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## Differences in Early Maladaptive Schemas between a Sample of Young Adult Female Substance Abusers and a Non-clinical Comparison Group

Ryan C. Shorey<sup>1,\*</sup>, Gregory L. Stuart<sup>1</sup>, and Scott Anderson<sup>2</sup>

<sup>1</sup>University of Tennessee, Knoxville, TN, USA

<sup>2</sup>Cornerstone of Recovery, Louisville, TN, USA

### Abstract

Early maladaptive schemas, defined as cognitive and behavioural patterns of viewing oneself and the world that cause considerable distress, are increasingly being recognized as an important underlying correlate of mental health problems. Recent research has begun to examine early maladaptive schemas among individuals seeking treatment for substance abuse. Unfortunately, there is limited research on whether substance abusers score higher on early maladaptive schemas than non-clinical controls. Thus, the current study examined whether a sample of young adult female substance abuse treatment seekers ( $n = 180$ ) scored higher than a non-clinical group of female college students ( $n = 284$ ) on early maladaptive schemas. Results demonstrated that the substance abuse group scored higher than the non-clinical group on 16 of the 18 early maladaptive schemas. In addition, a number of differences in early maladaptive schemas were large in effect size. Implications of these findings for future research and substance abuse treatment programmes are discussed.

### Keywords

Early Maladaptive Schemas; Substance Use; Female; Clinical

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Recent theory (Young, Klosko, & Weishaar, 2003) and research (e.g., Riso et al., 2006) has demonstrated the relevance of early maladaptive schemas to a range of clinical problems and mental health disorders. A growing body of research has begun to investigate the relation of early maladaptive schemas to substance abuse (Ball, 1998; 2007; Brotchie, Meyer, Copello, Kidney, & Waller, 2004; Roper, Dickson, Tinwell, Booth, & McGuire, 2010; Shorey, Anderson, & Stuart, 2012), with research even demonstrating that substance abuse treatment that focuses on reducing early maladaptive schemas may result in improved long-term outcomes (Ball, 2007). Unfortunately, there is a dearth of research on the early maladaptive schemas of young adult substance abusers (Shorey, Stuart, & Anderson, 2012), and only two studies have compared substance abuse patients with non-clinical control groups on schemas (i.e., Brotchie et al., 2004; Roper et al., 2010), finding that substance abusers score higher on the majority of early maladaptive schemas. Thus, the current study expanded upon previous research by examining early maladaptive schemas in a young adult female treatment-seeking sample of substance abusers and compared them with the schemas of a non-clinical group of college women.

Substance abuse among young adults, generally considered to be from the ages of 17 to approximately 25 years (SAMSHA, 2010), is a significant problem throughout the USA and the world. For instance, in 2009, the rates of illicit drug use were higher for individuals aged 18 to 25 years (21.2%) than for youths aged 12 to 17 years (10.0%) and individuals aged 26 years or older (6.3%) (SAMSHA, 2010). In addition, usually with the exception of alcohol and marijuana, which have similar usage rates across groups, the use of illicit drugs is more prevalent among young adults not in college when compared with their college-aged peers (Johnston, O'Malley, Bachman & Schulenberg, 2011). Thus, it is well established that substance abuse among young adults is a prevalent problem that deserves research attention. Research that examines potential underlying factors contributing to young adult substance abuse is needed, as these factors could become the targets of substance use prevention or intervention programmes among this population. One factor that has been proposed to underlie substance abuse in general, and young adults specifically, is early maladaptive schemas.

## Early Maladaptive Schemas

Young et al. (2003) have defined early maladaptive schemas as unconditional, enduring negative thoughts and beliefs about oneself, others and the world that organize one's interpretations of life events and behaviour. In essence, early maladaptive schemas are similar to the notion of 'core beliefs' (Riso et al., 2006). Early maladaptive schemas are believed to develop during childhood, usually through the experience of noxious and/or traumatic events, or overprotective behaviours, involving one's family of origin, primary caretakers or school experiences, and are perpetuated and reinforced throughout adolescence and adulthood (Young et al., 2003). Thus, early maladaptive schemas are considered pervasive and highly resistant to change (Young et al., 2003). Young et al. (2003) believe that early maladaptive schemas are often underlying characteristics of most mental health disorders, particularly disorders that are chronic and resistant to change, such as substance abuse. A number of studies have demonstrated the relevance of early maladaptive schemas to a range of Axis I and Axis II disorders (e.g., Ball & Cecero, 2001; Cockram, Drummond, & Lee, 2010; Riso et al., 2006; Waller, Meyer, & Ohanian, 2001).

