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The relationship between early maladaptive schemas and eating-disorder symptomatology among individuals seeking treatment for substance dependence

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Abstract

Numerous studies have examined early maladaptive schemas (EMS) and their relationship to psychological disorders, including eating disorders (EDs) and substance use disorders (SUDs). However, to date, there are no empirical investigations that have examined the relationship between EMS and EDs among individuals seeking treatment for substance use. In an attempt to further elucidate this relationship, the purpose of the current, exploratory study was to examine the relationship between EMS, ED symptomatology (i.e., bulimia and binge-eating but not anorexia), and substance use and to directly compare EMS among individuals with and without a probable ED diagnosis. Participants were 387 men and 132 women seeking residential treatment for substance use. Results demonstrated that 11 of the 18 EMS were significantly associated with ED. Moreover, patients with a probable ED scored significantly higher than patients without a probable ED on 8 of the 18 EMS. Results suggest that EMS are prevalent among individuals with ED pathology seeking treatment for substance use. Thus treatment programs could potentially benefit from the assessment and treatment of EMS among dually-diagnosed patients. Given the exploratory and preliminary nature of the study, continued research is needed to further examine the relationship between EMS, EDs, and substance use.

Keywords

Early maladaptive schemas; eating disorders; substance dependence; substance use disorders

The rates of co-occurrence between eating (i.e., Anorexia Nervosa, Bulimia Nervosa, and Binge Eating Disorder) and substance use disorders (SUDs) are alarmingly high (Grilo, Levy, Becker, Edell, & McGlashan, 1995; Franko, Dorer, Keel, Jackson, Manzo, & Herzog, 2008; Root et al., 2010). Researchers have estimated that the lifetime prevalence of SUDs among patients suffering from Anorexia Nervosa is 23% and among patients with Bulimia Nervosa is 55% (Franko et al., 2008). Moreover, both substance use and eating disorders (EDs) are associated with high morbidity (Dickey, Normand, Weiss, Drake, & Azeni, 2002;

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Konkolÿ Thege et al., 2015; Winkler. Christiansen, Lichtenstein, Hansen, Bilenberg, & Støving), mortality (Arcelus, Mitchell. Wales, & Nielson, 2011; Finney, Moos, & Tmko, 1999; Konkolÿ Thege et al., 2015; Sullivan, 1995; Zanis & Woody, 1998), and relapse rates for both eating and substance use disorders (Bowen et al., 2014; DeJong, Broadbent, & Schmidt, 2012; McLellan, Lewis, O'Brien, & Kleber, 2000; Zerwas et al., 2013). It has been theorized that impulsivity and self-medication (i.e., individuals with EDs use substances to cope with the negative emotions associated with disordered eating to explain the relationship between EDs and substance use disorders (SUDs; Holderness, Brooks-Gunn, & Warren, 1994). Given the high co-occurrence, relapse, and mortality rates, research has called for treatments that simultaneously target both disorders (Harrop & Marlatt, 2010). One option for the concurrent treatment of EDs and substance use may be a focus on reducing, and enhancing coping skills for, early maladaptive schemas (EMS). Indeed, there has been a growing focus on EMS in the treatment of a variety of psychological disorders (e.g., EDs, substance dependence, anxiety, and depression), as research has consistently shown that EMS are prevalent among individuals with Axis-I disorders (e.g., Boone, Braet, Vandereycken, & Claes, 2013; Brotchie, Meyer, Copello, Kidney, & Waller, 2004; Shorey, Stuart, & Anderson, 2013a; Shorey, Stuart, & Anderson, 2014). For the purposes of the current paper, we limited our investigation to bulimia and binge eating symptoms and not symptoms of anorexia. Extant literature has suggested that EMS are less prevalent among individuals with anorexia nervosa than individuals with bulimia nervosa and binge eating disorder (Holderness et al., 1994). Furthermore, the assessment measure used in the current study only assesses the presence of symptoms of bulimia nervosa and binge eating disorder. For these reasons, the current study didn't investigate the relationship between anorexia nervosa and EMS among a substance dependent population.

