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Changes in Early Maladaptive Schemas After Residential Treatment for Substance Use

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Abstract

Objectives—Early maladaptive schemas are cognitive and behavioral patterns that cause considerable distress and are theorized to underlie mental health problems. Research suggests that early maladaptive schemas may underlie substance abuse and that the intensity of early maladaptive schemas may decrease after brief periods of abstinence. The current study examined changes in early maladaptive schemas after a 4-week residential substance use treatment program.

Method—Preexisting records of a sample of male alcohol- and opioid-dependent treatment seeking adults ($N = 97$; mean age = 42.55) were reviewed for the current study.

Results—Pre-post analyses demonstrated that 8 of the early maladaptive schemas significantly decreased by the end of the 4-week treatment.

Conclusions—Findings indicate that early maladaptive schemas can be modified during brief substance use treatment and may be an important component of substance use intervention programs. Implications of these findings for substance use treatment are discussed.

Keywords

early maladaptive schemas; substance use; cognitive therapy; treatment

Research has recently shown that early maladaptive schemas are pervasive among substance users (Brotchie, Meyer, Copello, Kidney, & Waller, 2004; Shorey, Anderson, & Stuart, 2011). Early maladaptive schemas are believed to be stable across people, places, situations, and time (Riso et al., 2006), rendering them highly resistant to change (Young, Klosko, & Weishaar, 2003). However, research has shown that treating early maladaptive schemas results in improved substance use outcomes (Ball, 2007), making early maladaptive schemas

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We also calculated changes in early maladaptive schemas from T1 to T2 for the schemas that fell into the “low” range of schema interpretation at T1. The early maladaptive schemas of defectiveness, dependence, emotional inhibition, entitlement, social isolation, and vulnerability all significantly decreased from T1 to T2.

Because of the number of analyses conducted, and the lack of significant differences found between diagnostic groups, the results of the multiple regression analyses are not presented. The full output of these analyses is available from the first author upon request.

an important area of investigation and treatment among substance users. Only one known study has examined whether early maladaptive schemas decline after a brief substance use treatment program (Roper, Dickson, Tinwell, Booth, & McGuire, 2010), with results showing broad decreases in early maladaptive schemas. Because residential substance use treatment programs are generally brief (e.g., 20 days; Substance Abuse and Mental Health Services Administration [SAMSHA], 2006), knowing whether changes in early maladaptive schemas can occur during this timeframe may lead to a better understanding of potential treatment targets in substance use programs. Using preexisting records of a sample of adult alcohol and opioid users, the current study examined whether early maladaptive schemas changed after an approximately 28- to 30-day residential treatment program for substance use.

Early Maladaptive Schemas

Defined 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” (Young et al., 2003, p. 7), early maladaptive schemas are rigidly held beliefs that guide how individuals encode, interpret, and respond to stimuli in their environments (Riso et al., 2006; Young et al., 2003). Theory and research suggest that early childhood experiences, namely, experiences that involve one’s family of origin or primary caretakers that are toxic, noxious, or traumatic, are largely responsible for the development of early maladaptive schemas (Cecero, Nelson, & Gillie, 2004; Messman-Moore & Coates, 2007; Young, 1994; Young et al., 2003). In response to early maladaptive schemas, individuals often develop a number of maladaptive coping mechanisms that are often rigid and self-defeating (Ball, 2007), such as the use of alcohol and drugs as a coping mechanism (Ball, 1998; Young et al., 2003).

Moreover, because early maladaptive schemas are believed to develop early in life, they are often reinforced and perpetuated throughout the life span and are believed to be resistant to change (Ball, 2007; Young et al., 1992, 2003). Furthermore, early maladaptive schemas often underlie many Axis I and Axis II conditions (Young et al., 1992, 2003).

