

## Differentiation of Self: A Validation Study of the Bowen Theory Construct

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The Differentiation of Self Inventory—Revised (DSI-R; Skowron & Schmitt, 2003, “Assessing interpersonal fusion: Reliability and validity of a new DSI fusion with others subscale,” *Journal of Marital and Family Therapy*, 29, 209–222) assesses a central construct of Murray Bowen’s Family Systems Theory. Differentiation of self (DoS) consists of both intra- and interpersonal dimensions, or the capacities for affect regulation and negotiating relational separateness and togetherness. In this study we examined the internal and external structure of the DSI-R with a sample of 749 university students. Confirmatory factor analysis supported a three-factor, first-order solution and offered evidence for a two-dimensional higher-order structure of DoS. The three factors exhibited acceptable reliability and demonstrated theoretically consistent associations with parentification and mental health symptoms. The results confirm the use of the DSI-R as a psychometrically sound measure of DoS. Implications for future research and clinical practice are addressed.

*Keywords:* differentiation of self, construct validation, confirmatory factor analysis, mental health symptoms, parentification

Differentiation of self (DoS) is a developmental construct from Murray Bowen’s Family Systems Theory and consists of both intra- and interpersonal dimensions (Bowen, 1978; Kerr & Bowen, 1988). The intrapersonal dimension refers to the capacity to regulate affect (Skowron & Dendy, 2004; Skowron, Holmes, & Sabatelli, 2003), whereas the interpersonal dimension consists of the ability to negotiate the relational dialectic of independence and togetherness (Kerr & Bowen, 1988). DoS has demonstrated consistent positive associations with a variety of different indicators of well-being (e.g., Hooper & DePuy, 2010; Jankowski & Sandage, 2011; Murray, Daniels, & Murray, 2006; Sandage & Jankowski, 2010; Skowron, 2000, 2004, 2005; Skowron & Friedlander, 1998; Skowron et al., 2003; Skowron, Stanley, & Shapiro, 2009;

Skowron, Wester, & Azen, 2004), thereby offering empirical support for Bowen’s theoretical assertion that an individual’s level of symptomatology and relational distress vary as a function of the individual’s level of DoS (Kerr & Bowen, 1988).

Much of the research on the DoS–well-being association has been conducted with university-based samples, and perhaps appropriately so, given that DoS is a developmental construct (Kerr & Bowen, 1988) with relevance to the significant interpersonal (re)negotiation of family-of-origin relationships and intrapersonal (re)negotiation of prior lived experience that typically takes place during the lifecycle stage of emerging adulthood (Arnett, 2000, 2007; Heiden Rootes, Jankowski, & Sandage, 2010). An individual’s level of DoS appears to be “fairly well established by . . . adolescence” (Kerr & Bowen, 1988, p. 98), which prompted Bowen to posit that increasing DoS, or the process of “defining a self” (p. 107), coincided with leaving home and living independently from one’s family-of-origin; tasks typically associated with emerging adulthood. That being said, the positive DoS–well-being association has also been found in research explicitly attending to age diversity, including samples of older adults and

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adolescents (Kim-Appel, Appel, Newman, & Parr, 2007; Knauth & Skowron, 2004), offering construct validation evidence for DoS and its generalizability to different age groups.

The significant growth of research on the construct of DoS over the past decade can be attributed in large part to the initial development of the Differentiation of Self Inventory (DSI; Skowron & Friedlander, 1998) and its subsequent revision (DSI-R; Skowron & Schmitt, 2003). Research on the DoS–well-being association suggests an extensive process of construct validation, defined as the “ongoing validity judgments derived from integrative evaluation of cumulative evidence of internal structure and external correlates, considered in light of an evolving theoretical framework” (Hoyt, Warbasse, & Chu, 2006, p. 769), with one evolution of Bowen theory consisting of the demonstrated relevance of DoS as a developmental construct for the lifecycle stage of emerging adulthood (e.g., Skowron, 2004; Skowron & Platt, 2005; Skowron et al., 2004, 2009). Most of the validation evidence consists of research that has examined the external structure of the DSI/DSI-R through convergent and discriminant associations between DoS and other constructs in theoretically expected ways. Intentional efforts to assess the internal (i.e., factor) structure of the DSI/DSI-R after initial scale development have also occurred (Knauth & Skowron, 2004; Skowron et al., 2003). However, these efforts have primarily been from an exploratory factor analytic approach, which is generally considered a first phase in the ongoing construct validation process that is later followed by confirmatory factor analyses with multiple independent samples (Brown, 2006).

The purpose of our study was to intentionally contribute to the ongoing validation of the Bowen theory construct of DoS as it is measured by the DSI-R (Skowron & Schmitt, 2003). The rationale for conducting a validity study of the DSI-R rests on the premise that construct validation is an ongoing, dynamic process that is never final (Hoyt et al., 2006) and on the related premise that validity evidence “may not generalize to populations or settings different from those from which they are derived” (p. 797). Explicit validation studies are needed using the DSI-R, and in particular studies that attend to (1) the internal structural validity of the scale and (2) its cultural generalizability. First, the

DSI-R does not appear to have been subject to confirmatory factor analysis (CFA), and the only CFA conducted during the validation history of the DSI/DSI-R was part of the initial development of the DSI (Skowron & Friedlander, 1998; see also, Skowron & Friedlander, 2009). CFA is often an important source of evidence for construct validation, and its absence in the later validation history of the DSI/DSI-R suggests a need for the assessment of the internal structural validity of the DSI-R using CFA. Second, original DSI development occurred with adult samples that were 82.7%, 90.4%, and 90.5% White American (Skowron & Friedlander, 1998), and the CFA procedure was conducted with the sample that was 90.5% Caucasian. DSI-R development occurred with an adult sample that was 86.6% White American (Skowron & Schmitt, 2003). Nevertheless some evidence for the cultural generalizability of DoS exists, as positive associations between DSI/DSI-R scores and well-being has been found in research involving different ethnic/racial groups (Chung & Gale, 2006, 2009; Peleg-Popko, 2004; Roytburd & Friedlander, 2008; Tuason & Friedlander, 2000; Skowron, 2004). However, explicit construct validation research with increased ethnic and/or racially diverse samples is needed.

One final rationale for conducting a construct validation study is that the clinical utility of DoS seems tied to clarification of the internal structure of the DSI-R. The emergence of DoS as a potentially relevant indicator of effectiveness in clinical work with individuals and couples (e.g., Bartle-Haring, Glade, & Vira, 2005; Bartle-Haring, Glebova, & Meyer, 2007), including the use of the DSI/DSI-R specifically (Bartle-Haring & Lal, 2010; Knerr & Bartle-Haring, 2010; Lambert & Friedlander, 2008), highlights the need for confirming the factor structure of the DSI-R. Reliable and valid clinical assessment of the capacity for affect regulation and interdependent relating could not only direct intervention efforts but also facilitate examination of treatment progress. Intra- and interpersonal dimensions of DoS have demonstrated associations with clinical outcome measures of well-being (Bartle-Haring & Lal, 2010; Knerr & Bartle-Haring, 2010) and a positive therapeutic alliance (Lambert & Friedlander, 2008).