Early Maladaptive Schemas (EMS)

EMS are cognitive structures that help individuals screen, code, and interpret their environment (Young, Klosko, & Weishaar, 2003). It is thought that EMS develop from negative and traumatic childhood experiences, which are elaborated and reinforced throughout one's lifetime and cause significant distress and dysfunction (Young et al., 2003). According to Young and colleagues (2003), it is theorized that mental health disorders (e.g., SUDs, anxiety, EDs) are based on, emerge from, and are maintained by EMS. Furthermore, Young and colleagues (2003) have proposed and identified 18 EMS (i.e., abandonment, approval seeking, defectiveness, dependence, emotional deprivation, emotional inhibition, enmeshment, entitlement, failure, insufficient self control, mistrust/ abuse, negativity/ pessimism, punitiveness, self sacrifice, social isolation, subjugation, unrelenting standards, vulnerability) that contribute to psychopathology and psychological symptoms. A detailed description of each EMS has been described elsewhere (i.e., Young et al., 2003).

EMS and Substance Dependence

It has been theorized that EMS are a significant risk factor for both the etiology and maintenance of SUDs (Ball 1998; 2007; Shorey et al., 2013a). Research examining the relationship between EMS and SUDs has consistently found that EMS are prevalent among individuals seeking treatment for SUDs (e.g., Shorey, Anderson, & Stuart, 2012;2014), and

research has also demonstrated that the vast majority of EMS are higher among substance users compared to non-clinical samples (Brotchie et al., 2004; Shorey, Stuart, & Anderson, 2013a; 2013b; 2014). In addition, given the prevalence of EMS among substance-dependent individuals and the significant differences between substance-dependent and non-clinical samples, a growing body of research has examined the effect of treatment on EMS. Specifically, preliminary research has shown a significant decline in EMS following both standard treatment for substance use (Shorey, Stuart, Anderson, & Strong, 2013c; Roper, Dickson, Tinwell, Booth, & McGuire, 2010) and treatment directly targeting EMS (Ball, 2007).

A limitation of the existing literature examining the relationship between EMS and SUDs is that all studies singularly focused on SUDs and not the relationship between EMS, SUDs, and co-occurring psychopathology (e.g., EDs). Such knowledge is important as it could elucidate the complex relationship between SUDs and psychopathology. Of particular importance is the relationship between SUDs and EDs as both disorders are chronic in nature and associated with high mortality rates. Furthermore, research examining the relationship between EMS, SUDs, and co-morbid disorders is important as it could help inform and enhance treatment by identifying strategies that could more directly target persistent and stable cognitive structures, namely EMS.

EMS and EDs

As related to EDs, it is theorized that EMS are integral in the development and maintenance of disordered eating (Jones, Leung, & Harris, 2007), as cognitive distortions, such as EMS, are believed to be the “core psychopathology” of EDs (Fairburn, 1997). Numerous studies have examined the role of EMS in the development and etiology of EDs (Boone et al., 2013; Jones et al., 2007). For example, Jones and colleagues (2007) reviewed the literature on dysfunctional core beliefs among individuals with EDs and found that bulimic behaviors are associated with all 18 EMS, while purging behaviors have been associated with the abandonment, defectiveness, social isolation, failure, self-sacrifice, and emotional inhibition schemas. Similarly, Unoka and colleagues (2010) examined the relationship between EMS and ED behaviors and found that eating behaviors resulting in immediate rewards (e.g., bingeing, purging, and use of diet pills) was positively associated with the abandonment, emotional inhibition, enmeshment, emotional deprivation, and subjugation schemas.

