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

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**Abstract**

Early Maladaptive Schemas (EMS) are broad, pervasive themes and patterns of emotions, memories, cognition and physical sensations that impedes the goal of individuals. Maladaptive behaviours can occur as a response to maladaptive or negative schemas, often culminating in depression or anxiety. The current meta-analysis integrates the existing literature to estimate the magnitude of effect of association between early maladaptive schemas and depression among adolescents and young adults. A systematic search of seven different databases including: Embase, CINAHL, Medline, ASSIA, Psych INFO, Scopus and Web of Science was carried out identifying 24 relevant studies of adolescents (10-18 years) and young adults (19-29 years).

The random effect model estimate for association between overall EMS and depression was r = 0.56 (95% Cl = 0.49 to 0.63, Z = 12.88, p = < 0.0001), suggesting higher predominant EMS significantly linked to higher levels of depressive symptoms, with a large effect size. Separate meta-analytical results with schema domains indicated moderately stronger associations between schemas of disconnection/rejection, impaired autonomy/performance and other directedness with depression. Age and gender were not found to have any significant moderating effect on the associations. The findings suggest that it is vital for clinicians to identify specific maladaptive schemas contributing towards depression, to have a better understanding of underlying cognitive processes and in turn promote psychological health, well-being and resilience in adolescents and young adults. Furthermore, findings will also assist clinicians to focus more on the content of three significant schema domains, which emerged as particularly salient factors underlying adolescent depression.

**Keywords:** Early maladaptive schemas (EMS), Depression, Adolescents, Young- adults, Meta-analysis

**Introduction**

**Depression in Adolescence and Young Adulthood**

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

Depression is currently the second leading cause of global disease burden, only after heart diseases (Ferrari et al., 2013; Lopez et al., 2006). The occurrence of depression increases rapidly during adolescence and young adulthood (Hankin et al., 2015; Lewinsohn et al., 2003). Symptoms typically start emerging during adolescence (Kessler et al., 2001) and are likely to reoccur during young adulthood (Lewinsohn et al., 2003), suggesting that depression occurs as a continuous development with no specific age markers (IOM & NRC, 2014). The National Institute of Mental Health (NIMH, 2017) estimated nearly 13.3% of adolescents, aged 12 to 17 years, in the US suffer from depression between the ages 12 to 17 years. Abela and Hankin (2008) found 20-50% of adolescents reporting symptoms of depression before 18 years of age. Tanner et al. (2007) identified that emerging adults between the ages 18 to 29 years are at a greater risk of developing psychiatric conditions. Nearly 22% of young adults experiencing mood disorders, with depression being the most prevalent mood disorder with around 8.3% of young adults suffering from depressive illnesses (Tanner et al., 2007). Research has further suggested that approximately 75% of mental health conditions develop before the age of 25 years, making adolescence and young adulthood a critical period of vulnerability in which the risk of developing depression increases sharply (Kessler et al., 2005). Considering together the epidemiological data of depression among adolescents and young adults, the occurrence and pattern of depression in these two developmental phases is similar, providing a basis to explore depression as a developmental trajectory (Chaiton et al., 2013; Schubert et al., 2017). Notably, gender differences in depression also starts emerging during mid to late adolescence, following the same trend in young adults, with girls experiencing depressive symptoms 2-3 times more than boys (Abela & Hankin, 2008; Hyde, Mezulis & Abramson, 2008; Zarate, 2010).

**Aetiology of Depression**

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

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

**Early Maladaptive Schemas (EMS)**

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

**Early maladaptive schemas and Depression**

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

**Schema Domains as predictors of Depression**

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

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

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

**Aims of the current Meta-analysis**

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

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

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

**Method**

**Literature Search**

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

**Inclusion / Exclusion Criteria**

Searches were limited to articles published in the English language in peer-reviewed journals. Studies were included in this review if they fulfilled the following criteria: (i) reported effect sizes of the relationship between EMS and depression or contained the information necessary to analyze effect sizes; (ii) the primary outcomes were measured using standardized and validated measures of early maladaptive schemas and depression;

(iii) participants were adolescents and young adults (with a mean age between 10-29 years) Studies with a sample mean age below 10 years or over 30 years were excluded; (iv) Studies measuring beliefs, cognitive biases, or other constructs that were not explicitly associated with Young’s concept of early maladaptive schemas were excluded; (v) Case reports, book chapters, qualitative studies, dissertations, conference proceedings, theoretical papers, and reviews were also excluded. The Prisma Diagram (Moher et al., 2009) in Fig. 1 shows the results of the systematic search and selection process conducted for the present review.

**Sample of Studies**

The initial search resulted in 1183 studies (Embase = 194, ASSIA = 170, CINHAL = 116, Medline = 182, Psych INFO = 275, Scopus = 164, Web of Science = 78 and Grey Literature = 04). The primary reviewer screened the titles and abstracts of each article retrieved through the initial search of databases. The eligibility of each article based on title and abstract was assessed against the inclusion and exclusion criteria described above. Full texts of potentially eligible articles were checked to confirm their eligibility. A second reviewer independently carried out an additional screening of the full-text articles to assess eligibility. Few minor disagreements were resolved through discussion between the two reviewers. Following the implementation of the search scheme and inclusion/exclusion criteria, 24 studies representing 24 samples (N = 13632) were found eligible to be included in the current meta-analysis (See Table. 1). All included studies were reported from peer-reviewed articles, published between 2002 and 2018.