Young and colleagues (1992, 1994, 2003) have conceptualized 18 different early maladaptive schemas that individuals can develop (see Young et al., 2003, for a detailed description of each schema). These schemas fall into five different domains, including issues surrounding *overvigilance and inhibition* (schemas of emotional inhibition, unrelenting standards, negativity/pessimism, and punitiveness), *other directedness* (schemas of subjugation, self-sacrifice, and approval seeking), *impaired autonomy and performance* (schemas of failure, dependence, vulnerability, and enmeshment), *impaired limits* (schemas of entitlement and insufficient self-control), and *disconnection and rejection* (schemas of emotional deprivation, abandonment, mistrust/abuse, social isolation, and defectiveness). Regardless of the specific early maladaptive schema(s) individuals possess, it is believed that each schema can be triggered and subsequently activated by everyday moods and events, particularly events and moods that are dysfunctional and cause emotional distress (Ball, 1998; Young et al., 2003). In response to the emotional distress associated with

schema activation, individuals often engage in dysfunctional coping responses and have dysfunctional interactions with others (Young et al., 1992, 2003).

It has been postulated that early maladaptive schemas are highly resistant to change and that they are likely not amenable without considerable effort and intensive psychotherapy (Cecero et al., 2004). Riso and colleagues (2006) investigated the long-term stability of early maladaptive schemas among individuals diagnosed with major depression. This study compared early maladaptive schemas 2.5 to 5 years after patient's initial assessment, with results demonstrating that early maladaptive schemas had moderate to high levels of stability across time. Moreover, Wang, Halvorsen, Eisemann, and Waterloo (2010) demonstrated that early maladaptive schemas were relatively stable across 9 years in a sample of clinically depressed patients, even when controlling for state-dependent mood at each assessment. Thus, these findings suggest that early maladaptive schemas may be important underlying core beliefs, relatively free of influence from state-dependent moods, which may need to be addressed to obtain long-term clinical improvement. Although the above-mentioned findings are difficult to generalize to other clinical problems because of their use of only depressed patients, these findings support the assertion that schemas are underlying vulnerabilities to mental health and are resistant to change (Ball & Young, 2001; Young et al., 2003). Thus, it is plausible that early maladaptive schemas underlie a number of clinical issues that are difficult to treat, such as substance use problems.

Early Maladaptive Schemas and Substance Use

Ball (1998, 2007) proposed that early maladaptive schemas are relevant to the presentation and treatment of substance use disorders. Substance use disorders often show better treatment outcomes when treatment also focuses on modifying enduring, maladaptive personality traits. Ball (1998) postulated that the treatment of early maladaptive schemas might also result in improved substance use outcomes due to their stability, pervasiveness, similarity to personality traits, and likely underlying influence on substance use. A number of studies have subsequently examined early maladaptive schemas among individuals diagnosed with substance use disorders (e.g., Brotchie et al., 2004; Shorey et al., 2011). For instance, Brotchie and colleagues (2004) showed that individuals diagnosed with an alcohol disorder, an opioid disorder, or an alcohol and opioid disorder scored higher on 11 of 15 early maladaptive schemas than a nonclinical control group (this study used Young's earlier conceptualization of early maladaptive schemas, which included only 15 schemas). The groups did not differ on failure, unrelenting standards, self-sacrifice, or entitlement. Shorey and colleagues (2011) found that residential substance use treatment patients scored significantly higher, with large effect sizes evident, on 5 of the 18 early maladaptive schemas (defectiveness, failure, dependence, vulnerability, and insufficient self-control) than their nontreatment seeking intimate partners.

In addition, Brotchie, Hanes, Wendon, and Waller (2007) demonstrated that individuals who were more likely to cope with their early maladaptive schemas through avoidance had greater severity of alcohol use than individuals less prone to use avoidance coping with their schemas. Thus, data suggest that early maladaptive schemas are prevalent among substance

users, are more likely to be problematic in substance users compared with nonsubstance users, and are associated with increased substance use.

Ball (1998, 2007) developed Dual Focused Schema Therapy (DFST) specifically for modifying early maladaptive schemas among substance users. Drawing on techniques from schema therapy (Young et al., 2003) and relapse prevention (Marlatt & Gordon, 1985), DFST has shown initial promise in decreasing early maladaptive schemas and substance use (Ball, 2007). For instance, Ball (2007), employing a sample of methadone maintenance outpatients with at least one personality disorder diagnosis and who were randomly assigned to either DFST or 12-step facilitation therapy, found that DFST patients demonstrated more rapid decreases in the frequency of substance use relative to 12-step patients across 6 months. However, because early maladaptive schemas are difficult to change, DFST as used by Ball (2007) required treatment for 6 months, with sessions being held twice weekly for the first month and weekly for the remaining 5 months. Unfortunately, the majority of residential substance use treatment programs are relatively brief (e.g., 20 days, SAMSHA, 2004), making the full DFST protocol difficult to implement in this type of setting.

