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Sensation Seeking, Coping With Stress, and Readiness to Engage in Therapy: Does Ego Development Influence the Psychosocial Functioning of Substance-Abusing Mothers?

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Abstract

Ego development, the capacity to derive coherent, nuanced meaning from one's life experiences, often has significant impact on psychosocial adjustment during adulthood. Research with nonclinical populations has indicated links between higher ego development and healthy emotional coping and interpersonal relationships. Emerging research with substance-abusing mothers suggests that higher levels of ego development are associated with improved parenting but also with increased rates of psychopathology. Less is known about how ego development is related to other psychosocial factors important for substance-abusing mothers' functioning and capacity to parent, including the proclivity to engage in risky behaviors, adaptive coping behaviors, and readiness to engage in psychotherapy. The present study examines these links. Participants included 182 methadone-maintained women who expressed interest in a randomized clinical trial testing the efficacy of a relational parenting intervention for substance-abusing mothers (Luthar, Suchman, & Altomare, 2007). Data were analyzed using a series of MANCOVAs and ANCOVAs controlling for maternal IQ and depression. Mothers with higher levels of ego development reported more adaptive coping techniques and greater readiness to engage in psychotherapy but also reported a heightened desire for strong sensations. Findings are discussed in light of mothers' psychological processes and parenting capacities. The significance of findings for developing parenting interventions for substance-abusing mothers is also discussed.

Keywords

substance-abusing mothers; substance-using mothers; ego development; parenting; parenting intervention; sensation seeking; coping

Ego Development

Psychodynamic theory suggests that individuals are motivated to construct a coherent psychological narrative about their own inner worlds, their interactions with others, and the life events they experience (Hy & Loevinger, 1996). This narrative is tied to a sense of personal continuity and coherence, helping individuals understand their personal identities over time. The ways in which a person constructs this narrative may change over the life span. For instance, the meaning that a child ascribes to a parent's suggestion—that it is a form of truth that must be followed—may be very different from how a grown person understands advice from a friend, as a contrasting opinion that should be considered alongside his or her own beliefs. These different approaches to how individuals construct stable, personal meaning from various life experiences define the different stages of ego development (Hy & Loevinger, 1996; Loevinger, 1976).

Hy and Loevinger (1996) have described ego development as unfolding across eight separate stages, increasing in sophistication from the Pre-Conformist to Conformist to Post-Conformist Stages (see Table 1). According to these authors, in the Pre-Conformist stages of ego development, individuals are preoccupied with meeting physical needs and impulses, hold an impoverished sense of their own inner emotional life, and believe that it is acceptable to exploit others to meet one's own needs. In the Conformist stages of ego development, individuals move toward increased recognition and understanding of inner emotions while relying primarily on social norms to guide their views of themselves, others, and standards of right and wrong. In the Post-Conformist stages, Loevinger suggests that individuals allow personal feelings and beliefs to guide their decisions, become more aware of the autonomy and unique emotional lives of others, and develop an increased capacity to sustain multifaceted and complex interpersonal relationships. The search for self-fulfillment may also replace the striving toward achievement in the Post-Conformist stages. Ideally, individuals move through these various stages over the life span, but difficulties along the course of development may arrest or delay adult ego functioning at an earlier stage (Hy & Loevinger, 1996).

Ego Development and Psychosocial Functioning in Nonpsychiatric Populations

In normative samples, higher levels of ego development are generally associated with more adaptive psychosocial functioning. In their investigation of 333 adults between the ages of 15 and 85, Labouvie-Vief and Diehl (1998) found that higher levels of ego development were positively related to more effective coping techniques, including logical analysis, substitution, and objectivity. Higher ego development was also negatively correlated with defensive coping techniques, including regression, isolation, and projection. In other studies (Billings, Hauser, & Allen, 2008; Hennighausen, Hauser, Billings, Schultz, & Allen, 2004), individuals who displayed higher levels of ego development through early adulthood were rated as less hostile, more socially adept, and more able to engage in collaborative conflict resolution than individuals who remained arrested in early stages of ego development. Further, research with non-substance-abusing samples has shown a curvilinear relationship between ego development and internalizing disorders, including anxiety and depression (Noam, Young, & Jilnina, 2006). The highest rates of depression and anxiety are found at the Conformist stage, where emphasis on adherence to group norms may make individuals susceptible to anxiety, self-blame, and self-censure.

Ego Development and Psychosocial Functioning in Substance-Abusing Mothers

Given the implications of high ego development for well-being in nonclinical populations, it is important to consider how ego development may impact psychosocial functioning for individuals with substance-abuse disorders. Ego development levels for this population

generally fall between the Self-Protective (Pre-Conformist) and Self-Aware (Conformist) stages (Wilber, Rounsaville, Sugarman, Casey, & Kleber, 1982; for a review, see Suchman, McMahon, DeCoste, Castiglioni, & Luthar, 2008). In other words, substance-abusing individuals are more likely to harbor a circumscribed understanding of their inner emotional worlds and the implications of their actions for others.

Among substance-abusing mothers, higher levels of ego development seem to be paired with higher levels of psychiatric distress. For example, substance-using mothers in the Post-Conformist stages have shown higher rates of depression than substance-abusing mothers in the Conformist and Pre-Conformist stages of ego development, respectively (Luthar, Doyle, Suchman, & Mayes, 2001; Suchman, McMahon, et al., 2008). Moreover, in contrast to the curvilinear association between ego development and depression found in nonclinical samples (Noam et al., 2006), a positive linear association between ego development and depression has been found for mothers with substance-abuse disorders (Luthar et al., 2001; Suchman, McMahon, et al., 2008).