**Data Extraction**

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

**Measurement of Early Maladaptive Schemas**

All studies included in the quantitative synthesis used one of the four early maladaptive schema measures based on Young’s schema theory (Young et al., 2003). Specifically, the 90-item Young Schema Questionnaire-Short form version 3 (YSQ-S3; Young. 2005) was the most commonly used version, having been used in 12 of the included studies. The 75-item Young Schema Questionnaire- Short form (YSQ-SF; Young, 1998) was used in 7 studies, while its adolescent version (YSQ-A; Van Vlierberghe et al., 2010) was used in 2 studies. The longest version (i.e. the 232-item Young Schema Questionnaire- Long form version 3; YSQ-L3) was used only in 2 studies.

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

**Risk of Bias Assessment**

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

**Analytic Procedure**

**Effect Size Coding**

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

**Meta-analytical Model**

Results for meta-analysis were generated in RStudio (Version 1.2.5001) using “metaphor” (Viechtbauer, 2010), “robumeta” (Fisher and Tipton, 2015) and “MAc” (Del Re and Hoyt, 2010) package developed to facilitate reviewers by the R Development Core Team (2015). A random effect model was used to synthesize quantitative results considering the heterogenous nature of the study sample. Correlation ‘r’ to Fischer z transformations were employed to compute the meta-analytic results. Fischer z’s were then converted back to correlation ‘r’ to report the effect size estimates. Q-statistic was calculated to estimate the true heterogeneity of effect sizes. Higgins et al. (2003) suggested that a statistically significant Q-statistic indicates the presence of heterogeneity, i.e. the presence of true between-studies variation. I2 statistic was calculated to provide a percentage of the actual variance between studies presenting the real differences between effect sizes, with 25%, 50% and 75% representing the estimation of low, medium and high levels of heterogeneity (Higgins et al., 2003). Although Q and I2 statistics are considered reliable tests to ascertain heterogeneity, they do not specify the studies which are more likely to influence heterogeneity. Baujat et al. (2002) have developed “Baujat plots” to identify the contribution of each study in overall results of heterogeneity with studies falling in the top quadrant of the plot contributing the most.

**Publication Bias**

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

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

**Results**

A total sample of N = 13632 (Mean age = 19.49, SD = 3.07) from the eligible studies (k =24) were included in the meta-analytic results to examine the association between early maladaptive schemas and depression. Separate meta-analytic results were generated to explore the association between depression and different schema domains. Table 3. summarizes the results for meta-analytic models.

**Effect Size reporting for association between EMS and Depression**

The random effect model estimate for association between overall early maladaptive schemas and depression was r = 0.56 (95% Cl = 0.49 to 0.63, Z = 12.88, p < 0.0001), suggesting that higher predominant early maladaptive schemas were significantly linked to higher levels of depressive symptoms among adolescents and young adults with a large effect size (Cohen, 1992). Moderator analysis was carried out with the mean age of sample showing no moderating effect of age on study variance [Q (1) = 3.78, p = 0.052]. Further, an additional moderator analysis was carried out using gender as a moderating variable to assess the effect of gender on overall association of EMS and depression. Two studies were excluded during meta-regression analysis, as they comprised of only female participants. The meta-regression conducted on n = 22 studies suggests that gender did not moderate the overall effect size association between EMS and depressive symptoms [Q (1) = 1.81, p = 0.18]. Fig 2. represents the forest plot of the overall meta-analytic model with almost all of the included studies reported moderate to large effect sizes.

The results of heterogeneity showed significant heterogeneity among the sample with Q = 777.77, p < 0.0001) and I2 = 96.84 %, indicating 97% of the study variance resulted from the actual difference between studies. Besides, the Baujat plot was plotted to identify the studies that contributed to overall heterogeneity. Fig. 3 depicts that study 7 i.e. Alba et al. (2018) was the only study lying in the top quadrant contributing most to heterogeneity

statistics. The rank of correlation (p = 0.33) and Egger’s regression tests (p =0.07) were non-significant suggesting that the above findings were not influenced by publication bias (See Fig. 4 for studies distribution around funnel plot).

**Effect size reporting between Disconnection/Rejection schemas and Depression**

Based on all 24 included studies the effect size estimate r = 0.49 (95% Cl = 0.43 to 0.55, Z = 14.22, p < 0.0001) showed a significant association between disconnection/rejection schemas and depressive symptoms, with a moderate effect size in a significantly heterogeneous set of samples (Q = 436.62, p < 0.0001). I2 statistic indicated that 95% of the variance resulted from true between study variance. Further, rank of correlation (p = 0.11) and Egger’s test (p = 0.26) suggested that no evidence of publication bias. Neither age nor gender significantly moderate the association between disconnection/rejection schemas and depressive symptoms [Age: Q (1) = 2.90, p = 0.09; Gender: Q (1) = 0.97, p = 0.33]. Fig 5 shows the details of contribution of each study in overall meta-analytical results.