Therefore, the primary research aim of this study was to examine the four-factor structure of the DSI-R using CFA, in a comparatively more racially diverse sample. Secondly, external correlates of the DSI-R were examined based on theoretically expected associations (1) between increased DoS and decreased mental health symptoms (e.g., Hooper, Marotta, & Lanthier, 2008; Skowron, 2004; Skowron et al., 2004, 2009), and (2) between increased parentification and decreased DoS (e.g., Hooper & Wallace, 2010; Hooper et al., 2008; Jurkovic & Thirkield, 1998).

### **Construct Validation History for DoS Involving the DSI/DSI-R**

The original DSI (Skowron & Friedlander, 1998) emerged as a 43-item inventory consisting of four subscales: I-Positions (IP), Emotional Reactivity (ER), Emotional Cutoff (EC), and Fusion with Others (FO). The IP subscale assesses the extent to which a person is able to define and express his or her own perspective, especially in the face of anxiety and/or social pressure, whereas ER assesses the individual's awareness of and ability to regulate affect. The EC subscale assesses the extent to which an individual reactively distances from others to soothe anxiety, whereas FO measures the amount of emotional closeness in one's interpersonal relationships. Construct validation in the form of convergent and discriminant validity was obtained based on the correlations between the DSI full-scale and subscale scores with measures of marital satisfaction and psychological symptoms (Skowron & Friedlander, 1998). Support for the internal structure of the scale was derived from confirmatory factor analyses conducted in the context of structural equation modeling (SEM) using a parceling procedure. Skowron and Friedlander demonstrated that DoS was represented by a four-factor, first-order structure and a single second-order structure.

Additional support for the external structure of the DSI is found in the consistent findings of a DoS-well-being association in theoretically predictive ways. Skowron (2000) replicated earlier research by finding an association between DSI subscale scores, indicating greater DoS, and increased marital satisfaction. Later, Skowron (2004) found that DSI subscale scores indi-

cating greater DoS predicted greater psychological adjustment in a racial minority emerging adult sample. Additionally, greater DoS correlated with better social problem-solving skills and higher ethnic group belonging scores, with IP and EC subscale scores being unique predictors in the respective associations. Subsequent research using the DSI replicated the DoS-well-being association through the use of a longitudinal design (Skowron et al., 2009) in which higher DSI scores predicted fewer difficulties in interpersonal functioning and decreased emotional distress over the course of a college semester. Similar to earlier research, EC and IP scores demonstrated unique associations with the measures of well-being.

Beyond direct associations, researchers have examined DoS in mediation and moderation models. Skowron et al. (2004), for example, found that DSI subscale scores mediated the relationship between academic stress and mental health symptoms, with all but the FO subscale demonstrating significant negative bivariate associations with mental health symptoms. Skowron et al. also failed to find support for a moderating effect of DoS on the relationship between stress and adjustment. Similarly, DoS did not moderate the relation between family functioning and depression scores (Hooper & DePuy, 2010). However, Murdock and Gore (2004) did find support for DoS as a moderator as DSI full-scale scores demonstrated a significant interaction effect with perceived stress in predicting mental health symptoms. Last, Williamson, Sandage, and Lee (2007) found evidence for the mediating effect of DoS on the relationship between social connectedness and shame proneness. Williamson et al. found that increased DSI full-scale scores corresponded with increased social connectedness and decreased shame proneness.

### **Development of the Revised Version of the DSI**

Despite the evidence cited above supportive of the construct validity of the DSI, concerns about the internal consistency and construct validity of the FO subscale have been raised (Jenkins, Buboltz, Schwartz, & Johnson, 2005; Skowron & Schmitt, 2003; Skowron et al., 2003). Concerns observed by Skowron and Schmitt (2003) prompted the development of a

12-item Revised FO subscale (R-FO) which resulted in the 46-item DSI-R. Evidence of construct validity for the revised subscale in the Skowron and Schmitt study was based on the convergence of R-FO scores with measures of spousal fusion from the Personal Authority in the Family Scale (PAFS; Bray, Williamson, & Malone, 1984) and measures of insecure attachment from the Experiences in Close Relationships Inventory (ECRI; Brennan, Clark, & Shaver, 1998). Additional evidence of construct validity for the other subscales was obtained in the form of theoretically consistent associations between the DSI-R subscales and the ECRI dimensions of insecure attachment and the PAFS Spousal and Intergenerational Fusion subscales. Greater DoS corresponded with decreased scores on fear of abandonment and desire to merge dimensions, and greater DoS corresponded with greater interpersonal individuation. Further construct validation of the DSI-R was demonstrated by the DSI-R subscales' unique prediction of effortful control over and above the effect of anxiety and avoidance attachment dimensions (Skowron & Dendy, 2004). ER and IP subscales were unique predictors of effortful control.

Knauth and Skowron (2004) extended the construct validation of the DSI-R by using exploratory factor analysis to examine the factor structure of the scale in a racially diverse sample of 14- to 19-year-olds. The four-factor structure of the scale observed in the initial Skowron and Friedlander (1998) study was not supported, and a six-factor solution was produced with their adolescent sample (Knauth & Skowron, 2004). Knauth and Skowron also found that DSI-R full-scale scores mediated the effect of trait anxiety on psychological distress. In a subsequent study involving racially diverse 14- to 19-year-olds, Knauth, Skowron, and Escobar (2006) found that trait anxiety mediated the relationship between DSI-R full-scale scores and social problem solving. Greater DoS corresponded with decreased anxiety scores and higher social problem-solving scores.

Subsequent research has explored cultural factors (e.g., religion/spirituality, gender, race/ethnicity) that may relate to outcomes often associated with DoS. Taken together, these studies help clarify the cultural generalizability of DoS as measured by the DSI-R. For example, DSI-R full-scale scores medi-

ated the relationship between forgiveness and spiritual instability (Sandage & Jankowski, 2010). Spiritual instability is a negative index of spiritual maturity which represents a style of relating to Deity that is characterized by emotional dysregulation. Increased forgiveness corresponded to increased DoS, which then corresponded to decreased instability. Jankowski and Sandage (2011) found evidence of a significant indirect effect between spiritual dwelling and negative emotionality through DoS in a sample of distressed graduate students. Increased dwelling with Deity corresponded to increased DoS, which corresponded to decreased negative affect.

Research explicitly attending to gender and ethnicity found that DSI-R subscale scores demonstrated differential associations by gender with marital satisfaction in a sample of Israeli men and women (Peleg, 2008). Greater DoS as measured by EC scores were a significant predictor of marital satisfaction for females, whereas greater DoS as measured by EC, ER, and IP scores were significant predictors of marital satisfaction for males.

Chung and Gale (2006, 2009) examined DoS in samples of White American and Korean college students. Chung and Gale (2006) found that increased self-esteem scores correlated with increased DoS scores as measured by the EC and IP subscales for Korean participants, whereas ER, EC, and IP scores demonstrated associations for the White American participants. Similarly, greater DoS as measured by ER, EC, and IP subscale scores correlated with decreased depression scores for both groups. Contrary to expectations, Chung and Gale (2006) found that increased DoS as measured by the R-FO subscale significantly predicted increased depression scores in the group of Korean students. In a subsequent study, Chung and Gale (2009) found that family functioning corresponded with DSI-R subscale scores, except for the R-FO subscale.