Findings have also shown that opiate-dependent women with higher levels of ego development experience less satisfaction and higher levels of parenting distress than do their counterparts at lower levels of ego development (Luthar et al., 2001). Taken together, these early findings suggest that substance-abusing mothers with higher levels of ego development are at greater risk for emotional and mental disturbance than their lower ego development level counterparts, perhaps because of an enhanced awareness of their internal state and greater sensitivity and guilt about the impact of their behavior on others, including their children (Suchman, McMahon, et al., 2008).

Ego Development and Parenting in Substance-Abusing Mothers

At the same time, however, ego development seems to have a positive association with parenting practices for mothers with substance-abuse concerns. In general, women with substance-abuse histories evidence parenting difficulties, including neglectful and abusive behaviors (Chaffin, Kelleher, & Hollenberg, 1996), passivity during parent-child interactions (Molitor, Mayes, & Ward, 2003), underinvolvement (Suchman & Luthar, 2000), and insensitivity to child cues (Eiden, Stevens, Schuetze, & Dombkowski, 2006). However, mothers with substance-abuse concerns who have more sophisticated levels of ego development are able to engage in increasingly sensitive parenting practices. For example, in their study of 74 substance-abusing mothers, Fineman, Beckwith, Howard, and Espinosa (1997) found a positive correlation between maternal ego development and maternal sensitivity during interactions with infants ($r = .34, p < .001$). In post hoc analyses, the authors found that mothers at the Impulsive (Pre-Conformist) level (E2, the lowest level found in the sample) differed significantly in maternal sensitivity from mothers at the Self-Awareness (Conformist) level (E5, the highest level found in the sample); there were no other group differences. In another study with 361 opiate-dependent and non-drug-using mothers, Zelazo (2006) reported that opiate-dependent mothers at Pre-Conformist levels were at greater risk for maladaptive parenting (e.g., aggression, neglect, rejection, and withholding warmth) and problems with limit setting than non-opiate-dependent mothers. Finally, Suchman, McMahon, et al. (2008) found that substance-abusing mothers at the Impulsive (Pre-Conformist, E2) stage of ego development reported clinically significant levels of neglect and lower levels of warmth toward their children than substance-using mothers at higher levels of ego development. Importantly, in all three studies, higher ego development uniquely predicted better parenting skills beyond factors including maternal intelligence. It may be that the more complex awareness of internal emotions evident at higher levels of ego development afforded mothers a greater capacity to sensitively care for (or tune into) their children.

Taken together, these findings on psychosocial adjustment and parenting suggest that high ego development can confer a protective benefit to parenting while also increasing susceptibility to low mood in mothers with substance-abuse concerns. The benefits to parenting are particularly important in light of the various environmental and personal difficulties that substance-abusing women often face, including the absence of stable role models for parenting, a lack of consistent family or social support (Connors, Donovan, & DiClemente, 2001), comorbidity of substance abuse with other forms of psychopathology (Hans, Bernstein, & Henson, 1999; Nair et al., 1997) and the social stigma associated with their attempts to receive treatment for their substance abuse (Connors et al., 2001).

Current Investigation

The purpose of the present study was to expand our understanding of how mothers' levels of ego development may be related to other critical domains of psychosocial functioning in adults with addictive disorders. These domains include (a) sensation seeking, (b) coping style, and (c) readiness to change in psychotherapy. Understanding how ego development relates to these domains may help clarify the motivations and psychosocial processes that mothers with substance concerns experience during daily life, which in turn may help researchers develop more effective substance-abuse treatments for this population.

Critical Psychosocial Domains

The links between higher ego development and psychosocial functioning in substance-abusing mothers are complex. To date, the impact of ego development on other important domains of psychosocial functioning has not been investigated widely in this population. Thus, whereas prior work with normative samples highlights the importance of ego development for effective coping, social adaptability, and engagement in insight-based psychotherapy, very little work has been carried out on whether ego development may influence sensation seeking, coping styles, and motivation for treatment in women with substance-abuse issues. These psychosocial factors could have significance for substance-abusing mothers' overall functioning and parenting abilities.

Sensation Seeking

Experimentation with commonly abused substances has often been understood as one form of sensation-seeking behavior. Whereas some research indicates a link between high sensation-seeking tendencies and more severe symptoms of substance abuse (Ball, Carroll, & Rounsaville, 1994), other studies have revealed that in comparison with nonusers, sensation-seeking levels—in particular, the desire for novel experiences—may actually be slightly lower among long-term opiate users (e.g., 2 years; Spotts & Shontz, 1986; in Zuckerman, 1994). Among normative adults, higher levels of ego development have been correlated with greater interest in and openness to new experiences (Zuckerman, 1994). For Hypothesis 1, we postulated that because Post-Conformist women are likely to place greater value on freedom of experience and self-expression, without being encumbered by fear of breaking social norms (as someone in the Conformist stages might be) or getting in trouble (Pre-Conformist stages), mothers at Post-Conformist levels of ego development would exhibit a greater desire for strong sensations and novel experiences than their counterparts in the Pre-Conformist or Conformist stages of ego development.

