Schema Questionnaire Insufficient Self–control/Discipline schema subscale. YSR–tot = Youth Self–Report total problem scale. YSR–ext = Youth Self–Report externalising symptoms. YSR–int = Youth Self–Report internalising symptoms. YSR–aff = Youth Self–Report affective problems. YSR–anx = Youth Self–Report anxiety problems. YSR–odd = Youth Self–Report oppositional–defiant problems. YSR–cond = Youth Self–Report conduct problems. IIP–tot = Inventory of Interpersonal Problems total score. RSQ–S = Relationship Scale Questionnaire secure subscale. RSQ–F = Relationship Scale Questionnaire insecure–fearful subscale. RSQ–P = Relationship Scale Questionnaire insecure–preoccupied subscale. RSQ–D = Relationship Scale Questionnaire insecure–dismissing subscale. Age = age in years. \* $p < 0.05$ . \*\* $p < 0.01$ .

Significantly higher levels of EMS were evident in the referred, compared to the non-referred group for mean total score, all five schema domains, and for each of the 15 EMS with the exception of Self-Sacrifice, Unrelenting Standards, and Entitlement/Grandiosity schemas.

The referred group was also older than the non-referred group, and evidenced significantly higher scores on all indices of psychopathology, attachment insecurity and mean interpersonal problem score. The non-referred group scored significantly higher on the security of attachment index than the referred group.

Spearman's non-parametric correlation analyses were undertaken for all main study variables, the results of which are depicted in Table 4.3.

All EMS evidenced a significant positive correlation with interpersonal problem score, with the exception of the Unrelenting Standards schema, and a negative correlation with security of attachment, apart from Enmeshment/Undeveloped self, Self-Sacrifice, Unrelenting Standards and Entitlement/Grandiosity schemas.

#### **4.4.3. Effect of age on main variables**

Age significantly correlated with EMS, both for mean total schema score (Spearman's  $\rho = 0.23, p < .05$ ), and on several individual schema and domain subscales (see Table 1.3). Correlations were also significant for the relationship between age and total problem score ( $\rho = 0.28, p < .01$ ), internalising ( $\rho = 0.35, p < .01$ ), affective ( $\rho = 0.34, p < .01$ ) and anxiety problems ( $\rho = 0.26, p < .01$ ), as measured by the Youth Self-Report, as well as insecure-fearful ( $\rho = 0.20, p < .05$ ) and insecure-preoccupied ( $\rho = 0.31, p < .01$ ) attachment. Consequently, age was controlled for in all subsequent multiple regression analyses.

#### **4.4.4. Prediction of EMS by group**

Linear multiple regression analysis was used to test the prediction of mean schema score (ranging from 1–6) by the variables group (referred versus non referred), age and gender, added in a single entry procedure. Results showed that the model was significant, explaining 47% of the total variance in mean schema score ( $R^2 = .49$ , *adjusted*  $R^2 = .47$ ,  $F_{(3,96)} = 30.36$ ,  $p < .001$ ). There was evidence for a significant contribution of group, with higher scores predicted by referred, compared to non-referred group status ( $b = 1.10$  [95% CI (.85 – 1.34)],  $\beta = .67$ ,  $p < .0001$ ). No other predictor variables evidenced significant contributions.

#### **4.4.5. Effects of EMS on total psychopathology problem score**

With mean schema score, four attachment dimension scores, total interpersonal problem score, age and gender in the model, a significant proportion of variance in total problem score was accounted for  $R^2 = .66$ , *adjusted*  $R^2 = .63$ ,  $F_{(8,84)} = 20.27$ ,  $p < .001$ . The regression analysis showed that a significant contribution was made by mean schema score ( $b = 13.41$  [95% CI (8.70 – 18.12)],  $\beta = .61$ ,  $p < .001$ ) and age ( $b = 1.73$  [95% CI (.36 – 3.10)],  $\beta = .69$ ,  $p = .014$ ) while none of the other variables evidenced a significant contribution.

Due to the prediction of schema score by group identified in the preceding analysis, the regression analysis was run again, with group (referred, non-referred) as an additional predictor variable, to see if the contribution of schema score to psychopathology was explained by this variable. The model predicted a similar amount of variance in total problem score as before ( $R^2 = .67$ , *adjusted*  $R^2 = .63$ ,  $F_{(9,83)} = 18.54$ ,  $p < .001$ ), and a significant contribution was still evidenced by mean schema score ( $b =$

10.76 [95% CI (4.92 – 16.60)], beta = .49,  $p < .001$ ) and age ( $b = 1.50$  [95% CI (.11 – 2.89)], beta = .15,  $p = .035$ ); no other variables evidencing a significant contribution.

#### **4.4.6. Association of EMS and internalising and externalising problem behaviours**

Prediction of internalising and externalising problem behaviour was tested using two separate linear multiple regression analyses, each time using all five schema domains as predictor variables, plus age and gender.

The model predicting internalising problem behaviour score accounted for a significant proportion of variance,  $R^2 = .66$ , *adjusted*  $R^2 = .64$ ,  $F_{(7,92)} = 25.57$ ,  $p < .001$ . Significant contributions were evident for Disconnection/Rejection ( $b = 5.21$  [95% CI (2.24 – 8.17)], beta = .41,  $p = .001$ ), Overvigilance/Inhibition ( $b = 2.84$  [95% CI (.84 – 4.85)], beta = .21,  $p = .006$ ), and Impaired Limits ( $b = 1.98$  [95% CI (.02 – 3.93)], beta = .14,  $p = .048$ ) domains, age ( $b = 1.22$  [95% CI (.26 – 2.18)], beta = .16,  $p = .013$ ) and gender ( $b = -3.75$  [95% CI (-7.16 – -.35)], beta = -.14,  $p = .031$ ).

A significant proportion of externalising problem behaviour score was accounted for by the model,  $R^2 = .40$ , *adjusted*  $R^2 = .35$ ,  $F_{(7,92)} = 8.65$ ,  $p < .001$ . Significant contributions were evident for Disconnection/Rejection ( $b = 5.31$  [95% CI (2.44 – 8.18)], beta = .57,  $p < .0001$ ) and Impaired Limits ( $b = 3.60$  [95% CI (1.71 – 5.50)], beta = .34,  $p < .001$ ) domains.

#### **4.4.7. Prediction of problem type by individual domains and EMS**

In the initial stage, four separate linear multiple regression analyses were conducted to test the prediction of YSR dimensional problem score by schema domains, controlling for age and gender. Following the results of these analyses, four further separate

analyses were conducted where individual EMS of the significant domains were used to predict problem score, in order to assess any respective significant contributions by individual EMS.

With all five domains in the four separate models, significant amounts of variance was accounted for in affective ( $R^2 = .70$ , *adjusted*  $R^2 = .67$ ,  $F_{(7,92)} = 30.63$ ,  $p < .001$ ), anxiety ( $R^2 = .45$ , *adjusted*  $R^2 = .40$ ,  $F_{(7,92)} = 10.52$ ,  $p < .001$ ), oppositional-defiant ( $R^2 = .23$ , *adjusted*  $R^2 = .17$ ,  $F_{(7,92)} = 3.85$ ,  $p = .001$ ), and conduct ( $R^2 = .33$ , *adjusted*  $R^2 = .28$ ,  $F_{(7,92)} = 6.60$ ,  $p < .001$ ) problem scores.

The Disconnection/Rejection ( $b = 4.47$  [95% CI (3.07 – 5.86.)],  $\beta = .70$ ,  $p < .001$ ) and Impaired Limits ( $b = 1.50$  [95% CI (.58 – 2.43)],  $\beta = .21$ ,  $p = .002$ ) domains contributed significantly to prediction of affective problems, in addition to age ( $b = .62$  [95% CI (.17 – 1.07)],  $\beta = .16$ ,  $p = .008$ ). In the second multiple regression, entering all EMS within the Disconnection/Rejection and Impaired Limits domain, there was evidence for significant contributions of Emotional Deprivation ( $b = 1.62$  [95% CI (.34 – 2.90)],  $\beta = .22$ ,  $p = .014$ ) and Social Isolation ( $b = 1.05$  [95% CI (.16 – 1.94)],  $\beta = .24$ ,  $p = .021$ ) schemas in the prediction of affective problem score (the effect of age also remained significant).

The Impaired Autonomy/Performance ( $b = 1.53$  [95% CI (.37 – 2.70)],  $\beta = .41$ ,  $p = .010$ ) and Overvigilance/Inhibition ( $b = .99$  [95% CI (.31 – 1.66)],  $\beta = .27$ ,  $p = .005$ ) domains made significant contributions to the prediction of anxiety problem scores; secondary analyses finding evidence for significant contributions by the schemas Vulnerability to Harm/Illness ( $b = .91$  [95% CI (.29 – 1.53)],  $\beta = .31$ ,  $p = .004$ ) and Emotional Inhibition ( $b = .68$  [95% CI (.18 – 1.20)],  $\beta = .25$ ,  $p = .009$ ).

For oppositional–defiant problems, the prediction of problem score was significantly contributed to by Disconnection/Rejection ( $b = 1.17$  [95% CI (.25 – 2.08)],  $\beta = .45$ ,  $p = .013$ ) and Impaired Limits ( $b = .95$  [95% CI (.34 – 1.55)],  $\beta = .32$ ,  $p = .003$ ) domains. Within these domains, there was evidence for significant contribution to problem score by the Entitlement/Grandiosity schema ( $b = .65$  [95% CI (.07 – 1.23)],  $\beta = .24$ ,  $p = .029$ ).

The domains Disconnection/Rejection ( $b = 2.14$  [95% CI (.83 – 3.45)],  $\beta = .53$ ,  $p = .002$ ) and Impaired Limits ( $b = 1.50$  [95% CI (.63 – 2.36)],  $\beta = .33$ ,  $p = .001$ ) made significant contributions to the model predicting conduct problems, as well as gender, with higher scores being predicted by male gender ( $b = 1.96$  [95% CI (.45 – 3.46)],  $\beta = .23$ ,  $p = .011$ ). Secondary analyses showed that significant contributions were made by the schemas Emotional Deprivation ( $b = 1.27$  [95% CI (.11 – 2.43)],  $\beta = .27$ ,  $p = .032$ ), Entitlement/Grandiosity ( $b = 1.21$  [95% CI (.40 – 2.01)],  $\beta = .28$ ,  $p = .004$ ) and Defectiveness/Shame ( $b = 1.00$  [95% CI (.05 – 1.96)],  $\beta = .31$ ,  $p = .040$ ). The effect of gender remained significant.

#### **4.5. Discussion**

The creation of an integrated model of the development of psychopathology from conception to adulthood will potentially lead to more effective interventions for adolescent mental health problems. Cognitive schemas have long been accepted as contributing factors to the development and maintenance of psychopathology. More recently, Early Maladaptive Schemas (EMS) containing more than cognitive content have shown promise in relating to psychopathology in adolescents. Despite this most

studies testing the role of EMS in predicting psychopathology have failed to control for demographic variables, as well as other psychological constructs known to relate to psychopathology. Some have also failed to use rigorously designed studies based on an adequate understanding of how EMS may relate differentially to adolescent, compared to adult populations. More recently two studies have evidenced a mediating role for EMS between quality of current attachment relationships (Roelofs et al. 2011) and different stressors (Braet et al. 2012) and psychopathology, however, there is still a very limited evidence-base supporting the application of schema theory to adolescents.

#### ***4.5.1. Detection and variance of early maladaptive schemas in adolescents***

This study used a version of the YSQ-A; a more developmentally-appropriate measure than the adult version, evidencing good reliability in its Dutch form. In recognition that the current study used an English translation, in a UK population of adolescents, it is important that the measure proved reliable in terms of internal consistency. The finding that the only schema subscale to yield an alpha level significantly below level of acceptability (Enmeshment/Undeveloped Self) has been similarly evidenced in the Dutch version (e.g Van Vlierberghe et al. 2010). This suggests that while the YSQ-A was found to be a reliable measure in this study, future studies may benefit from further adapting items within this particular schema subscale. Other levels of internal consistency in this study were also similar to those reported by Van Vlierberghe and colleagues (2010), suggesting that the English version of the YSQ-A has maintained good internal consistency in its translation from Dutch.

In testing the dimensionality of the schema concept, this study successfully demonstrated that EMS are present in higher levels in referred, compared to non-

referred adolescents. The control of demographic variables and use of the YSQ–A, used in its Dutch format elsewhere (Braet et al. 2012; Roelofs et al. 2011; Van Vlierberghe et al. 2004; 2010; Van Vlierberghe and Braet 2007) enable comparisons with these studies' findings. The results from the current study support the aforementioned studies, and evidence that higher levels of EMS characterise adolescents referred to outpatient and inpatient mental health services. This indicates that EMS may represent a valid construct which can be usefully applied to the conceptualisation and treatment of problems in these settings.

While group status significantly predicted EMS, 53% of the variance in EMS score was *not* accounted for by the model, and group status only increased mean schema score by approximately one sixth. This suggests that relatively high levels of EMS may be apparent in the non-referred group; EMS not just being a clinical phenomenon, as suggested by Young's model (Young et al. 2003). Some adolescents may have relatively high levels of EMS, however, these EMS may be less rigid, producing fewer problematic symptoms which may otherwise prompt referral to mental health services. Conversely, other adolescents may present in a manner which does not attract typical referral or acceptance by mental health services, perhaps using coping styles for their EMS which contain their distress to some degree. These behaviours may include misusing substances, risk-taking, offending behaviour, over-exercising, or over-achieving at school. It is possible that including a measure of Young's maladaptive coping styles or modes may throw more light on the issue that it is perhaps not the EMS themselves which lead to referral for intervention, but also how these are managed by the individual and their system.

#### **4.5.2. Effects of age and gender on early maladaptive schemas**

Age was found to significantly and positively correlate with several EMS and domain scores, as well as overall schema score, suggesting that while detectable at younger ages, EMS may be continuing to develop and crystallise throughout the adolescent years. This is suggested by Young in his theory (Young et al. 2003), and EMS may still be relatively unstable during adolescence, being further subject to outcomes of a complicated and taxing developmental stage (Thimm 2010).