Nonetheless, it may be possible to modify early maladaptive schemas after relatively brief periods of intervention. Roper and colleagues (2010) found that after a 3-week in-patient treatment that required complete sobriety and focused on a social learning model of addiction (e.g., relapse prevention, goal setting, limit setting), alcohol-dependent adults showed significant decreases in 13 of 15 early maladaptive schemas (this study also used Young's earlier conceptualization of early maladaptive schemas). The schemas of unrelenting standards and self-sacrifice did not decrease by the end of treatment in this study. It should be noted that the treatment for this study did not directly focus on modifying early maladaptive schemas (Roper et al., 2010). Thus, this study provides preliminary evidence that early maladaptive schemas among substance users, specifically alcohol-dependent adults, may be decreased after a brief period of sobriety. However, additional research is needed to replicate and extend these findings, such as by examining individuals with a substance use disorder other than alcohol (i.e., opioid dependence), as this is the only known study to examine whether early maladaptive schemas decrease after a brief residential treatment for substance use.

Current Study

The current study examined whether early maladaptive schemas decreased after a brief residential treatment for substance use among a sample of male adult alcohol- and opioid-dependent patients. Theory and research indicate that early maladaptive schemas are prevalent among substance users and are associated with greater severity of use. In addition, decreases in early maladaptive schemas are associated with improved substance use outcomes (Ball, 2007), and brief residential treatment for substance use may be associated with decreases in early maladaptive schemas (Roper et al., 2010). Because there is limited research in this area, we tentatively hypothesized that the majority of patient schemas would be decreased at the conclusion of a 28-to 30-day residential treatment program for substance use, particularly because treatment was also intended to address early maladaptive schemas.

However, no hypotheses were provided as to whether these decreases would vary as a function of male's substance use diagnosis (alcohol or opioid).

Method

Procedures

Patient records from an adult residential program (ARP), an inpatient substance use treatment program, located in the Southeastern United States, were reviewed for the current study. This treatment program is a 28- to 30-day residential program that is guided by the 12-step model and places a heavy emphasis on the identification and treatment of patients' early maladaptive schemas. The treatment center assesses patients' schemas at intake to the treatment facility, provides feedback on schemas relevant to each patient, has patients read *Reinventing Your Life* (Young & Klosko, 1993)—a self-help book for overcoming early maladaptive schemas—and targets schemas in family, individual, and group therapy sessions. For instance, patients are provided with assignments related to each of their schemas throughout treatment, which may involve written assignments (e.g., letters, worksheets) or role-playing exercises, for example. The treatment facilities focus on early maladaptive schemas differs from Ball's (1998) protocol, in that no specific manual is followed and each patient's schemas and unique needs for treatment are considered on an individual basis.

During treatment patients also complete the first five steps in the traditional 12-step model, have weekly family and/or couples therapy sessions, and engage in daily group therapy (process groups; coping skills groups) and fitness and activity therapy (i.e., group cohesion building exercises). Discussions of early maladaptive schemas are routinely integrated into group therapy and couples/family therapy sessions. The treatment center only admits patients into the facility if they have a primary substance use disorder diagnosis and are approximately 25 years of age or older.

Upon being admitted into the treatment facility, patients complete an intake assessment that includes the measure discussed below. Substance use diagnoses are based on the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition Text Revision (DSM-IV-TR; American Psychiatric Association, 2000) criteria for mental health disorders and are made in consultation with a licensed psychologist, a psychiatrist, general physician, and substance use counselors. Diagnoses are made with the support of unstructured clinical interviews and patient self-report. The treatment facility does not routinely diagnoses comorbid psychiatric disorders, rather relying on treating patient symptoms (e.g., panic symptoms, depressive symptoms) when present. Thus, no information on comorbid psychiatric diagnoses is available for the current sample.