Coping

Preliminary data suggest that effective coping processes are linked to avoidance of relapse in individuals with substance-abuse concerns. In one study, coping techniques, including removing oneself from tempting situations, believing in one's ability to maintain abstinence, and using other activities to distract from drug use, were linked to lower rates of heroin

relapse in adults 12 months after inpatient treatment (Gossop, Stewart, Browne, & Marsden, 2002). Likewise, individuals with a range of substance-abuse concerns who demonstrated adaptive coping techniques had lower rates of relapse at 12 months than individuals who exhibited avoidant styles of coping (Geibel, 2005; see also Moos, Finney, & Cronkite, 1990). Thus, the capacity to cope effectively with stress seems to assist with cessation of drug use.

Less is known about (a) specific techniques that individuals with substance-abuse concerns use to cope with more generalized life stressors or (b) how other aspects of a mother's psychological makeup, including her ego development, may impact her choice of coping techniques. In non-substance-abusing individuals, more sophisticated levels of ego development have been associated with more open, rational, and less defensive coping styles (Labouvie-Vief & Diehl, 1998). Hypothesis 2 of this study therefore predicted that substance-abusing mothers with higher levels of ego development would be able to cope more effectively with stress and would display more constructive forms of coping than their counterparts with low ego development levels.

Readiness to Change

Some study findings suggest that readiness to change is related to more successful treatment outcomes for individuals with substance-abuse concerns (see Connors et al., 2001, for a review). In their study of 112 women recruited from university and town settings, Anthis and LaVoie (2006) found that contemplation of change was predictive of later identity exploration. By definition, individuals with high levels of ego development are more open to exploring their own assumptions and viewpoints and also to considering other lifestyle options. Given the greater proclivity for self-exploration and tolerance of life changes at higher levels of ego development, Hypothesis 3 was that substance-using mothers with higher levels of ego development would also exhibit greater readiness for change in psychotherapy.

Potential Confounds

Prior research has revealed a positive relationship between IQ (verbal intelligence) levels and more sophisticated ego development in substance-abusing samples (Wilber et al., 1982), including mothers (Suchman, McMahon, et al., 2008). Prior research also suggests a positive correlation between IQ and sensation-seeking tendencies in substance-abusing populations (Carrol & Zuckerman, 1977; Zuckerman, 1994). Finally, as noted earlier, a positive linear relationship has been found between ego development and depressive symptoms in substance-abusing mothers (Luthar et al., 2001; Suchman, McMahon, et al., 2008). To examine how ego development, distinct from IQ and depression, may be related to substance-abusing mothers' coping styles, sensation seeking, and readiness to change, we considered IQ and depression as potential confounds.

Method

Overview of Procedures

Data used in this study were collected during baseline assessments of methadone-maintained mothers enrolled in a randomized clinical trial testing the efficacy of a new parenting intervention called the Relational Psychotherapy Mothers' Group (RPMG; for a full report on the randomized clinical trial study, see Luthar et al., 2007). Opiate-addicted mothers interested in participating in parenting groups were recruited at three methadone clinics in New Haven, CT. Recruitment occurred via referrals by counselors, visits made by research assistants to counseling groups and medication lines, and referrals from mothers who had already participated in the study. To be eligible for inclusion, mothers had to (a) have at

least one child under 16 years of age in their care and (b) report problems with parenting. Exclusion criteria included conditions that would impede ability to benefit from group therapy such as cognitive deficits, psychotic thought processes, suicidality, and homicidality.

All eligible mothers who expressed interest in the study met with a research assistant who explained the nature of the study as a randomized trial and completed consent procedures with mothers. Initial assessments were scheduled with mothers and children who consented to participate. After mothers and children completed the baseline assessment, mothers were scheduled for a second meeting, during which they were randomized to either RPMG or to Recovery Training (RT), a comparison condition.

The RPMG and RT conditions each entailed weekly group meetings in addition to standard treatment at the clinic. Mothers were enrolled in their respective interventions for 24 weeks and in the study for 1 year. Mothers completed assessments about the mothers' and children's behavioral and psychological adjustment seven times during the year at 8-week intervals (Weeks 0, 8, 16, 24, 32, 40, and 48). To compensate mothers for time spent in assessments, a staggered reimbursement schedule was used, such that mothers were paid \$20 at the baseline visit, \$25 at Weeks 8, 16, 24, and 32, \$30 at Week 40, and \$40 at Week 48. Mothers received bonus payments of \$5 for completing their assessments on time.

Sample

A total of 182 mothers who expressed interest in the study were screened and found eligible for the study and completed baseline assessments. Mothers in the sample were, on average, 36.3 years old, Caucasian, unemployed, had completed high school, and were caring for 1.5 children.

Measures

We used the following measures to explore how sensation seeking, coping patterns, and readiness to change in psychotherapy may vary as a function of maternal ego development.

