Dispositional Mindfulness, Spirituality, and Substance Use in Predicting Depressive Symptoms in a Treatment-Seeking Sample

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Objective: It is imperative that research identifies factors related to depression among individuals in substance use treatment, as depression is associated with substance use relapse. Dispositional mindfulness and spirituality may bear an important role in the relationship between depression and substance use. **Method:** Using preexisting patient medical records ($N = 105$), the current study investigated dispositional mindfulness and spirituality in relation to depressive symptom clusters (affective, cognitive, and physiological) among men in residential substance use treatment. The mean age of the sample was 41.03 (standard deviation = 10.75). **Results:** Findings demonstrated that dispositional mindfulness and spirituality were negatively associated with depressive symptoms. After controlling for age, alcohol use, and drug use, dispositional mindfulness remained negatively associated with all of the depression clusters. Spirituality only remained associated with the cognitive depression cluster. **Conclusion:** Mindfulness-based interventions may hold promise as an effective intervention for reducing substance use and concurrent depressive symptoms. © 2014 Wiley Periodicals, Inc. J. Clin. Psychol. 71:334–345, 2015.

Keywords: mindfulness; spirituality; depression; substance use

It is well established that substance use disorders are serious problems throughout the world. In the United States, it is estimated that approximately 18% of individuals will meet diagnostic criteria for an alcohol use disorder in their lifetime and 11% will meet criteria for a drug use disorder (Grant et al., 2004; Kessler, Berglund, Demler, Jin, & Walters, 2005; Merikangas & McClair, 2012). Unfortunately, only one in three individuals with a substance use disorder ever seeks substance use treatment (Cunningham & Breslin, 2004). Moreover, for individuals who do seek treatment, research demonstrates that up to 70% may relapse to substance use (Walitzer & Dearing, 2006). Although it is believed that relapse to substance use is a complex process comprised of an interplay between proximal and distal factors during high-risk situations (Witkiewitz & Marlatt, 2007), a common precipitant to relapse is negative affect (Witkiewitz & Marlatt, 2004).

In particular, depressive symptomatology has been shown to increase the risk for relapse after substance use treatment (Bradizza, Stasiewicz, & Paas, 2006), such that men with moderate to severe depressive symptoms may be three to five times more likely to relapse (Curran, Flynn, Kirchner, & Booth, 2000). Given the high rates of depression among individuals seeking substance use treatment, with estimates as high as 60% meeting criteria for major depressive disorder (Swendsen & Merikangas, 2000), it is important for research to examine risk factors for depression among individuals seeking substance use treatment. It is possible that targeting risk factors for depression during substance use treatment may reduce the risk for relapse. Specific to

This work was supported, in part, by grant K24AA019707 from the National Institute on Alcohol Abuse and Alcoholism (NIAAA) awarded to the last author. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIAAA or the National Institutes of Health.

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Published online in Wiley Online Library (wileyonlinelibrary.com/journal/jclp). DOI: 10.1002/jclp.22139

the current study, recent research has identified spirituality and mindfulness to be salient factors in relation to depression and substance use (e.g., Bowen & Enkema, 2014; Sanchez, Arocena, & Ceballos, 2010). Therefore, in the current study, we examined spirituality and dispositional mindfulness as predictors of depressive symptomatology clusters in men seeking residential substance use treatment.

Spirituality, Depression, and Substance Use

In the current study, we defined spirituality as described by the Daily Spiritual Experience Scale (DSES; Underwood & Teresi, 2002), which measures ordinary spiritual experiences (e.g., gratitude, compassionate love, sense of connection), and "experiences of relationships with, and awareness of, the divine or transcendent and how beliefs and understandings form part of moment-to-moment features of life from a spiritual or religious perspective" (Underwood, 2011, p. 30). This conceptualization of spirituality transcends the boundaries of particular religions (Underwood & Teresi, 2002) and is more concerned with subjective feelings and thoughts as related to spirituality. As related to the current study, particularly for individuals in substance use treatment, Shorkey, Uebel, and Windsor (2008) stated that "the usefulness of this scale [the DSES] for assessing the spiritual experience of a person in treatment and recovery may be profound" (p. 291). Although it is generally agreed that spirituality is a multidimensional construct that may include individuals beliefs, religious/spiritual practices, and culture, the DSES provides a useful proxy for the breadth of spirituality when a more comprehensive assessment is not feasible (Underwood, 2011), as was the case in the current study.