Patients completed the Young Schema Questionnaire – Long Form, Third Edition (YSQ-L3; Young & Brown, 2003) upon admission to the treatment facility (within 1–2 days of admission) or after medical detoxification, when applicable. Medical detoxification at the treatment facility can last approximately 1–5 days, depending on the severity of withdrawal symptoms and the unique needs of each patient. Patients also completed the YSQ-L3 approximately 1–2 days before their scheduled discharge from the treatment facility (i.e.,

after 28 to 30 days of treatment). The YSQ-L3 is described below. All procedures were approved by the institutional review board of the first author.

Participants

Patient records from September 2010 to June 2011 were used in the current study, as September 2010 was when the residential treatment center began assessing patient's schemas upon discharge or transfer from their facility. This resulted in a total of 97 male patients diagnosed with either alcohol or opioid dependence only. The majority of the sample had an alcohol dependence diagnosis ($n = 76$; 78.4%), followed by opioid dependence ($n = 21$; 21.6%). The mean age of patients was 42.55 (standard deviation [SD] = 9.88; range = 23–63). Ethnically, the majority of patients comprised non-Hispanic Caucasian ($n = 82$; 84.5%), with the remaining patients being African American ($n = 9$; 9.3%) and “other” (e.g., Multi-Racial, Native American, Hispanic; $n = 6$; 6.2%). At the time of admission to the treatment facility, 42.3% ($n = 41$) of patients were married, 18.6% ($n = 18$) were divorced, 14.4% ($n = 14$) were engaged, 14.4% ($n = 14$) were single, and 10.3% indicated “other” (e.g., widowed, life partner; $n = 10$). The majority of the patients were employed full-time ($n = 53$; 54.6%) prior to admission into the treatment facility.

Measures

Early maladaptive schemas—The YSQ-L3 (Young & Brown, 2003) was used to assess patient's early maladaptive schemas. The YSQ-L3 contains 232 self-report questions that are designed to examine Young and colleagues' (2003) 18 early maladaptive schemas. Consistent with the standardized instructions, patients were instructed to rate how much each item described themselves on a 6-point scale, ranging from 1 (completely untrue of me) to 6 (describes me perfectly). The same instructions for completing the YSQ-L3 were provided to patients prior to discharge from the treatment facility. 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 that particular question is relevant to the individual (Young & Brown, 2003). Thus, items rated as a 4, 5, or 6 are summed to create a total score for each schema.

The 18 early maladaptive schemas subscales, and possible score ranges for each, are as follows: emotional deprivation (nine items; score range from 0–54); abandonment (17 items; 0–102); mistrust/abuse (17 items; 0–102); social isolation (10 items; 0–60); defectiveness (15 items; 0–90); failure (nine items; 0–54); dependence (15 items; 0–90); vulnerability (12 items; 0–72); enmeshment (11 items; 0–66); subjugation (10 items; 0–60); self-sacrifice (12 items; 0–102); emotional inhibition (nine items; 0–54); unrelenting standards (16 items; 0–96); entitlement (11 items; 0–66); insufficient self-control (15 items; 0–90); approval seeking (14 items; 0–84); negativity/pessimism (11 items; 0–66); and punitiveness (15 items; 0–90; (Young & Brown, 2003; Young et al., 2003). The YSQ-L3 has demonstrated adequate validity, reliability (e.g., $\alpha = .86$ to $.94$; Cockram, Drummond, & Lee, 2010), and factor structure (Saariaho, Saariaho, Karila, & Joukamaa, 2009).

Each early maladaptive schema can also be categorized into scores that reflect low, medium, high, and very high schema endorsement. These categories are obtained by using established

cutoff scores on the YSQ-L3 for each early maladaptive schema (Young & Brown, 2003): a score in the *low* range suggests that a particular schema is not clinically meaningful and does not affect one's life; a *medium* score suggests that a schema may be a problem for an individual and could be explored further; scores of *high* and *very high* indicate that a particular schema is likely causing clinically significant problems for an individual and warrants clinical attention (Young & Brown, 2003).