## Early Maladaptive Schemas and Substance Abuse

Several investigations have examined the early maladaptive schemas of substance abusers (e.g., Ball & Young, 2001; Brotchie et al., 2004; Roper et al., 2010; Shorey et al., 2012). Ball (1998) expanded upon Young's (1994) conceptualization of early maladaptive schemas as underlying mental health problems and delineated the relevance of schemas to substance abuse. Ball (1998) proposed that substance abusers may use substances as a way to avoid the emotional pain associated with early maladaptive schemas. Indeed, research has demonstrated that attempts to cognitively and behaviourally avoid early maladaptive schemas are associated with increased substance use (Brotchie, Hanes, Wendon, & Waller, 2007). Ball (1998) suggested that treating enduring, negative beliefs about oneself, others and the world (i.e., early maladaptive schemas) may improve substance abuse treatment outcomes. Preliminary research has demonstrated that substance abuse treatment that concurrently focuses on targeting and modifying early maladaptive schemas results in improved substance use outcomes when compared with traditional 12-step therapy (Ball, 2007). Additional research has shown that women score higher on the majority of early maladaptive schemas than men within samples of alcohol-dependent treatment-seeking adults (Shorey et al., 2012) and young adult opioid-dependent treatment seekers (Shorey et al., 2012). Thus, early maladaptive schemas may be particularly important for female substance abusers.

We are aware of only two studies that have examined differences in early maladaptive schemas between individuals seeking substance abuse treatment and non-clinical controls. Brotchie et al. (2004), using a sample of adult substance abuse treatment seekers and a non-clinical adult group and combining men and women into a single sample, found that the substance abuse group scored higher on 11 early maladaptive schemas than the non-clinical control group. Roper et al. (2010), also using a sample of adult substance abuse treatment seekers and non-clinical controls and also combining men and women into a single sample, found that the substance abuse group scored higher than the non-clinical control group on 12 early maladaptive schemas. Neither of these studies found that the non-clinical control group scored higher on any early maladaptive schema than the treatment-seeking group. These studies suggest that early maladaptive schemas may be an underlying factor for substance abuse, which is consistent with theory (Ball, 1998; Young et al., 2003).

Although the studies of Brotchie et al. (2004) and Roper et al. (2010) are important first steps towards identifying theoretical underpinnings and potentially maintaining factors of substance abuse (i.e., early maladaptive schemas; Young et al., 2003), generalizing these studies to young adult women is difficult. First, the mean age of these samples (over 30 years) makes it difficult to generalize findings to young adult substance abusers. Second, these previous studies combined men and women into one overall sample. Separating men and women is important because previous research has demonstrated that female substance abusers score higher than male substance users on many early maladaptive schemas (Shorey et al., 2012; Shorey et al., 2012). Finally, these past studies examined Young's (1994) earlier conceptualization of early maladaptive schemas, which only included 15 schemas, and no known research has examined differences between substance abusers and non-clinical controls on the more contemporary conceptualization of 18 early maladaptive schemas (Young et al., 2003).

## Current Study

Because no previous research has examined whether young adult female substance abusers score higher than non-clinical controls on early maladaptive schemas, the current study examined this question in a sample of young adult females seeking substance abuse treatment and a non-clinical control group of female undergraduate students. On the basis of previous research (i.e., Brotchie et al., 2004; Roper et al., 2010), we hypothesized that the substance abuse group would score significantly higher than the non-clinical control group on the majority of early maladaptive schemas.

## METHOD

### Participants

The current study consisted of two groups of participants. The clinical substance abuse group ( $n = 180$ ) was drawn from the Young Adult programme of an inpatient substance use facility located in the southeastern USA. The non-clinical control group ( $n = 284$ ) was drawn from undergraduate psychology classes at a large southeastern university located in the USA. For the substance abuse group, the mean age of patients was 20.43 years ( $SD = 2.23$ ; range = 17–26), and the majority of patients were non-Hispanic Caucasian (91.7%). For the substance abuse sample, the mean number of years of education completed was 12.75 ( $SD = 1.51$ ). For the college student sample, the mean age of females was 18.38 years ( $SD = 0.83$ ; range = 18–24), and the majority were non-Hispanic Caucasian (84.6%), with 9.3% reporting an African American ethnicity. For the college student sample, the mean number of years of education completed was 12.31 ( $SD = 0.64$ ). None of the female college students reported having ever sought treatment for an alcohol or drug problem.