The finding of differential effects of age both on individual schemas and types of psychopathology suggests potential for qualitative, as well as quantitative differences in EMS across adolescence, as indicated elsewhere (Braet et al. 2012). Interestingly, the Other-Directedness domain did not emerge as significantly predictive of psychopathology in any of the analyses, indicating that it may not be acting as a dysfunctional construct in adolescence. Furthermore, the Enmeshment schema within this domain was only significantly correlated with internalising problems, most likely explained by the association with anxiety, but not affective problems. While highly enmeshed child-parent dyads are associated with anxiety problems (Carr 2006), this can be a consequence, as well as a cause of such difficulties. As noted elsewhere, this schema may actually present as a protective factor at some ages, raising concern over the developmental appropriateness of the schema in its current form (Rijkeboer and de Boo 2010). Furthermore, the internal consistency of the subscale was very low. A similar pattern was evident for the Self-Sacrifice schema, which failed to evidence a predictive relationship with any type of psychopathology, and also did not correlate with total problem score.

From regression analyses, age was found to predict total problem score within psychopathology, as well as internalising problem behaviour and affective problems. It would therefore appear that older adolescents present with higher levels of psychopathology; a finding that may prove to relate to increased elaboration and rigidity of EMS at older ages. Similarly, female status was predictive of higher levels of internalising behaviour, and males were more likely to score highly on the conduct problem scale. Further investigation of these two factors would be important in untangling what appears to be a complex relationship between EMS development and symptoms of psychopathology throughout this heterogeneous developmental stage.

#### ***4.5.3. Early maladaptive schemas and psychopathology***

While referred group status itself is not a direct measure of psychopathology, the current study found that mean level of EMS predicted total problem score, based on a dimensional scale of psychopathology. This measure encapsulates a wide range of symptoms and psychological, somatic, emotional, social and behavioural difficulties.

In the unique inclusion of interpersonal problem behaviour and attachment style in the analysis, this finding suggests that EMS predict overall problem level, even when these other factors are taken into consideration. In other words, the degree of psychopathology experienced by adolescents who are insecurely attached and evidence high degrees of interpersonal difficulties may be preferentially explained by the appreciation of their EMS. Controlling for group membership, age and gender maintained this finding, further supporting the predicting role of EMS. This finding infers that even in the presence of other known risk factors, EMS appear to act as a contributing factor to the mediation of vulnerability to psychopathology. It is, however,

likely to strongly interact with other, less stable indicators of vulnerability, such as interpersonal behaviours and relationships. EMS may therefore act as a 'gateway' through which the individual experiences healthy functioning and a lack of adverse symptoms, or a range of difficulties grouped here under the term 'psychopathology'.

The strength of these findings necessitates consideration of potential sources of inflation of the effect, such as the nature of multiple regression analyses and the measures used. While all these measures were self-report, potentially leading to inflated shared variance, this element would be likely to apply to all measures, not just the YSQ. Potential spurious results can occur in multiple regression analyses when using highly correlating variables, however, this was examined from the analysis output and found to meet the assumptions necessary for linear regression. Entering group status into the model also supports the assumption that it is EMS, and not a third variable that accounts for psychopathology. It is likely that attachment and interpersonal problems do contribute to psychopathology to some extent, only the more highly predictive effect of EMS negates their contributions in the analysis. Finally, this study suffered from an unbalanced design, and the relatively low numbers of referred participants may have biased the results towards normative patterns and development.

While EMS were significantly predictive of externalising, conduct and oppositional-defiant problems, the amount of variance explained by schemas in these models was less than for internalising, affective and anxiety disorders. This suggests that other factors are likely to augment the role of EMS in these problem-types, such as temperament and the corresponding development of externalising schema coping styles and modes.

EMS accounted for a larger amount of variance in the prediction of internalising behaviours (67%) than found in other studies (Van Vlierberghe and Braet, 2007; Van Vlierberghe et al. 2010). This difference may be representative of the sample, as well as differences in analysing the data, allowing for the control for age and gender.

#### ***4.5.4. Evidence regarding the cognitive-content specificity hypothesis***

As hypothesised, the domains Disconnection/Rejection and Impaired Limits specifically predicted externalising problem behaviour in the sample. As externalising problem behaviours consist of rule-breaking and aggressive behaviours, the additional finding that the Entitlement/Grandiosity schema is predictive of both oppositional-defiant and conduct problems supports this relationship. Feeling entitled is related to a lack of adherence to social norms and boundaries associated with these types of externalising problems, as well as related responses of anger and aggression (Calvete and Orue 2010; 2012).

Conduct problems and externalising problems were also both related to schemas associated with feelings of disconnection and rejection. These adolescents evidenced that they felt that others would not provide them with emotional support, nurturance, empathy or protection (Emotional Deprivation), and that as individuals they felt bad, inferior and unwanted (Defectiveness/Shame). The notion that parents of children with behavioural problems do not provide adequate acceptance, nurturance, protection and warmth may relate to these findings (McFadyen-Ketchum et al., 1996; Pettit et al. 2001).

It is important to note that externalising behaviours may be caused by underlying depression and other affective problems in adolescents, potentially explaining the role of

these two EMS. While this is a possibility, and irritability is associated with depression in this age-group, these findings are consistent with other studies evidencing themes of failure and defectiveness in externalising problem behaviours (Van Vlierberghe et al. 2010). It also offers a useful perspective on underlying mechanisms within conduct disorder, a severe and often difficult to treat problem in adolescence.

Findings relating to cognitive content of internalising, anxiety and affective problems were largely as expected. The Disconnection/Rejection domain strongly predicted internalising problems, relating to the expectation that one's basic emotional needs will not be met. Non-hypothesised associations were also evidenced between Overvigilance/Inhibition and Impaired Limits domains and internalising problems. While Overvigilance/Inhibition contains the Emotional Inhibition schema, found to be significantly related to anxiety problems, it is less clear why the Impaired Limits domain was significant. This is contrary to findings elsewhere (Van Vlierberghe et al. 2010), and warrants further investigation. If valid, however, the finding may relate to emotional impulsivity associated with this domain, reflecting a labile presentation of poor emotional regulation associated with various affective problems (see Aldao et al. 2010).

The schemas Emotional Deprivation and Social Isolation were found to preferentially predict affective problems, and similarly, the anhedonic symptom profile in depression elsewhere (Lumley and Harkness 2007; Van Vlierberghe et al. 2010). As a schema highly related to interpersonal difficulties, Social Isolation is likely to relate to depression in adolescents. It refers to aspects of social acceptance likely to be central to an adolescent's positive self-view; interpersonal problems activating other depression-related cognitive schemas regarding sociotropy (Calvete, 2011).

The finding that schemas representing themes of threat and vulnerability (Vulnerability to Harm/Illness) predict anxiety problems has also been evidenced in other studies (Lumley and Harkness 2007; Van Vlierberghe et al. 2010). The Emotional Inhibition schema was also found to predict anxiety symptoms, relating to high self-control of affect, positive impulses and the expression of the inner self. These factors are conceptually similar to shyness and behaviourally inhibited temperament, both risk factors for anxiety disorders (e.g. Chronis-Tuscano et al. 2009).

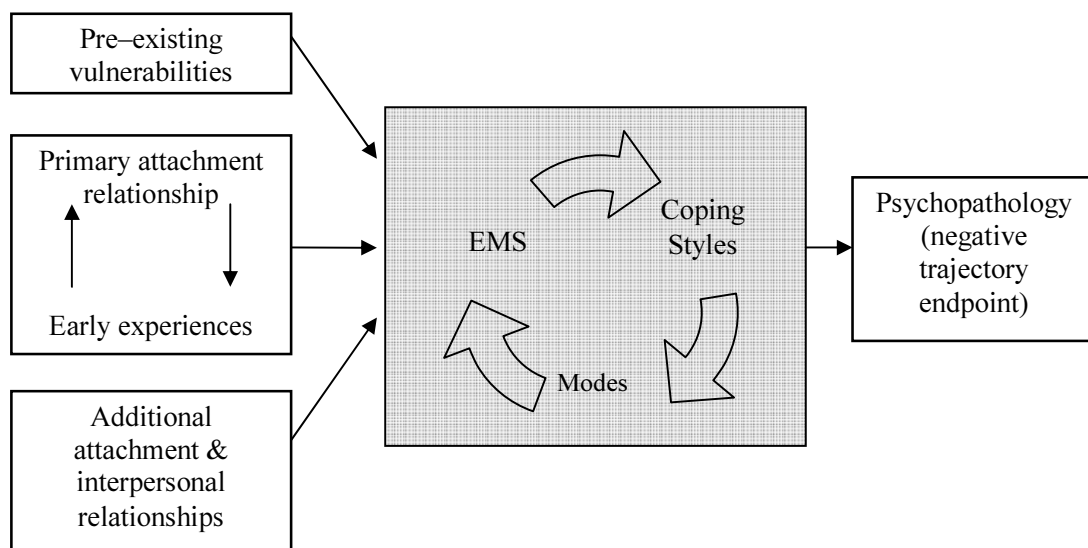
#### ***4.5.5. Integration of findings: Schema theory and the development of adolescent psychopathology***

In integrating EMS with other psychological constructs of developmental psychopathology (namely attachment and interpersonal processes) the findings of the present study provide an important contribution to the existing evidence-base. Moreover, in advancing schema theory further towards being applied to adolescence, a clearer framework enabling future hypothesis-testing is proposed.

In the model presented below (Figure 4.1), schema theory is linked to wider concepts of pre-existing vulnerabilities to psychopathology, primary attachment relationships, early experiences and additional attachment/interpersonal relationships within development. In integrating the findings of this study, the core proposition of this model is that these factors only lead to psychopathology, or observable levels of impaired function and distress, through the action of EMS, coping styles and modes (Young et al. 2003). Pathways from one risk factor such as insecure primary attachment, to adolescent psychopathology are not deterministic, encapsulating the concept of multi-finality within developmental psychopathology (Cicchetti and Rogosch 1996). Different

risk and vulnerability factors lead to variable effects on the individual depending upon the circumstances of their action. Those circumstances, or the mediation of these combined effects, are proposed to lie within the concepts of schema theory. It is therefore not a model of psychopathology *per se*, as it can be applied to healthy development as well as trajectories resulting in significant impairment and psychological distress. The model therefore also refers to individuals with adaptive functioning, and those who function in a maladaptive manner which does not, however, manifest itself as a ‘mental health problem’. These may include individuals engaging in offending behaviour or substance misuse, thus not traditionally seen in mental health services.

**Figure 4.1** Schema Theory and the development of adolescent psychopathology



The model does not claim to be all-inclusive, instead incorporating the main constructs explicit within schema theory, and those tested in this study. Other factors, such as resilience and the occurrence of traumatic events could be added. It is

speculative and offered as a framework to guide further research regarding the development and maintenance of psychopathology in adolescents. At this stage of testing schema theory within adolescence, the model is especially likely to be over-simplistic. It requires longitudinal evidence to explore cumulative and interactional effects of the elements proposed. Concepts such as ‘pre-existing vulnerabilities’ and ‘early experiences’ need further clarification, and incorporate a vast array of specific biological systems, genetic markers of psychopathology, temperament and early environmental risk factors. Constructs within schema theory require further clarification and empirical validation, and it is likely that EMS, schema modes and coping styles may appear in slightly different forms in the adolescent phenotype. This is inherent in many psychological constructs, however, developmental models relying on the underlying mechanisms having continuity across the lifespan (Cicchetti and Crick 2009).

#### **4.5.6. Study limitations**

In addition to those aforementioned, the current study suffers from several limitations with corresponding implications for the validity of findings and conclusions.

The sample size did not allow for more precise testing of the effect of age, and the small group of referred participants may have been limited in variance and severity of problems. Lack of confidence in the representativeness of the referred sample is further depleted by the absence of a response rate, or comparisons with the wider service population.

The study is also cross-sectional, and while predictive effects were tested in analyses, only longitudinal designs have the ability to prove directional effects. It relied solely on self-reports, producing informant bias and shared variance which may inflate

associations. Multi-informant methods are a gold standard, and clinical assessment of EMS and attachment style especially would have greatly improved validity of findings. It is an accepted limitation that, while proved to be reliable in this study, and validated in its Dutch form, the translated version of the YSQ–A requires validation in larger samples. It was, however, felt that using an age-adapted YSQ was preferential over an adult version, and this study is the first in the authors' knowledge to employ a version of the YSQ–A in a UK population.

The Young Schema Questionnaire has also been found to be affected by mood, especially Emotional Deprivation and Defectiveness/Shame subscales (Stopa & Waters, 2005), potentially reducing the reliability of this scale. While not empirically tested, items of the YSQ which referred to themes of achievement, fear of failure or responsibility may have been affected by the non-referred group completing the measure in school, especially within the context of testing in the run-up to exams.

Lastly, additional criticisms exist over the psychometric properties of the attachment measure, and future research could use other self-report measures, or interviews to assess attachment. Despite this, reliability issues regarding the RSQ are less relevant when the scale is not used as a primary outcome, as in its role of providing validation in this design.

#### **4.5.7. Conclusions**

The findings of this study support the ability of the YSQ–A to detect EMS in adolescents, evidencing dimensionality between referred and non-referred groups, and some specific relationships between individual EMS and types of psychopathology. The predictive effect of EMS on psychopathology was significant, making a valid

contribution in the context of other psychological constructs. This enabled schema theory to be combined with other risk factors for psychopathology within the conceptual model proposed.

It is hoped that this model leads to more focused research of schema theory in adolescence. It provides several hypotheses which can be tested and advocates for the integration of schema theory within the broader context of developmental psychopathology. For example, schema modes and coping styles are yet to be tested within adolescent samples, and a longitudinal test of their development and relationship to psychopathology is necessary. In conceptualising adolescents with diagnoses of personality disorder, the model may offer insight into both precursors of personality pathology, as well as indicating protective factors, or sites for intervention. As schema therapy is considered an effective treatment for adult personality disorder (Giesen-Bloo et al. 2006), it is ultimately hoped that the model may offer an early intervention for these individuals as adolescents.

#### **4.6. References**

Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for ASEBA School-Age Forms & Profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth & Families.

Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30*(2), 217–237.

Baranoff, J., Oei, T.P.S., Cho, S.H., & Kwon, S.M. (2006). Factor structure and internal consistency of the Young schema questionnaire (short form) in Korean and Australian samples. *Journal of Affective Disorders, 93*, 133–140.