Spirituality is central to many substance use disorder treatment modalities, particularly 12-step treatments (i.e., Alcoholics Anonymous and Narcotics Anonymous). Indeed, these treatments discuss a "higher power" as being important, if not essential, for recovery from substance use (AA World Services Inc., 2001). It is therefore not surprising that many studies have investigated the relationship between spirituality and substance use treatment outcomes, demonstrating that increased spirituality predicts decreased substance use after treatment (e.g., Piderman, Schneekloth, Pankratz, Stevens, & Altchuler, 2008; Robinson, Cranford, Webb, & Brower, 2007; Robinson, Krentzman, Webb, & Brower, 2011). Not surprisingly, there is an abundance of research demonstrating various indicators of enhanced spirituality to be associated with decreased depressive symptoms across a wide range of populations (e.g., Koenig, George, Titus, & Meador, 2004; Sanchez et al., 2010; Skarupski, Fitchett, Evens, & Mendes, 2010). Conversely, religious/spiritual strain or distress (e.g., feelings of alienation from God; disagreement on spiritual issues with close others) is associated with increased depressive symptoms and suicidality (Exline, Yali, & Sanderson, 2000; Hill & Pargament, 2003). Thus, it appears that spirituality may play an important role in the development, maintenance, and recovery for both substance use and depression.

Mindfulness, Depression, and Substance Use

Mindfulness is commonly defined as "paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally" (Kabat-Zinn, 1994, p. 4). Mindfulness involves bringing attention to present moment experiences, such as emotions and thoughts, with a curious, nonjudgmental awareness, allowing all experiences to be exactly what they are (Segal, Williams, & Teasdale, 2002). That is, unpleasant experiences are not pushed away or avoided, and pleasant experiences are not clung to and held with attachment. Dispositional mindfulness is considered a naturally occurring characteristic and is assessed by asking individuals to report on their tendencies to have sustained awareness and attention to what occurs in the present moment of their everyday life (Bowen & Enkema, 2014; Brown & Ryan, 2003). Although dispositional mindfulness is generally considered to represent a multidimensional construct (e.g., Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006), prior research has successfully assessed mindfulness unidimensionally when focusing on the moment-to-moment quality of attention, which is at the center of mindfulness (Brown & Ryan, 2003). In the current study, we examined dispositional mindfulness unidimensionally, consistent with a very large body of research on

dispositional mindfulness (e.g., Brown & Ryan, 2003; Shorey, Brasfield, Anderson, & Stuart, 2014a; Wupperman, Neuman, Whitman, & Axelrod, 2009).

Numerous studies have demonstrated inverse associations between depressive symptoms and dispositional mindfulness across a number of populations (e.g., Brown & Ryan, 2003; Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007). There is also a large literature documenting mindfulness training as an effective treatment for depression. For instance, mindfulness-based cognitive therapy (MBCT; Segal et al., 2002), an 8-week group therapy, has been developed to prevent depressive relapse, and research has supported the efficacy of MBCT across multiple studies (e.g., Bondolfi et al., 2010; Teasdale et al., 2000). Moreover, a recent review demonstrated that meditation programs (e.g., MBCT; Mindfulness Based Stress Reduction) appear to be as effective as antidepressant medication in the treatment of depression, both producing effect sizes of approximately 0.3 (Goyal et al., 2014). Thus, it is clear that dispositional mindfulness, as well as mindfulness-based interventions, is important to consider with depression.

