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The Relation Between Antisocial and Borderline Personality Symptoms and Early Maladaptive Schemas in a Treatment Seeking Sample of Male Substance Users

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Abstract

Individuals with substance use disorders are more likely to have antisocial and borderline personality disorder than non-substance abusers. Recently, research has examined the relations between early maladaptive schemas and personality disorders, as early maladaptive schemas are believed to underlie personality disorders. However, there is a dearth of research on the relations between early maladaptive schemas and personality disorders among individuals seeking treatment for substance abuse. The current study examined the relations among early maladaptive schemas and antisocial and borderline personality within in a sample of men seeking substance abuse treatment ($n = 98$). Results demonstrated that early maladaptive schema domains were associated with antisocial and borderline personality symptoms. Implications of these findings for substance use treatment and research are discussed.

Keywords

Early Maladaptive Schemas; Antisocial Personality; Borderline Personality; Substance Use

It is becoming increasingly clear that individuals with substance use disorders often have co-occurring personality disorders, including antisocial and borderline personality (e.g., Grant et al., 2004). These co-occurring personality disorders, when left untreated, can complicate the treatment of substance use disorders. Recent research has begun to examine the relation between early maladaptive schemas and personality disorders and symptoms (i.e., Jovev & Jackson, 2004; Lawrence, Allen, & Chanen, 2011), and schemas and substance use disorders (i.e., Ball, 2007; Brotchie, Meyer, Copello, Kidney, & Waller, 2004; Shorey, Anderson, & Stuart, 2011). The modification of early maladaptive schemas has been proposed as an integral target of intervention for personality disorders, including borderline and antisocial (Young, Klosko, & Weishaar, 2003), as well as substance abuse (Ball, 1998, 2007; Shorey, Anderson, & Stuart, 2012). Still, theoretically grounded research on the relation between early maladaptive schemas and personality symptoms within a substance abuse sample is

needed. The current study examined these relations within a sample of adult men seeking residential substance use treatment.

Personality Disorders and Substance Use

There are a number of studies that have examined the prevalence of personality disorders among individuals with substance use disorders. To date, most of the research on substance abusers with personality disorders has focused on antisocial personality disorder (ASPD). Estimates of the prevalence of ASPD among male substance users (alcohol and drug) range from 7% to 40%, with some studies suggesting even higher rates (Hasin et al., 2011). Another commonly investigated personality disorder among substance abusers is borderline personality disorder (BPD). Estimates of the prevalence of BPD among male substance users have been as high as 30–57% (Tull, Gratz, & Weiss, 2011; Trull, Sher, Minks-Brown, Durbin, & Burr, 2000). Both of these personality disorders are categorized as Cluster B personality disorders, which are often characterized by behaviours that are dramatic, emotional, or erratic (American Psychiatric Association, 2000). However, there are important differences between ASPD and BPD, such that individuals with BPD are more likely to be concerned that close others will abandon them, have an unstable sense of self, and often have self-injurious behaviour (American Psychiatric Association, 2000). In contrast, individuals with ASPD often demonstrate little to no remorse, show a disregard for their and other's safety, and will deceive others to gain pleasure (American Psychiatric Association, 2000). Research has shown that ASPD and BPD are the most common personality disorder diagnoses among substance abusers (Rounsaville et al., 1998) and are the personality disorders of focus in the current study.

Unfortunately, the co-occurrence of substance use disorders and personality disorders is associated with a number of negative outcomes above and beyond having just one diagnosis. For instance, having a co-morbid substance use and personality disorder is associated with increased HIV risk, overuse of medical resources, hospitalizations, and poorer substance use treatment outcomes (Ball, 2007; Ball, Carroll, Canning-Ball, & Rounsaville, 2006; Thomas, Melchert, & Banken, 1999). Thus, it is not surprising that substance use treatments that concurrently target personality disorders report better substance use outcomes (e.g., Ball et al., 2006; Conrod, Pihl, Stewart, & Dongier, 2000). However, some researchers have argued that personality disorder diagnoses are not particularly useful for treatment planning and that modifying related, core constructs, such as enduring cognitive beliefs, may be an easier to implement and beneficial approach (Ball & Cecero, 2001; Sanislow & McGlashan, 1998). One related construct that could be targeted in substance use interventions that may prove beneficial for treatment planning and increasing positive outcomes is early maladaptive schemas.