In addition, existing research supports the existence of significant differences between women with EDs and non-clinical controls on EMS (Cooper, Cohen-Tovée, Todd, Wells, Tovée, 1997; Leung, Waller, & Tomas, 1999; Waller, Ohanian, Meyer, & Osman, 2000). For instance, Jones and colleagues (2005) compared EMS among women with current ED symptoms to women who were in remission from an ED and non-clinical controls. Results indicated that women with current ED symptomatology scored significantly higher on the dependence, enmeshment, subjugation, emotional inhibition, and unrelenting standards schemas compared to controls and women in recovery. Similarly, Leung and colleagues (1999) found that women with EDs scored significantly higher on 16 EMS compared with non-clinical controls. Taken together, existing research supports the contributing role of EMS to the development and maintenance of EDs.

In addition, research has examined the role of EMS in the treatment of EDs and has shown that EMS negatively affect treatment outcome (Jones et al., 2007; Leung, Waller, & Thomas, 2000). For example, research indicated that higher pre-treatment scores on the defectiveness and social isolation schemas were associated with significantly fewer changes in bulimic behaviors, particularly vomiting, among individuals who received a group cognitive-behavioral intervention for bulimia nervosa (Leung et al., 2005).

There are limitations in the aforementioned studies that were addressed in the current study. For instance, past work on EDs and EMS have focused on women, which limits the generalizability to men with ED symptomatology. Past work has documented a significant increase in body image concerns among men, with estimates reaching 43% (Schooler & Ward, 2006). Additionally, men with self-reported binge eating symptoms are more likely to experience depression compared to men with no binge eating symptoms (Striegel, Bedrosian, Wang, & Schwartz, 2012), and men are less likely than women to seek treatment for their body image concerns and ED symptoms (Berger, Levant, McMillan, Kelleher, & Sellers, 2005). Taken together, this research indicates the importance of including men in empirical investigations of EDs, particularly investigations examining the co-occurrence of EDs and SUDs as SUDs are prevalent among men.

Additionally, similar to research on substance dependent populations, research examining the relationship between EMS and EDs has solely focused on ED populations and not populations with co-occurring EDs and Axis-I psychopathology. This is a limitation as research has consistently documented that EMS influence treatment for EDs and other Axis-I disorders (e.g., SUDs). Thus, EMS are likely to have a significant influence on treatment for individuals with co-occurring EDs and Axis-I disorders, namely SUDs. Furthermore, co-morbid disorders might differentially influence treatment outcomes compared to the presence of a single disorder.

Current Study

Taken together, existing research supports the prevalence of EMS among individuals with both substance use and EDs. Furthermore, given the high rates of co-occurrence between EDs and SUDs, it is likely that there would be a significant relationship between EMS and ED pathology among individuals with SUDs. However, to our knowledge there is no research that has examined the relationship between EMS and ED pathology among individuals with a SUD. Knowledge of this information is important because it could help guide prevention and treatment efforts and, ultimately, reduce the likelihood of relapse from both disorders.

In the current study, we examined the relationship between EMS and ED symptomatology among a sample of men and women seeking residential treatment for substance dependence. We also sought to examine whether EMS were different for individuals with a probable ED diagnosis compared to individuals without a probable ED diagnosis. To our knowledge, this is the first study that has examined the relationship between EMS and EDs in a sample of substance-dependent individuals. Due to the exploratory and preliminary nature of this study, no a priori hypotheses were made.

METHOD

Participants and Procedures

Patient records from 387 men (74.6%) and 132 women (25.4%) from a residential substance use treatment facility located in the Southeastern United States were reviewed for the current exploratory investigation. The residential treatment program, which is 28 to 35-days in duration, is based on the 12-step philosophy and strongly emphasizes the evaluation and treatment of EMS. In order to be admitted to the residential program, individuals have to be 25 years or older and have a primary diagnosis of a SUD. As part of the initial intake procedure, all new patients complete self-report measures to help assess for psychopathology, substance use, and constructs important for treatment (e.g., EMS). During the intake procedure, patients also provide informed consent that enables research personnel to audit patient medical records for research purposes. All medical records are de-identified in order to ensure confidentiality. The Institutional Review Board of the first author approved all study procedures.