As related to substance use, a number of studies have now demonstrated that individuals seeking substance use treatment report lower levels of dispositional mindfulness than healthy controls (e.g., Brooks, Kay-Lambkin, Bowman, & Childs, 2012; Dakwar, Mariani, & Levin, 2011; Shorey et al., 2014a). A recent study has also demonstrated dispositional mindfulness to be inversely associated with the severity of substance dependence among men and women seeking outpatient substance use treatment (Bowen & Enkema, 2014). Related to the current study, Shorey, Brasfield, Anderson, and Stuart (2014b) demonstrated dispositional mindfulness to be inversely associated with depressive symptoms among men and women seeking residential substance use treatment. They also found that patients meeting probable diagnostic cutoff scores for depression reported lower dispositional mindfulness than patients not meeting the probable diagnostic cutoff score.

It is also important to note that there is a growing body of research on mindfulness-based interventions specific to substance use (see review by Zgierska et al., 2009). For instance, Mindfulness-Based Relapse Prevention (Bowen et al., 2009), an 8-week outpatient group therapy, has been shown to decrease relapse to substance use 4 months posttreatment relative to treatment as usual (12-step, process oriented treatment). These positive findings can be partly explained by MBRP reducing the association between depressive symptoms, cravings, and substance use (Witkiewitz & Bowen, 2010). Thus, both dispositional mindfulness and mindfulness-based interventions are important considerations for substance use.

Current Study Extensions

In the current study, we examined spirituality and dispositional mindfulness as predictors of depressive symptomatology clusters in men seeking residential substance use treatment. To our knowledge, no research has examined these relationships simultaneously despite the importance of these constructs among individuals seeking treatment and their theoretical relationship; that is, researchers speculate that mindfulness and spirituality may be highly related, as mindfulness was derived from Buddhist philosophy (Leigh, Bowen, & Marlatt, 2005). However, although many mindfulness-based interventions have adopted a secular context (Kabat-Zinn, 1990), they still demonstrate mindfulness-based programs with enhanced levels of spirituality (Carmody, Reed, Kristeller, & Merriam, 2008; Greeson et al., 2011). Because most individuals report a desire for greater spiritual growth, mindfulness-based programs that are secular in nature may help individuals achieve greater spiritual growth (Carmody et al., 2008). Moreover, prior research has demonstrated a positive association between dispositional mindfulness and spirituality (e.g., Leigh et al., 2005). Therefore, it will be important to examine both constructs simultaneously to determine their unique associations with depressive symptoms.

Moreover, because depression contains numerous, distinct symptom clusters, including affective (e.g., feelings of sadness, anhedonia), cognitive (hopelessness, thoughts of worthlessness, difficulty concentrating), and physiological (changes in appetite, sleep disturbances; Morey, 1991), it will be important to examine whether the relationships between dispositional mindfulness and spirituality and depression vary depending on the types of depressive symptoms.

Therefore, in the current study, we examined the relationships between spirituality and dispositional mindfulness and depressive symptomatology clusters (affective, cognitive, and physiological) in a sample of adult men seeking residential substance use treatment. Based on previous research, we expected both spirituality and dispositional mindfulness to be negatively associated with all depressive symptom clusters. We also examined whether spirituality and dispositional mindfulness remained associated with depression after controlling for alcohol use, drug use, and age, and we expected the negative relationships to remain after accounting for these other predictors.

Method

Participants and Procedures

Patient records from an adult, private, residential substance abuse treatment facility, located in the Southeastern United States, were reviewed for the present study. To be admitted into the adult treatment facility, patients must have a primary substance use disorder and be approximately 25 years of age. Patients younger than 25 years of age are generally admitted into a young adult program at this same treatment facility. The treatment facility provides a 28–30-day program, largely guided by the traditional 12-step model. Upon admission into treatment, and after medical detoxification (if necessary), patients completed an intake assessment, which includes self-report measures (discussed below). Substance use disorder diagnoses are based on the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR) criteria (American Psychiatric Association, 2000) and are diagnosed through the consultation of treatment team members, which includes a licensed psychologist, a psychiatrist, a general physician, and substance abuse counselors. All study procedures were approved by the institutional review board of the last author.