Early Maladaptive Schemas

Young and colleagues (2003) define early maladaptive schemas as a 'broad, pervasive theme or pattern comprised of memories, emotions, cognitions, and bodily sensations regarding oneself and one's relationships with others [that] are dysfunctional to a certain degree' (p. 7). Early maladaptive schemas are developed early in life, usually as a result of

dysfunctional experiences with one's family or origin. Indeed, research has demonstrated strong relations between adverse childhood experiences and early maladaptive schemas (Cecero, Nelson, & Gillie, 2004; Messman-Moore & Coates, 2007), although it should be noted that the majority of this research has been cross-sectional in design. In addition, early maladaptive schemas cause considerable distress, negative affect, and self-defeating consequences; interfere with healthy self-expression and autonomy, as well as interpersonal relationships; and are central patterns that are at the core of one's sense of self that appear to be stable across cultures (Young & Lindemann, 1992; Young et al., 2003). To date, Young and colleagues (2003) have identified 18 early maladaptive schemas that fall into five distinct schema domains. These domains, and the individual schemas that comprise them, can be seen in Table 1. Although research has demonstrated strong relations among each early maladaptive schemas (e.g., Shorey et al., 2011), each early maladaptive schema domain is unique in that they are centred around core issues that affect individuals lives, similar to how personality disorders are clustered within the DSM-IV-TR system. Young and colleagues (2003) have discussed the similarity of early maladaptive schemas to personality disorder traits, and that early mal-adaptive schemas likely underlie the development and maintenance of personality disorders and other difficult to treat psychopathology (i.e., substance use disorders).

Early Maladaptive Schemas, Personality Disorders and Substance Use

Recent research has begun to examine early maladaptive schemas among substance use treatment seekers. Similar to research with personality disorders and substance use, research has demonstrated that early maladaptive schemas are a prevalent problem among substance users (e.g., Ball, 2007; Brotchie et al., 2004; Roper, Dickson, Tinwell, Booth, & McGuire, 2010; Shorey et al., 2012). For instance, a number of studies now demonstrate the individuals seeking substance use treatment score higher on the majority of early maladaptive schemas than individuals not seeking substance use treatment (Brotchie et al., 2004; Roper et al., 2010; Shorey et al., 2011). There is also preliminary research that demonstrates that substance use outcomes may be improved when treatment also focuses on modifying early maladaptive schemas (Ball, 2007).

Unfortunately, we are aware of minimal research that has examined the relation between ASPD and BPD symptoms and early maladaptive schemas among substance users. Using a sample of methadone-maintenance patients, Ball and Cecero (2001) demonstrated that BPD severity was positively associated with early maladaptive schemas that fall under the Disconnection and Rejection domain, whereas ASPD severity was positively associated with schemas under the Disconnection and Rejection, Impaired Limits, and Impaired Autonomy domains. Other research has examined the relations between ASPD and BPD symptoms and early maladaptive schemas among non-substance use treatment seeking samples. Thimm (2010) found that Cluster B personality traits were positively associated with all five early maladaptive schemas domains among a sample of psychiatric outpatients. Others have found that the schema domains predict a large percentage of the variance in personality symptoms, even after controlling for other personality disorders (Petrocelli, Glaser, Calhoun, & Campbell, 2001; Reeves & Taylor, 2007), that Axis II patients score higher on early maladaptive schemas than non-Axis II patients (Nordahl, Holthe, & Haugum, 2005), and

that modifications in early maladaptive schemas predict symptom relief among individuals with personality disorders seeking treatment (Nordahl et al., 2005).

In a sample of non-clinical college students, Carr and Francis (2010) found that none of the early maladaptive schemas were associated with BPD and ASPD symptoms when controlling for the shared variance among personality disorders. Controlling for shared characteristics and overlap among personality disorders when examining their relations to early maladaptive schemas is important due to the inter-cluster co-morbidity seen within personality disorders (Carr & Francis, 2010). Thus, it is clear that continued research is needed that examines whether specific early maladaptive schema domains are associated with ASPD and BPD symptoms among substance users, after controlling for the inter-cluster co-morbidity seen within personality disorders. Knowing this information may help to inform the appropriate targets of intervention among substance abusers with co-occurring ASPD and/or BPD diagnoses. That is, modifying early maladaptive schemas has demonstrated improved functioning for both substance users and individuals with personality disorders (Ball, 2007; Nordahl et al., 2005), and treatment planning may be made easier by focusing on early maladaptive schemas than personality disorders (see Young et al., 2003 for a detailed review of this topic).

Current Study

On the basis of previous research and theory, we examined the relations between early maladaptive schema domains and antisocial and borderline personality symptoms within a sample of treatment seeking substance abusers. Using pre-existing patient records of men seeking residential substance use treatment, we examined whether (1) early maladaptive schema domains would be associated with antisocial and borderline personality symptoms and (2) whether early maladaptive schema domains would be associated with personality symptoms above and beyond the effects of other personality symptoms, substance use, and relevant demographic characteristics. Because there is considerable overlap among personality disorders (Carr & Francis, 2010), especially ASPD and BPD, we controlled for their shared symptomatology in analyses. On the basis of previous research and theory, we hypothesized that the schema domain of disconnection and rejection would be positively associated with BPD traits, whereas the schema domains of impaired limits and impaired autonomy would be associated with ASPD traits.