**Effect size of association between Impaired Autonomy/ Performance schemas and Depression**

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

**Effect Size estimate of association between Other-directedness schemas and Depression**

As shown in Fig. 7, a medium effect size of r = 0.40 (95% Cl = 0.32 to 0.47, Z = 9.76, p < 0.0001) was estimated between other-directed schemas and depressive symptoms in a heterogeneous sample of 17 studies, reporting significant results for heterogeneity (Q = 393.05, p = <0.0001). The I2 statistics showed that 95% of study variance was attributed to high variance occurring due to the actual difference between studies rather than with-in study variance. The Rank correlation tests (p= 0.48) and Egger’s regression tests (p= 0.22) suggest that the findings were not influenced by publication bias. However, the moderation analysis reveals a significant impact of mean age on the relationship between other-directed schemas and depressive symptoms [Q (1) = 5.09, p = 0.02], proposing that the association between other-directed schema and depression increases with increasing age. Furthermore, gender also had significant impact on the associations between other-directedness schemas and depressive symptoms, such that females with higher other-directed schemas were shown to have more depressive symptoms [Q (1) = 6.25, p = 0.01].

**Effect Size estimate of association between Impaired Limit domain and Depression**

A meta-analytical result of 13 studies reported a medium effect size of relationship between impaired limits domain with depressive symptoms (r = 0.36, 95% Cl = 0.30, 0.41, Z = 11.80, p <0.0001). The results of heterogeneity depict a significantly heterogeneous nature of included studies with Q = 64.90 (p = < 0.0001). The value of I2 proposes that 79% of effect size variance is associated with the actual variance occurring between studies. The non-significant results of Egger’s test (p=0.34) and Rank correlation test (p=0.95) suggest the absence of publication bias. Neither age [Q (1) = 0.03, p = 0.87] nor gender [Q (1) = 0.06, p = 0.81] moderate the relationship between impaired limit schemas and depressive symptoms. See Fig 8 for details.

**Effect Size estimate of association between Hypervigilance schemas and Depression**

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

**Meta-analytical results for Adolescents vs. Young Adults**

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

**Quality Assessment**

All the included studies were either based on cross-sectional (k = 15) or longitudinal (k = 9) research design. None had an experimental design, therefore, the criteria for measuring baseline differences was not applicable. All the included studies provided adequate description about selection criteria and demographic information of the participant’s sample. However, only one study provided details about power calculation, rendering it difficult to determine if the included samples were sufficiently powered. All studies employed a validated and reliable measure to assess EMS (YSQ-L, YSQ-S3, YSQ-SF, YSQ-A) and depression (BDI-I or BDI-II, CES-D, DASS, CDI; See Table. 1). The included studies have mixed quality in terms of controlling for confounding variable during analysis, with 16 shown to have taken adequate measures while 6 provided only partial details for this. Two of the included studies did not take into account any confounding variables. Overall the quality assessment shows that all the studies fall in moderate to high quality with none of the included study falling in low quality category. Seven of the included studies are of moderate quality having 60- 79% of quality category, posing a moderate risk of bias. Seventeen studies are of high quality with ratings falling between 80-100% category, indicating a low risk of bias (See table. 2).

**Discussion**

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

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

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

Age did not moderate the association between EMS, different schema domains and depression, suggesting a similar role of maladaptive schemas in the development of depression among adolescents and young adults. It also provides the basis for considering adolescence and young adulthood as a continuous transitional process marked with similar development changes. There exists no previous evidence comparing the role of EMS with depression in adolescents and young adults. Therefore, future research should focus on exploring the role of EMS in adolescent and young adults using a comparative research design.

Similarly, results suggest that gender did not moderate the association between maladaptive schemas, schema domains and depressive symptoms. There is a limited evidence-base suggesting the absence of gender differences in experiencing EMS. Colman (2010) found no gender differences in a sample of 82 college students with predominant activated EMS. However, the current findings are inconsistent with previous evidence that found significantly stronger associations between EMS and depressive symptoms among adolescent girls (Cole et al., 2009; Calvete &. Cardenoso, 2005) and female young adults (Welburn et al., 2002; Camara & Calvete, 2011). One possible explanation is the skewed nature of gender data in most of the studies, with two studies (Fouladi et al., 2015 & Ebehart et al., 2011) based on a female-only sample. In addition, the results were based on biologically assigned sexual categories. In future, it would be interesting to take into account the gender differences based on individuals’ self-identified gender orientations.

**Clinical Implications**

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

**Limitations and Areas for future research**

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

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

**Conclusion**

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

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**Author Statement**

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

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**Conflict of Interest**

The authors declare that they have no conflict of interest.

**References**

Abela, J. R., Hankin, B. L., Haigh, E. A., Adams, P., Vinokuroff, T., & Trayhern, L. (2005).

Interpersonal vulnerability to depression in high-risk children: the role of insecure

attachment and reassurance seeking. *Journal of Clinical Child and Adolescent*

*Psychology, 34*(1), 182-92. doi: 10.1207/s15374424jccp3401\_17

Abela, J. R. Z., & Hankin, B. L. (2008). *Cognitive vulnerability to depression in children and*

*adolescents: A developmental psychopathology perspective.* In J. R. Z. Abela & B. L.

Hankin (Eds.), *Handbook of depression in children and adolescents* (p. 35–78). The

Guilford Press.