Records from male patients who were admitted to the treatment facility from January 2013 to May 2013 were reviewed for the current study. This resulted in a sample of 105 male patients. The primary substance use diagnoses for this sample were alcohol dependence (61.4%), opioid dependence (19.8%), and polysubstance dependence (4%). The remaining patients had a mix of primary substance use diagnoses (e.g., cocaine dependence; amphetamine dependence). Patients' self-reports of race/ethnicity were as follows: the majority was non-Hispanic Caucasian (90.5%), followed by African American (4.8%), Hispanic (2.9%), and other (1.8%; e.g., Indian). The mean age of patients was 41.03 (standard deviation [*SD*] = 10.75, range = 22–69). Prior to entering treatment, 19% of patients were employed full-time and 26.7% took medical leave from their employment to obtain treatment. The mean number of years of education completed by patients was 13.69 (*SD* = 2.09). Participants in the current study are a subsample of men reported elsewhere (Shorey, Anderson, & Stuart, in press).

Measures

Dispositional mindfulness. The Mindful Attention Awareness Scale (MAAS) was employed (Brown, West, Loverich, & Biegel, 2011). Specifically, we used the 14-item version that does not contain the item "I drive places on 'automatic pilot' and then wonder why I went there," which is included in the original 15-item version. The treatment facility where charts were reviewed for the current study decided not to include this item because patients cannot drive during their residential stay in treatment and the treatment facility wanted the option to eventually examine pre-post treatment changes in mindfulness. The MAAS measures a receptive state of mind, where awareness of what is taking place in the present moment is simply observed, without appraising or evaluating experience. A mean score was obtained by summing all items on a 6-point scale, ranging from 1 (*almost always*) to 6 (*almost never*), and by dividing by the total number of items. Higher scores on the MAAS correspond to higher levels of dispositional mindfulness. The MAAS has demonstrated good reliability ($\alpha = .82$ to .88), test-retest reliability across a 3 to 4 week period, good factor structure, and concurrent and incremental validity (Brown et al., 2011).

Spirituality. The Daily Spiritual Experiences Scale (DSES; Underwood & Teresi, 2002) was used to examine spirituality. The DSES is a 16-item self-report measure that is designed to capture ordinary spiritual experiences, one's relationship with, and awareness of, the divine or transcendent, and how beliefs influence moment-to-moment features of life as understood from a spiritual or religious perspective. The DSES was purposely designed to be relevant for individuals with both theistic religious and nontheistic views. Example items include "I find strength in my religion or spirituality" and "I am spiritually touched by the beauty of creation." The first 15 items are rated on a 6-point scale ranging from 1 (*never or almost never*) to 6 (*many times a day*), and respondents are asked to indicate how often they have each experience. The last item ("In general, how close do you feel to God?") is rated on a 4-point scale ranging from 1 (*not at all*) to 4 (*as close as possible*). In the instructions, participants are instructed that a number of items use the word "God" and they should substitute another word that corresponds to the divine or holy for them if they are not comfortable with God. All items are summed and higher scores reflect greater spirituality. The DSES has demonstrated good psychometric properties, including high internal consistency ($\alpha = .89$ to .95), test-retest reliability, and construct validity (Underwood, 2011).

Depression. The Personality Assessment Inventory (PAI; Morey, 1991) was used to examine symptoms of depression. The PAI includes three depression subscales and a total score that comprises the subscales. The three subscales include Affective (feeling of sadness, loss of interest in normal activities, and anhedonia), Cognitive (thoughts of worthlessness, hopelessness, personal failure, and indecisiveness and difficulties in concentration), and Physiological (level of physical functioning, activity, and energy, including disturbance in sleep pattern, changes in appetite, and weight loss; Morey, 2003). The mean score for each subscale is 50, with a standard deviation of 10. Morey (1991) reports that *T* scores of 59 or below are indicative of little distress, with scores from 60–69 indicative of interpretable problems, and 70 or higher are indicative of significant problems. The PAI has demonstrated good reliability and validity across multiple samples (Morey, 1991, 2007).