Maternal ego development—Mothers' level of ego development was assessed with the semiprojective Washington University Sentence Completion Test—short form (WUSCT; Hy & Loevinger, 1996). This measure consists of 18 open-ended sentences that mothers were asked to complete (the full version contains 36 items) without guidance about content or length of response. Each response was then coded by a trained rater according to a detailed scoring manual (Hy & Loevinger, 1996). Item level scores range from E2 to E9 (very rarely attained) and follow a developmental progression from Impulsive (E2) to Integrated (E9). The intermediary developmental categories are Self-Protective (E3), Conformist (E4), Self-Aware (E5), Conscientious (E6), Individualistic (E7), and Autonomous (E8). Total protocol scores (categorical scores assigned to the entire protocol) are then calculated for each subject in accordance with Hy and Loevinger (1996). Two trained raters conducted interrater reliability checks on 10% of the protocols. Interrater reliability was 90% in initial independent ratings and reached 100% agreement during a more intensive collaborative process of review.

Noam et al. (2006) conducted a comprehensive review of hundreds of studies examining the validity and reliability of the WUSCT. Generally, the test-retest reliability, interrater reliability, and internal consistency have been found to be adequate in normal and clinical populations. Ego level assessed with the WUSCT has also been found to correlate with ego level assessed by interview and other staged and projective tests of personality. The developmental theory on which the WUSCT is based has been validated by evidence in

sequential studies that ego development increases during high school and college, and in studies testing asymmetry of comprehension that have demonstrated that people can understand ego levels lower than their own but not those much higher. In tests of discriminant validity, the WUSCT has shown moderate correlations with intelligence, fluency, and diverse socioeconomic variables, suggesting that ego development is a related, but separate, construct.

Desire for intense sensations—Mothers rated how frequently they engaged in four different types of sensation-seeking behavior using the Sensation Seeking Scale V (SSS-V; Zuckerman, 1994). The SSS-V has 40 forced-choice items assessing four types of Sensation Seeking: Thrill and Adventure Seeking (I often wish I could be a mountain climber./I can't understand people who risk their necks climbing mountains.); Experience Seeking (I like to explore a strange city or section of town by myself, even if it means getting lost./I prefer a guide when I am in a place I don't know well.); Disinhibition (I like "wild" uninhibited parties/I prefer quiet parties with good conversation.); and Boredom Susceptibility (I have no patience with dull or boring persons./I find something interesting in almost every person I talk to.). Each of the four subscales is measured with 10 items. The SSS-V is a validated, widely accepted measure that has been translated into numerous foreign languages and has been used on a range of populations including individuals with substance-abuse disorders.

Coping—Maternal approach to dealing with life stressors was measured with the Coping Responses Inventory (CRI; Moos, 1993). For this measure, mothers were asked to describe a recent life stressor and then rate on a scale of 0 (*Not at all*) to 3 (*Fairly often*) how frequently they used 48 different coping techniques that deal with this stressor. The 48 items reflect eight dimensions of coping, with each dimension measured by 6 items. There are four Approach Coping dimensions, including Logical Analysis (Did you think of different ways to deal with the problem?); Positive Reappraisal (Did you try to see the good side of the situation?); Seeking Guidance and Support (Did you seek help from persons or groups with the same type of problem?); and Problem Solving (Did you try at least two different ways to solve the problems?). There are four Coping Avoidance dimensions, including Cognitive Avoidance (Did you try to put off thinking about the situation, even though you knew you would have to at some point?); Acceptance or Resignation (Did you accept it; nothing could be done?); Seeking Alternative Rewards (Did you turn to work or other activities to help you manage things?); and Emotional Discharge (Did you take it out on other people when you felt angry or depressed?). Sound psychometric properties have been reported for the CRI (see Moos, 1988). In this sample, Cronbach's alpha coefficients ranged from .61 to .74, indicating adequate internal consistency.

Readiness to change in psychotherapy—Mothers reported on their motivation and readiness to change in psychotherapy using the University of Rhode Island Change Assessment Scale (URICA; McConaughy, Prochaska, & Velicer, 1983). Questions on this 32-item measure are divided into four subscales that measure stages of change, including Precontemplation (I'm not the problem one. It doesn't make much sense for me to be here.); Contemplation (I've been thinking that I might want to change something about myself.); Action (I am really working hard to change.); and Maintenance (I'm here to prevent myself from having a relapse of my problem.). All items are scored on a 5-point Likert scale from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Subscales are combined to yield an overall Readiness to Change score. The URICA is a widely used measure for evaluating readiness to change in a range of samples, including individuals in treatment for substance abuse.

Maternal intelligence—Mothers' intelligence level was measured with the Kaufman Brief Intelligence Test (K-BIT; Kaufman & Kaufman, 1990), a psychometrically sound screening measure of verbal, nonverbal, and composite intelligence. Composite standard scores were computed, resulting in values of 70–79 indicating a well below average score; 80–89 indicating a below average score; 90–109 indicating an average score; 110–119 indicating an above average score; 120–129 indicating a well above average score; 130–160 indicating a score in the upper extreme. The K-BIT has evidenced reliability with other widely used measures of intelligence (Miller, 1995; Young, 1995). In this sample, Cronbach's alpha coefficient for maternal intelligence was .95.

Maternal depressive symptoms—Maternal depression was measured with the widely used Beck Depression Inventory–II (BDI-II; Beck, Steer, & Brown, 1996). Mothers responded to 21 items on a 4-point scale evaluating how frequently in the past 2 weeks they had experienced thoughts, feelings, and behaviors symptomatic of depression. The BDI yields a total score between 0 and 63. Scores between 13 and 19 indicate mild depression, scores between 20 and 28 indicate moderate levels of depression, and scores between 29 and 63 indicate severe levels of depression (Beck et al., 1996). The BDI has shown marked psychometric properties across a wide range of adult populations. In this sample, Cronbach's alpha was .93.