Barkham, M., Hardy, G. & Startup, M. (1996). The IIP-32: A short version of the Inventory of Interpersonal Problems. *British Journal of Clinical Psychology, 35*, 21–35.

Beck, A. T. (1967). *Depression: Causes and treatment*. Philadelphia: University of Pennsylvania Press.

Beck, A. T., Emery, G., & Greenberg, R. L. (1985). *Anxiety disorders and phobias: A cognitive perspective*. New York: Basic Books.

Beck, R., & Perkins, T. S. (2001). Cognitive content–specificity for anxiety and depression: A meta–analysis. *Cognitive Therapy and Research, 25*, 651–663.

Beck, A. T., Steer, R. A., & Epstein, N. (1992). Differentiating anxiety and depression: A test of the cognitive content–specificity hypothesis. *Journal of Clinical Psychology, 48*, 423–432.

Bosmans, G., Braet, C. & Van Vlierberghe, L. (2010). Attachment and symptoms of psychopathology: Early maladaptive schemas as a cognitive link? *Clinical Psychology and Psychotherapy, 17*, 374–385.

Bowlby, J. (1969). *Attachment and Loss: Vol. 1 Attachment*. New York: Basic Books.

Bradley, R., Conklin, C., & Westen, D. (2005). The borderline personality diagnosis in adolescents: gender differences and subtypes. *Journal of Child Psychology and Psychiatry*, *46*, 1006–1019.

Braet, C., Van Vlierberghe, L., Vandevivere, E., Theuwis, L., & Bosmans, G. (2012). Depression in early, middle and late adolescence: Differential evidence for the cognitive diathesis– stress model. *Clinical Psychology and Psychotherapy*. DOI: 10.1002/cpp.1789

Brotchie, J., Meyer, C., Copello, A., Kidney, R., & Waller, G. (2004). Cognitive representations in alcohol and opiate abuse: The role of core beliefs. *British Journal of Clinical Psychology*, *43*, 337–342.

Calvete, E. (2008). Justification of Violence and Grandiosity Schemas as Predictors of Antisocial Behavior in Adolescents. *Journal of Abnormal Child Psychology*, *36*, 1083–1095. DOI 10.1007/s10802–008–9229–5

Calvete, E. (2011). Integrating sociotropy, negative inferences and social stressors as explanations for the development of depression in adolescence: Interactive and mediational mechanisms. *Cognitive Therapy and Research*, *35*(5), 477–490. DOI: 10.1007/s10608–010–9320–4

Calvete, E., Estévez, A., López de Arroyabe, E. L., & Ruiz, P. (2005). The schema questionnaire – Short form – Structure and relationship with automatic thoughts and

symptoms of affective disorders. *European Journal of Psychological Assessment*, 21, 90–99. DOI: 10.1027/1015–5759.21.2.90

Calvete, E., & Orue, I. (2010). Cognitive schemas and aggressive behavior in adolescents: The mediating role of social information processing. *The Spanish Journal of Psychology*, 13, 190–201.

Calvete, E., & Orue, I. (2012). Social information processing as a mediator between cognitive schemas and aggressive behavior in adolescents. *Journal of Abnormal Child Psychology*, 40, 105–117.

Carr, A. (2006). *The Handbook of Child and Adolescent Clinical Psychology: A Contextual Approach* (2<sup>nd</sup> edition). London: Routledge.

Cecero, J.J., Nelson, J.D., & Gillie, J.M. (2004). Tools and tenets of schema therapy: Toward the construct validity of the Early Maladaptive Schema Questionnaire—Research version (EMSQ–R). *Clinical Psychology and Psychotherapy*, 11, 344–357.

Chronis–Tuscano, A., Degnan, K.A., Pine, D.S., Perez–Edgar, K., Henderson, H.A., Diaz, Y., Raggi, V.L., & Fox, N.A. (2009). Stable early maternal report of behavioural inhibition predicts lifetime social anxiety disorder in adolescence. *Journal of the American Academy of Child & Adolescent Psychiatry*, 48(9), 928–935. DOI: 10.1097/CHI.0b013e3181ae09df

Cicchetti, D. & Crick, N.R. (2009). Precursors and diverse pathways to personality disorder in children and adolescents. *Development and Psychopathology*, 21(3), 683 – 685. DOI: <http://dx.doi.org/10.1017/S0954579409000388>

Cicchetti, D., & Rogosch, F.A. (1996). Equifinality and multifinality in development. *Development and Psychopathology*, 8, 597–600.

Costello, J. E., Mustillo, S., Erkanli, A., Keeler, G., & Angold, A. (2003). Prevalence and Development of Psychiatric Disorders in Childhood and Adolescence. *Archives of General Psychiatry*, 60, 837–844. DOI:10.1001/archpsyc.60.8.837

Deas, S., Power, K., Collin, P., Yellowlees, A., & Grierson, D. (2011). The Relationship between disordered eating, perceived parenting, and perfectionistic schemas. *Cognitive Therapy and Research, Cognitive Therapy and Research*, 35, 414–424.

DeKlyen, M., & Greenberg, M.T. (2008). Attachment and psychopathology in childhood. In J. Cassidy & P.R. Shaver (Eds.), *Handbook of attachment, theory, research and clinical applications* (2<sup>nd</sup> ed., pp. 637–666). New York: Guildford Press.

Dozois, D, Eichstedt, J., Collins, K., Phoenix, E., & Harris, K. (2012). Core Beliefs, Self-Perception, and Cognitive Organization in Depressed Adolescents. *International Journal of Cognitive Therapy*, 5, 99–112.

Giesen-Bloo, J., van Dyck, R., Spinhoven, P., van Tilburg, W., Dirksen, C., van Asselt, T., & Arntz, A. (2006). Outpatient psychotherapy for borderline personality disorder:

Randomized trial of schema-focused therapy vs transference focused psychotherapy. *Archives of General Psychiatry*, 63(6), 649–658.

Glaser, B.A., Campbell, L.F., Calhoun, G.B., Bates, J.M., & Petrocelli, J.V. (2002). The Early Maladaptive Schema Questionnaire–Short Form: A construct validity study. *Measurement and Evaluation in Counseling and Development*, 35, 2–13.

Góngora, V., Grinhauz, A., & Suárez Hernández, N. (2009). Eating disorders in adolescents: A study of behaviours and cognitions. *Psicología Clínica y Psicopatología*, 16, 25–31.

Griffin, D.W. & Bartholomew, K. (1994). The metaphysics of measurement: The case of adult attachment. *Advances in Personal Relationships*, 5, 17–52.

Griffin, D. W., & Bartholomew, K. (1994a). The metaphysics of measurement: The case of adult attachment. In K. Bartholomew & D. Perlman (Eds.) *Advances in Personal Relationships Vol 5: Attachment Processes in Adulthood* (pp. 17–52). London: Jessica Kingsley Publishers.

Hawton, K., & James, A. (2005). ABC of adolescence: Suicide and deliberate self harm in young people. *British Medical Journal*, 330, 891–894. DOI: 10.1136/bmj.330.7496.891

Hoffart, A., Sexton, H., Hedley, L.M., Wang, C.E., Holthe, H., Haugum, J.A., Nordahl, H.M., Hovland, O.J., & Holte, A. (2005). The structure of maladaptive schemas: a

confirmatory factor analysis and a psychometric evaluation of factor-derived scales. *Cognitive Therapy and Research*, 29, 627–644.

Lumley, M. N., & Harkness, K. L. (2007). Specificity in the relations among childhood adversity, early maladaptive schemas, and symptom profiles in adolescent depression. *Cognitive Therapy and Research*, 31, 639–657. DOI: 10.1007/s10608-006-9100-3

McFadyen-Ketchum, S. A., Bates, J. E., Dodge, K. A., & Pettit, G. S. (1996). Patterns of change in early childhood aggressive-disruptive behavior: Gender differences in predictions from early coercive and affectionate mother-child interactions. *Child Development*, 67, 2417–2433.

Meyer, C., & Gillings, K. (2004). Parental bonding and bulimic psychopathology: The mediating role of mistrust/abuse beliefs. *International Journal of Eating Disorders*, 35, 229–233.

Miller, A. L., Muehlenkamp, J. J., & Jacobson, C. M. (2008). Fact or fiction: diagnosing borderline personality disorder in adolescents. *Clinical Psychology Review*, 28, 969–981.

McGinn, L. K., & Young, J. E. (1996). Schema-focused therapy. In P. M. Salkovskis (Ed.), *Frontiers of cognitive therapy* (pp. 182–207). New York: Guilford Press.

Muris, P. (2006). Maladaptive schemas in non-clinical adolescents: Relations to perceived parental rearing behaviours, big five personality factors and

psychopathological symptoms. *Clinical Psychology and Psychotherapy*, 13, 405–413. DOI: 10.1002/cpp.

O’Dougherty Wright, M., Crawford, E., & Del Castillo, D. (2009). Childhood emotional maltreatment and later psychological distress among college students: The mediating role of maladaptive schemas. *Child Abuse and Neglect*, 33, 59–68. DOI: 10.1016/j.chiabu.2008.12.007

Petrocelli, J. V., Glaser, B. A., Calhoun, G. B., & Campbell, L. F. (2001). Early maladaptive schemas of personality disorder subtypes. *Journal of Personality Disorders*, 15, 546–559.

Pettit, G. S., Laird, R. D., Dodge, K. A., Bates, J. E., & Criss, M. M. (2001). Antecedents and behavior–problem outcomes of parental monitoring and psychological control in early adolescence. *Child Development*, 72, 583–598.

Pinto–Gouveia, J., Castilho, P., Galhardo, A., & Cunha, M. (2006). Early maladaptive schemas and social phobia. *Cognitive Therapy and Research*, 30, 571–584.

Quinta Gomes, AL., & Nobre, P. (2012) Early maladaptive schemas and sexual dysfunction in men. *Archives of Sexual Behaviour*, 41, 311–320.

Renner F., Lobbestael J., Peeters F., Arntz A., & Huibers, M. (2012). Early maladaptive schemas in depressed patients: Stability and relation with depressive symptoms over the course of treatment. *Journal of Affective Disorders*, 136, 581–90. DOI: 10.1016/j.jad.2011.10.027

Rijkeboer, M.M., & de Boo, G.M. (2010). Early maladaptive schemas in children: Development and validation of the schema inventory for children. *Journal of Behavior Therapy and Experimental Psychiatry, 41*(2), 102–109.

Rijkeboer, M.M., & van den Bergh, H. (2006). Multiple group confirmatory factor analysis of the Young Schema–Questionnaire in a Dutch clinical versus non–clinical population. *Cognitive Therapy and Research, 30*, 263–278. DOI: 10.1007/s10608–006–9051–8

Riso, L.P., Froman, S.E., Raouf, M., Gable, P., Maddux, R.E., Turini–Santorelli, N., Penna, S., Blandino, J.A., Jacobs, C.H., & Cherry, M. (2006). The long–term stability of early maladaptive schemas. *Cognitive Therapy and Research, 30*, 515–529.

Roelofs, J., Lee, C., Ruijten, T., & Lobbestael, J. (2011). The mediating role of early maladaptive schemas in the relation between quality of attachment relationships and symptoms of depression in adolescents. *Behavioural and Cognitive Psychotherapy, 39*, 471–479. DOI: 10.1017/S1352465811000117.

Scharfe, E. (2002). Reliability and validity of an interview assessment of attachment representations in a clinical sample of adolescents. *Journal of Adolescent Research, 17*, 532–551.

Schmidt, N.B., Joiner, T.E., Young, J.E., & Telch, M.J. (1995). The Schema Questionnaire–Investigation of psychometric properties and the hierarchical structure of a measure of maladaptive schemas. *Cognitive Therapy and Research, 19*, 295–321.

Simmons, J., Cooper, M., Drinkwater, J. & Stewart, A. (2006). Cognitive schemata in depressed adolescent girls and their mothers. *Behavioural and Cognitive Psychotherapy*, 34, 219–232. DOI: 10.1017/S1352465805002766

Thimm, J.C. (2010). Relationships between early maladaptive schemas and psychosocial developmental task resolution. *Clinical Psychology and Psychotherapy*, 17, 219–230. DOI: 10.1002/ccp.647

Tremblay, P.F., & Dozois, D.J.A. (2009). Another perspective on trait aggressiveness: Overlap with early maladaptive schemas. *Personality and Individual Differences*, 46, 569–574.

Turner, H. M., Rose, K. S., & Cooper, M. J. (2005). Parental bonding and eating disorder symptoms in adolescents: The mediating role of core beliefs. *Eating Behaviors*, 6, 113–118. DOI: 10.1016/j.eatbeh.2004.08.010.

Vlierberghe, L. V., & Braet, C. (2007). Dysfunctional schemas and psychopathology in referred obese adolescents. *Clinical Psychology and Psychotherapy*, 14, 342–351. DOI: 10.1002/cpp.546

Van Vlierberghe, L., Braet, C., Bosmans, G., Rosseel, Y., & Bogels, S. (2010). Maladaptive schemas and psychopathology in adolescence: On the utility of young's schema theory in youth. *Cognitive Therapy and Research*, 34, 316–332. DOI: 10.1007/s10608-009-9283-5

Van Vlierberghe, L., Rijkeboer, M.M., Hamers, P, & Braet, C. (2004). *Schemavragenlijst voor Jongeren [Schema Questionnaire for Adolescents]*. Ghent, Belgium: Ghent University, Department of Developmental Personality and Social Psychology.

Van Vlierberghe, L., Timbremont, B., Braet, C., & Basile, B. (2007). Parental schemas in youngsters referred for antisocial behaviour problems demonstrating depressive symptoms. *Journal of Forensic Psychiatry & Psychology*, 18(4), 515–533. DOI:10.1080/14789940701515442

Waller, G., Meyer, C., & Ohanian, V. (2001). Psychometric properties of the long and short version of the young schema questionnaire: Core beliefs among bulimic and comparison women. *Cognitive Therapy and Research*, 25, 137–147.

Young, J.E. (1994). *Cognitive theory for personality disorders: A schema-focused approach*. Sarasota, FL: Professional Resource Exchange.