## Procedures

For the inpatient substance abuse sample, pre-existing patient records were reviewed from the substance use treatment facility. Patient records were searched from January 2006 to November 2010. The substance use treatment facility is a 30-day residential programme that is guided by the 12-step model and also places a heavy emphasis on the identification and treatment of patients' early maladaptive schemas. The Young Adult programme admits patients into the facility only if they have a primary substance use disorder diagnosis and are between the ages of 18 and 25 years. As part of each patient's initial assessment upon admission to the treatment facility, and after medical detoxification when applicable, a number of self-report measures and semi-structured interviews are completed. Diagnoses, which are based on the DSM-IV criteria for mental health disorders (American Psychiatric Association, 2000), are made through consultation with a psychiatrist, a Ph.D. Licensed Psychologist, a general physician and substance use counselors. Patients provide informed consent upon admission to the treatment facility that their medical records may be audited and de-identified for research purposes.

For the non-clinical control group, measures were completed through an online survey website that uses encryption to ensure confidentiality of responses. Students were provided with an informed consent that they also completed online. Upon consent, students were provided with standardized instructions for all measures completed. Once all surveys were finished, students were provided with a list of referrals for local mental health services and received partial course credit in their psychology course for their participation. All procedures for both samples were approved by the Institutional Review Board of the first author.

## Measures

**Demographics**—The non-clinical comparison group was asked to indicate their age, gender, race and academic level. This group was also asked to indicate whether they had ever received treatment for an alcohol or drug problem in their lifetime. For the clinical substance abuse group, patient records were reviewed for relevant demographic information, which included their age and race.

**Early Maladaptive Schemas**—Both groups completed the Young Schema Questionnaire—Long Form, Third Edition (YSQ-L3; Young & Brown, 2003). The YSQ-L3 is 232-item self-report measure that assesses the 18 early maladaptive schemas proposed by Young et al. (2003). Both groups rated questions on a 6-point scale (1 = *completely untrue of me*; 6 = *describes me perfectly*) to indicate how much they believe each item described themselves. For each early maladaptive schema, a score of 4 or greater for each item contributes to the total score of each specific schema, since a response of 4 or greater is suggestive that that particular item may be representative of a maladaptive belief or behaviour. Total scores for each early maladaptive schema are obtained by summing the number of responses rated as a 4, 5 or 6 for all items associated with each schema. The score ranges for each of the 18 early maladaptive schemas are emotional deprivation (0–54), abandonment (0–102), mistrust/abuse (0–102), social isolation (0–60), defectiveness (0–90), failure (0–54), dependence (0–90), vulnerability (0–72), enmeshment (0–66), subjugation (0–60), self-sacrifice (0–102), emotional inhibition (0–54), unrelenting standards (0–96), entitlement (0–66), insufficient self-control (0–90), approval seeking (0–84), negativity/pessimism (0–66) and punitiveness (0–90) (Young & Brown, 2003). The YSQ-L3 has demonstrated good factor structure, reliability and validity (Cockram et al., 2010; Saariaho, Saariaho, Karila, & Joukamaa, 2009).

**Alcohol Use**—The Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993) was used to examine alcohol use in the previous 12 months for the college student sample only. The AUDIT is a 10-item self-report measure that examines the frequency and intensity of alcohol use, as well as negative consequences of alcohol use. The AUDIT has demonstrated a superior ability, when compared with other measures of alcohol use, to identify individuals with problematic alcohol use (Reinert & Allen, 2002). The AUDIT has demonstrated good reliability and validity across a wide range of populations (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). A score of 8 or greater on the AUDIT is indicative of hazardous drinking (Babor et al., 2001; Saunders et al., 1993).

**Drug Use**—The Drug Use Disorders Identification Test (DUDIT; Stuart et al., 2003; 2004) was used to examine drug use in the previous 12 months for the college student sample only. The DUDIT contains 14 questions and assesses the frequency and intensity of drug use across seven different classes of drugs (e.g., opioids, hallucinogens and stimulants). Unlike the AUDIT, the DUDIT does not have a standard cut-off score to indicate hazardous drug use. The DUDIT has good reliability and validity (Stuart et al., 2008).