METHOD

Procedures

Patient records from male substance use patients who were seeking treatment at an adult inpatient substance use treatment programme, located in the Southeastern United States, were reviewed for the current study. This treatment programme is a 28 to 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 treatment centre only admits patients into the facility if they have a primary substance use disorder diagnosis and are approximately 25 years of age or older. The substance use facility is a private treatment centre that offers both residential and outpatient services.

Once admitted into the treatment facility, patients complete an in-depth, extensive intake assessment, which includes a number of self-report measures. As discussed below, the self-report measures include assessments of early maladaptive schemas, personality disorder symptoms, alcohol, and drug use. All self-report measures were completed after medical detoxification, when applicable. Substance use diagnoses at the treatment facility are based on the DSM-IV-TR criteria for mental health disorders (American Psychiatric Association, 2000), which are diagnosed by the treatment team, consisting of a licenced PhD psychologist, a psychiatrist, general physician, and substance use counsellors.

Participants

Patient records from June 2011 to October 2011 were used in the current study, as June 2011 was when the residential treatment centre began assessing patients' personality disorder symptoms with the measure used in the current study. This resulted in a total of 98 male patients' charts being reviewed for the current study, which represents all males admitted into the facility during this period. We had no exclusion criteria for this study. The majority of the sample had a primary substance use diagnosis of alcohol dependence (53.7%), followed by opioid dependence (21.1%), polysubstance dependence (16.8%), cannabis abuse (2.1%), amphetamine abuse (2.1%), sedative dependence (1.1%), 'other' substance dependence (1.1%), alcohol abuse (1.1%), and opioid abuse (1.1%). The mean age of patients was 38.89 (standard deviation (SD) = 10.60). Ethnically, the majority of patients were non-Hispanic Caucasian (89.8%), with the remaining patients being Hispanic (3.1%), African American (2.0%), and 'other' (e.g., Multi-Racial, Native American, Hispanic, etc., 5.1%). At the time of admission to the treatment facility, 42.9% of patients were married, 29.6% had never been married, 20.4% were divorced, and 7.1% indicated 'other' (e.g., widowed, life partner, etc.). The majority of the patients were employed full-time (56.1%) prior to admission into the treatment facility and the average annual income was \$27,862.00 (SD = 27,184.69).

Measures

Early Maladaptive Schemas—The Young Schema Questionnaire, Third Edition (YSQ-L3; Young & Brown, 2003) was used to assess patients' early maladaptive schemas. The YSQ-L3 contains 232 self-report questions that are designed to examine the five early maladaptive schema domains outlined by Young and colleagues (2003). Patients were instructed to rate how much each item described themselves on a six-point scale (*1 = completely untrue of me; 6 = describes me perfectly*). Each item rated a 4 or greater contributes to the overall total score for each early maladaptive schema (scores of 1, 2, and 3 are not included in scoring), since a rating of 4 indicates that particular a question is relevant to the individual (Young & Brown, 2003). Score ranges for each schema domain (and each early maladaptive schema) are as follows: **disconnection & rejection**, 0–408 (emotional deprivation [0–54]; abandonment [0–102], mistrust/abuse [0–102], social isolation [0–60], and defectiveness [0–90]); **impaired autonomy and performance**, 0–282 (failure [0–54], dependence [0–90], vulnerability [0–72], and enmeshment [0–66]); **other directedness**, 0–246 (subjugation [0–60], self-sacrifice [0–102], and approval-seeking [0–84]); **impaired limits**, 0–155 (entitlement [0–66] and insufficient self-control [0–90]); and **overvigilance and inhibition**, 0–306 (emotional inhibition [0–54], unrelenting standards [0–96],

negativity/pessimism [0–66], and punitiveness [0–90]) (Young & Brown, 2003; Young et al., 2003). The YSQ-L3 has demonstrated good validity, reliability (e.g., $\alpha = 0.86\text{--}0.94$; Cockram, Drummond, & Lee, 2010) and factor structure of all 18 schemas (e.g., Saariaho, Saariaho, Karila, & Joukamaa, 2009).