Abela, J. R. Z., & Sarin, S. (2002). Cognitive vulnerability to hopelessness depression: A

chain is only as strong as its weakest link. *Cognitive Therapy and Research, 26***,**811–

829. doi: https://doi.org/10.1023/A:1021245618183

Abela, J. R. Z., & Taylor, G. (2003). Specific vulnerability to depressive mood reactions in

school children: The moderating role of self-esteem. *Journal of Clinical Child and*

*Adolescent Psychology, 32*(3), 408-481. doi:

https://doi.org/10.1207/S15374424JCCP3203\_09

Abramson, L. Y., Alloy, L. B., Hankin, B. L., Haefell, G. J., MacCoon, D. G., & Gibb, B. E.

(2002). *Cognitive vulnerability–stress models of depression in a self-regulatory and*

*psychobiological context*. In: Gotlib IH, Hammen CL, editors. Handbook of

depression. New York: Guilford. pp. 268–294.

Abramson, L. Y., Alloy, L. B., & Metalsky, G. I. (1988). *The cognitive diathesis–stress*

*theories of depression: Toward an adequate evaluation of the theories’ validities*. In:

Alloy LB, editor. Cognitive processes in depression. New York: Guilford; 1988. pp. 3–

30.

Alba, J., & Calvete, E. (2019). Bidirectional relationships between stress, depressive

symptoms, and cognitive vulnerabilities in adolescents. *Journal of Social and Clinical*

*Psychology, 38*(2), 87-112. doi:10.1521/jscp.2019.38.2.87

Arango, C., Díaz-Caneja, C. M., McGorry, P. D., Rapoport, J., Sommer, I. E., Vorstman, J.

A., . . . Carpenter, W. (2018). Prevention strategies for mental health. *The Lancet*

*(Psychiatry), 5*(7), 591-604. doi: https://doi.org/10.1016/S2215-0366(18)30057-9

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens

through the twenties. *American Psychologist, 55*(5), 469-80. doi: 10.1037//0003-

066X.55.5.469

Balsamo, M., Carlucci, L., Sergi, M. R., Murdock, K. K., & Saggino, A. (2015). The

mediating role of early maladaptive schemas in the relation between co-rumination and

depression in young adults. *PLoS ONE, 10,* 1-14*.*

doi: http://dx.doi.org/10.1371/journal.pone.0140177

Baujat, B., Mah, C. D., Pignon, J.-P., & Hill, C. (2002). A graphical method for exploring

heterogeneity in meta-analyses: application to a meta-analysis of 65 trials. *Statistics in*

*Medicine,* 21, 2641–2652. doi: 10.1002/sim.1221

Beck, A. T. (1967). *Depression: Clinical, experimental, and theoretical aspects*. New York:

Harper & Row.

Begg, C. B., & Mazumdar, M. (1994). Operating characteristics of a rank correlation test for

publication bias. *Biometrics 50*(4), 1088–1101. doi: 10.2307/2533446

Braet, C., Van Vlierberghe, L., Vandevivere, E., Theuwis, L., & Bosmans, G. (2013).

Depression in early, middle and late adolescence: differential evidence for the

cognitive diathesis–stress model. *Clinical Psychology and Psychotherapy*, *20*(5), 369–

383. doi: https://doi.org/10.1002/cpp.1789

Carlucci, L., D'Ambrosio, I., Innamorati, M., Saggino, A., & Balsamo, M. (2018). Co-

rumination, anxiety, and maladaptive cognitive schemas: when friendship can hurt.

*Psychology Research and Behavior Management*, *11*, 133–144.

https://doi.org/10.2147/PRBM.S144907

Camara, M., & Calvete, E. (2012). Early maladaptive schemas as moderators of the impact of

stressful events on anxiety and depression in university students. *Journal of*

*Psychopathology and Behavioral Assessment, 34*(1), 58-68.

doi: http://dx.doi.org/10.1007/s10862-011-9261-6

Calvete, E. (2014). Emotional abuse as a predictor of early maladaptive schemas in

adolescents: Contributions to the development of depressive and social anxiety

symptoms. *Child Abuse & Neglect, 38*(4), 735-746. doi:

http://dx.doi.org/10.1016/j.chiabu.2013.10.014

Calvete, E. & Cardeñoso, O. (2005). Gender Differences in Cognitive Vulnerability to

Depression and Behavior Problems in Adolescents. *Journal of Abnormal Child*

*Psychology, 33*(2), 179–192. Retrieved from:

https://doi.org/10.1007/s10802-005-1826-y

Calvete, E., Orue, I., & Hankin, B. L. (2013). Early maladaptive schemas and social anxiety

in adolescents: The mediating role of anxious automatic thoughts. *Journal of Anxiety*

*Disorders, 27*(3), 278-288. doi: http://dx.doi.org/10.1016/j.janxdis.2013.02.011

Calvete, E., Orue, I., & Hankin, B. (2015). A longitudinal test of the vulnerability-stress model with

early maladaptive schemas for depressive and social anxiety symptoms in adolescents. *Journal*

*of Psychopathology and Behavioral Assessment, 37*(1), 85-99.

doi: http://dx.doi.org/10.1007/s10862-014-9438-x

Calvete, E., Orue, I., & González-Diez, Z. (2013). An examination of the structure and

stability of early maladaptive schemas by means of the Young Schema Questionnaire-3

*European Journal of Psychological Assessment, 29*(4), 283–290. doi:

https://doi.org/10.1027/1015-5759/a000158

Chaiton, M., Contreras, G., Brunet, J., Sabiston, C. M., O'Loughlin, E., Low, N. C., . . .