Medical records for patients admitted to a residential treatment facility between September 2012 and April 2014 were utilized in the current study, which yielded a total of 519 participants (387 men and 132 women). For the purposes of the current study, all patient records during this time were utilized in analyses, and no exclusion criteria were used to screen out patient records. The mean age of patients was 42.16 years (SD = 10.70) and the mean number of years of education was 13.98 (SD = 2.07). The ethnic and racial composition of the patient sample was as follows: 91.3% non-Hispanic Caucasian, 5.2% African American, 1.9% Hispanic, and 1.6% “Other” (e.g., Asian). At the time of the intake assessment, the majority of patients reported that they were married (43.2%) followed by never married (21.0 %). The substance use diagnoses for the current sample were as follows: 57.1% alcohol dependence, 18.8% opioid dependence, 11.8% polysubstance dependence, 2.4% cannabis dependence, and 9.9% other (e.g., cocaine dependence). Substance use diagnoses at the treatment facility where charts were reviewed were based on the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition – Text Revision (American Psychiatric Association, 2000).

Measures

Demographics Questionnaire—At the intake assessment, patients provided demographic information, including their gender, age, education level, ethnicity/ race, and marital status.

EDs—The ED subscale of the Psychiatric Diagnostic Screening Questionnaire (PDSQ; Zimmerman, 2002) was used to assess ED symptoms (i.e., bulimia and binge eating). The PDSQ screens for the presence of 15 Axis-I disoders using empirically validated cutoff scores (Zimmerman, 2002). For the ED subscale, a cutoff score of 7 was used to indicate the probable presence of bulimia/binge eating symptomatology (Zimmerman, 2002). Existing research indicates that the PDSQ has excellent relibaility and validity (Sheeran & Zimmerman, 2004; Zimmerman & Mattia, 2001). In order to compare whether patients who did and did not meet the diagnostic cutoff score for ED (i.e., ED Group and Non-ED Group,

respectively) differ on EMS, patient's scores on the ED subscale of the PDSQ were dichotomized (0= absence of ED diagnosis, 1= presence of probable ED diagnoses). Patients with cutoff scores below 7 were coded as "0" and patients with cutoff scores of 7 or greater were coded as "1". Continuous scores of ED symptoms from the PDSQ were used to examine correlations among study variables. The dichotomized values were used to determine differences between the ED and Non-ED group on EMS[1]. The PDSQ subscales have demonstrated good reliability (mean α = .82) and test-retest reliability (mean α = .72; Zimmerman & Mattia, 1999).

EMS—The 18 EMS were assessed using the Young Schema Questionnaire – Long Form, Third Edition (YSQ-L3; Young & Brown, 2003). Patients were provided with 232 statements and asked to rate the extent to which each applied to them on a 6-point scale (1= completely untrue of me; 6= describes me perfectly). Items rated as 1, 2, or 3 are considered to be less relevant to patients and recoded into "0". All items rated as 4, 5, or 6 are considered to be of relevance to patients, and are summed to form a total score for each EMS (Young & Brown, 2003). The score ranges for each EMS are as follows: abandonment (0–102), approval seeking (0–84), defectiveness (0–90), dependence (0–90), emotional deprivation (0–54), emotional inhibition (0–54), enmeshment (0–66), entitlement (0–66), failure (0–54), insufficient self-control (0–90), negativity/pessimism (0–66), punitiveness (0–90), self-sacrifice (0–102), subjugation (0–60), unrelenting standards (0–96), and vulnerability (0–72) (Young & Brown, 2003; Young et al., 2003). Past work has utilized numerous approaches for examining and assessing EMS, and there is not one agreed upon approach that is empirically validated and utilized across studies. In the current study, we used the scoring system adopted by the treatment facility and used in past empirical studies (e.g., Shorey et al., 2012, 2013a, 2013c, 2014). Existing literature has reported that the YSQ has good validity and reliability (Cocrakm, Drummond, & Lee, 2010) and factor structure (Saariaho, Saariaho, Karila, & Joukamaa, 2009).