Young, J. E., & Brown, G. (1990). *Young Schema questionnaire*. New York: Cognitive Therapy Center of New York.

Young, J.E., Klosko, J.S., & Weishaar, M. (2003). *Schema therapy: A practitioner's guide*. New York: Guildford Publications.

## 5. Thesis references

Achenbach, T. M. & Rescorla, L. A. (2001). *Manual for ASEBA School-Age Forms & Profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth & Families.

Aldao, A., Nolen-Hoeksema, S. & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30*(2), 217–237.

Anan, R.M. & Barnett, D. (1999). Perceived social support mediates between prior attachment and subsequent adjustment: A study of urban African American children. *Developmental Psychology, 35*, 1210–1222.

Ball S. A. & Young, J. (2001). *Early maladaptive schemas questionnaire—research version*. Unpublished test. New Haven, CT: Yale University School of Medicine.

Baranoff, J., Oei, T.P.S., Cho, S.H. & Kwon, S.M. (2006). Factor structure and internal consistency of the Young schema questionnaire (short form) in Korean and Australian samples. *Journal of Affective Disorders, 93*, 133–140.

Barkham, M., Hardy, G. & Startup, M. (1996). The IIP-32: A short version of the Inventory of Interpersonal Problems. *British Journal of Clinical Psychology, 35*, 21-35.

Baumeister, R. F., Bushman, B. J. & Campbell, W. K. (2000). Self-esteem, narcissism, and aggression: Does violence result from low self-esteem or from threatened egotism? *Current Directions on Psychological Science, 9*, 26–29.

Beck, A. T. (1967). *Depression: Causes and treatment*. Philadelphia: University of Pennsylvania Press.

Beck, A.T. (1976). *Cognitive Therapy and the Emotional Disorders*. New York: International Universities Press.

Beck, J. S. (1995). *Cognitive Therapy: Basics and beyond*. New York: The Guilford Press.

Beck, A. T., Emery, G. & Greenberg, R. L. (1985). *Anxiety disorders and phobias: A cognitive perspective*. New York: Basic Books.

Beck, R., & Perkins, T. S. (2001). Cognitive content–specificity for anxiety and depression: A meta–analysis. *Cognitive Therapy and Research*, 25, 651–663.

Beck, A. T., Rush, A. J., Shaw, B. E. & Emery, G. (1979). *Cognitive therapy of depression*. New York: John Wiley & Sons.

Beck, A. T., Steer, R. A. & Epstein, N. (1992). Differentiating anxiety and depression: A test of the cognitive content-specificity hypothesis. *Journal of Clinical Psychology*, 48, 423–432.

Blatt, S.J. & Luyten, P. (2009). A structural–developmental psychodynamic approach to psychopathology: Two polarities of experience across the life span. *Development and Psychopathology*, 21, 793–814. DOI: 10.1017/S0954579409000431

Bosmans, G., Braet, C. & Van Vlierberghe, L. (2010). Attachment and symptoms of psychopathology: Early maladaptive schemas as a cognitive link? *Clinical Psychology and Psychotherapy*, *17*, 374–385.

Bosquet, M. & Egeland, B. (2006). The development and maintenance of anxiety symptoms from infancy through adolescence in a longitudinal sample. *Developmental and Psychopathology*, *18*, 517–550.

Bowlby, J. (1969). *Attachment and Loss: Vol. 1 Attachment*. New York: Basic Books.

Bradley, R., Conklin, C. & Westen, D. (2005). The borderline personality diagnosis in adolescents: gender differences and subtypes. *Journal of Child Psychology and Psychiatry*, *46*, 1006–1019.

Braet, C., Van Vlierberghe, L., Vandevivere, E., Theuwis, L. & Bosmans, G. (2012). Depression in early, middle and late adolescence: Differential evidence for the cognitive diathesis– stress model. *Clinical Psychology and Psychotherapy*. DOI: 10.1002/cpp.1789

Brooks, G.P. & Barcikowski, R.S. (1994, April). *A new sample size formulation for regression*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Brotchie, J., Meyer, C., Copello, A., Kidney, R. & Waller, G. (2004). Cognitive representations in alcohol and opiate abuse: The role of core beliefs. *British Journal of Clinical Psychology*, *43*, 337–342.

Brumaraiu, L.E. & Kerns, K.A. (2010). Parent-child attachment and internalizing symptoms in childhood and adolescence: A review of empirical findings and future directions. *Developmental Psychopathology*, 22, 177–203. DOI: 10.1017/S0954579409990344

Burke, J.D. & Stepp, S.D. (2012). Adolescent disruptive behavior and borderline personality disorder symptoms in young adult men, *Journal of Abnormal Child Psychology*, 40, 35–44. DOI 10.1007/s10802-011-9558-7

Bushman, B. J. & Baumeister, R. F. (1998). Threatened egotism, narcissism, self-esteem, and direct and displaced aggression: Does self-love or self-hate lead to violence? *Journal of Personality and Social Psychology*, 75, 219–229.

Calvete, E. (2008). Justification of Violence and Grandiosity Schemas as Predictors of Antisocial Behavior in Adolescents. *Journal of Abnormal Child Psychology*, 36, 1083–1095. DOI 10.1007/s10802-008-9229-5

Calvete, E. (2011). Integrating sociotropy, negative inferences and social stressors as explanations for the development of depression in adolescence: Interactive and mediational mechanisms. *Cognitive Therapy and Research*, 35(5), 477-490. DOI: 10.1007/s10608-010-9320-4

Calvete, E. & Estevez, A (2009). Substance use in adolescents: The role of stress, impulsivity, and schemas related to lack of limits. *Adicciones*, 21, 49–56.

Calvete, E., Estévez, A., López de Arroyabe, E. L. & Ruiz, P. (2005). The schema questionnaire – Short form – Structure and relationship with automatic thoughts and symptoms of affective disorders. *European Journal of Psychological Assessment, 21*, 90–99. DOI: 10.1027/1015–5759.21.2.90

Calvete, E. & Orue, I. (2010). Cognitive schemas and aggressive behavior in adolescents: The mediating role of social information processing. *The Spanish Journal of Psychology, 13*, 190–201.

Calvete, E. & Orue, I. (2012). Social information processing as a mediator between cognitive schemas and aggressive behavior in adolescents. *Journal of Abnormal Child Psychology, 40*, 105–117.

Calvete, E., Orue, I. & Sampedro, R. (2011). Violencia filio–parental en la adolescencia: características ambientales y personales (Child to parent violence in adolescence: Environmental and individual characteristics). *Infancia y Aprendizaje, 34*, 349–363.

Carr, A. (2006). *The Handbook of Child and Adolescent Clinical Psychology: A Contextual Approach* (2<sup>nd</sup> edition). London: Routledge.

Cecero, J.J., Nelson, J.D. & Gillie, J.M. (2004). Tools and tenets of schema therapy: Toward the construct validity of the Early Maladaptive Schema Questionnaire—Research version (EMSQ–R). *Clinical Psychology and Psychotherapy, 11*, 344–357.

Chronis-Tuscano, A., Degnan, K.A., Pine, D.S., Perez-Edgar, K., Henderson, H.A., Diaz, Y., Raggi, V.L. & Fox, N.A. (2009). Stable early maternal report of behavioural

inhibition predicts lifetime social anxiety disorder in adolescence. *Journal of the American Academy of Child & Adolescent Psychiatry*, 48(9), 928–935. DOI: 10.1097/CHI.0b013e3181ae09df

Cicchetti, D. & Crick, N.R. (2009). Precursors and diverse pathways to personality disorder in children and adolescents. *Development and Psychopathology*, 21(3), 683 – 685. DOI: <http://dx.doi.org/10.1017/S0954579409000388>

Cicchetti, D. & Rogosch, F.A. (1996). Equifinality and multifinality in development. *Development and Psychopathology*, 8, 597-600.

Clark-Carter, D. (2010). *Quantitative psychological research: The complete student's companion* (3<sup>rd</sup> edn.). Hove: Psychology Press.

Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2<sup>nd</sup> edn.). Hillsdale, New Jersey: Lawrence Erlbaum Associates, Inc.

Cohen, J., Cohen, P., West, S.G. & Aiken, L.S. (2003). *Applied multiple regression/correlation analysis for the behavioural sciences* (3<sup>rd</sup> edn.). Mahwah, New Jersey: Lawrence Erlbaum Associates, Inc.

Cooper, M. J., Rose, K. S. & Turner, H. (2005). Core beliefs and the presence or absence of eating disorder symptoms and depressive symptoms in adolescent girls. *International Journal of Eating Disorders*, 38, 60–64. DOI: 10.1002/eat.20157

Costello, J. E., Mustillo, S., Erkanli, A., Keeler, G. & Angold, A. (2003). Prevalence and Development of Psychiatric Disorders in Childhood and Adolescence. *Archives of General Psychiatry*, 60, 837–844. DOI:10.1001/archpsyc.60.8.837

Crowell, S.E., Beauchaine, T.P. & Linehan, M.M. (2009). A biosocial developmental model of borderline personality disorder: Elaborating and extending Linehan's theory. *Psychological Bulletin*, 135, 495–510. DOI: 10.1037/a0015616.

Crowell, J.A., Fraley, R.C. & Shaver, P.R. (2008). Measurement of individual differences in adolescent and adult attachment. In J. Cassidy & P.R Shaver (Eds.) *Handbook of attachment: Theory, research, and clinical applications* (2nd edn. pp. 599-634). New York, NY, US: Guilford Press.

Deas, S., Power, K., Collin, P., Yellowlees, A. & Grierson, D. (2011). The Relationship between disordered eating, perceived parenting, and perfectionistic schemas. *Cognitive Therapy and Research, Cognitive Therapy and Research*, 35, 414–424.

DeKlyen, M. & Greenberg, M.T. (2008). Attachment and psychopathology in childhood. In J. Cassidy & P.R. Shaver (Eds.) *Handbook of attachment, theory, research and clinical applications* (2<sup>nd</sup> ed., pp. 637-666). New York: Guildford Press.

Diamond, G.S., Reis, B.F., Diamond, G.M., Siqueland, L. & Isaacs, L. (2002). Attachment-based family therapy for depressed adolescents: A treatment development study. *Journal of the American Academy of Child & Adolescent Psychiatry*, 41, 1190–1196.

Dozois, D., Eichstedt, J., Collins, K., Phoenix, E. & Harris, K. (2012). Core Beliefs, Self-Perception, and Cognitive Organization in Depressed Adolescents. *International Journal of Cognitive Therapy*, 5, 99–112.

Giesen-Bloo, J., van Dyck, R., Spinhoven, P., van Tilburg, W., Dirksen, C., van Asselt, T. & Arntz, A. (2006). Outpatient psychotherapy for borderline personality disorder: Randomized trial of schema-focused therapy vs transference focused psychotherapy. *Archives of General Psychiatry*, 63(6), 649–658.

Glaser, B.A., Campbell, L.F., Calhoun, G.B., Bates, J.M. & Petrocelli, J.V. (2002). The Early Maladaptive Schema Questionnaire–Short Form: A construct validity study. *Measurement and Evaluation in Counseling and Development*, 35, 2–13.

Góngora, V., Grinhauz, A. & Suárez Hernández, N. (2009). Eating disorders in adolescents: A study of behaviours and cognitions. *Psicologia Clinica y Psicopatologia*, 16, 25–31.

Griffin, D.W. & Bartholomew, K. (1994). The metaphysics of measurement: The case of adult attachment. *Advances in Personal Relationships*, 5, 17-52.

Griffin, D. W. & Bartholomew, K. (1994a). The metaphysics of measurement: The case of adult attachment. In K. Bartholomew & D. Perlman (Eds.) *Advances in Personal Relationships Vol 5: Attachment Processes in Adulthood* (pp. 17-52). London: Jessica Kingsley Publishers.

Guerrya, J.D. & Prinsteina, M.J. (2009). Longitudinal prediction of adolescent non-suicidal self-injury: Examination of a cognitive vulnerability-stress model. *Journal of Clinical Child & Adolescent Psychology*, 39, 77-89. DOI: 10.1080/15374410903401195

H.M. Government (2011). *No health without mental health: A cross-government mental health outcomes strategy for people of all ages*. Retrieved 10<sup>th</sup> June 2012 from [http://www.dh.gov.uk/prod\\_consum\\_dh/groups/dh\\_digitalassets/documents/digitalasset/dh\\_124058.pdf](http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_124058.pdf)

Hawton, K. & James, A. (2005). ABC of adolescence: Suicide and deliberate self harm in young people. *British Medical Journal*, 330, 891-894. DOI: 10.1136/bmj.330.7496.891

Hoffart, A., Sexton, H., Hedley, L.M., Wang, C.E., Holthe, H., Haugum, J.A., Nordahl, H.M., Hovland, O.J. & Holte, A. (2005). The structure of maladaptive schemas: a confirmatory factor analysis and a psychometric evaluation of factor-derived scales. *Cognitive Therapy and Research*, 29, 627-644.

Hollingshead, A. (1975). *Four factor index of social status*. New Haven, CT: Yale University Press.

Horowitz, L.M., Rosenberg, S.E., Baer, B.A., Ureno, G. & Villasenor, V.S. (1988). Inventory of Interpersonal Problems: Psychometric properties and clinical applications. *Journal of Consulting and Clinical Psychology*, 56, 885-892.

Kenny, M.E., Moilanen, D.L., Lomax, R. & Brabeck, M.M. (1993). Contributions of parental attachments to view of self and depressive symptoms among early adolescents. *Journal of Early Adolescents*, *13*, 408–430.

Larose, S. & Boivin, M. (1997). Structural relations among attachment working models of parents, general and specific support expectations, and personal adjustment in late adolescence. *Journal of Social and Personal Relationships*, *14*, 579–601.

Lawrence, K.A., Allan, J.S. & Chanen, A.M. (2011). A study of maladaptive schemas and borderline personality disorder in young people. *Cognitive Therapy and Research*, *35*, 30–39. DOI: 10.1007/s10608-009-9292-4

Lewinsohn, P.M., Clarke, G.N., Hops, H. & Andrews, J. (1990). Cognitive-behavioral treatment for depressed adolescents. *Behaviour Therapy*, *21*, 385–401.