Data Analysis

Correlations—We conducted Pearson's r correlations of maternal IQ and depression, respectively, with ego development and the three dependent psychosocial variables to determine whether to include IQ and depression as covariates in subsequent analyses. The significance level for these correlations was set at $p = .05$.

Analyses of covariance—We next explored the relationship between level of maternal ego development and the three dependent variables. Two separate multivariate analyses of covariance (MANCOVA) were conducted to examine whether level of maternal ego development predicted positive linear trends in desire for intense sensory experience and coping styles, respectively. Another analysis of covariance (ANCOVA) was conducted to determine whether a positive linear trend in readiness to change in psychotherapy was predicted by maternal ego development scores. Based on predicted covariance, as well as the results of preliminary analyses (see later), maternal IQ and depression were entered as covariates in all analyses. Wilks' lambda was used to determine significance of main effects and interactions (Tabachnick & Fidell, 2001). For models that indicated significant omnibus effects, univariate effects and predicted trends for each psychosocial variable across levels of ego development were then tested using planned linear contrasts. Although fewer than the ideal number of 20 cases per cell were expected in cells for the lowest and highest levels of ego development, a minimum of five subjects per cell (given at least three cells) was expected to yield enough power to detect moderate effects (e.g., .40), and also ensured that the number of cases per cell was greater than the number of dependent variables (Tabachnick & Fidell, 1996).

Results

Descriptive Data

As indicated in Table 2, ego development scores ranged from the Impulsive (E2) to the Conscientious Stage (E6). The modal level of ego development was the Self-Awareness Stage (E5; 35.7% of mothers), and a large proportion of mothers were in the Conformist (E4; 30.2% of mothers) and Self-Protective (E3; 28.0% of mothers) stages.

Table 2 displays demographic and psychosocial data for this sample. The average group *T*-score for maternal intelligence was 92.08, which is within the normal range (Kaufman & Kaufman, 1990). The mean score for clinical depression was 16.43, corresponding to mild depression (Beck et al., 1996). The average scores on each of the four sensation-seeking sub-scales were within normal limits of a normative college sample (Zuckerman, 1994; unfortunately, sensation-seeking *T*-scores were not available from an independent substance-abusing sample). The average subscale scores on all four appropriate coping subscales and three of the four coping avoidance sub-scales were also within a normal range (Moos, 1993); the mean *T*-score on the Emotional Discharge subscale was 66, which is approximately two standard deviations above the norm (i.e., in the clinical range). No normative information for the readiness composite score was available (see DiClemente & Hughes, 1990, for URICA subscales *T*-scores in a different substance-using population).

Covariate Correlations

Correlation analyses revealed significant positive correlations between level of mothers' ego development and IQ ($r = .520, p = .000$) and level of mothers' ego development and depressive symptoms ($r = .163, p = .028$).

IQ and maternal depression were also significantly associated with several of the psychosocial variables. Specifically, IQ was positively correlated with two sensation-seeking behaviors including Experience Seeking ($r = .295, p = .000$) and Disinhibition ($r = .168, p = .023$). IQ was also positively associated with two Approach Coping strategies (Seeking Guidance and Support: $r = .217, p = .003$, and Problem Solving: $r = .297, p = .000$). Further, IQ was positively correlated with Readiness to Change in psychotherapy ($r = .186, p = .012$).

Depression was positively associated with one type of sensation-seeking behavior, Experience Seeking ($r = .209, p = .005$). Depression was also negatively correlated with one Approach Coping strategy, Positive Reappraisal ($r = -.185, p = .013$) and positively correlated with three Coping Avoidance strategies, including Cognitive Avoidance ($r = .239, p = .001$), Seeking Alternative Rewards ($r = .234, p = .002$), and Emotional Discharge ($r = .202, p = .007$). We found no significant correlation between depression and the Readiness to Change composite score.

Relationship Between Ego Development and Psychosocial Functioning

Hypothesis 1: Sensation seeking—Sensation seeking varied as a function of maternal ego development, multivariate $F(16, 526.11) = 1.69, p = .045$, partial $\eta^2 = .037$, after controlling for IQ and depression. As indicated in Table 3, between-subjects tests revealed that ego development level was associated with maternal experience seeking, $F(4, 175) = 4.834, p = .001$, partial $\eta^2 = .100$; there was not a significant association between ego development level and the other three sensation-seeking behaviors. The planned linear contrast was not significant for maternal experience seeking; however, visual inspection of mean experience seeking scores revealed a consistent increase in sensation seeking from the Self-Protective (E3) to Conscientious (E6) levels of ego development.

Hypothesis 2: Coping—After controlling for IQ and depression, level of ego development was significantly associated with maternal coping behaviors, multivariate $F(32, 621.1) = 1.65, p = .015$, partial $\eta^2 = .072$. Multivariate tests were also significant for IQ, $F(8, 168) = 2.77, p = .007$, partial $\eta^2 = .117$ and for depression, $F(8, 168) = 7.504, p = .000$, partial $\eta^2 = .263$.