## RESULTS

All analyses were run using SPSS 18.0 (SPSS Inc., Chicago, IL, USA). For the substance abuse sample, the most common primary diagnosis was opioid abuse or dependence (46.2%;  $n = 83$ ); 21.7% ( $n = 39$ ) of the sample had a primary diagnosis of polysubstance dependence, 9.4% ( $n = 17$ ) cannabis abuse or dependence, 8.4% ( $n = 15$ ) alcohol abuse or dependence, 7.3% ( $n = 13$ ) cocaine abuse or dependence, 5% ( $n = 9$ ) sedative abuse or dependence, 1.7% ( $n = 3$ ) amphetamine dependence and 0.3% ( $n = 1$ ) hallucinogen dependence. For the college student group, the mean score on the AUDIT was 3.75 (SD = 4.44), and 20% ( $n = 57$ ) of the sample met the cut-off score for hazardous drinking. For drug use with the college sample, the mean score on the DUDIT was 0.91 (SD = 2.85). For specific drugs, 27% had used cannabis in the previous year, 3.9% hallucinogens, 2.8% amphetamines, 2.8% sedatives/hypnotics/anxiolytics, 2.8% 'other drugs' (e.g., inhalants), 2.5% opiates and 1.1% cocaine.

The substance abuse sample and college sample differed on some demographic variables. The substance abuse group (M = 20.43; SD = 2.23) was slightly older than the college student group (M = 18.38; SD = 0.83),  $t(462) = 14.02$ ,  $p < 0.001$ . In addition, the substance abuse group (M = 12.75; SD = 1.51) had completed slightly more years of education than the college student group (M = 12.31; SD = 0.64),  $t(461) = 4.36$ ,  $p < 0.001$ . The groups also differed on race,  $\chi^2(5) = 22.25$ ,  $p < 0.001$ , with the college student group having more African American participants (9%) than the substance abuse group (0%).

We examined whether the two groups differed on the 18 early maladaptive schemas by using a multivariate analysis of covariance (MANCOVA) with age, years of education completed and ethnicity as control variables due to group differences on these variables. Because this is the first study to examine whether young adult treatment-seeking substance abusers score higher on early maladaptive schemas than a non-clinical comparison group, we did not use a Bonferroni correction. However, we set our alpha level to 0.01 to reduce the risk of type I error. The MANCOVA for differences between groups was significant,  $F(18, 424) = 16.91$ ,  $p < 0.001$ . Age [ $F(18, 424) = 1.20$ ,  $p > 0.05$ ], years of education completed [ $F(18, 424) = 1.16$ ,  $p > 0.05$ ] and ethnicity [ $F(18, 424) = 0.66$ ,  $p > 0.05$ ] were not significant in the model.

Because the overall MANCOVA for group differences in early maladaptive schemas was significant, we conducted *post hoc* analysis of covariance tests for each of the 18 schemas



separately to determine which schemas significantly differed between the groups, after controlling for differences in age, years of education completed and ethnicity. Again, our alpha level was set to 0.01 to reduce the risk of type I error. As displayed in Table 1, the groups significantly differed on 16 of the 18 early maladaptive schemas, with the clinical substance abuse group scoring higher than the non-clinical control group on all 16 schemas. The non-clinical control group did not score significantly higher than the substance abuse group on any early maladaptive schema. The two groups did not significantly differ on the early maladaptive schemas of unrelenting standards and self-sacrifice.

We also calculated effect size ( $d$ ) differences between the substance abuse group and the non-clinical comparison group on early maladaptive schema scores. This was carried out by comparing the mean schema scores of the two groups, divided by their pooled standard deviations (Cohen, 1988). As outlined by Cohen (1988), a small effect size difference is equal to a  $d$  of 0.20, a medium effect size difference is equal to a  $d$  of 0.50 and a large effect size difference is equal to a  $d$  of 0.80. As displayed in Table 1, the largest effect size differences were for the schemas of insufficient self-control ( $d = 1.51$ ), abandonment, ( $d = 0.94$ ), enmeshment ( $d = 0.91$ ), dependence ( $d = 0.87$ ) and mistrust/abuse ( $d = 0.81$ ), which all fell into the large range for effect sizes. All other significant differences between groups fell into the medium to large range for effect size differences.