Lumley, M. N. & Harkness, K. L. (2006). *Evaluating the psychometric properties of the Young Schema Questionnaire in an adolescent sample*. Poster session presented at the annual meeting of the Canadian Psychological Association Convention, Calgary, Alberta, Canada.

Lumley, M. N. & Harkness, K. L. (2007). Specificity in the relations among childhood adversity, early maladaptive schemas, and symptom profiles in adolescent depression. *Cognitive Therapy and Research*, *31*, 639–657. DOI: 10.1007/s10608-006-9100-3

Margolese, S.K., Markiewicz, D. & Doyle, A.B. (2005). Attachment to parents, best friend, and romantic partner: Predicting different pathways to depression in adolescence. *Journal of Youth and Adolescence*, 34, 637–650.

Masley, S.A., Gillanders, D.T., Simpson, S.G. & Taylor, M.A. (2011). A systematic review of the evidence base for schema therapy. *Cognitive Behaviour Therapy*. iFirst article, 1–18. DOI: 10.1080/16506073.2011.614274

McFadyen-Ketchum, S. A., Bates, J. E., Dodge, K. A. & Pettit, G. S. (1996). Patterns of change in early childhood aggressive-disruptive behavior: Gender differences in predictions from early coercive and affectionate mother-child interactions. *Child Development*, 67, 2417–2433.

McGee, R., Wolfe, D. & Olson, J. (2001). Multiple maltreatment, attribution of blame, and adjustment among adolescents. *Development and Psychopathology*, 13, 827–846.

McGinn, L. K. & Young, J. E. (1996). Schema-focused therapy. In P. M. Salkovskis (Ed.), *Frontiers of cognitive therapy* (pp. 182–207). New York: Guilford Press.

Meiser-Stedman, R., Dalgleish, T., Glucksman, E., Yule, W. & Smith, P. (2009). Maladaptive cognitive appraisals mediate the evolution of posttraumatic stress reactions: A 6-month follow-up of child and adolescent assault and motor vehicle accident survivors. *Journal of Abnormal Psychology*, 118, 778–787. DOI: 10.1037/a0016945

Meyer, C. & Gillings, K. (2004). Parental bonding and bulimic psychopathology: The mediating role of mistrust/ abuse beliefs. *International Journal of Eating Disorders*, *35*, 229–233.

Miller, A. L., Muehlenkamp, J. J. & Jacobson, C. M. (2008). Fact or fiction: diagnosing borderline personality disorder in adolescents. *Clinical Psychology Review*, *28*, 969–981.

Mufson, L., Moreau, D., Weissman, M.M., Wickramaratne, P., Martin, J. & Samoilov, A. (1994). Modification of Interpersonal Psychotherapy with depressed adolescents (IPT–A): Phase I and II studies. *Journal of the American Academy of Child & Adolescent Psychiatry*, *33*, 695–705.

Mufson, L., Pollack Dorta, K., Wickramaratne, P., Nomura, Y., Olfson, M. & Weissman, M.M. (2004). A randomized effectiveness trial of Interpersonal Psychotherapy for depressed adolescents. *Archives of General Psychiatry*, *61*, 577–584.  
DOI::10.1001/archpsyc.61.6.577

Muris, P. (2006). Maladaptive schemas in non-clinical adolescents: Relations to perceived parental rearing behaviours, big five personality factors and psychopathological symptoms. *Clinical Psychology and Psychotherapy*, *13*, 405–413.  
DOI: 10.1002/cpp.

O’Dougherty Wright, M., Crawford, E. & Del Castillo, D. (2009). Childhood emotional maltreatment and later psychological distress among college students: The mediating

role of maladaptive schemas. *Child Abuse and Neglect*, 33, 59–68. DOI: 10.1016/j.chiabu.2008.12.007

Peck, D.F., Dow, M. & Goodall, W. (2010). *Guidelines for completing the 'Clinical Research Evaluation Sheet for Trainees' (CREST)*. University of Stirling, unpublished.

Petrocelli, J. V., Glaser, B. A., Calhoun, G. B. & Campbell, L. F. (2001). Early maladaptive schemas of personality disorder subtypes. *Journal of Personality Disorders*, 15, 546–559.

Pettit, G. S., Laird, R. D., Dodge, K. A., Bates, J. E. & Criss, M. M. (2001). Antecedents and behavior-problem outcomes of parental monitoring and psychological control in early adolescence. *Child Development*, 72, 583–598.

Pinto-Gouveia, J., Castilho, P., Galhardo, A. & Cunha, M. (2006). Early maladaptive schemas and social phobia. *Cognitive Therapy and Research*, 30, 571–584.

Quinta Gomes, AL. & Nobre, P. (2012) Early maladaptive schemas and sexual dysfunction in men. *Archives of Sexual Behaviour*, 41, 311–320.

Renner F., Lobbestael J., Peeters F., Arntz A. & Huibers, M. (2012). Early maladaptive schemas in depressed patients: Stability and relation with depressive symptoms over the course of treatment. *Journal of Affective Disorders*, 136, 581–90. DOI: 10.1016/j.jad.2011.10.027

Rijkeboer, M.M. & de Boo, G.M. (2010). Early maladaptive schemas in children: Development and validation of the schema inventory for children. *Journal of Behavior Therapy and Experimental Psychiatry*, *41*(2), 102–109.

Rijkeboer, M.M. & van den Bergh, H. (2006). Multiple group confirmatory factor analysis of the Young Schema–Questionnaire in a Dutch clinical versus non–clinical population. *Cognitive Therapy and Research*, *30*, 263–278. DOI: 10.1007/s10608–006–9051–8

Riso, L.P., Froman, S.E., Raouf, M., Gable, P., Maddux, R.E., Turini–Santorelli, N., Penna, S., Blandino, J.A., Jacobs, C.H. & Cherry, M. (2006). The long–term stability of early maladaptive schemas. *Cognitive Therapy and Research*, *30*, 515–529.

Roelofs, J., Lee, C., Ruijten, T. & Lobbestael, J. (2011). The mediating role of early maladaptive schemas in the relation between quality of attachment relationships and symptoms of depression in adolescents. *Behavioural and Cognitive Psychotherapy*, *39*, 471–479. DOI: 10.1017/S1352465811000117.

Samuel, D.B. & Ball, S. (2012). The Factor Structure and Concurrent Validity of the Early Maladaptive Schema Questionnaire: Research Version. *Cognitive Therapy and Research*. DOI: 10.1007/s10608–012–9439–6.

Scharfe, E. (2002). Reliability and validity of an interview assessment of attachment representations in a clinical sample of adolescents. *Journal of Adolescent Research*, *17*, 532–551.

Scharfe, E. (2012a). *The Adolescent Relationship Scales Questionnaire*. Trent University web page. Retrieved on 9 January, 2012 from [http://www.people.trentu.ca/escharfe/index\\_files/Page791.htm](http://www.people.trentu.ca/escharfe/index_files/Page791.htm)

Schmidt, N.B., Joiner, T.E., Young, J.E. & Telch, M.J. (1995). The Schema Questionnaire—Investigation of psychometric properties and the hierarchical structure of a measure of maladaptive schemas. *Cognitive Therapy and Research*, 19, 295–321.

Scottish Government (2011). *The Matrix 2011: A Guide to delivering evidence-based Psychological Therapies in Scotland*. Retrieved 22<sup>nd</sup> May 2012 from [http://www.nes.scot.nhs.uk/media/425354/psychology\\_matrix\\_2011s.pdf](http://www.nes.scot.nhs.uk/media/425354/psychology_matrix_2011s.pdf)

Scottish Government (2011a). *Mental Health Strategy for Scotland 2011–2015: A consultation*. The Scottish Government: Edinburgh.

Scottish intercollegiate guidelines network (SIGN) (2008). *SIGN 50: A guideline developer's handbook*. Retrieved 7<sup>th</sup> April 2012 from [www.sign.ac.uk](http://www.sign.ac.uk)

Shiner, R.L. (2009). The development of personality disorders: Perspectives from normal personality development in childhood and adolescence. *Development and Psychopathology*, 21, 715–734. DOI: 10.1017/S0954579409000406

Shiner, R. & Caspi, A (2003). Personality differences in childhood and adolescence: measurement, development, and consequences. *The Journal of Child Psychology and Psychiatry*, 44, 2–32. DOI: 10.1111/1469–7610.00101

Simmons, J., Cooper, M., Drinkwater, J. & Stewart, A. (2006). Cognitive schemata in depressed adolescent girls and their mothers. *Behavioural and Cognitive Psychotherapy*, 34, 219–232. DOI: 10.1017/S1352465805002766

Spanish Society of Epidemiology and the Spanish Society of Family Medicine. (2000). Una propuesta de medida de clase social [Proposal for a social class measure]. *Atención Primaria*, 25, 350–363.

Stallard, P. & Rayner, H. (2005). The development and preliminary evaluation of a schema questionnaire for children (SQC). *Behavioural and Cognitive Psychotherapy*, 33, 217–224. DOI: 10.1017/S1352465804001912

Stepp, S.D. (2012). Development of borderline personality disorder in adolescence and young adulthood: Introduction to the special section. *Journal of Abnormal Child Psychology*, 40, 1–5. DOI: 10.1007/s10802-011-9594-3

Stepp, S. D., Burke, J. D., Hipwell, A. E. & Loeber, R. (2012). Trajectories of attention deficit hyperactivity disorder and oppositional defiant disorder symptoms as precursors of borderline personality disorder symptoms in adolescent girls. *Journal of Abnormal Child Psychology*, 40, 7–20. DOI: 10.1007/s10802-011-9530-6

Thimm, J.C. (2010). Relationships between early maladaptive schemas and psychosocial developmental task resolution. *Clinical Psychology and Psychotherapy*, 17, 219-230. DOI: 10.1002/ccp.647

Tremblay, P.F. & Dozois, D.J.A. (2009). Another perspective on trait aggressiveness: Overlap with early maladaptive schemas. *Personality and Individual Differences*, *46*, 569–574.

Trowell, J., Joffe, I., Campbell, J., Clemente, C., Almqvist, F., Soininen, M., Koskenranta–Aalto, U., Weintraub, S., Kolaitis, G. & Tomaras, V., (2007). Childhood depression: a place for psychotherapy: An outcome study comparing individual psychodynamic psychotherapy and family therapy. *European Child & Adolescent Psychiatry*, *16*, 157–167. DOI: 10.1007/s00787–006–0584–x

Turner, H. M., Rose, K. S. & Cooper, M. J. (2005). Parental bonding and eating disorder symptoms in adolescents: The mediating role of core beliefs. *Eating Behaviors*, *6*, 113–118. DOI: 10.1016/j.eatbeh.2004.08.010.

Turner, H. M., Rose, K. S. & Cooper, M. J. (2005a). Schema and parental bonding in overweight and non–overweight female adolescents. *International Journal of Obesity*, *29*, 381–387.

Van Vlierberghe, L.V. & Braet, C. (2007). Dysfunctional schemas and psychopathology in referred obese adolescents. *Clinical Psychology and Psychotherapy*, *14*, 342–351. DOI: 10.1002/cpp.546

Van Vlierberghe, L., Braet, C., Bosmans, G., Rosseel, Y. & Bogels, S. (2010). Maladaptive schemas and psychopathology in adolescence: On the utility of young's

schema theory in youth. *Cognitive Therapy and Research*, 34, 316–332. DOI: 10.1007/s10608-009-9283-5

Van Vlierberghe, L., Braet, C. & Goossens, L. (2009). Dysfunctional schemas and eating pathology in overweight youth: A case-control study. *International Journal of Eating Disorders*, 42, 437–442.

Van Vlierberghe, L., Rijkeboer, M.M., Hamers, P. & Braet, C. (2004). *Schemavragenlijst voor Jongeren [Schema Questionnaire for Adolescents]*. Ghent, Belgium: Ghent University, Department of Developmental Personality and Social Psychology.

Van Vlierberghe, L., Timbremont, B., Braet, C. & Basile, B. (2007). Parental schemas in youngsters referred for antisocial behaviour problems demonstrating depressive symptoms. *Journal of Forensic Psychiatry & Psychology*, 18(4), 515-533. DOI:10.1080/14789940701515442

Waller, G., Meyer, C. & Ohanian, V. (2001). Psychometric properties of the long and short version of the young schema questionnaire: Core beliefs among bulimic and comparison women. *Cognitive Therapy and Research*, 25, 137–147.

Wechsler, D. (2004). *WISC-IV Canadian manual*. Toronto: Harcourt Assessment.

Westen, D. & Chang, C. M. (2000). Adolescent personality pathology: a review. *Adolescent Psychiatry*, 25, 61–100.

- Wilkinson, R.B. (2004). The role of parental and peer attachment in the psychological health and self-esteem of adolescents. *Journal of Youth and Adolescence*, 33, 479–493.
- Young, J.E. (1994). *Cognitive theory for personality disorders: A schema-focused approach*. Sarasota, FL: Professional Resource Exchange.
- Young, J. E. & Brown, G. (1990). *Young Schema questionnaire*. New York: Cognitive Therapy Center of New York.
- Young, J. E. & Brown, G. (1999). *Young schema questionnaire: Short version*. New York: Cognitive Therapy Center of New York.
- Young, J.E. & Brown, G. (2003). *YSQ-L3: Young schema questionnaire: Long version revised*. New York: Cognitive Therapy Center of New York.
- Young, J.E. & Brown, G. (2003a). *YSQ-S3: Young schema questionnaire: Short version revised*. New York: Cognitive Therapy Center of New York.
- Young, J.E., Klosko, J.S. & Weishaar, M. (2003). *Schema therapy: A practitioner's guide*. New York: Guildford Publications.

## 6. Appendix

### 6.1. Author guidelines for Clinical Psychology and Psychotherapy

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**Manuscript style.** The language of the journal is (British) English. All submissions must have a title, be printed on one side of A4 paper with numbered pages, be double-line spaced and have a 3cm wide margin all around. Illustrations and tables must be printed on separate sheets, and not incorporated into the text.

## MANUSCRIPT STYLE

The language of the journal is English. 12-point type in one of the standard fonts: Times, Helvetica, or Courier is preferred. It is not necessary to double-line space your manuscript. Tables must be on separate pages after the reference list, and not be incorporated into the main text. Figures should be uploaded as separate figure files.