Results

All analyses were conducted using SPSS version 18.0. We first examined whether the alcohol-and opioid-dependent groups differed on any of the demographic characteristics. The alcohol dependence group ($M = 44.57$, $SD = 9.39$) was significantly older than the opioid dependence group ($M = 35.23$, $SD = 8.09$), $t(95) = 4.14$, $p < .001$. The groups did not significantly differ on any of the other demographic variables. Moreover, the substance use groups did not significantly differ from each other on any of the 18 early maladaptive schemas at intake to the treatment center (see Table 1). The mean early maladaptive schema scores for each group are consistent with the scores from previous research with adult male treatment-seeking substance abusers diagnosed with alcohol dependence (Shorey, Anderson, & Stuart, 2012) and opioid dependence (Shorey, Stuart, & Anderson, in press).

We next categorized patients into low, medium, or high/very high early maladaptive schema endorsement based on the scoring recommendations of Young and Brown (2003). Across all participants, two early maladaptive schemas fell into the “high” range: self-sacrifice and unrelenting standards. In addition, six early maladaptive schemas fell into the “medium” range: abandonment, approval seeking, insufficient self-control, mistrust/abuse, negativity/pessimism, and punitiveness. The remaining early maladaptive schemas fell into the “low” range.

We next examined changes in early maladaptive schemas across diagnostic groups from intake to treatment (T1) to the end of treatment (T2) using paired sample t tests. Because early maladaptive schemas that fall into the “low” range are believed to cause minimal clinically significant problems, we focused on the eight early maladaptive schemas that fell into the medium or high range with these analyses. We utilized a bonferroni correction, which set our alpha level to .006. Because the opioid dependence group contained a small number of patients ($n = 21$), we combined diagnostic groups for this set of analyses. As displayed in Table 2, the eight of the early maladaptive schemas significantly decreased from T1 to T2. In addition, all of the early maladaptive schemas clinical ratings decreased from T1 to T2.

Effect size differences in early maladaptive schema changes from T1 to T2 were calculated using G*Power 3 software (Faul, Erdfelder, Lang, & Buchner, 2007). Specifically, G*Power allows for effect sizes to be calculated based on Cohen's (1988) recommendations for effect sizes, but takes into consideration the nonindependence of correlated data that arises from repeated assessments of the same individuals, making the effect sizes calculated more robust (Faul et al., 2007; Johnston, Hays, & Hui, 2009). According to Cohen (1988) a small effect size falls into the .20 to .50 range, a medium effect size falls into the .50 to .80 range, and a

large effect size is .80 or greater. As displayed in Table 3, the schemas of insufficient self-control, negativity/pessimism, punitiveness, self-sacrifice, and unrelenting standards fell into the “medium” range and the remaining schemas fell into the small range for effect size.

Finally, we examined whether there were differences between patients with an alcohol or opioid diagnosis in changes in early maladaptive schemas from T1 to T2. To examine this we utilized 18 multiple regression analyses, with T2 schemas as the dependent variable and diagnostic groups as the predictor variable. We also included T1 levels of schemas and age in the models to determine whether differences between groups were evident after controlling for these variables. Again, our alpha level was set to .003. Findings demonstrated that substance use diagnosis was not a significant predictor of any of the early maladaptive schemas at T2. Age was also not a significant correlate of early maladaptive schemas at T2. With the exception of self-sacrifice, T1 levels of schemas predicted T2 levels of schemas in all models. These findings suggest that decreases in early maladaptive schemas were consistent across diagnostic groups.

Discussion

The current study examined whether early maladaptive schemas decreased after a 28- to 30-day residential treatment for substance use among a sample of male alcohol- and opioid-dependent adults. There is a growing body of literature demonstrating the importance of early maladaptive schemas to substance use problems, with researchers speculating that targeting early maladaptive schemas may result in improved substance use outcomes (e.g., Ball, 1998, 2007). To date, only one study has examined whether a brief residential treatment for alcohol dependence resulted in decreases in early maladaptive schemas, with findings demonstrating broad decreases in early maladaptive schemas (Roper et al., 2010). The current study expanded on this research by employing a sample of alcohol- and opioid-dependent adults, as well as examining patients from a treatment facility that specifically targets early maladaptive schemas during substance use treatment. Overall, results supported our hypothesis that early maladaptive schemas would decrease at the end of residential treatment.