Antisocial and Borderline Personality Symptoms—The Personality Disorder Questionnaire-4 (PDQ-4; Hyler et al., 1988) was used to examine symptoms of antisocial and borderline personality. The PDQ-4 was designed as a screening instrument for possible BPD and ASPD diagnoses. For BPD, the sensitivity ranges from 0.95 to 0.98 and the specificity from 0.41 to 0.68. For ASPD, the sensitivity ranges from 0.62 to 0.75 and the specificity from 0.89 to 0.91 (Hyler, Skodol, Kellman, Oldham, & Rosnick, 1990). Cutoff scores for possible diagnoses are 5 for BPD and 3 for ASPD. The PDQ4 has demonstrated reliability and validity across a range of samples (Hyler et al., 1988; Trull, 1993).

Alcohol Use—The Alcohol Use Disorders Identification Test (AUDIT; Saunders, Asaland, Babor, & de la Fuente, 1993) was used to examine patients' alcohol use in the 12 months preceding treatment. The AUDIT, a 10-item self-report measure, examines the frequency and intensity of alcohol use, symptoms that might indicate tolerance to or dependence on alcohol and negative consequences associated with alcohol use. When compared with other measures of alcohol use, the AUDIT has demonstrated a superior ability to identify individuals with problematic alcohol use (Reinert & Allen, 2002). Additionally, the AUDIT has been shown to have good reliability and validity across a number of distinct and diverse populations (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001).

Drug Use—The Drug Use Disorders Identification Test (DUDIT; Stuart, Moore, Kahler, & Ramsey, 2003; Stuart, Moore, Ramsey, & Kahler, 2004) was used to examine patients' drug use in the 12 months preceding treatment. The DUDIT consists of 14 questions and is modelled after the AUDIT. The DUDIT assesses the frequency and intensity of drug use across different classes of drugs (e.g., opioids, hallucinogens, stimulants) and symptoms that may be characteristic of tolerance or dependence. The DUDIT has demonstrated good reliability and validity across multiple samples (Stuart et al., 2008).

RESULTS

All analyses were conducted using SPSS version 18.0 (IBM corporation, NY, USA). We first examined bivariate correlations among substance use, antisocial, and borderline personality symptoms, and the five early maladaptive schema domains. As displayed in Table 2, alcohol use was positively associated with drug use and BPD symptoms. Drug use was positively associated with ASPD and BPD symptoms, as well as the schema domains of impaired autonomy, impaired limits, and overvigilance and inhibition. Both ASPD and BPD symptoms were positively related to all five schema domains, and all five schema domains were positively associated with each other.

Next, we examined differences in demographic variables, substance use, and early maladaptive schema domains among individuals meeting and not meeting the probable

diagnostic cutoff scores for ASPD and BPD, respectively. We employed *t*-tests to examine differences among groups. In the current sample, 16.3% ($n = 16$) of the patients met the probable diagnostic cutoff score for ASPD and 15.3% ($n = 15$) for BPD. As displayed in Table 3, individuals meeting the cutoff score for a probable ASPD diagnosis reported significantly greater drug use and endorsement of all five early maladaptive schema domains than individuals not meeting the cutoff score. Moreover, effect size differences between groups, which followed the recommendations of Cohen (1988), demonstrated that the probable ASPD diagnostic group had moderate to large differences on all five schema domains when compared with the non-diagnostic group. Additionally, patients meeting the cutoff score for ASPD were significantly younger than patients not meeting the cutoff score. Patients meeting the cutoff score for a probable diagnosis of BPD also reported greater endorsement of all five schema domains than patients not meeting the cutoff score (see Table 3). In addition, the probable BPD diagnostic group had large effect size differences on all five schema domains when compared with the non-diagnostic group. Patients meeting the cutoff score for BPD did not differ from patients not meeting the cutoff score on substance use or age.

Lastly, we examined whether specific early maladaptive schema domains were associated with ASPD and BPD symptoms after controlling for the shared variance among schema domains and personality traits. In addition, we controlled for potentially confounding variables, including substance use (alcohol and drug) and age.¹ To examine this question, we employed multiple regression analyses that occurred in two steps. In the first model, age, substance use, and borderline [antisocial] personality symptoms were regressed on antisocial [borderline] personality symptoms. In the second model, all five early maladaptive schema domains were added to the model. To reduce multicollinearity among independent variables, we mean centered all variables prior to conducting regression analyses (Aiken & West, 1991).

As displayed in Table 4, in predicting ASPD symptoms, drug use and BPD symptoms were both positively and significantly associated with antisocial traits in the first model. The first model accounted for 43% of the variance in antisocial traits. When the five schema domains were added to the model, all schema domains except for other directedness were significantly associated with ASPD symptoms. Specifically, the domains of overvigilance and inhibition and impaired autonomy were negatively associated with ASPD, whereas impaired limits and disconnection and rejection were positively associated with ASPD. Moreover, when all five schema domains were added to the model, approximately 58% of the variance in ASPD symptoms was accounted for by the model predictors.