In another study, DSI-R full-scale scores failed to uniquely predict acculturation in a sample of Soviet Jewish immigrants; however, when the DSI-R subscales were used in place of the full-scale score in the regressions, IP demonstrated unique associations with American and Russian acculturation (Roytburd & Friedlander, 2008). Higher IP scores corresponded with increased American acculturation, and

lower IP scores corresponded with increased Russian acculturation scores. Acculturation was used as an indicator of adjustment.

### **Remaining Concerns About the R-FO Subscale**

Despite the evidence in support of construct validation for DoS, and specifically DoS as measured by the DSI-R, concern remains about the internal consistency and construct validity of the R-FO subscale, particularly for ethnically/racially diverse samples. It would seem that the two primary observations made by Skowron and Schmitt (2003) about the DSI also apply to the DSI-R. First, their contention that the full scale and the ER, EC, and IP subscales have demonstrated internal consistency and external construct validity, including cultural generalizability, seems to be supported by the construct validation history of the DSI/DSI-R. Second, their earlier assessment of the FO subscale seems to be applicable to the current R-FO subscale. Skowron and Schmitt noted that "In our review of studies conducted with the DSI, the FO subscale appeared notably weaker than the other DSI subscales along dimensions of psychometric rigor, predictive utility, and conceptual clarity" (p. 210). Their concern seemed most applicable to research with ethnically/racially diverse samples. For example, the FO demonstrated an internal consistency (i.e., Cronbach's) alpha as low as .45 in a sample of Black American college students (Gushue & Constantine, 2003) and as high as .72 in a sample of Filipino and Chinese adult participants (Tuason & Friedlander, 2000). Our assessment of the existing literature on the DSI-R is that a similar conclusion can be made about the reliability and construct validity of the R-FO subscale.

Of concern to Skowron and Schmitt (2003) were the consistently lower Cronbach's alpha scores for the FO relative to the other subscales. In our review of research on the DSI-R, the R-FO subscale continues to exhibit lower Cronbach's alpha scores. For example, Skowron and Platt (2005) reported an alpha of .69 for the R-FO in an emerging adult sample that was 86.2% White American, which seemed considerably lower than the initial .86 reported for the R-FO in an adult sample that was 86.6% White American (Skowron & Schmitt, 2003).

Research with ethnically/racially diverse samples has similarly found lower alpha scores. Knauth and Skowron (Knauth & Skowron, 2004; Knauth et al., 2006) reported an alpha of .60 for the R-FO in an adolescent sample that was 76% non-White. Chung and Gale (2006) reported an alpha of .69 for the R-FO subscale for their Korean participants and later reported an alpha of .65 for another sample of Korean undergraduate students (Chung & Gale, 2009). For their sample of adult Soviet Jewish immigrants to the United States, Roytburd and Friedlander (2008) reported an R-FO Cronbach's alpha of .68. In addition, echoing an earlier concern of Skowron and Schmitt (2003) about the FO, the R-FO has failed to demonstrate, relative to the other subscales, theoretically expected associations with criterion indicators of well-being such as depression, self-esteem, family functioning, cultural adjustment, attachment avoidance, and problem solving (Chung & Gale, 2006, 2009; Hooper & DePuy, 2010; Roytburd & Friedlander, 2008; Skowron & Dendy, 2004; Skowron & Platt, 2005). Concern about the R-FO subscale therefore seems warranted, suggesting a need for further construct validation research (Chung & Gale, 2009), and particularly so with racially diverse emerging adult samples.

### **The Current Study**

Our study contributes to the ongoing validation process of the Bowen construct of DoS by addressing the need for further evidence concerning the internal structural validity of the DSI-R. The study had three specific aims: (1) to examine the factor structure of the DSI-R using CFA in the context of SEM, (2) to examine the reliability of the DSI-R in the context of SEM factor analysis, and (3) to determine the extent to which scores on the DSI-R were associated with parentification and mental health symptoms in theoretically expected ways. We also intended to achieve the three aims using a sample that was proportionally more racially diverse than the initial CFA study (Skowron & Friedlander, 1998) and subsequent internal structure validation research on the revised version of the DSI (DSI-R; Skowron & Schmitt, 2003).

Based on existing research findings and theoretical formulations derived from Bowen's

Family Systems Theory (Bowen, 1978; Kerr & Bowen, 1988) and expanded upon in the reviewed literature, we expected to find evidence that the 46-item DSI-R would yield a four-factor structure corresponding to the four subscales: ER, IP, EC, and R-FO (Skowron & Friedlander, 1998; Skowron & Schmitt, 2003). Additionally, to examine the convergent and discriminant validity of the DSI-R, we expected to find an association in theoretically consistent ways between increased parentification and decreased DoS, and between greater DoS and decreased mental health symptoms. We also posited a mediating effect for DoS on the relationship between parentification and mental health symptoms (Hooper & DePuy, 2010; Hooper & Wallace, 2010; Hooper et al., 2008; Jankowski, Hooper, Sandage, & Hannah, 2011).

## Method

### Participants

Participants were 749 students from a large state university in the South. They ranged in age from 18 to 50, and the mean age was 21.07 ( $SD = 4.11$ ). The sample was 56.1% female ( $n = 420$ ) and 43.9% male ( $n = 329$ ). Participants identified as 70.8% ( $n = 530$ ) White American, 21.4% ( $n = 160$ ) Black American, 4.0% ( $n = 30$ ) mixed race, 1.5% ( $n = 11$ ) Hispanic, 0.9% ( $n = 7$ ) Asian or Asian American, 0.7% ( $n = 5$ ) Native American, and 0.8% ( $n = 6$ ) other.

### Measures

**Differentiation of self.** The DSI-R (Skowron & Schmitt, 2003) is a 46-item, self-report measure used to assess Bowen's construct of differentiation. Two of the subscales (IP and ER) assess the intrapersonal dimension of differentiation (Skowron et al., 2003). The other two subscales (R-FO, EC) assess the interpersonal dimension. Higher scores reflect greater differentiation. Participants were asked to rate how generally true the items were about them on a scale from 1 (*not at all true of me*) to 6 (*very true of me*). Sample items include "There's no point in getting upset about things I cannot change" and "When things go wrong, talking about them usually makes it worse." Evidence for the construct validity of the DSI-R

has been reviewed above, and, as previously mentioned, Cronbach's alphas have demonstrated reliability except for the R-FO subscale, which remains somewhat problematic. Before confirmatory factor analysis in this study, the full-scale score demonstrated a Cronbach's alpha of .90, and subscale alphas were as follows: .86 (ER), .79 (IP), .83 (EC), and .73 (R-FO).