## DISCUSSION

Recent research has investigated the relation between early maladaptive schemas and substance abuse. Previous research has demonstrated that early maladaptive schemas are relevant to the abuse and treatment of substance use (Ball, 1998; Roper et al., 2010; Shorey et al., 2012), although there is no research on differences in early maladaptive schemas between young adult female substance abusers and non-clinical controls. Thus, the current study examined differences between young adult female substance abusers seeking treatment and a non-clinical comparison group of college female students. Our results supported our hypothesis that the substance abuse group would score higher than the control group on the majority of early maladaptive schemas.

Our findings demonstrated that the female substance abuse group scored higher on 16 of the 18 early maladaptive schemas than the non-clinical comparison group after controlling for demographic differences between groups. These findings are consistent with previous research that has demonstrated that mixed samples of adult male and female substance abusers score higher on the majority of schemas when compared with non-clinical controls (Brotchie et al., 2004; Roper et al., 2010). The current findings are important because this is the first study to identify such broad differences among a young adult sample of female substance abusers and provides further evidence that early maladaptive schemas may be an underlying factor in the development and/or maintenance of problematic substance use. Young et al. (2003), and Ball (1998; 2007), postulated that early maladaptive schemas may underlie substance abuse, which is often a chronic, enduring problem, similar to early maladaptive schemas. This study lends further support, in conjunction with previous research and theory, to this possibility.

A few differences in early maladaptive schemas between groups warrant discussion, namely the schemas with the largest effect size differences: insufficient self-control, abandonment, enmeshment, dependence and mistrust/abuse. The largest difference between groups was on the schema of insufficient self-control. This schema is distinguished by an inability to apply self-discipline and self-control over a wide range of life situations, not just substance use, and appropriately bring under control one's emotions and impulses (Young et al., 2003). Individuals with this schema often have low frustration tolerance, have high impulsivity and

place emphasis on reducing and/or avoiding emotional and/or physical pain and discomfort. The schema of abandonment is characterized by a fear that other people will emotionally or physically 'abandon', or leave, them and that there is a lack of stability and reliability in support and connection from close others (Young et al., 2003). The enmeshment schema is characterized by an over-involvement and focus on emotional closeness with significant others (i.e., parents). This often comes at the expense of individuation and normal social development and may produce feelings of personal emptiness (Young et al., 2003). The dependence schema presents as the belief that one is incapable of handling everyday experiences without help from other people, and the mistrust/abuse schemas is characterized by a fear that other people will hurt, humiliate, abuse or take advantage of them (Young et al., 2003).

Although the current study did not examine the reasons why the substance abuse group scored higher on early maladaptive schemas than the non-clinical control group, it is possible that differences in early life experiences are partly responsible for why such broad differences emerged. For instance, Young et al. (2003) postulated that early maladaptive schemas are likely to develop in response to traumatic and/or toxic childhood experiences. Previous research has demonstrated that individuals with substance abuse problems are more likely to have witnessed or experienced physical or sexual abuse during childhood than individuals without a substance use problem (Simpson & Miller, 2002). Specific early maladaptive schemas, such as abandonment and mistrust/abuse, are believed to be heavily influenced by experiences with abuse during childhood (Young et al., 2003). Parental substance abuse is also highly related to their offspring's substance use (Chassin, Curran, Hussong & Colder, 1996; Epstein, Williams & Botvin, 2002), and parental substance abuse is related to less parental closeness, affection and monitoring (Kandel, 1996; Kerr & Stattin, 2000; Lockman, 2003), and it is possible that these experiences contributed to the development of high levels of early maladaptive schemas in the substance abuse group. Research is needed that examines the early life experiences that may be responsible for the broad differences seen in early maladaptive schemas among individuals seeking substance abuse treatment and non-clinical controls. Research is also needed to determine whether individuals are abusing substances as a way to cope with, and avoid, the dysfunctional thoughts, memories and behaviours that are associated with early maladaptive schemas.