Next, BPD symptoms were examined. As displayed in Table 4, the first model showed that alcohol use and ASPD symptoms were positively and significantly associated with BPD. The first model accounted for 37% of the variance in BPD symptoms. When the five schema domains were added to the model, the domains of impaired autonomy and overvigilance and inhibition were both positively and significantly associated with BPD. None of the other

¹We also ran analyses controlling for substance use diagnosis (alcohol or drug) in place of alcohol use disorders identification test and drug use disorders identification test scores. Results were consistent across analyses.

three schema domains were associated with BPD. Moreover, when all five schema domains were added to the model, approximately 56% of the variance in BPD symptoms was accounted for by the model predictors.

DISCUSSION

The current study examined the relation between early maladaptive schemas and antisocial (ASPD) and borderline (BPD) personality symptoms within a sample of treatment seeking male substance abusers. It is well-established that ASPD and BPD are highly prevalent among men seeking treatment for substance use, and that modifying personality traits/symptoms may result in improved substance use outcomes. Recent theory and research has emphasized the importance of early maladaptive schemas to substance use and personality disorders, although there is a dearth of research on whether early maladaptive schemas are associated with ASPD and BPD among men seeking treatment for substance use. Results of the current study demonstrated a number of interesting findings that are partially consistent with the previous research.

Consistent with the previous research, all five schema domains were positively and significantly associated with ASPD and BPD symptoms. Moreover, individuals meeting the probable diagnostic cutoff scores for ASPD and BPD scored higher on all five early maladaptive schema domains than individuals not meeting the cutoff scores, consistent with research demonstrating Axis II patients score higher on schemas than non-Axis II patients (Nordahl et al., 2005). In fact, effect size estimates demonstrated that the groups evidenced moderate to large differences on all five schema domains. These findings provide preliminary support that early maladaptive schemas are more prevalent among substance users with a concurrent Axis II problem, which is consistent with the theoretical model of early maladaptive schemas (Young et al., 2003). The fact that some substance users may have enduring ways of viewing themselves and interacting with the world that are highly dysfunctional may help to explain why substance use is a chronic and relapsing condition. We agree with the position put forth by Ball (1998, 2007) that early maladaptive schemas may need to be targeted in substance use programmes in an attempt to modify the underlying and enduring problems that may contribute to the problematic use of substances.

Antisocial Personality Disorder Findings

Interestingly, when all five schema domains were simultaneously regressed on ASPD symptoms, only two schema domains, impaired limits and disconnection and rejection, were positively associated with increased ASPD. The impaired limits domain is characterized by a lack of responsibility, difficulty with impulse control, and a lack of long-term goal orientation (Young et al., 2003). It is not surprising that this domain would be associated with increased ASPD, as individuals with ASPD often display a lack of goal orientation and impulsive behaviour. In addition, the schema domain of disconnection and rejection is characterized by issues with mistrust and abuse, abandonment, feelings of defectiveness, social isolation, and emotional deprivation (Young et al., 2003). This schema domain has been associated with abuse and neglect in early childhood, which is a common childhood

characteristic of individuals with ASPD and cluster B personality disorders in general (Bierer et al., 2003; Luntz & Widom, 1994; Young et al., 2003).

The schema domains of overvigilance and inhibition and impaired autonomy were both associated with *less* ASPD symptoms in the regression analyses, despite the ASPD group scoring higher on both of these domains. These findings speak to the importance of examining the influence of each schema domain while simultaneously controlling for the other domains, as differential relationships may occur. This may represent a negative suppression effect (Kline, 2005), which could have potentially masked the accurate relations between schema domains and ASPD if the regression analyses were not conducted. Given the clinical profile of individuals often diagnosed with ASPD, it is not surprising that increases in beliefs of being a failure and dependence (impaired autonomy) would be negatively associated with ASPD symptomatology. This is also true for the overvigilance and inhibition schema, which, as discussed below, is characterized by beliefs of needing to be careful and vigilant due to the potential that life could ‘fall apart’ (Young et al., 2003). Individuals with ASPD often display carelessness and impulsive behaviour, and a lack of empathy, which would be countered to this early mal-adaptive schema domain. Thus, although individuals with a probable ASPD diagnosis may still score higher on these schema domains, they may not be central to the core features often seen in ASPD.