Our results demonstrated that all eight of the early maladaptive schemas that were clinically elevated significantly decreased from the beginning of residential treatment to the end of residential treatment, which was approximately 28 to 30 days. In addition, the majority of decreases in early maladaptive schemas fell into the medium range for effect size differences. This suggests, in combination with previous research (i.e., Roper et al., 2010), that early maladaptive schemas may be amenable to change after relatively brief periods of intervention, and sobriety, for individuals with alcohol or opioid dependence. These findings are slightly surprising given the theoretical model of early maladaptive schemas, which proposes that they are enduring and pervasive ways of viewing and interacting with the world, similar to personality traits, and are highly resistant to change (Ball, 2007; Young et al., 1992, 2003). Indeed, previous research has demonstrated the stability of early maladaptive schemas across time (e.g., Riso et al., 2006). It is possible that the intensity of an approximately 30-day residential substance use program, that specifically targeted early

maladaptive schemas during the course of treatment, was able to modify schemas to a large degree.

In addition, this is the first study to demonstrate that early maladaptive schemas can be decreased for opioid-dependent individuals after brief residential substance use treatment. Thus, we agree with Roper and colleagues (2010) that early maladaptive schemas may be more amenable to change than previously believed, particularly among males with alcohol or opioid dependence who have been sober for approximately 30 days.

It is interesting to examine the three early maladaptive schemas that were rated as clinically elevated at T1 among patients, namely, insufficient self-control, unrelenting standards, and self-sacrifice, and how these may be etiologically related to substance abuse. The insufficient self-control schema is similar to deficits in self-control and impulsive behavior, and this early maladaptive schema is higher in substance abusers relative to nonsubstance abusers (e.g., Shorey, Stuart, & Anderson, in press). Deficits in self-control and impulsivity are robust predictors of behavior that satisfy immediate desires (e.g., substance use; Jones, & Quisenberry, 2004), and this would be consistent with the theoretical understanding of the insufficient self-control schema (Young et al., 2003). Moreover, impulsivity is related to the initiation of substance use (Moeller & Dougherty, 2002). Thus, it is possible that the insufficient self-control schema may be related to the initiation or maintenance of substance abuse problems because of deficits in self-control/impulsivity, although longitudinal research is needed to examine this question.

The self-sacrifice schema, which is characterized by an excessive focus on meeting the needs of other people at the expense of focusing on one's own needs, may be associated with the etiology or maintenance of substance use because substances may be one way to cope with the lack of personal fulfillment that is characterized by this schema (Shorey et al., 2012; Young et al., 2003). This schema may be associated with reductions in self-efficacy (Young et al., 2003), which is associated with the initiation and maintenance of substance abuse (Diclemente, 1986; Hussong & Chassin, 1997). Finally, unrelenting standards, which is characterized by excessively high and rigid expectations for behavior for the self, similar to perfectionism, may be etiologically related to substance use because of intense expectations to perform well that these individuals place on themselves (Shorey et al., 2012). That is, substances may be initiated as a way to cope with internalized, high standards of behavior and the stress associated with having to do everything the "right" way. Clearly, longitudinal research is needed to determine if this holds true.

Still, there are a number of important questions that remain unanswered by our study and that of previous research. First, our study and that of Roper et al. (2010) only examined decreases in early maladaptive schemas at the end of residential treatment, and did not follow-up with patients to determine whether (a) decreases in early maladaptive schemas were maintained after leaving treatment and (b) whether decreases in early maladaptive schemas were associated with long-term reduced substance use. Ball (1998, 2007) and others (i.e., Brothie et al., 2004) have suggested that to achieve long-term improvements in substance use, early maladaptive schemas may need to be reduced to a manageable level and adaptive coping skills increased.