Substance Use—Substance use was assessed using the Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, De La Fuenta, & Grant, 1993) and the Drug Use Disorders Identification TEST (DUDIT; Stuart, Moore, Kahler, & Ramsey 2003; Stuart, Moore, Ramsey, & Kahler, 2004). The AUDIT is a 10-item self-report measure that was used to assess alcohol use in the 12 months prior to treatment admission. Patients' reports provided assessments of the frequency and intensity of alcohol use, presence of tolerance or dependence to alcohol, and the negative consequences associated with alcohol use. Barbor and colleagues (2001) reported good reliability and validity for the measure in a variety of different populations. The DUDIT is a 14-item self-report measure that assessed the frequency of use of the following substances in the 12 months prior to treatment admission: cannabis; cocaine; hallucinogens/PCP; nonprescribed stimulants, sedatives/ hypnotics/ anxiolytics, and opiates; and other substances. The DUDIT also assessed problems relating to use of those substances. The DUDIT has evidence of good reliability, with estimates ranging from .89 to .90 (Stuart et al., 2003, 2004).

[1]All new patients to the residential treatment facility completed the PDSQ to help identify the presence of co-morbid psychopathology and aid treatment. Patients who score high on the ED subscale of the PDSQ are flagged and provided with additional assessment and intervention, including post-treatment referrals for ED treatment, educational material on EDs, and supervised meals.

RESULTS

Bivariate correlations between symptoms of ED and demographic variables (i.e., gender, age, education level) demonstrated that ED symptoms were significantly associated with gender (r= .10, p < .05). Bivariate correlations for EMS and symptoms of ED are presented in Table 1. Results demonstrated that ED symptoms were significantly correlated with 17 out of 18 EMS. The only EMS that was not significantly associated with ED symptoms was emotional deprivation. Moreover, DUDIT scores were positively and significantly associated with 17 out of EMS, and AUDIT scores were significantly associated with 12 out of 18 EMS (Table 2). AUDIT and DUDIT scores were significantly and negatively associated with each other.

Next, independent samples t-tests were utilized in order to examine whether the ED and Non-ED groups differed on demographic variables, AUDIT, and DUDIT scores. Results demonstrated that the ED and Non-ED groups did not significantly differ on any demographic variables or AUDIT or DUDIT scores. Furthermore, a chi-square analysis was utilized in order to determine whether the ED and Non-ED groups differed by gender. Results demonstrated that the groups differed by gender, with a probable ED diagnosis being more prevalent among women than men, X^2 (DF = 1 = 5.38, p < .05. Due to the significant gender difference, we included gender as a covariate in the remaining analyses.

A Multivariate Analysis of Covariance (MANCOVA) was next used to determine whether the ED and Non-ED groups differed on EMS, with gender included as a covariate. Results indicated that the groups differed on EMS, F(18, 470) = 7.08, p < .001. Analyses of Covariance (ANOVAs) were used to examine group differences for each of the 18 EMS, controlling for gender. In order to reduce the likelihood of Type I error, we used a Bonferroni correction and set our alpha level to .003. Results from the ANCOVAs are presented in Table 3. Results demonstrated that after controlling for gender the groups significantly differed on 8 out of the 18 EMS, with the ED group scoring significantly higher on all EMS than the non-ED group. Specifically, the groups significantly differed on the following schemas: abandonment, approval seeking, enmeshment, insufficient self-control, social isolation, subjugation, unrelenting standards, and vulnerability. Effect size differences (d= .40– .56) between groups on EMS fell into the medium range (Cohen, 1988).