O'Loughlin, J. (2013). Heterogeneity of depressive symptom trajectories through

adolescence: Predicting outcomes in young adulthood. *Journal of Canadian Academy*

*of Child Adolescent Psychiatry, 22(*2), 96-105. Retrieved from:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3647625/>

Cohen, J. R., Hankin, B. J., & Young, J. F. (2018). Translating cognitive vulnerability theory

into improved adolescent depression screening: A receiver operating characteristic

approach. *Journal of Clinical Child and Adolescent Psychology, 48(*4), 582-595.

doi: <https://doi.org/10.1080/15374416.2017.1416617>

Cole, D. A., & Turner, J. E., Jr. (1993). Models of cognitive mediation and moderation in

child depression. *Journal of Abnormal Psychology, 102*(2), 271–281.

doi: <https://doi.org/10.1037/0021-843X.102.2.271>

Colman, L. K. (2010). Maladaptive Schemas and Depression Severity: Support for

Incremental Validity When Controlling for Cognitive Correlates of Depression,

Master's Thesis, University of Tennessee. Retrieved from

http://trace.tennessee.e/utk\_gradthes/615.

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*(1), 60-4. doi: 10.1002/eat.20157.

Corey, D. M., Dunlap, W. P., & Burke, M. J. (2010). Averaging correlations: Expected

values and bias in combined pearsons rs and fisher’s z transformations. *The Journal of*

*General Psychology, 125*(3), 245-261. doi:

https://doi.org/10.1080/00221309809595548

Costello, D. M., Swendsen, J., Rose, J. S., & Dierker, L. C. (2008). Risk and protective

factors associated with trajectories of depressed mood from adolescence to early

adulthood. *Journal of Consulting and Clinical Psychology, 76*(2), 173–183. Retrieved

from: <https://doi.org/10.1037/0022-006X.76.2.173>

Costello, E. J., & Maughan, B. (2015). Annual research review: Optimal outcomes of child

and adolescent mental illness. *Journal of Child Psychology and Psychiatry, 56*(3), 324-

341. Retrieved from: <https://doi.org/10.1111/jcpp.12371>

Del Re, A. C., & Hoyt, W. T. (2010). *MAc: Meta-analysis with Correlations. R Package*

*Version 1.0. 5. Computer Software.* Available at:

<http://CRAN.R-project.org/package=MAc>

Dick, B., & Ferguson, J. (2015). Health for world’s adolescents: A second chance in the

second decade. *Journal of Adolescent Health, 56*(1), 3-6. Retrieved from:

<https://doi.org/10.1016/j.jadohealth.2014.10.260>

Dozois, D. J. A., & Beck, A. T. (2008). *Cognitive schemas, beliefs and assumptions*. In K. S.

Dobson & D. J. A. Dozois (Eds.), Risk factors in depression (pp. 121–143). Oxford:

Elsevier/Academic Press.

Eberhart, N. K., Auerbach, R. P., Bigda-Peyton, J., & Abela, J. R. (2011). Maladaptive

schemas and depression: Tests of stress generation and diathesis-stress models. *Journal*

*of Social and Clinical Psychology, 30*(1), 75-104.

doi: http://dx.doi.org/10.1521/jscp.2011.30.1.75

Egger, M., Smith, G. D., Schneider, M., & Minder, C. (1997). Bias in meta-analysis detected

by a simple, graphical test. *BMJ, 315*, 629–634. doi:

https://doi.org/10.1136/bmj.315.7109.629

Evraire, L. E., & Dozois, D. J. (2014). If it be love indeed to tell me how much: Early core

beliefs associated with excessive reassurance seeking in depression. *Canadian Journal*

*of Behavioural Science, 46*(1), 1-8. doi: http://dx.doi.org/10.1037/a0033486

Ferrari, A. J., Charlson, F. J., Norman, R. E., Patten, S. B., Freedman, G., Murray, C. J., . . .

Whiteford, H. A. (2013). Burden of depressive disorders by country, sex, age, and

year: findings from the global burden of disease study 2010. *PLOS Medicine, 10*(11),

1-12. doi: [10.1371/journal.pmed.1001547](https://dx.doi.org/10.1371%2Fjournal.pmed.1001547)

Fisher, Z., & Tipton, E. (2015). *Robumeta: Robust Variance Meta-regression. R Package Version*

*1.6.* Available at: [http://CRAN.R-project.org/package=robumeta](http://cran.r-project.org/package=robumeta)

Fouladi, M. (2015). Prediction of depression through early maladaptive schemas. *Mediterranean*

*Journal of Social Sciences, 6*(1), 602-611. doi: 10.5901/mjss.2015.v6n1s1p602

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 Counselling and Development, 35*(1), 2–13. doi:

https://doi.org/10.1080/07481756.2002.12069043

Gong, J., & Chan, R. C. (2018). Early maladaptive schemas as mediators between childhood

maltreatment and later psychological distress among Chinese college students. *Psychiatry*

*Research, 259*, 493-500. doi: http://dx.doi.org/10.1016/j.psychres.2017.11.019

Halvorsen, M., Wang, C. E., Eisemann, M., & Waterloo, K. (2010). Dysfunctional attitudes

and early maladaptive schemas as predictors of depression: A 9-year follow-up

study. *Cognitive Therapy and Research, 34*(4), 368–379. doi:

<https://doi.org/10.1007/s10608-009-9259-5>

Hankin, B. L., & Abramson, L. Y. (2002). Measuring cognitive vulnerability to depression in

adolescence: reliability, validity, and gender differences. *Journal of Clinical Child and*

*Adolescent Psychology, 31*(4), 491-504.

doi: 10.1207/S15374424JCCP3104\_8. PMID: 12402568.