**Parentification.** The Parentification Questionnaire (PQ; Jurkovic & Thirkield, 1998) is a 30-item self-report instrument that retrospectively measures three dimensions of parentification: instrumental parentification, expressive or emotional parentification, and perceived unfairness of the parentification process. Of the 30 items, 10 pertain to instrumental parentification, 10 pertain to expressive parentification, and 10 pertain to perceived unfairness. Participants rated how true the statements were on a five-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Example items include "I helped my brothers or sisters a lot with their homework" (instrumental parentification), "My parents often tried to get me to take their side in conflicts" (expressive parentification), and "In my family I often made sacrifices that went unnoticed" (perceived unfairness). Higher scores reflected greater parentification and/or perceived unfairness. Cronbach's alphas for the PQ subscale scores range from .82 to .92 (Burnett, Jones, Bliwise, & Ross, 2006; Jurkovic, Thirkield, & Morrell, 2001; Hooper & Wallace, 2010; Kelley et al., 2007). For this study, scores from the three subscales demonstrated Cronbach's alphas of .82 (instrumental parentification), .85 (expressive parentification), and .90 (perceived unfairness).

**Mental health symptoms.** The Brief Symptom Inventory (BSI; Derogatis, 1993) was used to assess the participants' level of mental health symptoms. The BSI is a 53-item self-report inventory designed to reflect the psychological symptom patterns of psychiatric and general community populations. We used the Global Severity Index (GSI) of the BSI. The psychometric properties of the BSI and subscale scores are excellent (Derogatis & Spencer, 1982). Cronbach's alphas for the nine symptom categories and global indices range from .71 to .85. Participants responded to the questionnaire using a five-point Likert scale from 0 (*not at all*) to 4 (*extremely*). GSI scores were calculated by summing the 53 items and then dividing by 53.

Cronbach's alpha for the GSI was .97 for this study's sample.

## Procedures

Following Institutional Review Board approval, we recruited participants to take part in a study investigating the link between childhood roles and responsibilities and adult psychological functioning. With the permission of university professors, we approached participants first in undergraduate-level classrooms and subsequently by email. We administered an electronic survey packet using a web-based methodology. The electronic invitation included a description of the study, a direct link to the electronic survey, and an informed consent form. A demographic questionnaire and the abovementioned measures were used. Extra course credit was provided as an incentive and compensation for participating in the study.

## Data Analytic Procedures

The factor structure of the DSI-R was tested using SEM in AMOS 7.0 (Arbuckle, 2006; Brown, 2006; Byrne, 2001; Kline, 2011). Data on 1,375 participants were initially examined for missing data, outliers, and normality. Participants with significant missing data and cases involving univariate outliers ( $z$  scores greater than 3.29 and less than  $-3.29$ ) and extreme multivariate outliers based on the Mahalanobis distance test (Byrne, 2001) were removed from the analyses, which resulted in a sample of 1,279 participants. To obtain a proportionally more diverse sample for the current study, a random sample of 50% of the White American participants was removed from the analyses, resulting in the final sample of 749 participants. In addition, many of the variables exhibited both univariate skew (i.e., skewness critical ratios were greater than 2.5 or less than  $-2.5$ ) and univariate kurtosis (i.e., kurtosis critical ratios were greater than 2.5 or less than  $-2.5$ ).

Given multivariate non-normality (i.e., multivariate kurtosis critical ratio was greater than 5.00; Byrne, 2010) and problematic skew and kurtosis values, bootstrap analyses were conducted for all three research aims (Arbuckle, 2006; Bollen & Stine, 1992; Byrne, 2001; Hayes, 2009; Nevitt & Hancock, 2001). For Research Aim 1, because of the non-normal

data in this sample, sensitivity of the  $\chi^2$  statistic to sample size and the complexity of the model tested, it was expected that the  $\chi^2$  value would be significant (Byrne, 2001; Hair, Black, Babin, Anderson, & Tatham, 2006) and that this would also extend to the Bollen-Stine corrected  $p$  value of the  $\chi^2$  statistic (Byrne, 2001). Furthermore, under non-normal conditions, the comparative fit index (CFI) tends to "yield values that are modestly underestimated" (Byrne, 2001, p. 268; see also Brown, 2006). In light of these observations concerning non-normal data, determination of acceptable model fit was based on a composite picture of the fit indices (Brown, 2006; Byrne, 2001; Hair et al., 2006; Schreiber, Stage, King, Nora, & Barlow, 2006). More specifically, the following indices and guidelines for determining acceptable fit were used: the standardized root-mean-square residual (SRMR  $< .08$ ; Schreiber et al., 2006), comparative fit index (CFI  $> .90$ ; Hair et al., 2006), the root mean square error of approximation (RMSEA  $< .06$ ; Byrne, 2001), and the corresponding probability of a close fit (PCLOSE  $> .50$ ; Byrne, 2001). For Research Aims 2 and 3, we conducted reliability estimation and tested a proposed mediation model of the relationship between variables using SEM in AMOS 7.0 with bias-corrected (BC) confidence intervals (CIs) and 5,000 bootstrap samples (Preacher & Hayes, 2008).

## Results

### Research Aim 1: Factor Structure of the DSI-R

Results of the CFA revealed that the four-factor, first-order structure of the DSI-R did not fit the data: SRMR = .09, CFI = .642, RMSEA = .075 (90% CI [.073, .077]), PCLOSE = .000, ( $\chi^2 = 5090.30[983]$ ,  $p = .00$ , Bollen-Stine bootstrap  $p = .00$ ). The composite picture of the fit indices suggested a poor fit of the hypothesized model with the data. In seeking a better fit for the solution, respecification of the model in subsequent analyses involved consideration of (1) standardized residuals greater than  $|4.00|$  (Brown, 2006; Hair et al., 2006), (2) structure coefficients less than  $|.40|$  (Brown, 2006; Graham, Guthrie, & Thompson, 2003; Hair et al., 2006; Thompson, 1997), (3) method effects (Brown, 2003, 2006; Marsh, 1996), and (4) mod-

ification indices in coordination with reflection on existing empirical findings and theory (Brown, 2006; Byrne, 2001; Kline, 2011).

As Brown (2006) noted, “the presence of unnecessary parameters may be reflected by large, negative standardized residuals” (p. 125), which suggests that problematic indicators ( $z < |4.00|$ ) should be dropped. Items with large, negative standardized residuals were then examined in conjunction with their structure coefficients. Structure coefficients deemed nonsignificant in terms of practical significance ( $r_s < |.40|$ ) supported the suggestion that problematic indicators be dropped. Four R-FO items met the criteria of both nonsignificant standardized residuals and structure coefficients less than  $|.40|$  (DSI-R items 9, 22, 37, and 45). Examination of the structure coefficients coincided with examination of the correlations between latent constructs and cross-loading coefficients. Lack of discriminant validity was evident between the R-FO and ER subscales ( $r > .85$ ; Brown, 2006). In addition, practically significant cross-loadings (coefficient  $> |.45|$ ) with the ER latent construct were evident for eight of the R-FO indicators. The four problematic R-FO items were removed, and the remaining eight R-FO items were loaded onto the ER factor. The result was a three-factor solution that did not fit the data: SRMR = .08, CFI = .708, RMSEA = .071 (90% CI [.069, .074]), PCLOSE = .00, ( $\chi^2 = 3730.43[776]$ ,  $p = .00$ , Bollen-Stine bootstrap  $p = .00$ ).