Borderline Personality Disorder Findings

The finding that the schema domains of impaired autonomy and overvigilance were associated with BPD symptoms, after controlling for relevant demographic and personality characteristics, is partially consistent with previous research. Other researchers have found, and theoretically proposed, that themes surrounding impaired autonomy would be prevalent among individuals with BPD (Butler, Brown, Beck, & Grisham, 2002; Lawrence et al., 2011). The impaired autonomy schema domain involves beliefs that one is a failure, is vulnerable to continued harm, and needs other people to help take care of them (Young et al., 2003), features often seen in individuals with BPD (Linehan, 1993). The schema domain of overvigilance and inhibition was also associated with BPD symptoms. This domain is characterized by the belief that one must suppress spontaneous feelings and impulses, and/or must meet very high internalized expectations about behaviour (Young et al., 2003). In essence, individuals with this schema domain feel that they need to be vigilant and careful almost all of the time (Young et al., 2003), again consistent with the clinical presentation often seen with BPD. Importantly, this is the first known study to demonstrate these relations among male residential treatment seeking substance users, which lends further support to the importance of early maladaptive schemas within this population.

An interesting finding, which is counter to the theoretical predictions of Young and colleagues (2003), was that the schema domain of disconnection and rejection was not associated with BPD symptoms in the regression model. There are a number of potential explanations for this finding. First, much of the previous research on early maladaptive schemas and BPD has been conducted with primarily female samples (e.g., Lawrence et al., 2011) and it is possible that the early maladaptive schema domains that are most prominent among male substance users with potential BPD are different than that found in females. In

addition, Beck et al. (1990) have argued that BPD is one of the only personality disorders that is not consistently characterized by a specific set of beliefs and schemas. Thus, although issues surrounding mistrust and abuse, abandonment, and defectiveness may be core issues seen in some individuals struggling with BPD, these may not be the most pressing underlying core beliefs for all individuals with BPD symptoms. Still, these findings should be considered preliminary and thus, interpreted cautiously until they are replicated.

Clinical Implications

Although these findings are preliminary, in combination with the previous research, the current results may provide important implications for the treatment of male substance use patients. First, researchers have discussed the relevance of early maladaptive schemas to the development and treatment of substance use (Ball, 1998; Young et al., 2003), as well as personality disorders (Young et al., 2003). Thus, theoretically, it makes intuitive sense to target early maladaptive schemas among substance users with or without concurrent personality disorder problems. There is increasing evidence that schema therapy is an effective treatment for a host of clinical disorders, including BPD (Giesen-Bloo et al., 2006). Thus, schema therapy, which includes interventions drawn from cognitive, behavioural, and experiential therapies, as well as a focus on the therapeutic relationship (Young et al., 2003), could be implemented in residential substance use treatment programmes. Moreover, schema therapy has specific guidelines for targeting and modifying each specific early maladaptive schema, making it relatively efficient to target the specific problematic schemas of patients.

Ball (1998, 2007) developed a therapeutic intervention specific for targeting early maladaptive schemas among substance use patients, which he referred to as dual-focused schema therapy (DFST). Although discussed extensively elsewhere (see Ball, 1998), DFST incorporates the tenets of schema therapy with that of relapse prevention in order to concurrently address early maladaptive schemas and substance use. Preliminary research with methadone-maintenance patients has demonstrated improved substance use outcomes (i.e., less substance use) with DFST relative to a 12-step facilitation therapy (Ball, 2007). Unfortunately, DFST is a manualized, long-term intensive treatment, which could be difficult to implement in residential substance use programmes that are generally 30 days or less in length. Thus, there is a need for research on the specific intervention approaches that results in reduced early maladaptive schema endorsement among substance use patients. This research could examine whether reductions in early maladaptive schemas is associated with improvements in ASPD and BPD, as well as long-term substance use.

Limitations

There are a number of limitations to the current study that should be considered when interpreting findings. First, this study utilized a cross-sectional design, which limits our ability to determine causal assumptions among study variables. Although schema theory proposes that early maladaptive schemas underlie the development of personality traits/disorders (Young et al., 2003), it is also possible that personality traits influence early maladaptive schemas. Thus, longitudinal research is needed to determine the causal relationship between early maladaptive schemas and personality traits among substance use

patients. Our sample of male residential treatment seeking substance users, while representing a strength of the current study, also limits the generalizability of findings to non-treatment seeking substance use samples and to women. Moreover, our sample was primarily non-Hispanic Caucasian in ethnicity, limiting the generalizability to more ethnically diverse substance use samples. Additional research is needed that examines the relation among substance use, early maladaptive schemas, and personality traits in more diverse samples, as well as in female populations.