Hankin B. L. (2008). Rumination and depression in adolescence: investigating symptom

specificity in a multi-wave prospective study. *Journal of Clinical Child and Adolescent*

*Psychology, 37*(4), 701–713. doi: https://doi.org/10.1080/15374410802359627

Hankin, B. L., Young, J. F., Abela, J. R., Smolen, A., Jenness, J. L., Gulley, L. D., . . .

Oppenheimer, C. W. (2015). Depression from childhood into late adolescence:

Influence of gender, development, genetic susceptibility, and peer stress. *Journal of*

*abnormal psychology*, *124*(4), 803–816. https://doi.org/10.1037/abn0000089

Harris, A. E., & Curtin, L. (2002). Parental perceptions, early maladaptive schemas, and

depressive symptoms in young adults. *Cognitive Therapy and Research, 26*(3), 405-416.

doi: http://dx.doi.org/10.1023/A:1016085112981

Haugh, J. A., Miceli, M., & DeLorme, J. (2017). Maladaptive parenting, temperament, early

maladaptive schemas, and depression: A moderated mediation analysis. *Journal of*

*Psychopathology and Behavioral Assessment, 39*(1), 103-116.

doi: http://dx.doi.org/10.1007/s10862-016-9559-5

Higgins, J. P. T., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2003). Measuring

inconsistency in meta-analyses. *BMJ, 327*, 557–560. doi:

https://doi.org/10.1136/bmj.327.7414.557

Hyde, J. S., Mezulis, A. H., & Abramson, L. Y. (2008). The ABCs of depression: Integrating

affective, biological, and cognitive models to explain the emergence of the gender

difference in depression. *Psychological Review, 115*(2), 291-313. Retrieved from:

[https://doi.org/10.1037/0033-295X.115.2.291](https://psycnet.apa.org/doi/10.1037/0033-295X.115.2.291)

Institute of Medicine, & National Research Council. (2014). Investing in the health and well-

being of young adults. Washington (DC): National Academies Press (US). Retrieved

from: <https://www.ncbi.nlm.nih.gov/books/NBK284782/>

Jahromi, F.G., Naziri, G., & Barzegar, M. (2012). The relationship between socially

prescribed perfectionism and depression: The mediating role of maladaptive cognitive

schemas. *Procedia - Social and Behavioral Sciences, 32*, 141-147. doi:

https://doi.org/10.1016/j.sbspro.2012.01.023

Kessler, R. C., Berglund, P. A., Bruce, M. L., Koch, J. R., Laska, E. M., Leaf, P. J., . . .

Wang, P. S. (2001). The prevalence and correlates of untreated serious mental

illness. *Health services research*, *36*(6 Pt 1), 987–1007. Retrieved from:

<https://pubmed.ncbi.nlm.nih.gov/11775672/>

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K.R., & Walters, E.E. (2005).

Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National

Comorbidity Survey Replication. *Archives of General Psychiatry, 62*(6), 593-602.

doi: [10.1001/archpsyc.62.6.593](https://doi.org/10.1001/archpsyc.62.6.593)

Kim-Cohen J., Caspi, A., Moffitt, T., Harrington, H., Milne, B., Poulton, R. (2003). Prior

juvenile diagnoses in adults with mental disorder: Developmental follow-back of a

prospective-longitudinal cohort. *Archives of General Psychiatry, 60*(7), 709–717.

doi: [10.1001/archpsyc.60.7.709](https://doi.org/10.1001/archpsyc.60.7.709)

Lee, A., & Hankin, B. L. (2009). Insecure attachment, dysfunctional attitudes, and low self-

esteem predicting prospective symptoms of depression and anxiety during adolescence.

Journal of Clinical Child and Adolescent Psychology, 39(2), 219-231. doi:

https://doi.org/10.1080/15374410802698396

Lewin, M. R., Garcia, L. M., Limon, A. M., & Ojeda, A. (2015). Dysfunctional parenting and

depression: The mediational role of schemas. *Journal of Experimental Psychopathology,*

*6*(1), 2-12. doi: http://dx.doi.org/10.5127/jep.035513

Lewinsohn, P. M., Rohde, P., Seeley, J. R., Klein, D. N., & Gotlib, I. H. (2003). Psychosocial

functioning of young adults who have experienced and recovered from major depressive

disorder during adolescence. *Journal of Abnormal Psychology, 112*(3), 353-

363. [https://doi.org/10.1037/0021-843X.112.3.353](https://psycnet.apa.org/doi/10.1037/0021-843X.112.3.353)