Model respecification considerations next turned to the possibility of a three-factor “correlated uniqueness model” (Brown, 2006, p. 220). Respecification of a three-factor correlated uniqueness model was based on a process of examining MI greater than 20, standardized residuals greater than  $|4.00|$ , and structure coefficients less than  $|.40|$ , with attention to obtaining a parsimonious model that fit the data and

had acceptable convergent and discriminant validity between first-order factors. Based on these considerations, subsequent analyses resulted in a final three-factor solution with acceptable fit: SRMR = .055, CFI = .900, RMSEA = .049 (90% CI [.045, .052]), PCLOSE = .755, ( $\chi^2 = 1164.19(421)$ ,  $p = .00$ , Bollen-Stine bootstrap  $p = .00$ ). The final model also demonstrated acceptable convergent and discriminant validity between the three factors: ER and EC factors ( $r = .43$ ), ER and IP factors ( $r = .61$ ), and EC and IP factors ( $r = .20$ ). Table 1 provides a summary comparison of the fit indices for the three models. Structure coefficients ( $r_s$ ; i.e., factor loadings) and  $r_s^2$  values (i.e., variance accounted for by the latent factor) for the final three-factor solution are presented in Figure 1. As a supplement to Figure 1, the factor loadings from the 31-item, final three-factor solution are also presented in table format (see Table 2).

## Research Aim 2: Score Reliability

Following model respecification, Cronbach’s alphas were recalculated for each of the revised factors and the composite scale. In the context of a correlated uniqueness model,  $\alpha$  tends to overestimate scale reliability (Brown, 2006; Raykov, 2001); therefore, an additional assessment of reliability was needed. Reliability coefficient  $\rho$  was deemed to be the more precise indicator of reliability in this study (Brown, 2006; Fan, 2003; Graham, 2006; Raykov & Shrout, 2002). Coefficient  $\alpha$  was as follows: .88 for the revised ER factor, .82 for the revised EC factor, and .75 for the revised IP factor. In contrast, coefficient  $\rho$  was as follows: .85 for the revised ER factor (BC 95% CI [.84, .87]), .79 for the revised EC factor (BC 95% CI [.76, .81]), and .71 for the revised IP factor (BC 95% CI [.66, .74]). Coefficient  $\alpha$  for the 31-item,

Table 1  
*Goodness-of-Fit Indices for Alternative Models of the Structure of the DSI-R*

Model	$\chi^2$	<i>df</i>	Bollen-Stine <i>p</i>	SRMR	CFI	RMSEA	PCLOSE
1. Hypothesized model	5090.51	983	.000	.093	.642	.075	.000
2. Three-factor uncorrelated uniqueness model	1856.04	431	.000	.062	.808	.066	.000
3. Final three-factor correlated uniqueness model	1164.19	421	.000	.055	.900	.049	.755

*Note.* SRMR = Standardized root mean square residual; CFI = Comparative fit index; RMSEA = Root mean square error of approximation; PCLOSE = Probability of close fit for the RMSEA.



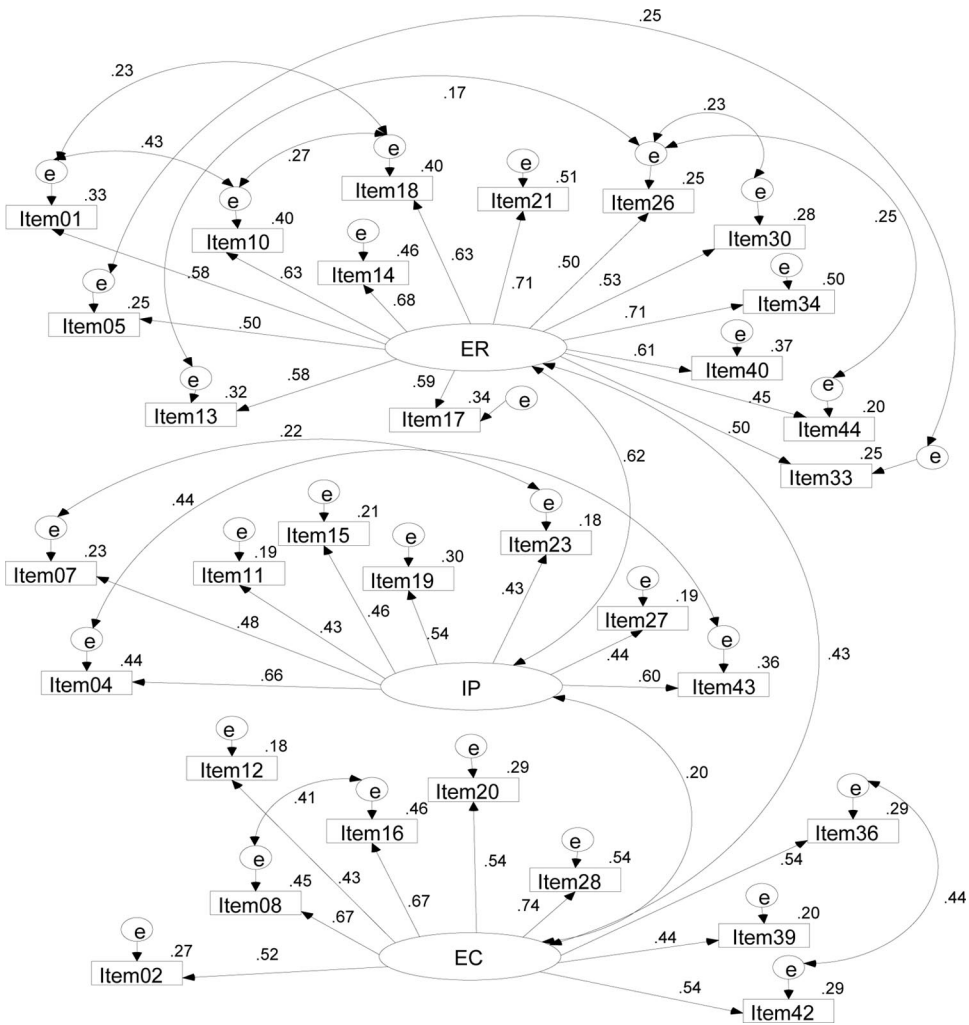


Figure 1. Final three-factor solution with structure coefficients, squared structure coefficients, and correlations between estimates. Item refers to the order in which it appeared in the DSI-R (see Skowron & Schmitt, 2003). Items 5, 13, 17, 33, and 44 are R-FO items that were loaded onto the ER factor during model respecification. ER = Emotional Reactivity factor; IP = I-Position factor, EC = Emotional Cutoff factor; SRMR = .055, CFI = .900, RMSEA = .049 (90% CI [.045, .052]). Structure coefficients and correlations significant at  $p < .001$ .

three-factor scale was .89, and the composite reliability (coefficient  $\rho$ ) for the final model was .89 (BC 95% CI [.87, .90]). The factors and composite model demonstrated acceptable reliability.

**Research Aim 3: Test of Mediation Model and Convergent and Discriminant Validity**

We further examined the validity of the DSI-R factors by exploring whether DSI-R

scores were associated with PQ and GSI scores in theoretically expected ways, based on previous findings (Hooper & DePuy, 2010; Hooper et al., 2008; Hooper & Wallace, 2010; Jankowski et al., 2011). Bivariate correlations between the ER, IP, and EC scores calculated from the items in the factor analysis, PQ sub-scale scores, and GSI scores are presented in Table 3. Scoring of the DSI-R items followed that outlined by Skowron and Schmitt (2003).