DISCUSSION

Existing research has consistently demonstrated that EMS are prevalent among individuals with eating and SUDs (Brotchie et al., 2004; Boone et al., 2013; Jones et al., 2007; Roper et al., 2010). Furthermore, existing research has indicated that adult substance users score significantly higher on EMS than non-clinical samples (Shorey et al., 2014). However, to date, research has yet to examine EMS among individuals with both ED symptomatology and substance dependence. Thus, the purpose of the current study was to examine this relationship and whether substance-dependent individuals with a probable ED (i.e., ED group) scored higher on EMS than individuals without a probable ED (i.e., Non-ED group)

Results indicated that, after controlling for gender, the ED group scored significantly higher on 8 of 18 EMS than the Non-ED group. Specifically, the ED group scored significantly higher on the schemas of abandonment, approval seeking, enmeshment, insufficient self-control, social isolation, subjugation, unrelenting standards, and vulnerability. There are a number of possible reasons for the group differences in EMS. For instance, results from the current study that the ED group scored significantly higher on the unrelenting standards, enmeshment, and subjugation schemas is consistent with previous research that has shown that women with current ED symptoms score significantly higher on these schemas than a control sample (Jones et al., 2005). Additionally, research has demonstrated that women with current ED symptoms and women in recovery score significantly higher on the abandonment schema than a control sample, which is also consistent with findings from the current study (Jones et al., 2005). These schemas are not only prevalent among substance dependent populations (Shorey et al., 2012, 2013a, 2014), but also represent potentially important risk factors for the etiology and maintenance of EDs.

A few of the significant group differences in EMS warrant further discussion. For example, the ED group scored significantly higher on the unrelenting standards schema than the Non-ED group. Unrelenting standards refers to the belief that one must always strive to meet exceptionally high, internalized standards of oneself (Young & Brown, 2003). Existing research and theory proposes that perfectionism or unrelenting standards is core to the etiology and maintenance of ED symptoms (Boone et al., 2013; Boone, Vansteenkiste, Soenens, Van der Kaap-Deeder, & Verstuyf, 2014). Specifically, existing research has consistently demonstrated that patients with current ED symptoms and patients in remission have elevated levels of unrelenting standards compared to non-clinical controls (Halmi et al., 2000; Soenens et al., 2008). Research has also shown that unrelenting standards is associated with increased binge eating symptoms over time (Boone, Soenens, & Braet, 2011; Mackinnon et al., 2011). Thus, although research has demonstrated that substance-dependent populations often endorse unrelenting standards at high rates (Shorey et al., 2012, 2014), it is probable that the ED group endorsed this schema at a higher rate than the non-ED group because this schema represents a vulnerability factor for the etiology and maintenance of ED pathology (Boone et al., 2014).

Second, the ED group scored significantly higher than the Non-ED group on the abandonment schema. The abandonment schema involves the sense that significant others will be unavailable to provide emotional and physical support because they are unpredictable, unstable, or not present. This schema also represents the belief that significant others will abandon the individual for another more desirable or favorable person (Young et al., 2003). Research has shown that abandonment beliefs are an important mediator between negative childhood experiences in the family of origin (e.g., abuse and maltreatment) and subsequent ED pathology (Jenkins; Jones, Leung, & Harris, 2006). It is possible that individuals with a history of child abuse or neglect develop maladaptive coping strategies (e.g., substance use, bulimic and binge eating symptoms) in an effort to cope with fears or beliefs about being abandoned by significant others. For individuals with co-morbid substance use and ED symptoms, this relationship might be more severe, thus explaining the significant differences between the ED and Non-ED groups.

Finally, the ED group significantly differed from the Non-ED group on the insufficient self-control schema, with the ED group scoring higher on this schema than the Non-ED group. Insufficient self-control is theorized as a "pervasive difficulty or refusal to exercise sufficient self-control and frustration tolerance to achieve one's personal goals or to restrain the excessive expression of one's emotions and impulses (Young et al., 2003, p. 15). For individuals with bulimic or binge eating symptomatology, they might engage in impulsive, disordered eating behaviors (binge eating or purging) to cope with and tolerate aversive emotions and cognitions (Waller, Ohanian, Meyer, & Osman, 2000). Thus, similar to the abandonment schema, the insufficient self-control schema might be more prevalent among individuals with co-morbid substance dependence and ED symptomatology because they use both disordered eating behaviors and substances to regulate negative emotions, which could ultimately contribute to the development of high levels of insufficient self-control.