Appropriate coping—Between-subjects tests indicated that level of ego development significantly predicted appropriate coping techniques, including logical analysis, $F(4, 175) = 2.38, p = .053$, partial $\eta^2 = .052$; seeking guidance and support, $F(4, 175) = 3.442, p = .010$, partial $\eta^2 = .073$; and problem solving, $F(4, 175) = 2.442, p = .049$, partial $\eta^2 = .053$, (see Table 3). As shown in Table 3, planned linear contrasts indicated an association between greater sophistication of maternal ego development and more frequent use of adaptive coping techniques, including logical analysis, problem solving, and seeking guidance and support.

Coping avoidance—Between-subjects tests indicated that ego development predicted less effective coping patterns including seeking alternative rewards, $F(4, 175) = 3.235, p = .014$, partial $\eta^2 = .069$, and emotional discharge, $F(4, 175) = 3.240, p = .014$, partial $\eta^2 = .069$. Although planned linear contrasts were not significant, visual inspection of the means in Table 3 suggests that women with Conformist levels of ego development show lower levels of these less effective coping patterns than do women in the Self-Protective (Pre-Conformist) or Conscientious (Post-Conformist) stages.

Hypothesis 3: Readiness to change in psychotherapy—As shown in Table 3, after controlling for IQ and depression, readiness to change varied as a function of level of maternal ego development, $F(4, 175) = 4.403, p = .002$, partial $\eta^2 = .091$; IQ and depression were not significant predictors of readiness to change. Planned linear contrasts revealed that as the sophistication of mothers' ego development levels increased, so did their readiness to change in psychotherapy.

Discussion

Although research has begun to examine the parenting challenges associated with maternal addiction (e.g., Chaffin et al., 1996; Eiden et al., 2006; Molitor et al., 2003; Suchman, McMahon, et al., 2008; Zelazo, 2006), the role of ego development in fostering or enhancing the psychosocial adjustment of these women has received less attention. This oversight is significant, given that treatments intended to foster parenting among substance-abusing mothers could prove more beneficial if tailored to meet the individual strengths, needs, and concerns of members of this population.

In general, our three hypotheses regarding ego development and psychosocial functioning in substance-abusing mothers were supported. In keeping with Hypothesis 1, we found that women with increasingly complex levels of ego development tend to seek out stimulating experiences. These results held after controlling for IQ, a variable that in past work has been linked to increased sensation seeking (Carrol & Zuckerman, 1977; Zuckerman, 1994), and also after controlling for depression, another covariate linked to higher levels of ego development in substance-abusing mothers. As predicted in Hypothesis 2, mothers with high levels of ego development were able to engage most effectively in constructive problem solving techniques, including logical analysis, problem solving, and seeking guidance and support, with Post-Conformist mothers showing the highest levels of appropriate coping styles, followed by Conformist and Pre-Conformist mothers.

At the same time, substance-abusing mothers with the highest levels of ego development also exhibit unique difficulties when dealing with psychosocial concerns. Although they do show the capacity for effective coping patterns, mothers in the E6 Conscientious (Post-Conformist) stage of ego development are also more likely to cope with stressors ineffectively through seeking alternative rewards and emotional discharge. One explanation may be that the respect for autonomy and self-expression, regardless of social conventions and norms, espoused by Post-Conventional individuals may make these mothers vulnerable

to expressing strong feelings, seeking alternative rewards, and seeking out sensation-filled experiences as a way of managing stress. Interestingly, mothers in the E3 Self-Protective (Pre-Conformist) stage show similar elevations in less adaptive coping mechanisms. However, these mothers may exhibit the same ineffective coping for different reasons, such as mistrust of others or an impoverished ability to engage in mutual, interdependent problem solving.

We also found that mothers with the highest level of ego development in our sample (E6—Conscientious stage) showed a trend ($p < .10$) toward increased resignation in the face of life stressors. This tendency toward resignation may mirror prior work showing higher rates of depression among substance-abusing mothers with more sophisticated levels of ego development (Luthar et al., 2001; Suchman, McMahon, et al., 2008). Notably, we replicated prior findings that depression is positively correlated with level of ego development among these women.

Results for Hypothesis 3 were also nuanced. Whereas mothers with higher levels of ego development exhibited a stronger readiness to change in psychotherapy, mothers in the Conformist stages of ego development—and not in the Post-Conformist stages—endorsed the highest readiness to changes in therapy scores. We wonder if this finding could stem from experimental demand, with Conformist mothers trying to comply with experimental norms by advocating participation in the additional psychological interventions offered by this clinical study. Taken together, data from this study suggest that mothers with higher levels of ego development are drawn toward novel and exciting experiences while also displaying an enhanced capacity to manage stress effectively and seek out appropriate therapeutic interventions.

Implications

Our results indicate that the ego development levels of mothers with substance-abuse concerns relate to how these women seek out novel experiences, cope with stressors, and decide to use therapy as a mechanism for change. Whereas prior research suggested the importance of ego development for psychiatric concerns and parenting in this population, our data help fill out the picture regarding how ego development may influence the overall psychosocial well-being of these mothers.

This expanding understanding of the impact of ego development on psychological well-being has very important implications for clinical work with this population. Because participants in this study were substance-abusing mothers, findings are uniquely capable of informing the development of parenting interventions.