Table 2  
Factor Loadings for the Final Three  
Factor Solution

Item	Factor		
	ER	IP	EC
1. ER Item 1	.58		
2. ER Item 10	.63		
3. ER Item 14	.68		
4. ER Item 18	.63		
5. ER Item 21	.71		
6. ER Item 26	.50		
7. ER Item 30	.53		
8. ER Item 34	.71		
9. ER Item 40	.61		
10. R-FO Item 5	.50		
11. R-FO Item 13	.58		
12. R-FO Item 17	.59		
13. R-FO Item 33	.50		
14. R-FO Item 44	.45		
15. IP Item 4		.66	
16. IP Item 7		.48	
17. IP Item 11		.43	
18. IP Item 15		.46	
19. IP Item 19		.54	
20. IP Item 23		.43	
21. IP Item 27		.44	
22. IP Item 43		.60	
23. EC Item 2			.52
24. EC Item 8			.67
25. EC Item 12			.43
26. EC Item 16			.67
27. EC Item 20			.54
28. EC Item 28			.74
29. EC Item 36			.54
30. EC Item 39			.44
31. EC Item 42			.54

Note. Subscale label and item number refer to the order in which they appeared in the DSI-R (see Skowron & Schmitt, 2003). The 31 items demonstrated practical significance ( $r_s > |.40|$ ). ER = Emotional Reactivity factor; IP = I-Position factor; EC = Emotional Cutoff factor.

The correlations revealed associations between the variables in theoretically consistent ways. Increased PQ scores corresponded with decreased DSI-R factor scores, increased PQ scores corresponded with increased GSI scores, and increased DSI-R factor scores corresponded with decreased GSI scores.

Gender and age were examined in relation to each of the variables in the mediation model. There were no gender differences. Age demonstrated small significant associations with ER factor scores ( $r = .09, p = .02$ ), IP factor scores ( $r = .09, p = .02$ ), and perceived unfairness

( $r = .08, p = .03$ ). These results paralleled associations with the DSI-R before the factor analysis as there were no differences by gender on DSI-R subscale and full-scale scores, and age demonstrated an association with IP subscale scores ( $r = .10, p = .01$ ). Age was also associated with R-FO subscale scores ( $r = .19, p = .00$ ) and DSI-R full-scale scores ( $r = .12, p = .00$ ). The small sample size in most of the racial groups prevented meaningful comparisons by race, however sample sizes were sufficiently large enough to compare White American ( $n = 530$ ) and Black American participants ( $n = 160$ ) on DSI-R subscale and full-scale scores and the factor scores. ANOVA results indicated that Black American participants scored significantly higher on all scores, except EC subscale scores and EC factor scores which showed no difference between groups (see Table 4).

An additional examination of the relationship between variables in theoretically predictive ways was conducted by testing a mediation model of the relationship between variables, while controlling for the effect of age (see Figure 2). The latent construct of DoS comprising the three revised factors was expected to mediate the relationship between the latent construct of parentification and GSI scores (Hooper & DePuy, 2010; Hooper et al., 2008; Hooper & Wallace, 2010). The three subscales of the PQ constituted the latent construct of parentification. Acceptable model fit with the data was obtained: SRMR = .06, CFI = .883, RMSEA = .05 (90% CI [.047, .053]), PCLOSE = .51, ( $\chi^2 = 1652.81[577], p = .00$ , Bollen-Stine bootstrap  $p = .00$ ).

Determination of mediation in the model was based on examining the specific indirect effects within the model using the AMOS bootstrap procedure (Byrne, 2001; Hayes, 2009; Preacher & Hayes, 2008). The AMOS bootstrap procedure revealed a significant specific indirect effect between parentification and GSI, with DoS as a mediator: the standardized specific indirect effect was .30, with  $SE = .06$ , BC 95% CI (.21, .42),  $p = .00$ . The standardized direct effect between parentification and GSI was nonsignificant BC 95% CI (-.04, .20),  $p = .16$ . The results therefore supported a mediating effect for DoS on the relationship between parentification and mental health symptoms. Greater parentification corresponded with decreased

Table 3

*Descriptive Statistics and Bivariate Correlation Matrix of Parentification, Differentiation of Self, and Mental Health Symptoms*

	1	2	3	4	5	6	7
1. PQ-EX	—						
2. PQ-IN	.59***	—					
3. PQ-UN	.70***	.63***	—				
4. ER	-.24***	-.09*	-.23***	—			
5. IP	-.16***	-.21**	-.28***	.47***	—		
6. EC	-.27***	-.22***	-.35***	.36***	.18***	—	
7. GSI	.29***	.21***	.37***	-.49***	-.40***	-.40***	—
<i>M</i>	22.56	17.53	17.70	3.88	4.13	4.59	.52
<i>SD</i>	7.31	6.18	7.42	.96	.85	.90	.52

*Note.*  $n = 749$ . PQ-EX = Parentification Questionnaire – Expressive; PQ-IN = Parentification Questionnaire – Instrumental; PQ-UN = Parentification Questionnaire – Perceived Unfairness; ER = Emotional Reactivity factor score; IP = I-Position factor score; EC = Emotional Cutoff factor score; GSI = Global Severity Index.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

DoS, and decreased DoS corresponded with increased mental health symptoms.

### Discussion

Despite the lack of support for the four-factor, first-order structure of the DSI-R in the current study, the finding that a three-factor solution fit the data is consistent with existing literature. The three factors in this study also demonstrated acceptable reliability estimates within the context of SEM analyses. In addition, the three factors demonstrated theoretically consistent associations with parentification and mental health symptoms, and they extended previous findings of a mediating role for DoS in

the association between parentification and mental health symptoms. The results therefore seem to make two primary contributions to the existing literature, with practical implications for researchers and clinicians, (1) confirmation of concerns about the R-FO, and (2) empirical support for the theorized second-order intra- and interpersonal dimensions.

First, concerns about the reliability and validity of the R-FO have been expressed, and these concerns seem most prevalent in the research involving ethnically/racially diverse samples of adolescents and emerging adults (e.g., Knauth & Skowron, 2004; Chung & Gale, 2009). Initial development of the DSI was based on samples of adults, aged 25 and older (Skow-

Table 4

*Comparison by Race of DSI-R Subscale and Full-Scale Scores, and Factor and Composite Factor Scores*

	Race				<i>F</i> statistic (1, 688)
	Black American		White American		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
ER subscale	3.88	1.00	3.59	.96	11.44**
IP subscale	4.49	.87	4.10	.75	30.60***
EC subscale	4.64	.84	4.69	.82	.46
R-FO subscale	3.73	.67	3.18	.71	74.23***
Full-scale total	4.10	.59	3.80	.59	29.37***
ER factor	4.23	.95	3.78	.95	27.93***
IP factor	4.41	.92	4.04	.81	.06
EC factor	4.59	.91	4.61	.90	23.15***
Composite score	4.25	.67	3.96	.67	21.57***

*Note.*  $n = 690$ , Black American = 160, White American = 530. ER = Emotional Reactivity; IP = I-Position; EC = Emotional Cutoff; R-FO = Revised Fusion with Others.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