It is interesting to note that the two groups did not differ on the early maladaptive schemas of self-sacrifice and unrelenting standards. Previous research has demonstrated that the schema of unrelenting standards did not differ between adult substance abusers and non-clinical controls (Brotchie et al., 2004; Roper et al., 2010), and only one of these studies found no difference between groups on the schema of self-sacrifice (Brotchie et al., 2004). Although we are unaware of any theories that would account for why these early maladaptive schemas did not differ between groups, there are a few potential explanations for these findings. First, the early maladaptive schema of unrelenting standards may have been relatively equal between groups, as success in, and admission to, college likely requires some level of unrelenting standards as far as academic performance is concerned. We have previously speculated that, for some substance abusers, the use of substances may be in response to internalized expectations that are too high (unrelenting standards) that cannot be met. Thus, the clinical and non-clinical groups, although not different on unrelenting standards, may cope differently with such expectations. This should be investigated in future studies. As for self-sacrifice, our previous research with substance abusers (Shorey, Anderson, & Stuart, 2011; 2012) has shown this early maladaptive schema to be one of the most highly endorsed schemas. Young et al. (2003) have speculated that this schema may be influenced by positive impression management, which has been demonstrated to affect college student reports on a number of positive and negative characteristics (e.g., Shorey, Cornelius, & Bell, 2011). Still, it is possible that these specific early maladaptive schemas

are less likely to differ among clinical substance abusers and non-clinical controls. Additional research in this area is warranted.

### Treatment Implications

The current study may have important implications for the treatment of young adult women with substance abuse diagnoses, as this is the first study to compare young adult female substance abusers to non-clinical controls on early maladaptive schemas, after controlling for relevant demographic differences between groups. There is an emerging body of research that has theoretically (Ball, 1998) and empirically (Brotchie et al., 2004; Roper et al., 2010; Shorey et al., 2012) examined the relations between early maladaptive schemas and substance abuse, with research demonstrating that adult substance use treatment seekers score higher on the vast majority of early maladaptive schemas than non-clinical comparison groups. Thus, it is possible that substance abuse treatment that concurrently focuses on modifying early maladaptive schemas may result in improved substance use outcomes. For example, Ball (2007) showed that substance abuse treatment that placed an emphasis on identifying and modifying early maladaptive schemas, which he termed Dual Focused Schema Therapy (Ball, 1998; 2007), resulted in reduced substance use when compared with a traditional 12-step intervention. Although replication of these findings is needed, the findings of Ball (2007) are a promising example of how reductions in early maladaptive schemas may also reduce substance use, which would be consistent with schema theory, as schemas are believed to underlie psychopathology (Young et al., 2003).

Many treatment programmes for substance use already include components that could easily be modified to more heavily focus on early maladaptive schemas. For example, cognitive restructuring and coping skills, components of treatment programmes that include cognitive-behavioural components, could easily be focused on with early maladaptive schemas. Young et al. (2003) discussed how the treatment of early maladaptive schemas includes (1) cognitive restructuring, (2) behavioural [coping skills], (3) experiential strategies and (4) the use of the therapeutic relationship. Identifying patients' early maladaptive schemas, discussing the relevance of them to substance abuse and developing strategies to help reduce the maladaptive nature of schemas (e.g., cognitive restructuring, new coping skills) may provide patients with lasting skills that are needed to reduce the influence of early maladaptive schemas on substance use behaviours. Young et al. (2003) discussed at length the different approaches that may be most beneficial for each early maladaptive schema, and treatment could individually tailor the skills that are needed for each patient on the basis of their schemas.

### Limitations

The current study has a number of limitations that should be considered when interpreting its findings. The cross-sectional nature of the current study precludes the determination of causality among variables. Longitudinal research is needed to determine whether individuals with substance abuse problems score higher than non-clinical controls on early maladaptive schemas or if early maladaptive schema levels increase or remain stable over time with ongoing substance abuse. The samples were primarily non-Hispanic Caucasian, which limits the generalizability of findings to more ethnically diverse populations. Additionally, no measure of severity of substance use was available for the substance abuse group, and results may have been affected by substance use severity. However, given the diagnostic makeup of the substance abuse sample, and the low prevalence rates of drug use among the college student sample, it is likely that the substance abuse group would score higher on drug use frequency and severity. The two groups also differed on demographic variables, and future research that employs demographically matched samples should be conducted. We also did not employ a Bonferroni correction due to the preliminary nature of the current



study. However, had we employed this correction, three differences in early maladaptive schemas between groups (emotional deprivation, social isolation and approval seeking) would have become marginally significant (i.e.,  $p < 0.01$ ). Thus, we would have found robust differences between groups had we employed a more restrictive data analytic approach.