Lopez, A. D., Jamison, D. T., Breman, J. G., Measham, A. R., et al., editors. (2006). Disease

Control Priorities in Developing Countries. 2nd edition. Washington (DC): The

International Bank for Reconstruction and Development / The World Bank. Available

from: https://www.ncbi.nlm.nih.gov/books/NBK11728/?report=classic

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*(5), 639-657. doi:

https://dx.doi.org/10.1007/s10608-006-9100-3

Mateos-Perez, E., Calvete, E., & Hankin, B. L. (2015). Negative inferences as mediators of

the predictive association between early maladaptive schemas and depressive symptoms

in adolescents. *Journal of Social and Clinical Psychology, 34*(3), 259-276.

doi: http://dx.doi.org/10.1521/jscp.2015.34.3.259

MacPhee A. R., & Andrews J. J. W. (2006). Risk factors for depression in early adolescence.

*Adolescence, 41*(163), 435-66. Retrieved from:

https://pubmed.ncbi.nlm.nih.gov/17225661/

McGinn, L.K., Cukor, D., & Sanderson, W. C. (2005). The relationship between parenting

style, cognitive style, and anxiety and depression: Does increased early adversity

influence symptom severity through the mediating role of cognitive style? *Cognitive*

*Therapy and Research, 29*, 219–242. doi: https://doi.org/10.1007/s10608-005-3166-1

McHugh M. L. (2012). Interrater reliability: the kappa statistic. *Biochemia Medica*, *22*(3),

276–282. Retrieved from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3900052/

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). PRISMA Group. Preferred

reporting items for systematic reviews and meta-analyses: the PRISMA statement.

*PLoS, 6*(7). doi: 10.1371/journal.pmed.1000097.

Muris, P. (2006). Maladaptive Schemas in Non-Clinical Adolescents: Relations to Perceived

Parental Rearing Behaviours, Big Five Personality Factors and Psychopathological

Symptoms. *Clinical Psychology & Psychotherapy, 13*(6), 405-413. doi:

http://dx.doi.org/10.1002/cpp.506

National Institute of Mental Health (2017). Major Depression. U.S. Department of Health

and Human Services. Retrieved from:

<https://www.nimh.nih.gov/health/statistics/major-depression.shtml>

Orue, I., Calvete, E., & Padilla, P. (2014). Brooding rumination as a mediator in the relation

between early maladaptive schemas and symptoms of depression and social anxiety in

adolescents. *Journal of Adolescence, 37*(8), 1281-1291.

doi: http://dx.doi.org/10.1016/j.adolescence.2014.09.004

Patton, G. C., Sawyer, S. M., Santelli, J. S., Ross, D. A., Afifi, R., Allen, N. B., . . . Viner, R.

M. (2016). Our future: A Lancet commission on adolescent health and wellbeing. *The*

*Lancet, 387*, 2423–2478. Retrieved from:

<https://doi.org/10.1016/S0140-6736(16)00579-1>

Reinecke M. A., & Simons A. (2005). Vulnerability to depression among adolescents:

Implications for cognitive-behavioral treatment. *Cognitive and Behavioral*

*Practise, 12*(2), 166–176. doi: 10.1016/S1077-7229(05)80022-7

Reinherz, H. Z., Paradis, A. D., Giaconia, R. M., Stashwick, C. K., & Fitzmaurice, G. (2003).

Childhood and adolescent predictors of major depression in the transition to adulthood.

*The American Journal of Psychiatry, 160*(12), 2141-7. Retrieved from:

<https://doi.org/10.1176/appi.ajp.160.12.2141>

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*(3), 581–590.

doi:  https://doi.org/10.1016/j.jad.2011.10.027

Rezaei, M., Ghazanfari, F., & Rezaee, F. (2016). The role of childhood trauma, early

maladaptive schemas, emotional schemas and experimental avoidance on depression: A

structural equation modelling. *Psychiatry Research, 246*, 407-414.

doi: http://dx.doi.org/10.1016/j.psychres.2016.10.037

Rijkeboer, M. M., & De Boo G. M. (2010). Early maladaptive schemas in children:

development and validation of the Schema Inventory for Children. *Journal of*

*Behaviour Therapy and Experimental Psychiatry, 41*(2), 102-9. doi:

https://doi.org/10.1016/j.jbtep.2009.11.001

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*(4), 471-479. doi: http://dx.doi.org/10.1017/S1352465811000117

Rudolph, K. D., & Clark, A.G. (2001). Conceptions of relationships in children with

depressive and aggressive symptoms: social-cognitive distortion or reality? *Journal of*

*Abnormal Child Psychology, 29*(1), 41-56. doi: 10.1023/a:1005299429060.