- During the submission process you must enter the full title, short title of up to 70 characters and names and affiliations of all authors. Give the full address, including email, telephone and fax, of the author who is to check the proofs.
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- All articles should include a **Key Practitioner Message** — 3-5 bullet points summarizing the relevance of the article to practice.
- Include up to six **keywords** that describe your paper for indexing purposes.

**Research Articles:** Substantial articles making a significant theoretical or empirical contribution.

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**Practitioner Reports:** Shorter articles that typically contain interesting clinical material.

**Book Reviews:** Published on invitation only. Critical summaries of recent books that are of general interest to readers of the journal.

**Reference style** . The APA system of citing sources indicates the author's last name and the date, in parentheses, within the text of the paper.

**A. A typical citation of an entire work consists of the author's name and the year of publication .**

Example: Charlotte and Emily Bronte were polar opposites, not only in their personalities but in their sources of inspiration for writing (Taylor, 1990). Use the last name only in both first and subsequent citations, except when there is more than one author with the same last name. In that case, use the last name and the first initial.

**B. If the author is named in the text, only the year is cited .**

Example: According to Irene Taylor (1990), the personalities of Charlotte. . .

**C. If both the name of the author and the date are used in the text, parenthetical reference is not necessary .**

Example: In a 1989 article, Gould explains Darwin's most successful. . .

**D. Specific citations of pages or chapters follow the year .**

Example: Emily Bronte "expressed increasing hostility for the world of human relationships, whether sexual or social" (Taylor, 1988, p. 11).

**E. When the reference is to a work by two authors, cite both names each time the reference appears .**

Example: Sexual-selection theory often has been used to explore patters of various insect matings (Alcock & Thornhill, 1983) . . . Alcock and Thornhill (1983) also demonstrate. . .

**F. When the reference is to a work by three to five authors, cite all the authors the first time the reference appears. In a subsequent reference, use the first author's last name followed by *et al.* (meaning "and others") .**

Example: Patterns of byzantine intrigue have long plagued the internal politics of community college administration in Texas (Douglas *et al.* , 1997) When the reference is to a work by six or more authors, use only the first author's name followed by *et al.* in the first and all subsequent references. The only exceptions to this rule are when some confusion might result because of similar names or the same author being cited. In that case, cite enough authors so that the distinction is clear.

**G. When the reference is to a work by a corporate author, use the name of the organization as the author .**

Example: Retired officers retain access to all of the university's educational and recreational facilities (Columbia University, 1987, p. 54).

**H. Personal letters, telephone calls, and other material that cannot be retrieved are not listed in References but are cited in the text .**

Example: Jesse Moore (telephone conversation, April 17, 1989) confirmed that the ideas. . .

**I. Parenthetical references may mention more than one work, particularly when ideas have been summarized after drawing from several sources. Multiple citations should be arranged as follows .**

Examples:

- List two or more works by the same author in order of the date of publication: (Gould, 1987, 1989)
- Differentiate works by the same author and with the same publication date by adding an identifying letter to each date: (Bloom, 1987a, 1987b)
- List works by different authors in alphabetical order by last name, and use semicolons to separate the references: (Gould, 1989; Smith, 1983; Tutwiler, 1989).

All references must be complete and accurate. Where possible the [DOI](#) for the reference should be included at the end of the reference. Online citations should include date of access. If necessary, cite unpublished or personal work in the text but do not include it in the reference list. References should be listed in the following style:

### **Journal Article**

Gardikiotis, A., Martin, R., & Hewstone, M. (2004). The representation of majorities and minorities in the British press: A content analytic approach. *European Journal of Social Psychology*, 34, 637-646. DOI: 10.1002/ejsp.221

### **Book**

Paloutzian, R. F. (1996). *Invitation to the psychology of religion* (2nd ed.). Boston: Allyn and Bacon.

### **Book with More than One Author**

Natarajan, R., & Chaturvedi, R. (1983). *Geology of the Indian Ocean*. Hartford, CT: University of Hartford Press.  
 Hesen, J., Carpenter, K., Moriber, H., & Milsop, A. (1983). *Computers in the business world*. Hartford, CT: Capital Press. and so on.  
 The abbreviation *et al.* is not used in the reference list, regardless of the number of authors, although it can be used in the text citation of material with three to five authors (after the initial citation, when all are listed) and in all parenthetical citations of material with six or more authors.

### **Web Document on University Program or Department Web Site**

Degelman, D., & Harris, M. L. (2000). *APA style essentials*. Retrieved May 18, 2000, from Vanguard University, Department of Psychology Website: [http://www.vanguard.edu/faculty/ddegelman/index.cfm?doc\\_id=796](http://www.vanguard.edu/faculty/ddegelman/index.cfm?doc_id=796)

### **Stand-alone Web Document (no date)**

Nielsen, M. E. (n.d.). *Notable people in psychology of religion*. Retrieved August 3, 2001, from <http://www.psywww.com/psyrelig/psyrelpr.htm>

### **Journal Article from Database**

Hien, D., & Honeyman, T. (2000). A closer look at the drug abuse-maternal aggression link. *Journal of Interpersonal Violence*, 15 , 503-522. Retrieved May 20, 2000, from ProQuest database.

### **Abstract from Secondary Database**

Garrity, K., & Degelman, D. (1990). Effect of server introduction on restaurant tipping. *Journal of Applied Social Psychology*, 20 , 168-172. Abstract retrieved July 23, 2001, from PsycINFO database.

### **Article or Chapter in an Edited Book**

Shea, J. D. (1992). Religion and sexual adjustment. In J. F. Schumaker (Ed.), *Religion and mental health* (pp. 70-84). New York: Oxford University Press.

\*The Digital Object Identifier (DOI) is an identification system for intellectual property in the digital environment. Developed by the International DOI Foundation on behalf of the publishing industry, its goals are to provide a framework for managing intellectual content, link customers with publishers, facilitate electronic commerce, and enable automated copyright management.

**Illustrations.** Upload each figure as a separate file in either .tiff or .eps format, the figure number and the top of the figure indicated. Compound figures e.g. 1a, b, c should be uploaded as one figure. Grey shading and tints are not acceptable. Lettering must be of a reasonable size that would still be clearly legible upon reduction, and consistent within each figure and set of figures. Where a key to symbols is required, please include this in the artwork itself, not in the figure legend. All illustrations must be supplied at the correct resolution:

- Black and white and colour photos - 300 dpi
- Graphs, drawings, etc - 800 dpi preferred; 600 dpi minimum
- Combinations of photos and drawings (black and white and colour) - 500 dpi

The cost of printing **colour** illustrations in the journal will be charged to the author. The cost is approximately £700 per page. If colour illustrations are supplied electronically in either **TIFF** or **EPS** format, they **may** be used in the PDF of the article at no cost to the author, even if this illustration was printed in black and white in the journal. The PDF will appear on the *Wiley Online Library* site.

### **POST ACCEPTANCE**

**Further information.** For accepted manuscripts the publisher will supply proofs to the corresponding author prior to publication. This stage is to be used only to correct errors that may have been introduced during the production process. Prompt return of the corrected proofs, preferably within two days of receipt, will minimise the risk of the paper being held over to a later issue. Once your article is published online no further amendments can be made. Free access to the final PDF offprint or your article will be available via author services only. Please therefore sign up for author services if you would like to access your article PDF offprint and enjoy the many other benefits the service offers

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- Personalization Tools

**Cite EarlyView articles.** To link to an article from the author's homepage, take the DOI (digital object identifier) and append it to "http://dx.doi.org/" as per following example: DOI 10.1002/hep.20941, becomes <http://dx.doi.org/10.1002/hep.20941>.

## 6.2. Early maladaptive schemas and domains (taken from Young, Klosko & Weishaar, 2003).

### **“Domain 1 – Disconnection and Rejection**

(The expectation that one’s needs for security, safety, stability, nurturance, empathy, sharing of feelings, acceptance, and respect will not be met in a predictable manner. Typical family origin is detached, cold, rejecting, withholding, lonely, explosive, unpredictable, or abusive).

#### ***1. Abandonment/Instability***

The perceived instability or unreliability of those available for support and connection. Involves the sense that significant other will not be able to continue providing emotional support, connection, strength, or practical protection because they are emotionally unstable and unpredictable (e.g. have angry outbursts), unreliable, or present only erratically; because they will die imminently; or because they will abandon the individual in favour of someone better.

#### ***2. Mistrust/Abuse***

The expectation that others will hurt, abuse, humiliate, cheat, lie, manipulate, or take advantage. Usually involves the perception that the harm is intentional or the result of unjustified and extreme negligence. May include the sense that one always ends up being cheated relative to others or ‘getting the short end of the stick’.

#### ***3. Emotional Deprivation***

The expectation that one’s desire for a normal degree of emotional support will not be adequately met by others. The three major forms of deprivation are:

- A. **Deprivation of Nurturance:** Absence of attention, affection, warmth, or companionship.
- B. **Deprivation of Empathy:** Absence of understanding, listening, self-disclosure, or mutual sharing of feelings from others.
- C. **Deprivation of Protection:** Absence of strength, direction, or guidance from others.

#### ***4. Defectiveness/Shame***

The feeling that one is defective, bad, unwanted, inferior, or invalid in important respects or that one would be unlovable to significant others if exposed. May involve hypersensitivity to criticism, rejection, and blame; self-consciousness, comparisons and insecurity around others; or a sense of shame regarding one’s perceived flaws. These flaws may be private (e.g. selfishness, angry impulses, unacceptable sexual desires) or public (e.g. undesirable physical appearance, social awkwardness).

#### ***5. Social Isolation/Alienation***

The feeling that one is isolated from the rest of the world, different from other people, and/or not part of any group or community.

### **Domain 2 - Impaired Autonomy and Performance**

(Expectations about oneself and the environmental interfere with one's perceived ability to separate, survive, function independently, or perform successfully. Typical family origin is enmeshed, undermining of child's confidence, overprotective, or failing to reinforce child for performing competently outside the family.

#### ***6. Dependence/Incompetence***

Belief that one is unable to handle one's everyday responsibilities in a competent manner, without considerable help from others (e.g., take care of oneself, solve daily problems, exercise good judgement, tackle new tasks, make good decisions). Often presents as helplessness.

#### ***7. Vulnerability to Harm or Illness***

Exaggerated fear that imminent catastrophe will strike at any time and that one will be unable to prevent it. Fears focus on one or more of the following: (A) Medical catastrophes (e.g. heart attacks, AIDS); (B) Emotional catastrophes (e.g. going crazy); (C) External catastrophes (e.g. elevators, collapsing, victimization by criminals, airplane crashes, earthquakes).

#### ***8. Enmeshment/Undeveloped Self***

Excessive emotional involvement and closeness with one or more significant others (often parents) at the expense of full individuation or normal social development. Often involves the belief that at least one of the enmeshed individuals cannot survive or be happy without the constant support of the other. May also include feelings of being smothered by or fused with others or insufficient individual identity. Often experiences as a feeling of emptiness and foundering, having no direction, or in extreme cases questioning one's existence.

#### ***9. Failure***

The belief that one has failed, will inevitably fail, or is fundamentally inadequate relative to one's peers in areas of achievement (school, career, sports, etc.). Often involves beliefs that one is stupid, inept, untalented lower in status, less successful than others, and so forth.

### **Domain 3 - Impaired Limits**

(Deficiency in internal limits, responsibility to others, or long-term goal orientation. Leads to difficulty respecting the rights of others, cooperating with others, making commitments, or setting and meeting realistic personal goals. Typical family origin is characterized by permissiveness, overindulgence, lack of direction, or a sense of superiority rather than appropriate confrontation, discipline, and limits in relation to taking responsibility, cooperating in a reciprocal manner, and setting goals. In some

cases, the child may not have been pushed to tolerate normal levels of discomfort or may not have been given adequate supervision, direction or guidance.)

#### ***10. Entitlement/Grandiosity***

The belief that one is superior to other people, entitled to special rights and privileges; or not bound by the rules of reciprocity that guide normal social interaction. Often involves insistence that one should be able to do or have whatever one wants, regardless of what is realistic, what others consider reasonable, or the cost to others; or an exaggerated focus on superiority (e.g. being among the most successful, famous, wealthy) in order to achieve power or control (not primarily for attention or approval) Sometimes included excessive competitiveness toward or domination of others: asserting one's power, forcing one's point of view, or controlling the behaviour of others in line with one's own desires without empathy or concern for others' needs or feelings.

#### ***11. Insufficient Self-Control/ Self- Discipline***

Pervasive difficulty or refusal to exercise sufficient self-control and frustration tolerance to achieve one's personal goals or to restrain the excessive expression of one's emotions and impulses. In its milder form, the patient presents with an exaggerated emphasis on discomfort avoidance: avoiding pain, conflict, confrontation, responsibility, or overexertion at the expense of personal fulfilment, commitment, or integrity.

#### **Domain 4 – Other- Directedness**

(An excessive focus on the desires, feelings, and responses of others, at the expense of one's own needs in order to gain love and approval, maintain one's sense of connection, or avoid retaliation. Usually involves suppression and lack of awareness regarding one's own anger and natural inclinations. Typical family origin is based on conditional acceptance: Children must suppress important aspects of themselves in order to gain love, attention, and approval. In many such families, the parents' emotional needs and desires – or social acceptance and status – are valued more than the unique needs and feelings of each child.)

#### ***12. Subjugation***

Excessive surrendering of control to others because one feels coerced – submitting in order to avoid anger, retaliation, or abandonment. The two major forms of subjugation are (A) Subjugation of needs: Suppression of one's preferences, decisions, and desires, (B) Subjugation of emotions, especially anger. Usually involves the perception that one's own desires, opinions, and feelings are not valid or important to others. Frequently presents as excessive compliance, combined with hypersensitivity to feeling trapped. Generally leads to a build up of anger, manifested in maladaptive symptoms (e.g. passive-aggressive behaviour, uncontrolled outbursts of temper, psychosomatic symptoms, withdrawal of affection, "acting out", substance abuse).

#### ***13. Self-Sacrifice***

Excessive focus on voluntarily meeting the needs of others in daily situations at the expense of one's own gratification. The most common reasons are: to prevent causing

pain to others; or avoid guilt from feeling selfish, or to maintain the connection with others perceived as needs. Often results from an acute sensitivity to the pain of others. Sometimes leads to a sense that one's own needs are not being adequately met and to resentment of those who are taken care of. (Overlaps with concept of co-dependency).