Clinical Implications

Given the high rates of mortality and relapse for both disorders, the results from the current study have potentially important implications, pending replication. Specifically, findings indicated that individuals with ED symptoms scored significantly higher on 8 out of 18 EMS than individuals without the presence of ED symptoms and that EMS are significantly associated with ED symptoms. This in conjunction with previous research that has consistently supported the prevalence of EMS among substance-dependent populations, indicates that EMS are a potentially important target that could help enhance substance-use and ED treatments. It may be beneficial for treatment providers to assess and monitor EMS throughout treatment in order to elucidate how EMS might be impacting treatment and contributing to the maintenance of ED and substance use symptomatology.

Existing research examining the effectiveness of widely used ED treatments has found that EMS are one factor that negatively impacts treatment outcome. For instance, the findings by Leung and colleagues (2000) that higher pre-treatment scores on the defectiveness and social isolation schemas was associated with the maintenance of vomiting behavior following treatment suggests that EMS are important in the maintenance of ED symptomatology. In an effort to address the high rates of relapse and limited response to standard treatment (e.g., group cognitive-behavioral therapy) among ED populations, efforts have been made to utilize and research new treatments (Simpson, Morror, van Vreeswijk, & Reid, 2010). For example, research has demonstrated that cognitive-behavioral techniques are effective in reducing EMS and improving mental health outcomes (Jacob & Arntz, 2013; Renner, Arntz, Leeuw, & Huibers, 2013; Sempértegui, Karreman, Arntz, & Bekker, 2013). Thus, treatment interventions that utilize cognitive-behavioral techniques (e.g., behavioral activation, cognitive restructuring) to target EMS might ultimately help decrease relapse rates and improve treatment outcomes among substance-dependent and ED populations.

Group schema therapy was also developed in order to help improve treatment outcomes for EDs by targeting EMS that are proposed to maintain ED behaviors (Simpson et al., 2010). Preliminary investigations have supported the effectiveness of group schema therapy in reducing unhealthy schemas, ED symptoms, and ED severity (Simpson et al., 2010). In addition, a schema focused therapy for use with substance dependent populations has also

been developed and has received preliminary empirical support (Ball, 1998; 2007). Thus, schema focused therapy has been developed for substance and ED populations and has received preliminary empirical support for both disorders. However, we are unaware of any research that has examined the effectiveness of schemas focused therapy for individuals with both a substance use and ED. Clearly there is a need for research in this area due to the high levels of comorbidity among these disorders.

Limitations and Future Directions

There are a number of limitations that need to be considered when interpreting the current findings. To begin, this is the first study that has examined the relationship between EMS and ED symptomatology in a sample of substance-dependent individuals, and thus future research should replicate and extend these findings. For instance, there are a number of potential mediating factors (e.g., early childhood abuse, reasons for drinking, the presence of additional psychopathology) that might impact this relationship that should be examined in future research. Second, the majority of the sample was non-Hispanic, Caucasian, which limits the generalizability of the findings to more diverse populations. Additionally, the assessment measures utilized by the treatment facility where charts were reviewed are based solely on self-report measures and non-structured interviews. Thus, this limits the inpatient diagnoses. Future research should utilize structured diagnostic interviews to assess for substance use and EDs. Fourth, the current study is cross-sectional, precluding determinants of causality. Future research utilizing longitudinal designs will help further clarify the relationship between EMS and eating and substance use disorders. Moreover, the current study is a chart review, thus limiting data to only that which is included in the patients' medical records. At the treatment facility in which the study was conducted, total and not individual item scores for all assessment measures are included in the patients' records, precluding Cronbach alpha analyses. Finally, in an effort to further elucidate the relationship between EMS and ED symptoms among populations with and without SUDs, future research should compare EMS in ED clients with and without SUDs.