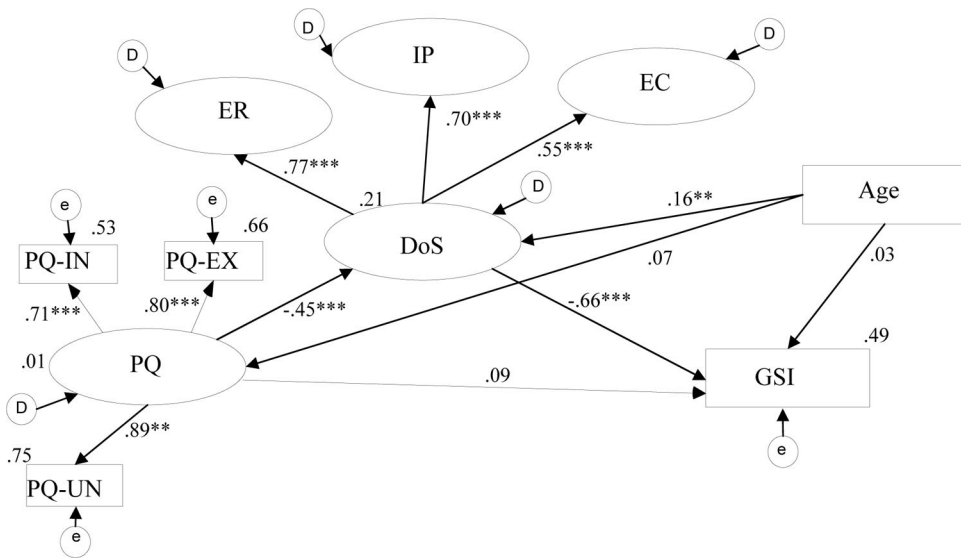


Figure 2. Standardized coefficients from bootstrap test of the mediation model of the relationship between parentification variables, differentiation of self, and psychological symptoms. Item indicators for the ER, IP, and EC factors are not presented. PQ = Parentification Questionnaire; PQ-EX = Parentification Questionnaire – Expressive; PQ-IN = Parentification Questionnaire – Instrumental; PQ-UN = Parentification Questionnaire – Perceived Unfairness; DoS = Differentiation of Self; ER = Emotional Reactivity factor; IP = I-Position factor; EC = Emotional Cutoff factor; GSI = Global Severity Index; SRMR = .06, CFI = .883; RMSEA = .05 (90% CI [.047, .053]), PCLOSE = .51, and  $R^2 = .49$ . \*\*  $p < .01$ , \*\*\*  $p < .001$ .

ron & Friedlander, 1998). The use of the DSI/DSI-R with emerging adult and adolescent samples (e.g., Knauth & Skowron, 2004; Peleg-Popko, 2004; Skowron, 2004; Skowron & Platt, 2005; Skowron et al., 2004) represents an expansion of the construct of DoS. The finding of a three-factor, first-order structure in the current study confirms the construct validation concerns about the R-FO, while clarifying the application of DoS with emerging adults and providing evidence for the cultural generalizability of the construct. The finding also seems to reinforce the recommendation by Knauth and Skowron (2004; Knauth et al., 2006) to use full-scale scores from the 46-item DSI-R, and particularly so with racially diverse samples. Although their samples were more racially diverse, and on average a lifecycle stage younger than the participants in the current study, the results from this study seem to warrant a similar conclusion. Factor analytic results in the Knauth and Skowron (2004) study supported a six-factor solution, with 25 items achieving practi-

cal significance ( $r_s > |.40|$ ). The three-factor solution in the current study with a sample of racially diverse university students had 31 items demonstrate practical significance ( $r_s > |.40|$ ; see Table 2).

Furthermore, following the lead of Skowron and Friedlander (1998) and their fitting of a higher-order solution to their initial finding of a first-order solution, the three-factor first-order model in the current study was adjusted to assess a three-factor first-order, single-factor second-order model. The solution was initially inadmissible. The problematic estimate, the disturbance term for the ER factor, was set to .005 (Hair et al., 2006) and the model reanalyzed. The result was an acceptable model fit, with significant loadings of the first-order factors on the higher-order factor (correlation coefficients  $> |.40|$ ). The results therefore offered support for a three-factor first-order, single-factor second-order model. The higher-order solution also demonstrated acceptable convergent and discriminant validity between factors, al-

though three IP items cross-loaded onto the ER factor (cross-loadings  $> .40$ ). In addition, the ER factor loading was .997 and the variance accounted for in the ER latent factor by the higher-order factor was 99% ( $r_s^2 = .99$ ). The latter finding therefore seems to offer support for Knauth and Skowron's (2004) suggestion that the 11-item ER subscale score from the DSI-R may be used as an alternative to the DSI-R full-scale score; again, with particular relevance to racially diverse samples of adolescents and emerging adults.

The second contribution of this study consists of further evidence for conceptualizing DoS as a two-dimensional construct. The convergent and discriminant validity patterns displayed between factors in the first-order solution seem to offer support for a two-dimensional, higher-order structure of DoS along the dimensions of affect-regulation and interdependent relating (Skowron & Dendy, 2004; Skowron et al., 2003), which is consistent with Bowen's proposed intra- and interpersonal dimensions (Kerr & Bowen, 1988). ER and IP factors displayed acceptable convergent validity ( $r = .61$ ), whereas ER and EC factors ( $r = .43$ ) and IP and EC factors ( $r = .20$ ) displayed acceptable divergent validity. Suggested best practice guidelines for conducting CFAs (that is, a minimum of three indicators per latent construct [Brown, 2006; Kline, 2011]), prohibited testing of a four-factor first-order, two-factor second-order model, but the overall model fit and the correlations between the three factors in the current study seem consistent with previous research showing a two-dimensional, higher-order structure for DoS as measured by the DSI/DSI-R. Skowron et al. (2003) found that ER and IP subscale scores loaded on a similar dimension, whereas EC scores loaded on a distinct dimension. Skowron and Dendy (2004) found that ER and IP subscale scores demonstrated association with effortful control, whereas EC subscale scores were associated with attachment avoidance. Others have found associations between DSI-R full-scale scores and indicators of affect-regulation (Sandage & Jankowski, 2010), suggesting that DoS involves the capacity to self-soothe and regulate affect. Furthermore, as alluded to in the above discussion about a three-factor first-order, single-factor second-order model, it seems that the ER items tap into the

intrapersonal dimension and the construct of affect-regulation most strongly.

### Clinical Implications

The results of this study seem to offer two primary implications for couple and family practitioners, particularly when working with emerging adult clients: (1) support for the use of the DSI-R in clinical assessment, and (2) a foundation for theoretical integration that may enhance clinical flexibility and effectiveness. First, the results of this study suggest that the DSI-R offers researchers and clinicians a psychometrically sound measure of the construct of DoS. Based on the results of this study, we echo the recommendation of Knauth and Skowron (2004) to use the 46-item DSI-R full-scale score as an overall assessment of an individual's intra- and interpersonal means of regulating affect, with attention to functional/dysfunctional relational means of doing so. In lieu of the full-scale score, the results of this study also seem to support the use of the 11-item ER subscale of the DSI-R as a more efficient means of assessing DoS (see also, Knauth & Skowron, 2004) with emerging adults of different races/ethnicities. Use of the ER subscale could be of particular benefit to clinicians who may want an expedient and initial assessment of clients' affect regulatory functioning.