#### ***14. Approval Seeking/Recognition–Seeking***

Excessive emphasis on gaining approval, recognition, or attention from other people or on fitting in at the expense of developing a secure and true sense of self. One's sense of esteem is dependent primarily on the reactions of others rather than on one's own natural inclinations. Sometimes includes an overemphasis on status, appearance, social acceptance, money, or achievement as means of gaining approval, admiration, or attention (not primarily for power or control). Frequently result in major life decisions that are inauthentic or unsatisfying or in hypersensitivity to rejection.

### **Domain 5 – Overvigilance and Inhibition**

(Excessive emphasis on suppressing one's spontaneous feelings, impulses, and choices or on meeting rigid, internalised rules and expectations about performance and ethical behaviour, often at the expense of happiness, self-expression, relaxation, close relationships, or health. Typical family of origin is grim, demanding, and sometimes punitive: performance, duty or perfectionism, following rules, hiding emotions, and avoiding mistakes predominate over pleasure, joy and relaxation. There is usually an undercurrent of pessimism and worry that things could fall apart if one fails to be vigilant and careful at all times).

#### ***15. Negativity/Pessimism***

A pervasive, lifelong focus on the negative aspects of the life (pain, death, loss, disappointment, conflict, guilt, resentment, unsolved problems, potential mistakes, betrayal, things that could go wrong, etc.) while minimizing or neglecting the positive or optimistic aspects. Usually includes an exaggerated expectation – in a wide range of work, financial or interpersonal situations – that things will eventually go seriously wrong or that aspects of one's life that seem to be going well will ultimately fall apart. Usually involves an inordinate fear of making mistakes that might lead to financial collapse, loss, humiliation, or being trapped in a bad situation. Because they exaggerate potential negative outcomes, these individuals are frequently characterised by chronic worry, vigilance, complaining, or indecision.

#### ***16. Emotional Inhibition***

The excessive inhibition of spontaneous action, feeling or communication, usually to avoid disapproval by others, feelings of shame, or losing control of one's impulses. The most common area of inhibition involve: (a) inhibition of anger and aggression; (c) difficulty expressing vulnerability or communicating freely about one's feelings, needs, and so forth; or (d) excessive emphasis on rationality while disregarding emotions.

#### ***17. Unrelenting Standards/Hypercriticalness***

The underlying belief that one must strive to meet very high internalised standards of behaviour and performance, usually to avoid criticism. Typically results in feelings of

pressure or difficulty slowing down and in hypercriticalness toward oneself and others. Must involve significant impairment in pleasure, relaxation, health, self-esteem, sense of accomplishment, or satisfying relationships. Unrelenting standards typically present as (a) perfectionism, inordinate attention to detail, or an underestimate of how good one's own performance is relative to the norm; (b) rigid rules and 'should' in many areas of life, including unrealistically high moral, ethical, cultural, or religious precepts; or (c) preoccupation with time and efficacy, the need to accomplish more.

### ***18. Punitiveness***

The belief that people should be harshly punished for making mistakes. Involves the tendency to be angry, intolerant, punitive, and impatient with those people (including oneself) who do not meet one's expectations or standards. Usually includes difficulty forgiving mistakes in oneself or others because of a reluctance to consider extenuating circumstances, allow for human imperfection, or empathize with feelings."

### 6.3. Quality rating scale used in systematic review

Paper: .....	Score	Page reported
<b>Study objectives</b>		
<i>Are the study objectives clearly outlined?</i>		
<ul style="list-style-type: none"> <li>• Neither aims or hypotheses stated = 0</li> <li>• Aims or hypotheses stated = 1</li> <li>• Aims and hypotheses stated = 2</li> </ul>		
<b>Sample selection</b>		
<i>Is the recruitment method reported (including country, setting, method used etc.)?</i>		
<ul style="list-style-type: none"> <li>• Not reported = 0</li> <li>• Partially reported = 1</li> <li>• Clearly reported = 2</li> </ul>		
<i>Are appropriate inclusion / exclusion criteria reported?</i>		
<ul style="list-style-type: none"> <li>• Not reported = 0</li> <li>• Referred to but not defined = 1</li> <li>• Clearly defined = 2</li> </ul>		
<b>Sample description</b>		
<i>Is the response rate stated?</i>		
<ul style="list-style-type: none"> <li>• No = 0</li> <li>• Yes = 1</li> </ul>		
<i>Is missing data explained (e.g. for drop-outs, incomplete data sets etc.)?</i>		
<ul style="list-style-type: none"> <li>• Not reported = 0</li> <li>• Reported but not explained = 1</li> <li>• Reported and explained = 2</li> </ul>		
<i>Are participant characteristics clearly reported (e.g. age, gender, socioeconomic status, ethnicity/nationality)?</i>		
<ul style="list-style-type: none"> <li>• None of the characteristics reported = 0</li> <li>• Some of the characteristics reported = 1</li> <li>• All relevant characteristics reported = 2</li> </ul>		
<b>Design / Measures</b>		
<i>Are reliability and validity of measures reported?</i>		
<ul style="list-style-type: none"> <li>• No = 0</li> <li>• Partially = 1</li> <li>• Yes = 2</li> </ul>		
<i>Are choices of measures adequately justified?</i>		
<ul style="list-style-type: none"> <li>• No = 0</li> <li>• Yes = 1</li> </ul>		

<p><i>How were early maladaptive schemas measured?</i></p> <ul style="list-style-type: none"> <li>• Questionnaire version not specified / no psychometrics detailed or non-standardised adapted version of the Young Schema Questionnaire = 0</li> <li>• Adult version of the Young Schema Questionnaire with details of psychometric properties reported from other studies with different populations = 1</li> <li>• Age-appropriate adapted version of Young Schema Questionnaire and/or details of psychometric properties provided for age-specific population = 2</li> </ul>		
<p><i>Are the main potential confounding factors identified and taken into account in the design and analyses?</i></p> <ul style="list-style-type: none"> <li>• No or not reported = 0</li> <li>• Yes = 1</li> </ul>		
<b>Statistics</b>		
<p><i>Evidence of a power calculation or justification of sample size provided?</i></p> <ul style="list-style-type: none"> <li>• Not provided / no evidence = 0</li> <li>• Issues regarding power or sample size acknowledged and/or post hoc power calculation completed = 1</li> <li>• Prior sample size calculation provided = 2</li> </ul>		
<p><i>Are the statistical analyses used described and appropriate to test the hypotheses?</i></p> <ul style="list-style-type: none"> <li>• Not stated or not clear = 0</li> <li>• Stated but not appropriate to design = 1</li> <li>• Stated and appropriate to design = 2</li> </ul>		
<p><i>Were results clearly reported, with confidence intervals, effect sizes and p-values provided where appropriate?</i></p> <ul style="list-style-type: none"> <li>• Not reported = 0</li> <li>• Partially reported = 1</li> <li>• Fully reported = 2</li> </ul>		
<b>Results / Discussion</b>		
<p><i>Do the findings link to the stated aims, questions and hypotheses?</i></p> <ul style="list-style-type: none"> <li>• No = 0</li> <li>• Partially = 1</li> <li>• Yes = 2</li> </ul>		
<p><i>Are findings discussed with reference to theory and literature?</i></p> <ul style="list-style-type: none"> <li>• No = 0</li> <li>• Yes = 1</li> </ul>		
<p><i>Do conclusions follow from data?</i></p> <ul style="list-style-type: none"> <li>• No = 0</li> <li>• Yes = 1</li> </ul>		
<p><i>Are limitations of the study clearly expressed?</i></p>		

<ul style="list-style-type: none"> <li>• No = 0</li> <li>• Yes = 1</li> </ul>		
<i>Are related recommendations for clinical practice and future research discussed?</i> <ul style="list-style-type: none"> <li>• Neither = 0</li> <li>• Practice or research = 1</li> <li>• Both practice and research = 2</li> </ul>		
<b>Total score</b> (maximum 30)		
<b>Quality rating</b> (0 – 14 = low, 15 - 23 = moderate, 24 – 30 = high)		

## 6.4. Notification of ethical approval

**Study title:** Early maladaptive schemas in adolescence and their relation to attachment, interpersonal problems and psychopathology.  
**REC reference:** 11/NS/0019

Thank you for your letter of 29 September 2011 responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information was considered by the Scientific Officer.

### **Confirmation of ethical opinion**

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

### **Ethical review of research sites**

#### **NHS sites**

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

#### **Conditions of the favourable opinion**

The favourable opinion is subject to the following conditions being met prior to the start of the study.

**Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.**

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>.

**It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).**

#### Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
Covering Letter		29 September 2011
Evidence of insurance or indemnity		27 July 2011
Investigator CV		07 July 2011
Other: CV - Matthias Schwannauer		01 September 2010
Other: Letter of Invitation - Referred Participants	1	20 July 2011
Other: Case Manager Letter	1	20 July 2011
Other: Youth Self Report - 11-18		03 August 2011
Other: Letter of Invitation - Controls	2	13 September 2011
Other: Control Parent Notification	1	13 September 2011
Participant Consent Form: Referred - 12-15	1	20 July 2011
Participant Consent Form: Non-Referred - 12-15	1	20 July 2011
Participant Consent Form: Non Referred - 16-18	2	29 September 2011
Participant Consent Form: Referred - 16-18	2	29 September 2011
Participant Information Sheet: Referred - 12-15	2	27 September 2011
Participant Information Sheet: Referred - 16-18	2	27 September 2011
Participant Information Sheet: Non Referred - 12-15	2	27 September 2011
Participant Information Sheet: Non Referred - 16-18	2	27 September 2011
Participant Information Sheet: Parents	1	13 September 2011
Protocol	2	29 September 2011
Questionnaire: IIP-32		03 August 2011
Questionnaire: YSQ-S3		03 August 2009
Questionnaire: Adolescent Relationship Scales		03 August 2011
Questionnaire: Schema Questionnaire for Young People	*	*30 September 2011
REC application	3.1	29 July 2011
Referees or other scientific critique report	1	03 August 2011
Response to Request for Further Information		

\*date received

#### Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

### **After ethical review**

#### Reporting requirements

The attached document "*After ethical review – guidance for researchers*" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

#### Feedback

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

Further information is available at National Research Ethics Service website > After Review

**11/NS/0019**

**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project

Yours sincerely

**6.5. Notification of approval by the local NHS Research and Development Department**

**Management Permission for Non-Commercial Research**

**MREC Ref:** N/A  
**NOSRES Ref:** 11/NS/0019  
**NRS Ref:** N/A  
**Project title:** **Early maladaptive schemas in adolescence and their relation to attachment, interpersonal problems and psychopathology.**

Thank you very much for sending all relevant documentation. I am pleased to confirm that the project is now registered with (*name of area office omitted*). The project now has R & D Management Permission to proceed locally. This is based on the documents received from yourself and the relevant Approvals being in place.

All research with an NHS element is subject to the Research Governance Framework for Health and Community Care (2006, 2<sup>nd</sup> edition), and as Chief or Principal Investigator you should be fully committed to your responsibilities associated with this.

**It is particularly important that you inform us when the study terminates.**

The R&D Office must be notified immediately and any relevant documents forwarded to us if any of the following occur:

- A change of Principal Investigator, Chief Investigator or any additional research personnel
- Premature project termination
- Any amendments – substantial or non-substantial (particularly a study extension)
- Any change to funding or any additional funding

We hope the project goes well, and if you need any help or advice relating to your R&D Management Permission, please do not hesitate to contact the office.

Yours sincerely

## 6.6. Invitation letter example (referred participants)

Dear

I would like to invite you to take part in a study currently being carried out at *(name of services omitted)*. The study is trying to work out the best theory to use to understand and help young people with certain types of mental health problems.

Before you decide if you want to join in it's important to understand why the research is being done and what it will involve for you. I have enclosed an information sheet with more detail about the study, as well as our contact details if there is anything more you want to know about it. As it says, you can contact the Principal Researcher *(name and contact details omitted)*. I have also enclosed a consent form for you.

Please take your time to decide whether or not you want to take part in this study. It is entirely up to you to decide this, and if you do not want to take part then it will have no effect on your appointments at the *(name of services omitted)*.

If you are happy to take part in the study, please let **me** know at our next appointment at the *(name of services omitted)*. I will then arrange for the researcher to contact you.

Thank you for considering taking part,

Yours sincerely,

## **6.7. Participant information sheet example (referred participants, 16-18 years old)**

### Participant Information Sheet

‘Early maladaptive schemas in adolescence’

#### ***Part 1***

We would like to invite you to take part in a research study. Before you decide you need to understand why the study is being done and what you would be asked to do. Please read the following information carefully. Talk to others about the study if you wish.

Part 1 tells you why we are doing the study and what will happen to you if you take part.

Part 2 gives you more detailed information about the study.

Ask us if there is anything you are not sure about or if you would like more information. Take time to decide whether or not you want to take part.

#### **Why the study is being done**

This study will test a psychological idea, or ‘theory’ in young people aged 12 to 18. The theory is currently used with adults to understand and treat different mental health difficulties. If this study finds the theory to be useful for similar work with young people it should improve how they are treated in the future.

#### **Why have I been asked to take part?**

For this study, we need about 200 young people aged from 12 to 18 years of age to take part. Half of those will be currently attending a mental health service for young people, and half will not. You have been asked to take part because you **are** currently attending a mental health service for young people.

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

It is up to you to decide. We will tell you more about the study and go through this information sheet, which we will then give to you. We will then ask you to sign a form saying you want to take part, called a ‘consent form’. You are allowed to change your mind and stop taking part in the study at any time, without giving a reason.

#### **What will happen to me if I take part?**

If you agree to take part in the study, you will be asked to complete an information sheet, then 4 questionnaires. This will take you up to an hour, and the questionnaires will be given to the researcher. No personal information will be passed on to anyone other than the researcher, i.e. no one will know they are your answers.

The only exception to this would be, as usual when you come to the (*name of services omitted*), if your answers made us worried about your, or anyone else's safety. If this happened, your clinician/therapist would be told and would speak to you about this.

**Will it cost anything to take part?**

It will not cost anything to take part.