Certainly our findings suggest that robust decreases in early maladaptive schemas occurred, although future research is needed to determine whether decreases in schemas persist and are associated with reduced substance use. In addition, because our study focused on a treatment that specifically targeted early maladaptive schemas, and the study by Roper and colleagues (2010) investigated a treatment that did not target schemas, it is not entirely clear how early maladaptive schemas change during the course of substance use treatment (i.e., abstinence, increased coping skills). Thus, additional research is needed to disentangle the substance abuse treatment components that modify early maladaptive schemas.

It is also possible that patient ratings of their early maladaptive schemas at the end of residential treatment, and thus before they were engaged in normal day-to-day activities (e.g., work, family life), are not an accurate representation of their early maladaptive schemas. That is, the behavioral-range and interactions with other people, and the world in general, are limited due to being in residential treatment. While patients may *feel* that they have made substantial changes in their early maladaptive schemas, until faced with real-world situations it is impossible to know whether behavioral responses to situations that may trigger early maladaptive schemas are indeed different than before treatment. This should not be interpreted as an explanation to discount the findings of the current study. Rather, it is important to recognize that one's ability to modify beliefs and behaviors while in residential treatment could look and feel different to patients than when placed in situations that have triggered their schemas prior to treatment. Future research is therefore needed to examine early maladaptive schemas shortly after discharge from treatment, and months after treatment, to determine how rating of schemas change across time.

Limitations

Findings from the current study should be interpreted in light of its limitations. We did not have any measures available that assessed substance use severity and/or frequency, which hindered the determination of whether early maladaptive schemas were more prevalent for individuals with more severe substance use problems and whether substance use severity affected decreases in schemas. Future research would benefit from including standardized measures of substance use severity and/or frequency.

Moreover, because we did not use structured diagnostic interviews to determine patient diagnoses, we cannot be as sure that all of the patient diagnoses were accurate. We also did not have a control group of nonsubstance users to determine whether the prevalence of early maladaptive schemas was higher than that found in the general population and whether decreases in schemas were due to treatment. Although we believe that decreases in early maladaptive schemas were likely due to treatment, since the treatment targeted early maladaptive schemas and schemas stable across time without intervention (Riso et al., 2006; Young et al., 2003), without a control group we cannot determine whether decreases in schemas were due to treatment, the passage of time, or remaining sober for approximately 30 days.

An additional limitation is that our sample comprised primarily non-Hispanic Caucasian, male patients, which make it difficult to generalize findings to more diverse populations. Further, although we believe that a strength of our study was the use of a treatment-seeking

sample of substance users, the use of this sample hinders the generalizability of these findings to nontreatment seeking samples. As with all self-report measures that assess sensitive, emotional issues, including early maladaptive schemas, social desirability may have influenced reports on the YSQ-L3. It is possible that patients reported decreases in early maladaptive schemas after treatment because they wanted other people, particularly treatment staff, to believe they were improving.

Future research would benefit from examining whether social desirability affects responses to early maladaptive schemas. Fluctuations in mood states have been shown to affect ratings of certain early maladaptive schemas, such that individuals endorse schemas to a greater extent when under conditions of negative affect (Stopa & Waters, 2005). It is possible that patients were under greater conditions of state negative affect at admission to the treatment facility, and thus the first time they completed the YSQ-L3, and had less state negative affect when completing the YSQ-L3 at T2.

Future research should control for state affect when examining changes in schemas and determine how affect impacts ratings of schemas. Additional research would also benefit from examining additional models of schemas in conjunction with Young and colleagues' (2003) model. Stein (1996) and Stein and Corte (2007) have discussed the interrelatedness of positively and negatively valenced self-schemas. Research could extend this work into substance users and determine how they are associated with Young and colleagues' (2003) schema model, as Young's conceptualization of schemas is focused on only negative, maladaptive schemas. One would hope that positively valenced self-schemas would increase in strength after residential treatment for substance use.

In summary, the current study examined the prevalence of early maladaptive schemas among male alcohol- and opioid-dependent residential substance use patients and whether patients reported decreased schema endorsement at the end of 4 weeks of treatment. Consistent with previous research, our findings demonstrated that patients reported significantly decreased schema endorsement on 13 of the 18 early maladaptive schemas after a 4-week residential substance use treatment program. Moreover, these findings were consistent across the alcohol- and opioid-dependent groups. These findings indicate that early maladaptive schemas are amenable to change after a brief residential substance use treatment program, and future research should examine whether decreases in schemas are associated with long-term reductions in substance use.