Conclusions

In summary, the findings from the current study contribute to the literature on the relationship between EMS, SUDs, and psychopathology, as it is the first study to examine the relationship between ED symptomatology, SUDs, and EMS. Our results indicated that substance-dependent patients with a probable ED scored significantly higher than patients without a probable ED on 8 of 18 EMS. Future research is needed to address the aforementioned limitations, replicate the current findings, and further elucidate the relationship between EMS, ED symptomatology, and SUDs.

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Table 1

Bivariate Correlations between EMS and ED symptoms

EMS	ED Symptoms (r)
Abandonment	.19**
Approval Seeking	.23**
Defectiveness	.16**
Dependence	.10*
Emotional Deprivation	0.06
Emotional Inhibition	.17**
Enmeshment	.17**
Entitlement	.12**
Failure	.13**
Insufficient self-control	.20**
Mistrust/Abuse	.18**
Negativity/Pessimism	.14**
Punitiveness	.19**
Self-Sacrifice	.16**
Social Isolation	.18**
Subjugation	.19**
Unrelenting Standards	.21**
Vulnerability	.19**

* $p < .05$,

** $p < .01$

Table 2

Bivariate Correlations between EMS and Substance Use

EMS	DUDIT (r)	AUDIT (r)
Abandonment	.18**	.11**
Approval Seeking	.21**	.14**
Defectiveness	.18**	.12**
Dependence	.29**	0.01
Emotional Deprivation	0.06	.15**
Emotional Inhibition	.22**	.14**
Enmeshment	.24**	0.02
Entitlement	.21**	.10*
Failure	.10*	0.06
Insufficient self-control	.29**	.14**
Mistrust/Abuse	.20**	.13**
Negativity/Pessimism	.18**	.18**
Punitiveness	.15**	.13**
Self-Sacrifice	.09*	0.07
Social Isolation	.10*	.15**
Subjugation	.22**	0.08
Unrelenting Standards	.09*	.14**
Vulnerability	.15**	0.08

* $p < .05$,

** $p < .01$

Table 3

Differences between patients with and without ED symptomatology on EMS

EMS	ED Group *M* (SD)	Non-ED Group *M* (SD)	*F*	*p*	*d*
Abandonment	27.40 (26.79)	15.57 (20.77)	**2.07**	<.001	0.49
Approval Seeking	25.73 (23.35)	13.79 (19.12)	**2.23**	<.001	0.56
Defectiveness	19.73 (25.53)	11.11 (18.96)	1.52	<.01	0.38
Dependence	12.53 (17.26)	8.73 (15.18)	1.11	>.05	0.23
Emotional Deprivation	8.70 (12.18)	8.14 (12.50)	0.87	>.05	0.05
Emotional Inhibition	13.17 (15.71)	9.01 (12.13)	1.46	<.05	0.3
Enmeshment	13.40 (19.61)	5.25 (10.75)	**2.4**	<.001	0.52
Entitlement	10.73 (14.17)	9.47 (13.67)	1	>.05	0.09
Failure	8.67 (14.73)	5.03 (10.54)	1.38	>.05	0.28
Insufficient self-control	26.97 (25.93)	17.69 (20.37)	**1.68**	0.001	0.4
Mistrust/Abuse	29.37 (24.06)	19.75 (22.45)	1.35	<.05	0.41
Negativity/Pessimism	24.43 (22.34)	16.71 (22.04)	1.33	<.05	0.35
Punitiveness	30.30 (19.53)	20.89 (20.00)	1.34	<.05	0.48
Self-Sacrifice	45.97 (27.01)	33.26 (25.53)	1.31	<.05	0.48
Social Isolation	15.80 (18.33)	8.99 (14.67)	**1.83**	0.001	0.41
Subjugation	16.40 (20.58)	7.89 (12.55)	**2.43**	<.001	0.5
Unrelenting Standards	40.60 (24.46)	28.46 (24.57)	**1.55**	0.003	0.5
Vulnerability	16.53 (17.82)	8.44 (11.53)	**2.41**	<.001	0.54

Significant results according to the Bonferroni level ($p < .003$) are in bold

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