**What will I have to do?**

Complete a brief information sheet with your details on, and then complete 4 questionnaires.

**What it is that's being tested?**

The information from all the questionnaires will be compared with each other and used to test whether a psychological theory may be applied to young people.

**What are disadvantages, or possible bad things about taking part?**

There are very few risks to you in taking part. It is not likely to happen, but if completing the questionnaires feels difficult or upsetting, you can discuss this parents or friends, or with your therapist/clinician or any other member of the team. The researcher will also be around when you complete the questionnaires, so if this happened, you could speak to them for more information.

**What might be the good things about taking part?**

The information we get from this study will hopefully help develop and improve the treatments available for young people with mental health or emotional difficulties.

**What happens after the research?**

Your care and treatment at the department will continue as usual, i.e. taking part in this study will not affect your treatment (unless potential risks are identified, as explained above).

**What if there is a problem?**

Any complaint about the way you have been treated with during the study or any possible harm you might suffer will be addressed. The detailed information on this is given in Part 2.

**Will my taking part in the study be private (confidential)?**

Yes. We will follow ethical and legal practice and all information about you will be handled in confidence. The details are included in Part 2.

***This is the end of Part 1. If the information in Part 1 has interested you and you are considering taking part, please read the following information in Part 2 before making your mind up.***

## **Part 2**

### **What will happen if I decide I don't want to continue with the study?**

You can decide to stop taking part in the study at any time. You can do this before filling in the questionnaires, or after you have given them in. If you decide to do this, tell your clinician/therapist or the researcher directly or via the secretary that you don't want to continue or be part of the study. If you have decided to do this then your data will be destroyed and taken out of from the study.

### **What if there is a problem?**

**Complaints** can either be directed to the main researcher (*names and contact details of individuals omitted*). If you remain unhappy or wish to complain formally, you can do this through the NHS Complaints Procedure. Call the department secretary, on (*telephone number omitted*) for details of how to do this.

### **Will my taking part in this study be kept private (confidential)?**

The way we handle, process, store and destroy all information from the study matches the Caldicott principles. In summary:

- The data will be collected by questionnaire, as well as an information sheet detailing your age, gender, referral details and postcode.
- The researcher will put a code on your questionnaires and this code will be used for all data analysis by the researcher. Your consent form will contain both your code and name and may be used to identify your questionnaires in the event of any problems or highlighted risks.
- All other data will be private (anonymous) and will not be able to be linked to you.
- The data from the project will be used for the researcher's doctorate in clinical psychology.
- The data will be kept for a minimum of 5 years and may be used in other studies.
- Only the main researcher will ever see data with your name or details on. The only exception to this would be if your answers made us worried about your, or someone else's safety. If this happened, this information would be given to your clinician/therapist.
- All data will be kept for a minimum of 5 years and will be disposed of securely.

### **Involvement of your Therapist / Case Manager**

We will tell your therapist / the person you see at the (*name of services omitted*) that you are taking part in the study.

### **What will happen to the results of the research study?**

The results of the research study will be written up as a project and given in as part of the researcher's doctorate in clinical psychology at the University of Edinburgh. It is also intended that the results of the study are published.

Results will also be written into a report for the mental health departments and schools attended by the people that take part, and you will be able to ask to read this.

Your name, or any other personal information related to you will **not** be mentioned in any of the reports/publications.

**Who has looked at the study to make sure it's okay to take part in?**

All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee to protect your safety, rights, wellbeing and dignity. This study has been reviewed and given favourable opinion by the (*name of local area omitted*) Research Ethics Committee.

**For further information:**

If you have any questions or require any more information about the study, whether you should take part, or if you have any concerns, please contact either:

(*contact details omitted*)

**If you agree to take part in this study, you will be given a copy of this information to keep and a consent form to sign.**

**6.8. Consent form example (referred participants, 16-18 years old)**

Centre:  
Study Number:  
Participant Identification Number for this trial:

**CONSENT FORM**

Title of Project: Early maladaptive schemas in adolescence

Name of Researcher: Jenny Makinson

***Please initial box***

1. I confirm that I have read and understand the information sheet dated 27/09/11 (version 2) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

2. I understand that my taking part is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected.

3. I understand that relevant sections of my medical notes and data collected during the study, may be looked at by individuals from NHS (*board omitted*), from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.

4. I agree to my therapist / case manager being informed of my participation in the study

5. I agree to take part in the above study.

\_\_\_\_\_  
Name of Patient                      Date:                      Signature:

\_\_\_\_\_  
Name of Person taking consent:      Date:                      Signature:

Thank you for your help.

When completed, 1 for patient; 1 for researcher site file; 1 (original) to be kept in case notes.

## 6.9. Author guidelines for the Journal of Abnormal Child Psychology

### Title Page

The title page should include:

- The name(s) of the author(s)
- A concise and informative title
- The affiliation(s) and address(es) of the author(s)
- The e-mail address, telephone and fax numbers of the corresponding author

### Abstract

Please provide an abstract of 150 to 250 words. The abstract should not contain any undefined abbreviations or unspecified references.

### Keywords

Please provide 4 to 6 keywords which can be used for indexing purposes.

### Text Formatting

Manuscripts should be submitted in Word.

- Use a normal, plain font (e.g., 10-point Times Roman) for text.
- Use italics for emphasis.
- Use the automatic page numbering function to number the pages.
- Do not use field functions.
- Use tab stops or other commands for indents, not the space bar.
- Use the table function, not spreadsheets, to make tables.
- Use the equation editor or MathType for equations.
- Save your file in docx format (Word 2007 or higher) or doc format (older Word versions).
- [Word template \(zip, 154 kB\)](#)

Manuscripts with mathematical content can also be submitted in LaTeX.

### Headings

Please use no more than three levels of displayed headings.

### Abbreviations

Abbreviations should be defined at first mention and used consistently thereafter.

### Footnotes

Footnotes can be used to give additional information, which may include the citation of a reference included in the reference list. They should not consist solely of a reference citation, and they should never include the bibliographic details of a reference. They should also not contain any figures or tables.

Footnotes to the text are numbered consecutively; those to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data). Footnotes to the title or the authors of the article are not given reference symbols.

Always use footnotes instead of endnotes.

### **Acknowledgments**

Acknowledgments of people, grants, funds, etc. should be placed in a separate section before the reference list. The names of funding organizations should be written in full.

All JACP manuscripts should be submitted to Editorial Manager in 12-point Times New Roman with standard 1-inch borders around the margins.

Page length: 35 pages; Text must be double-spaced; APA Publication Manual standards must be followed.

### **Please use the standard mathematical notation for formulae, symbols etc.:**

Italic for single letters that denote mathematical constants, variables, and unknown quantities

Roman/upright for numerals, operators, and punctuation, and commonly defined functions or abbreviations, e.g., cos, det, e or exp, lim, log, max, min, sin, tan, d (for derivative)

Bold for vectors, tensors, and matrices.

Please always use internationally accepted signs and symbols for units (SI units).

Generic names of drugs and pesticides are preferred; if trade names are used, the generic name should be given at first mention.

### **Citation**

Cite references in the text by name and year in parentheses. Some examples:

- Negotiation research spans many disciplines (Thompson 1990).
- This result was later contradicted by Becker and Seligman (1996).
- This effect has been widely studied (Abbott 1991; Barakat et al. 1995; Kelso and Smith 1998; Medvec et al. 1999).

### **Reference list**

The list of references should only include works that are cited in the text and that have been published or accepted for publication. Personal communications and unpublished works should only be mentioned in the text. Do not use footnotes or endnotes as a substitute for a reference list.

Reference list entries should be alphabetized by the last names of the first author of each work.

#### Journal article

Harris, M., Karper, E., Stacks, G., Hoffman, D., DeNiro, R., Cruz, P., et al. (2001). Writing labs and the Hollywood connection. *Journal of Film Writing*, 44(3), 213–245.

#### Article by DOI

Slifka, M. K., & Whitton, J. L. (2000) Clinical implications of dysregulated cytokine production. *Journal of Molecular Medicine*, doi:10.1007/s001090000086

#### Book

Calfee, R. C., & Valencia, R. R. (1991). *APA guide to preparing manuscripts for journal publication*. Washington, DC: American Psychological Association.

#### Book chapter

O’Neil, J. M., & Egan, J. (1992). Men’s and women’s gender role journeys: Metaphor for healing, transition, and transformation. In B. R. Wainrib (Ed.), *Gender issues across the life cycle* (pp. 107–123). New York: Springer.

#### Online document

Abou-Allaban, Y., Dell, M. L., Greenberg, W., Lomax, J., Peteet, J., Torres, M., & Cowell, V. (2006). Religious/spiritual commitments and psychiatric practice. Resource document. American Psychiatric Association. [http://www.psych.org/edu/other\\_res/lib\\_archives/archives/200604.pdf](http://www.psych.org/edu/other_res/lib_archives/archives/200604.pdf). Accessed 25 June 2007.

Journal names and book titles should be italicized.

For authors using EndNote, Springer provides an output style that supports the formatting of in-text citations and reference list.

- [EndNote style \(zip, 3 kB\)](#)

#### **Tables**

All tables are to be numbered using Arabic numerals.

Tables should always be cited in text in consecutive numerical order.

For each table, please supply a table caption (title) explaining the components of the table.

Identify any previously published material by giving the original source in the form of a reference at the end of the table caption.

Footnotes to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data) and included beneath the table body. For the best quality final product, it is highly recommended that you submit all of your artwork – photographs, line drawings, etc. – in an electronic format. Your art will then be produced to the highest standards with the greatest accuracy to detail. The published work will directly reflect the quality of the artwork provided.

### **Electronic Figure Submission**

- Supply all figures electronically.
- Indicate what graphics program was used to create the artwork.
- For vector graphics, the preferred format is EPS; for halftones, please use TIFF format. MS Office files are also acceptable.
- Vector graphics containing fonts must have the fonts embedded in the files.
- Name your figure files with "Fig" and the figure number, e.g., Fig1.eps.

### **Figure Lettering**

- To add lettering, it is best to use Helvetica or Arial (sans serif fonts).
- Keep lettering consistently sized throughout your final-sized artwork, usually about 2–3 mm (8–12 pt).
- Variance of type size within an illustration should be minimal, e.g., do not use 8-pt type on an axis and 20-pt type for the axis label.
- Avoid effects such as shading, outline letters, etc.
- Do not include titles or captions within your illustrations.

### **Figure Numbering**

- All figures are to be numbered using Arabic numerals.
- Figures should always be cited in text in consecutive numerical order.
- Figure parts should be denoted by lowercase letters (a, b, c, etc.).
- If an appendix appears in your article and it contains one or more figures, continue the consecutive numbering of the main text. Do not number the appendix figures, "A1, A2, A3, etc." Figures in online appendices (Electronic Supplementary Material) should, however, be numbered separately.

### **Figure Captions**

- Each figure should have a concise caption describing accurately what the figure depicts. Include the captions in the text file of the manuscript, not in the figure file.
- Figure captions begin with the term Fig. in bold type, followed by the figure number, also in bold type.
- No punctuation is to be included after the number, nor is any punctuation to be placed at the end of the caption.
- Identify all elements found in the figure in the figure caption; and use boxes, circles, etc., as coordinate points in graphs.
- Identify previously published material by giving the original source in the form of a reference citation at the end of the figure caption.

### **Figure Placement and Size**

- When preparing your figures, size figures to fit in the column width.

- For most journals the figures should be 39 mm, 84 mm, 129 mm, or 174 mm wide and not higher than 234 mm.
- For books and book-sized journals, the figures should be 80 mm or 122 mm wide and not higher than 198 mm.

### **Permissions**

If you include figures that have already been published elsewhere, you must obtain permission from the copyright owner(s) for both the print and online format. Please be aware that some publishers do not grant electronic rights for free and that Springer will not be able to refund any costs that may have occurred to receive these permissions. In such cases, material from other sources should be used.

### **Accessibility**

In order to give people of all abilities and disabilities access to the content of your figures, please make sure that

- All figures have descriptive captions (blind users could then use a text-to-speech software or a text-to-Braille hardware)
- Patterns are used instead of or in addition to colors for conveying information (color-blind users would then be able to distinguish the visual elements)
- Any figure lettering has a contrast ratio of at least 4.5:1

Springer accepts electronic multimedia files (animations, movies, audio, etc.) and other supplementary files to be published online along with an article or a book chapter. This feature can add dimension to the author's article, as certain information cannot be printed or is more convenient in electronic form.

### **Submission**

- Supply all supplementary material in standard file formats.
- Please include in each file the following information: article title, journal name, author names; affiliation and e-mail address of the corresponding author.
- To accommodate user downloads, please keep in mind that larger-sized files may require very long download times and that some users may experience other problems during downloading.

### **Audio, Video, and Animations**

- Always use MPEG-1 (.mpg) format.

### **Text and Presentations**

- Submit your material in PDF format; .doc or .ppt files are not suitable for long-term viability.
- A collection of figures may also be combined in a PDF file.

### **Spreadsheets**

- Spreadsheets should be converted to PDF if no interaction with the data is intended.
- If the readers should be encouraged to make their own calculations, spreadsheets should be submitted as .xls files (MS Excel).

### **Specialized Formats**

- Specialized format such as .pdb (chemical), .wrl (VRML), .nb (Mathematica notebook), and .tex can also be supplied.

#### **Collecting Multiple Files**

- It is possible to collect multiple files in a .zip or .gz file.

#### **Numbering**

- If supplying any supplementary material, the text must make specific mention of the material as a citation, similar to that of figures and tables.
- Refer to the supplementary files as “Online Resource”, e.g., "... as shown in the animation (Online Resource 3)", "... additional data are given in Online Resource 4".
- Name the files consecutively, e.g. “ESM\_3.mpg”, “ESM\_4.pdf”.

#### **Captions**

- For each supplementary material, please supply a concise caption describing the content of the file.

#### **Processing of supplementary files**

- Electronic supplementary material will be published as received from the author without any conversion, editing, or reformatting.

#### **Accessibility**

In order to give people of all abilities and disabilities access to the content of your supplementary files, please make sure that

- The manuscript contains a descriptive caption for each supplementary material
- Video files do not contain anything that flashes more than three times per second (so that users prone to seizures caused by such effects are not put at risk)