Saritas-Atalar, D., & Altan-Atalay, A. (2018). Differential roles of early maladaptive schema

domains on the link between perceived parenting behaviors and depression, anxiety,

and anger. *Current Psychology*, *39*, 1466–1475. doi: http://dx.doi.org/10.1007/s12144-

018-9852-4

Schmidt, N. B., & Joiner Jr, T. E. (2004). Global maladaptive schemas, negative life

events, and psychological distress. *Journal of Psychopathology and Behavioral*

*Assessment, 26*(1), 65-72. doi: 10.1023/B:JOBA.0000007457.95008.d2

Schubert, K. O., Clark, S. R., Van, L. K., Collinson, J. L., Baune, B. T. (2017). Depressive

symptom trajectories in late adolescence and early adulthood: A systematic review. *The*

*Australian and New Zealand Journal of Psychiatry, 51*(5), 477-499.

doi: [10.1177/0004867417700274](https://doi.org/10.1177/0004867417700274)

Stopa, L., Thorne, P., Waters, A., & Preston, J. (2001). Are the short and long forms of the

Young Schema Questionnaire comparable and how well does each version predict

psychopathology scores? *Journal of Cognitive Psychotherapy, 15*(3), 253–272.

doi: 10.1891/0889-8391.15.3.253

Tanner, J. L., Reinherz, H. Z., Beardslee, W. R., Fitzmaurice, G. M., Leis, J. A., & Berger, S.

R. (2007). Change in prevalence of psychiatric disorders from ages 21 to 30 in a

community sample. *Journal of Nervous and Mental Disease, 195*(4), 298–306.

[https://doi.org/10.1097/01.nmd.0000261952.13887.6e](https://psycnet.apa.org/doi/10.1097/01.nmd.0000261952.13887.6e)

Yaroslavsky, I., Pettit, J. W., Lewinsohn, P. M., Seeley, J. R., & Roberts, R. E. (2013).

Heterogeneous trajectories of depressive symptoms: adolescent predictors and adult

outcomes. *Journal of Affective Disorders*, *148*(2-3), 391–399.

https://doi.org/10.1016/j.jad.2012.06.028

Yigit, I., Kilic, H., Guzey Yigit, M., & Celik, C. (2018). Emotional and physical

maltreatment, early maladaptive schemas, and internalizing disorders in adolescents: A

multi-group path model of clinical and non-clinical samples. *Current Psychology,* 40,

1356–1366. Retrieved from: https://doi.org/10.1007/s12144-018-0068-4

Young, J. E. (1990). *Schema‐focused cognitive therapy for personality disorders: A schema*

*focused approach*. Sarasota, FL: Professional Resource Exchange

Young, J. E. (1999). *Cognitive therapy for personality disorders: A schema‐focused*

*approach* (Rev ed.). Sarasota, FL: Professional Resources Press.

Young, J. E., Klosko, J. S., & Weishaar, M. E. (2003). *Schema therapy: A practitioner’s*

*guide.* New York: The Guilford Press. Retrieved from:

http://www.schematherapy.com/id201.htm

Van Vlierberghe, L., Braet, C., Bosmans, G., Rosseel, Y., & Bögels, S. (2010). Maladaptive

schemas and psychopathology in adolescence: On the utility of young’s schema theory

in youth. *Cognitive Therapy and Research, 34*(4), 316–332.

doi: [https://doi.org/10.1007/s10608-009-9283-5](https://psycnet.apa.org/doi/10.1007/s10608-009-9283-5)

Viechtbauer, W. (2010). Conducting meta-analyses in R with the metafor package. *Journal of*

*Statistical Software, 36*(3), 1-43. doi: 10.18637/jss.v036.i03

Wang, C. E. A., Halvorsen, M., Eisemann, M., & Waterloo, K. (2010). Stability of

dysfunctional attitudes and early maladaptive schemas: A 9-year follow-up study of

clinically depressed subjects. *Journal of Behavior Therapy and Experimental*

*Psychiatry, 41*(4), 389–396. [https://doi.org/10.1016/j.jbtep.2010.04.002](https://psycnet.apa.org/doi/10.1016/j.jbtep.2010.04.002)

Wegener, I., Alfter, S., Geiser, F., Liedtke, R., & Conrad, R. (2013). Schema change without

schema therapy: the role of early maladaptive schemata for a successful treatment of

major depression. *Psychiatry, 76*(1), 1-17. doi: http://doi.org/10.1521/psyc.2013.76.1.1

Welburn, K., Coristine, M., Dagg, P., Pontefract, A., & Jordan, S. (2002). The Schema

Questionnaire-Short Form: Factor analysis and relationship between schemas and

symptoms. *Cognitive Therapy and Research, 26*(4), 519–530. doi:

<https://doi.org/10.1023/A:1016231902020>

World Health Organization (WHO). (2017). Depression. Fact sheet. Available online at:

http://www.who.int/mediacentre/factsheets/fs369/en/

Wray, N. R., Ripke, S., Mattheisen, M., Trzaskowski, M., Byrne, E. M., Abdellaoui, A., ...

Cai, N., et al. (2018). Genome-wide association analyses identify 44 risk variants and

refine the genetic architecture of major depression.*Nature Genetics, 50*(5), 668–681.

doi: 10.1038/s41588-018-0090-3

Xavier, A., Cunha, M., & Pinto Gouveia, J. (2015). Deliberate self-harm in adolescence: the

impact of childhood experiences, negative affect and fears of compassion. *Revista de*

*Psicopatología y Psicología Clínica, 20,* 41-49. doi:

10.5944/rppc.vol.1.num.1.2015.14407

Zarate, C. A., Jr. (2010). *Psychiatric disorders in young adults: Depression assessment and*

*treatment.* In J. E. Grant & M. N. Potenza (Eds.), *Young adult mental health* (p. 206–

230). Oxford University Press.