Furthermore, the results of this study suggest that the use of the DSI-R EC subscale in conjunction with the ER subscale could provide an efficient yet more comprehensive means of assessing DoS which provides direction for and/or helps clarify the modality of treatment. In the current study, the EC factor demonstrated discriminant validity with the ER factor, suggesting that emotional cutoff taps a relatively distinct domain of functioning. Use of the DSI-R ER and EC subscales may help a clinician determine whether to work with an individual client by primarily attending to the client's intrapsychic processes and/or whether to engage in explicit relational work in conjoint treatment by attending to interpersonal processes.

Assessment of the construct of emotional reactivity could also aid the clinician in monitoring the therapeutic alliance given the finding that ER subscale scores were a significant correlate of alliance scores (Lambert & Friedlander, 2008). Lambert and Friedlander inter-

puted the canonical correlation analyses to suggest that the single most important component in predicting safety in conjoint therapy was the client's capacity to regulate affect. Previous research has also demonstrated that DoS holds potential to be a relevant construct when evaluating treatment effectiveness. In one study EC subscale scores predicted male partners' improvement in couple therapy as measured by relationship satisfaction (Knerr & Bartle-Haring, 2010), whereas elsewhere EC subscale scores predicted female partners' increased relationship satisfaction (Bartle-Haring & Lal, 2010). Future research should continue to explore the use of the ER and EC subscales as outcome measures in evaluating treatment effectiveness in both individual and couple/family treatment, particularly when researchers and/or clinicians are interested in assessing progress in affect-regulation and interdependent relating.

Second, the clinical importance of addressing affect regulation difficulties has drawn significant attention recently. Affect dysregulation seems to underlie and/or be present in various types of pathology (Greenberg, 2002; Ross & Babcock, 2010; Widiger, Livesley, & Clark, 2009), and emotion-focused therapies that attend to and intervene in affect regulation processes have demonstrated clinical effectiveness with a range of presenting concerns (Elliott, Watson, Goldman, & Greenberg, 2004; Greenberg, 2002; Greenberg & Goldman, 2008; Johnson, 1996, 2002). Emotion-focused clinical interventions typically involve two important emotional processes: (1) resolving negative emotions and (2) promoting positive affect and prosocial relating (Greenberg, Warwar, & Malcolm, 2010). These two processes align closely with Bowen's (1978; Kerr & Bowen, 1988) ideas about intra- and interpersonal differentiation. DoS therefore is a construct that has the potential to provide a basis for an integrated approach to clinical work that draws on Bowen theory and emotion-focused interventions. Emotion-focused therapies seem to offer the clinician an effective means for facilitating an individual client's self-soothing which might then be used as a basis for coaching (Kerr & Bowen, 1988) the client on how to relate differently with significant others outside of the therapy room, thereby promoting differentiated functioning. Emotion-focused therapies might also offer the clinician effective means of inter-

vening directly into the clients' relationship and promote increased emotion regulation. Coaching clients on how to respond differently to each other's needs and emotional expression in the here-and-now of the session may also facilitate differentiated functioning.

### Limitations and Future Directions

Two limitations of the current study seem particularly noteworthy. First, the data were non-normal, which seems far more typical than is often recognized by researchers (Byrne, 2001). Nevertheless, the non-normality of the data did limit our ability to assess model fit with  $\chi^2$ . Using a composite of fit indices for determining model fit and using bootstrap analyses to generate coefficients, standard errors and confidence intervals seemed to be reasonable ways of handling non-normality, particularly in conjunction with the complexity of the models tested. However, future research might use different means of doing so, such as the Satorra-Bentler adjusted  $\chi^2$  (Satorra & Bentler, 2001), which is available in SEM software programs other than AMOS 7.0. There are disadvantages for *any* method of dealing with non-normality, including parceling or data transformation (Brown, 2006), and choosing a method can be complex, requiring acknowledgment of the limitations and cross-validation with independent samples.

The second limitation of the current study is that a correlated errors model fit the data well, which suggests that for this particular sample measurement error may have accounted for some of the shared variance among indicators rather than being a product of the latent construct and random error (Brown, 2006). However, it did not appear that entire latent constructs were a product of method effects (Brown, 2003, 2006; Marsh, 1996). In fact, the preponderance of evidence cited earlier supported the final three-factor solution. The composite picture of the fit indices, convergent and discriminant validity of the three factors in the final solution, factor reliability coefficients, and demonstrated external correlations with other variables in theoretically consistent ways all justified putting forth the three-factor solution. Future research could explore method effects in other independent samples.

Given that construct validation is context dependent (Bravo, 2003; Hoyt et al., 2006), future research must continue to explore the internal and external structure of the DSI-R in other diverse and cross-cultural contexts. Construct validation using CFA often results in a reduction of items as part of the model-fitting process (Brown, 2006; Byrne, 2001), and that was the case in the current study. The final three-factor model consisted of 31 items which correlated highly with the 46-item DSI-R full scale ( $r = .97, p = .000$ ). Additional research is clearly needed to further examine whether the internal structure observed in the current study applies to other racially diverse samples largely comprised of emerging adults. The current study with a sample that was 70.8% White American, and therefore proportionally more diverse than the original CFA involving the DSI, offers evidence for the cultural generalizability of DoS and its assessment with the DSI-R. Nonetheless, it is important to continue to accumulate evidence related to cultural validity and generalizability in studies of racially/ethnically diverse populations. Explicit construct validation research might also further examine diversity in terms of age, gender, sexual orientation, and religion/spirituality and the linguistic and translational equivalence of the DSI-R.

## Conclusion

Construct validation occurs in the context of an evolving theoretical framework (Hoyt et al., 2006). One evolution of Bowen theory has involved conceptualizing DoS as an indicator of affect regulation and interdependent relating with direct relevance to the lifecycle stage of emerging adulthood. Research involving the DSI/DSI-R has facilitated the evolution of Bowen's ideas about DoS, despite persistent construct validation concerns regarding the Fusion with Others subscale on both the DSI and DSI-R. In fact, the results of the CFA in the current study confirmed the construct validation concerns regarding the revised FO subscale of the DSI-R, particularly with racially diverse samples. The results of the current study with a sample comprised predominantly of emerging adults confirmed the internal structure of the remaining three factors of the DSI-R: the ER, IP and EC subscales. Results therefore supported conceptualizing DoS as a two-dimensional con-

struct consisting of (1) an affect regulation dimension captured most strongly by Skowron and Schmitt's (2003) ER subscale, and (2) a dimension involving the interpersonal negotiation of togetherness and separateness assessed most strongly by Skowron and Schmitt's EC subscale. The results also confirmed the use of the 46-item DSI-R full-scale score as a psychometrically sound indicator of the intra- and interpersonal dimensions of DoS. Last, support for the cultural generalizability of DoS was also found based on a sample that was proportionally more racially diverse than previous research on the internal structure of the DSI/DSI-R.

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