An additional limitation of the current study was the lack of standardized diagnostic interviews with the substance abuse patients, which limits our ability to know whether the substance abuse diagnoses were accurate. Information on comorbid mental health diagnoses was also not available (e.g., depression, anxiety disorders and personality disorders), and future research should examine whether elevated rates of early maladaptive schemas among substance abusers are due to comorbid mental health problems, since research has demonstrated strong associations between mental health problems other than substance abuse and schemas (e.g., Cockram et al., 2010; Riso et al., 2006; Young et al., 2003). Our sample of substance abusers contained a number of different substance use diagnoses, and it is possible that individuals with specific substance abuse disorders are more or less likely to have early maladaptive schemas. Future research should also examine how social desirability affected responses on the YSQ-L3. It is possible there were differences between groups on how desirable they attempted to present themselves, and this could be one reason why such robust differences emerged. In addition, it is believed that certain schemas are viewed as more desirable than others (i.e., self-sacrifice; Young et al., 2003) and may have affected reports on the YSQ-L3.

## Conclusion

In summary, the current study examined differences between a treatment-seeking sample of young adult female substance abusers and a non-clinical comparison group of female college students on early maladaptive schemas. This was the first study to examine differences in schemas using a young adult sample of substance abusers. Findings demonstrated that the substance abuse group scored significantly higher than the non-clinical comparison group on 16 of the 18 early maladaptive schemas, with medium to large effect size differences evident for these schemas. These findings lend further support to the theories of Ball (1998) and Young et al. (2003) that early maladaptive schemas may underlie problematic substance use. Combined with previous research, these findings suggest that early maladaptive schemas may be an important target of intervention for substance use treatment programmes.

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### Key Practitioner Message

- Young adult female substance users have a number of early maladaptive schemas that may be contributing to the onset and maintenance of substance use.
- Findings from the current study suggest that early maladaptive schemas are more prevalent among young adult female substance abusers than a non-clinical control group, even after controlling for demographic differences between groups.
- The treatment of substance abuse among young adults should consider targeting early maladaptive schemas.

Table 1

Mean differences between substance users and non-clinical comparison on early maladaptive schemas

Schema	Substance users ( <i>n</i> = 180)		Non-clinical comparison ( <i>n</i> = 284)		<i>F</i>	<i>p</i>	<i>d</i>
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )			
Emotional deprivation	10.02 (12.47)	5.10 (9.45)	7.22	<0.01	0.44		
Abandonment	35.81 (28.71)	12.74 (19.30)	60.15	<0.001	0.94		
Mistrust/abuse	34.77 (26.92)	15.14 (20.94)	49.01	<0.001	0.81		
Social isolation	12.80 (15.97)	6.33 (12.09)	9.21	<0.01	0.45		
Defectiveness	19.41 (23.50)	5.82 (12.45)	27.20	<0.001	0.72		
Failure	13.87 (16.75)	5.61 (12.09)	14.01	<0.001	0.56		
Dependence	22.66 (24.03)	6.03 (11.85)	45.88	<0.001	0.87		
Vulnerability	14.66 (16.70)	7.02 (11.96)	13.53	<0.001	0.52		
Enmeshment	15.96 (17.05)	3.79 (8.02)	74.86	<0.001	0.91		
Entitlement	18.06 (16.17)	10.35 (12.65)	22.85	<0.001	0.53		
Insufficient self-control	40.05 (23.44)	10.07 (15.13)	178.25	<0.001	1.51		
Subjugation	15.17 (16.77)	6.22 (10.63)	29.04	<0.001	0.63		
Self-sacrifice	41.28 (26.06)	35.61 (24.21)	0.78	>0.05	0.22		
Emotion inhibition	13.15 (13.51)	7.55 (11.48)	14.15	<0.001	0.44		
Unrelenting standards	26.25 (22.86)	29.49 (23.13)	2.45	>0.05	0.14		
Approval seeking	24.49 (21.87)	15.56 (18.54)	9.79	<0.01	0.44		
Negativity/pessimism	22.11 (18.51)	11.81 (15.83)	15.29	<0.001	0.59		
Punitiveness	27.78 (19.27)	17.12 (18.08)	18.23	<0.001	0.57		