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Table 1

Differences Between Diagnostic Groups on Early Maladaptive Schemas at T1

Early maladaptive schema	Alcohol dependent (<i>n</i> = 76) <i>M</i> (<i>SD</i>)	Opioid dependent (<i>n</i> = 21) <i>M</i> (<i>SD</i>)	<i>t</i> -value, <i>p</i>
Abandonment	14.64 (21.97)	11.71 (15.49)	.57, n.s.
Approval seeking	15.26 (19.69)	8.95 (9.40)	1.42, n.s.
Defectiveness	8.84 (16.92)	6.61 (12.98)	.55, n.s.
Dependence	7.53 (13.94)	5.19 (8.77)	.73, n.s.
Emotional deprivation	8.02 (11.57)	8.57 (12.65)	.18, n.s.
Emotional Inhibition	8.90 (13.46)	8.33 (10.12)	.18, n.s.
Enmeshment	7.19 (15.97)	4.19 (9.18)	.82, n.s.
Entitlement	8.60 (11.37)	8.80 (11.86)	.07, n.s.
Failure	4.05 (9.54)	3.61 (9.01)	.18, n.s.
Insufficient self-control	18.32 (20.67)	15.90 (15.68)	.49, n.s.
Mistrust/abuse	14.35 (21.68)	16.61 (22.43)	.42, n.s.
Negativity/pessimism	12.25 (16.45)	7.52 (13.12)	1.21, n.s.
Punitiveness	21.02 (18.63)	18.66 (20.98)	.50, n.s.
Self-sacrifice	37.27 (28.60)	35.33 (26.57)	.28, n.s.
Social isolation	6.22 (12.41)	5.19 (8.31)	.36, n.s.
Subjugation	7.46 (12.23)	7.71 (8.59)	.08, n.s.
Unrelenting standards	29.22 (25.26)	29.80 (26.44)	.09, n.s.
Vulnerability	9.46 (14.24)	5.47 (5.67)	1.25, n.s.

Note. *M* = mean; *SD* = standard deviation; n.s. = not significant.

Table 2

Early Maladaptive Schema Interpretations for T1 and T2

Early maladaptive schema	Time 1	Time 2
Abandonment	Medium	Low
Approval seeking	Medium	Low
Defectiveness	Low	Low
Dependence	Low	Low
Emotional deprivation	Low	Low
Emotional inhibition	Low	Low
Enmeshment	Low	Low
Entitlement	Low	Low
Failure	Low	Low
Insufficient self-control	Medium	Low
Mistrust/abuse	Medium	Low
Negativity/pessimism	Medium	Low
Punitiveness	Medium	Low
Self-sacrifice	High	Medium
Social isolation	Low	Low
Subjugation	Low	Low
Unrelenting standards	High	Medium
Vulnerability	Low	Low

Table 3

Changes in Early Maladaptive Schemas From T1 to T2 across Diagnostic Groups

Early maladaptive schema	Time 1 <i>M</i> (<i>SD</i>)	Time 2 <i>M</i> (<i>SD</i>)	<i>t</i> -value, <i>p</i>	<i>d</i>
Abandonment	14.01 (20.70)	6.52 (13.11)	3.84, < .001	.39
Approval seeking	13.89 (18.11)	6.60 (11.75)	4.05, < .001	.36
Insufficient self-control	17.80 (19.64)	8.43 (14.04)	5.45, < .001	.54
Mistrust/abuse	14.84 (21.75)	8.46 (16.24)	2.97, = .004	.30
Negativity/pessimism	11.22 (15.85)	3.71 (8.76)	5.70, < .001	.57
Punitiveness	20.51 (19.08)	8.49 (12.96)	5.98, < .001	.60
Self-sacrifice	36.85 (28.05)	17.38 (21.37)	6.06, < .001	.61
Unrelenting standards	29.35 (25.39)	15.42 (19.33)	5.61, < .001	.57

Note. *M* = mean; *SD* = standard deviation.