A further limitation of the current study was the lack of structured diagnostic interviews to assess personality traits/disorders. It is possible that the self-report screening instrument for personality symptoms did not accurately capture antisocial and borderline personality symptoms. Future research should employ structured diagnostic interviews when examining the relation between schemas and personality symptomatology. It is also possible that the severity of schema scores was affected by psychiatric conditions, and that schemas and personality are intertwined phenomena, and future research should explore this further. It should also be noted that, although studies have supported the factor structure of the YSQ-L3 for all 18 individual schemas (Hawke & Provencher, 2012; Kriston, Schafer, von Wolff, Harter, & Holzel, 2012; Saariaho et al., 2009), a few studies have failed to find support for the five schema domains (Hawke & Provencher, 2012; Kriston et al., 2012). However, it should also be noted that these studies employed the shorter version of the YSQ-L3 and researchers speculate that the factor structure of the schema domains would be enhanced if the full 232 item version is employed. Moreover, these studies employed mostly college-aged or non-clinical participants (Hawke & Provencher, 2012; Kriston et al., 2012). Thus, future research should attempt to establish the factor structure of the YSQ-L3 in a substance use treatment seeking sample. Finally, future research should examine and control for additional personality disorders when examining the relation between early maladaptive schemas and ASPD and BPD, as there is considerable overlap among personality disorders and this may impact study findings.

In summary, the current study added to the growing body of literature on the relations between early maladaptive schemas and antisocial and borderline personality symptoms, specifically within a sample of men seeking residential substance abuse treatment. Consistent with the previous research and theory, specific early maladaptive schema domains were associated with antisocial and borderline personality symptoms, even after controlling for shared variance in personality disorders, substance use, and demographic characteristics. These findings lend support to the notion that early maladaptive schemas may be an important underlying vulnerability to personality disorders, and that early maladaptive schemas may be an important target of interventions for comorbid substance use and personality disorders. Modifying early maladaptive schemas may result in improved substance use outcomes, which could be partly due to reductions in personality symptoms that may be associated with substance use.

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Key Practitioner Message

- Antisocial (ASPD) and Borderline (BPD) personality disorder symptoms are prevalence among individuals seeking substance abuse treatment.
- Early maladaptive schemas are believed to underlie the development of ASPD and BPD symptoms, and are also prevalence among individuals seeking substance use treatment.
- Findings from the current study suggest that specific early maladaptive schema domains predict ASPD and BPD symptoms in a substance abuse treatment seeking sample of adult males.
- The treatment of ASPD and BPD among men seeking substance use treatment may want to focus on early maladaptive schemas.

Table 1

List of early maladaptive schemas

Early maladaptive schemas	Description
Disconnection and rejection	Belief that one's needs for safety, stability, security, empathy, respect and acceptance will not be met.
Emotional Deprivation	A belief and expectation that other people will be unable to meet one's emotional needs.
Abandonment	The belief that close, loved others will be lost emotionally and physically.
Mistrust/Abuse	The belief that other people will harm, abuse, or take advantage of you in some way.
Social Isolation	A belief that one different from other people and not a part of any group/community.
Defectiveness	A belief one is unlovable/insignificant due to being bad, inferior, or invalid.
Impaired autonomy and performance	Beliefs that interfere with one's ability to survive, separate, perform successfully, and function independent of other people
Failure	A belief that one has failed in important areas of life or will eventually fail.
Dependence	A belief that one is unable to handle everyday responsibilities without the help of others.
Vulnerability	A belief that bad things will happen and one cannot do anything to prevent it or cope with it.
Enmeshment	A belief that one cannot be happy or survive without being constantly supported by close others.
Impaired Limits	Inability to form long-term goals and a lack of responsibility to others; difficulty respecting and cooperating with others.
Entitlement	A belief that one is entitled to special rights and is better than other people.
Insufficient self-control	Difficulty refraining from engaging in impulsive behaviour and thinking of long-term consequences.
Other-Directedness	Excessive focus on the needs, feelings and desires of other people.
Subjugation	A belief that one is controlled by other and that one's own feelings/opinions is not important or valid.
Self-sacrifice	A belief that one must voluntarily meet the needs of other people.
Approval-seeking	A belief that one's sense of self is dependent on other people liking you.
Overvigilance and inhibition	Focus on suppressing one's feelings and impulses; high standards of performance and ethical behaviour.
Emotional inhibition	A belief that one should not express feelings/emotions.
Unrelenting standards	A belief that one must meet excessively high internalized standards of behaviour.
Negativity/pessimism	A constant focus on the negative aspects of life.
Punitiveness	A belief that self and other should be punished for mistakes.

Schema domain names are presented in bold. Reprinted with permission from (Shorey, Stuart, & Anderson, 2012).