First, these data suggest that clinicians consider possible underlying mechanisms guiding the behavior of these mothers. It is true that women with different levels of ego development may show similar behavior patterns, such as the ineffective coping techniques more often displayed by mothers in the Post-Conformist and Pre-Conformist stages. However, our findings reveal that the beliefs and motivations underlying these behaviors may be quite different, depending on the woman's level of ego development. For instance, whereas a mother with a Pre-Conformist level of ego development may yell at the clinician because she has difficulty trusting others, a mother at a Post-Conformist level of ego development may yell and show strong emotion in therapy because she believes she has the right to authentic self-expression. We therefore recommend that when working on coping techniques with substance-abusing mothers, clinicians focus not only on behavioral skills development, but also incorporate interventions that are sensitive to the ways in which a woman's underlying understanding of herself and others may influence her behavior. Focus on underlying mental states may help correct the only moderate improvement in parent-child

relationships seen in behaviorally based parenting interventions (Suchman, Pajulo, DeCoste, & Mayes, 2006).

More generally, differences in coping style and self-awareness among women with different levels of ego development may translate into different treatments to address mother–child concerns. For women with lower levels of ego development, interventions focused on reducing negative coping when children are crying, while also providing psychoeducation regarding positive coping techniques, seem warranted. These mothers may also benefit from activities that increase their readiness to engage in psychotherapy or from more cognitive and behavioral treatments focused on symptom reduction and distress management.

In contrast, mothers with a more developed sense of autonomy and self-determination may benefit more from insight-based work focused on addressing underlying emotional needs and intrapsychic determinants of substance abuse and parenting difficulties (Dill & Noam, 1990; see Pajulo, Suchman, Kalland, & Mayes, 2006; Suchman, DeCoste, Castiglioni, Legow, & Mayes, 2008; Suchman et al., 2006). Clinicians should also work to help these mothers strengthen their ability to rely on the positive coping techniques that they already display. Although clinical work may be facilitated by these mothers' readiness to change in treatment, clinicians should remain particularly sensitive to possible indices of increased depression, demoralization, or sensation-seeking behaviors.

Limitations

Our study has several key limitations. First, because this study presents data collected at a single time point (baseline), the relationships among ego development and the three psychosocial variables are correlational, and causation therefore cannot be inferred. Further work should incorporate longitudinal measures of ego development, readiness to change in psychotherapy, sensation seeking, and coping styles, to see how these different constructs may impact one another over time. Further, the effect sizes of our results were mostly in the small range. Follow-up studies should include more participants to test for resilience of our findings. Next, to establish broader validity of our findings, future work should also expand beyond the self-report methodology used in this study and incorporate other respondents' observations of the mothers' psychosocial strengths and difficulties. Finally, there was an uneven number of participants in the different ego development groups, with an especially low number of mothers in the E2 (Impulsive; $n = 5$) and E6 (Conscientious; $n = 6$) groups. This inequality in group sizes may make group comparisons somewhat less reliable. However, although we did have fewer than the ideal number of 20 cases per cell, a minimum of five subjects per cell (given at least three cells) was expected to yield enough power to detect moderate effects (e.g., .40), while also ensuring that the number of cases per cell was greater than the number of dependent variables (Tabachnick & Fidell, 1996). Our meeting of this standard increases our confidence in study results, as does our replication of prior findings, including the positive, linear association between depressive symptoms and higher levels of ego development in mothers with substance-abuse diagnoses.

Substance-abusing women at different levels of ego development hold varied psychological perspectives about the world, themselves, and others. These perspectives can bear on their engagement in psychotherapy, their psychosocial functioning, and their relationships with their children. Researchers and clinicians should strive for greater consideration and awareness of ego development and its correlates when developing parenting interventions for mothers with substance-abuse concerns.

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Table 1

Levels of Ego Development and Example of a Scored Item (Hy & Loevinger, 1996)

Stage	Characteristics	Response to sample item: "A wife should..."
E2 impulsive (pre-conformist)	Focus on physical needs and impulses; dependence on others for control and limits; rules are poorly understood; exploitation of others for one's own good; physical and emotion I needs are merged; no sense of inner emotional experience.	"...be good."
E3 self-protective (pre-conformist)	Capacity to delay immediate gratification; self-serving appreciation for rules; interpersonal wariness.	"...clean the house and cook if she's not working."
E4 conformist (conformist)	Belonging to group is paramount; "right" and "wrong" simply determined by social convention; self and others viewed in terms of "fit" with group norms; simplistic and banal inner life.	"...take care of her children and love her husband."
E5 self-awareness (conformist)	Allowance for qualifications of "right" and "wrong" based on demographic differences; capacity for loneliness and self-consciousness; expanded inner life; relationships experienced in terms of feelings rather than behaviors.	"...feel she is loved and needed."
E6 conscientious (post-conformist)	"Right" and "wrong" and decisions based on personal feeling; capacity for guilt; concern about hurting others; feeling responsible for others.	"...be a good mother, lover, listener and business person."
E7 individualistic (post-conformist)	Greater tolerance for individual differences; differentiation between inner and outer states; emergence of long-term perspective; interpersonal relationships are deeper and more intense.	"...try to understand her husband's feelings."
E8 autonomous (post-conformist)	Freedom from excessive striving and achievement; search for self-fulfillment; recognition of individual human complexity; tolerance for ambiguity and paradox; deepened respect for autonomy of others.	"...try to develop herself as a person and not try to be all things to all people."
E9 integrated (post-conformist)	Self-actualization; not fully described.	Not fully described.