Table 2

Bivariate correlations, means and standard deviations among study variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Alcohol Use	---	-0.29**	-0.01	0.18	0.01	-0.05	0.09	0.09	0.03
2. Drug Use		---	0.45***	0.24*	0.15	0.21*	0.31**	0.14	0.21*
3. Antisocial Personality			---	0.57***	0.44***	0.36***	0.57***	0.34**	0.36***
4. Borderline Personality				---	0.51***	0.51***	0.51***	0.51***	0.57***
5. Disconnection & Rejection					---	0.81***	0.68***	0.71***	0.77***
6. Impaired Autonomy						---	0.66***	0.69***	0.66***
7. Impaired Limits							---	0.66***	0.72***
8. Other Directedness								---	0.83***
9. Overvigilance & Inhibition									---
M	14.16	10.32	2.08	2.41	54.79	21.36	26.93	53.67	70.39
SD	11.01	12.71	1.69	1.92	61.64	28.89	25.91	41.63	55.00

SD, standard deviation.

* $p < 0.05$.** $p < 0.01$.*** $p < 0.001$.

Table 3

Differences in early maladaptive schemas among diagnostic groups

	Probable antisocial diagnosis (<i>n</i> = 16) M (SD)	No antisocial diagnosis (<i>n</i> = 82) M (SD)	<i>T, p</i>	<i>D</i>
Disconnection and rejection	110.59 (94.80)	43.90 (46.38)	4.30, <0.001	0.89
Impaired autonomy	45.68 (46.75)	16.62 (21.33)	3.94, <0.001	0.79
Impaired limits	50.46 (33.25)	22.34 (21.65)	4.31, <0.001	1.02
Other directedness	76.59 (60.60)	49.20 (35.66)	2.47, <0.05	0.55
Overvigilance and inhibition	109.40 (75.05)	62.78 (47.12)	3.25, <0.01	0.74
Alcohol use	15.00 (12.43)	14.00 (10.78)	0.32, ns	0.08
Drug use	23.40 (15.00)	7.84 (10.57)	5.00, <0.001	1.19
	Probable borderline diagnosis (<i>n</i> = 15) M (SD)	No borderline diagnosis (<i>n</i> = 83) M (SD)		
Disconnection and rejection	117.75 (81.69)	43.41 (49.99)	4.75, <0.001	1.09
Impaired autonomy	52.40 (47.28)	15.76 (19.94)	5.06, <0.001	1.01
Impaired limits	51.89 (29.45)	22.42 (22.62)	4.42, <0.001	1.12
Other directedness	94.72 (49.94)	46.25 (35.51)	4.55, <0.001	1.11
Overvigilance and inhibition	136.58 (61.73)	58.43 (44.52)	5.87, <0.001	1.45
Alcohol use	13.90 (13.65)	14.21 (10.56)	0.10, ns	0.02
Drug use	15.76 (16.21)	9.40 (11.80)	1.80, ns	0.44

SD, standard deviation.

Table 4

Hierarchical regression analyses predicting personality symptoms

Antisocial personality disorder symptoms	
Model 1	$F = 17.98, p < 0.001, R^2 = 0.43$
Age	$\beta = -0.02 (0.01)$
Alcohol use	$\beta = -0.00 (0.01)$
Drug use	$\beta = 0.32 (0.01)^{**}$
Borderline personality	$\beta = 0.49 (0.07)^{***}$
Model 2	$F = 13.64, p < 0.001, R^2 = 0.58$
Age	$\beta = -0.02 (0.01)$
Alcohol use	$\beta = -0.08 (0.01)$
Drug use	$\beta = 0.25 (0.01)^{**}$
Borderline personality	$\beta = 0.46 (0.08)^{***}$
Disconnection and rejection	$\beta = 0.39 (0.00)^{**}$
Impaired autonomy	$\beta = -0.32 (0.01)^*$
Impaired limits	$\beta = 0.50 (0.01)^{***}$
Other directedness	$\beta = 0.05 (0.01)$
Overvigilance and inhibition	$\beta = -0.45 (0.00)^{**}$
Borderline personality disorder symptoms	
Model 1	$F = 13.62, p < 0.001, R^2 = 0.37$
Age	$\beta = -0.04 (0.02)$
Alcohol use	$\beta = 0.21 (0.01)^*$
Drug use	$\beta = 0.03 (0.01)$
Antisocial personality	$\beta = 0.55 (0.10)^{***}$
Model 2	$F = 12.34, p < 0.001, R^2 = 0.56$
Age	$\beta = -0.03 (0.02)$
Alcohol use	$\beta = 0.23 (0.01)^{**}$
Drug use	$\beta = -0.00 (0.01)$
Antisocial personality	$\beta = 0.49 (0.11)^{***}$
Disconnection and rejection	$\beta = -0.19 (0.00)$
Impaired autonomy	$\beta = 0.35 (0.01)^*$
Impaired limits	$\beta = -0.24 (0.01)$
Other directedness	$\beta = -0.07 (0.01)$
Overvigilance and inhibition	$\beta = 0.54 (0.01)^{**}$

Standard errors are in parentheses.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.