Table 2

Descriptive Data

Construct	Mean (SD) or percentages; <i>T-score</i> ^a	Clinical cutoff score
Maternal age	36.26 (7.14)	n/a
Ethnicity		n/a
Caucasian	57.1	
African American	28.0	
Hispanic/Latino	14.8	
Marital status		n/a
Never married	53.3	
Married or remarried	16.5	
Separated or divorced	24.7	
Widowed	5.5	
Education		n/a
Less than high school	34.1	
High school or GED	39.6	
College or tech school	26.4	
Unemployed	81.9	n/a
Number of children living with mother	1.5 (1.2)	n/a
Ego development level		n/a
Impulsive (E2)	2.7%	
Self-protective (E3)	28.0%	
Conformist (E4)	30.2%	
Self-awareness (E5)	35.7%	
Conscientious (E6)	3.3%	
Intelligence	92.08 (11.19)	<80
Depression	16.43 (11.67)	>29
Coping		
Appropriate coping		
Logical analysis	10.74 (3.77); 49	<40
Positive reappraisal	11.48 (3.97); 52	<40
Seeking guidance and support	12.14 (3.98); 57	<40
Problem solving	12.70 (4.20); 54	<40
Coping avoidance		
Cognitive avoidance	9.66 (3.92); 57	>60
Acceptance or resignation	9.53 (4.18); 55	>60
Seeking alternative rewards	7.23 (3.96); 53	>60
Emotional discharge	8.96 (3.92); 66	>60
Sensation seeking		
Thrill/adventure seeking	4.12 (2.69); 40	>60
Experience seeking	4.90 (1.81); 49	>60
Disinhibition	2.36 (1.61); 37	>60

Construct	Mean (SD) or percentages; <i>T-score</i> ^a	Clinical cutoff score
Boredom	1.87 (1.67); 44	>60
Readiness to change	77.4 (16.5)	n/a

Note. *N* = 182.

^aItalicized numbers represent T-scores. Coping T-scores from Coping Responses Inventory test manual (Psychological Assessment Resources, 1993); sensation-seeking T-scores from Zuckerman (1994).

Table 3

Results of Univariate and Multivariate Analyses of Variance Comparing Means for Sensation Seeking, Coping, and Readiness to Change in Therapy Across Levels of Ego Development After Controlling for IQ and Depression

Construct	Ego development (TPR) level mean (SD)						Between-group effects		Polynomial contrast	
	Impulsive (E2)	Self-protective (E3)	Conformist (E4)	Self-aware (E5)	Conscientious (E6)	F	df		Linear contrast estimate (SE)	p
Sensation seeking										
Thrill/adventure seeking	3.00 (3.04)	3.43 (2.60)	4.12 (2.35)	4.66 (2.88)	5.17 (3.19)	1.142 (ns)	4, 175		–	–
Experience seeking	4.70 (1.71)	3.85 (1.62)	4.84 (1.68)	5.66 (1.61)	6.17 (2.32)	4.834***	4, 175		0.96 (0.68)	ns
Disinhibition	3.27 (2.23)	1.89 (1.47)	2.45 (1.56)	2.47 (1.63)	3.50 (1.64)	1.681 (ns)	4, 175		–	–
Boredom susceptibility	2.66 (1.99)	1.75 (1.65)	2.04 (1.69)	1.72 (1.67)	2.33 (1.37)	0.707 (ns)	4, 175		–	–
Coping										
Logical analysis	5.20 (5.93)	9.96 (3.81)	11.18 (3.59)	11.15 (3.34)	13.50 (3.08)	2.382*	4, 175		3.64 (1.47)	0.014
Positive reappraisal	8.20 (5.63)	11.53 (3.67)	11.16 (3.93)	11.80 (4.10)	13.33 (3.38)	1.255 (ns)	4, 175		–	–
Seek guidance & support	7.20 (5.89)	12.61 (3.73)	11.82 (3.83)	12.09 (3.95)	15.67 (2.50)	3.442**	4, 175		4.00 (1.57)	0.012
Problem solving	7.60 (6.07)	12.57 (3.92)	12.18 (4.20)	13.25 (4.07)	16.83 (0.98)	2.442*	4, 175		4.27 (1.66)	0.011
Cognitive avoidance	6.20 (3.27)	9.75 (3.99)	10.24 (3.88)	9.42 (3.91)	9.17 (3.43)	1.173 (ns)	4, 175		–	–
Acceptance, resignation	7.00 (6.12)	9.69 (3.96)	9.49 (4.48)	9.26 (3.88)	13.50 (2.88)	1.998†	4, 175		4.24 (1.72)	0.015
Seek alternative rewards	4.00 (5.39)	8.75 (4.26)	6.82 (3.48)	6.58 (3.64)	7.83 (4.79)	3.235**	4, 175		2.23 (1.58)	ns
Emotional discharge	6.40 (5.46)	10.20 (4.03)	8.75 (3.49)	8.18 (3.75)	10.83 (4.96)	3.240**	4, 175		1.55 (1.57)	ns
Readiness to change	46.34 (17.33)	75.51 (17.71)	79.78 (14.02)	79.32 (15.04)	76.83 (17.63)	4.403**	4, 175		16.02 (6.52)	0.015

Note. N = 182.

† p .10.

* p .05.

** p .01.

*** p .001. ns = not significant; n.a. = not applicable.