Alcohol use. Patients' alcohol use in the year prior to treatment entry was examined with the Alcohol Use Disorders Identification Test (AUDIT; Saunders, Asaland, Babor, de la Fuente, & Grant, 1993). The AUDIT, which contains 10 items, examines the intensity and frequency of alcohol use, symptoms that might indicate dependence or tolerance to alcohol, and negative consequences associated with alcohol use. The AUDIT has demonstrated excellent psychometric properties across many populations (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001).

Drug use. The Drug Use Disorders Identification Test (DUDIT; Stuart, Moore, Kahler, & Ramsey, 2003; Stuart, Moore, Ramsey, & Kahler, 2004) examined patients' drug use in the year prior to treatment entry. The DUDIT contains 14-item self-report items and is structured similar to the AUDIT; that is, the DUDIT assesses the frequency of drug use and symptoms that may indicate tolerance or dependence. The DUDIT examines seven different types of drugs (cannabis, cocaine, hallucinogens, stimulants, sedatives/hypnotics/anxiolytics, opiates, and other substances [e.g., steroids, inhalants]). The DUDIT has demonstrated good psychometric properties (Stuart et al., 2004, 2008).

Results

All analyses were conducted using IBM SPSS (version 21.0). Bivariate correlations, means, and standard deviations among study variables are presented in Table 1. Mean scores for spirituality and dispositional mindfulness are similar to those reported in other samples of individuals seeking substance use treatment (e.g., Lyons et al., 2011; Shorey et al., 2014a). As shown in Table 1, dispositional mindfulness was negatively and significantly associated with alcohol use, drug use, all three depression subscales, and the total depression score. Dispositional mindfulness was positively associated with spirituality and age. Spirituality was negatively associated with drug use, the depression total score, and the affective and cognitive depression subscales. Drug

Table 1
Bivariate Correlations, Means, and Standard Deviations Among Study Variables

	1	2	3	4	5	6	7	8	9
1. AUDIT	—	−.37***	.05	−.21*	.18*	.22*	.12	.11	.12
2. DUDIT		—	−.33**	−.32***	.41***	.36***	.39***	.32***	−.42***
3. DSES			—	.25**	−.22*	−.21*	−.35***	−.05	.18
4. MAAS				—	−.56***	−.55***	−.42***	−.47***	.19*
5. Depression–Total					—	.93***	.81***	.81***	−.28**
6. Depression–Affective						—	.73***	.65***	−.32***
7. Depression–Cognitive							—	.41***	−.15
8. Depression–Physiological								—	−.23*
9. Age									—
M	16.43	9.40	57.68	4.32	60.59	60.92	55.55	59.96	41.03
SD	10.81	12.31	19.33	.99	13.97	15.60	12.96	12.50	10.75

Note. M = mean; SD = standard deviation; AUDIT = Alcohol Use Disorders Identification Test; DUDIT = Drug Use Disorders Identification Test; DSES = Daily Spiritual Experiences Scale; MAAS = Mindful Attention Awareness Scale.
*$p < .05$. **$p < .01$. ***$p < .001$.

use was positively associated with all of the depression scales, and alcohol use was positively associated with the total depression score and the affective subscale.

We next examined the relations between study variables and depression using multiple regression analyses. Specifically, hierarchical multiple regression analyses were employed in two models for each depression scale. In the first model, age, alcohol use, and drug use were entered. In the second model, these same predictors were added along with spirituality and dispositional mindfulness, to determine whether spirituality and dispositional mindfulness accounted for unique and significant variance in depressive symptoms. These findings are displayed in Table 2. These analyses demonstrated that the addition of dispositional mindfulness and spirituality added significant variance to the prediction of depressive symptoms. Specifically, dispositional mindfulness remained negatively and significantly associated with all of the depression scales, whereas spirituality was only negatively and significantly associated with the cognitive depression subscale. Alcohol and drug use also remained associated with depression in each model.

Discussion

Depression is a known risk factor for relapse to substance use among individuals who receive substance use treatment. Given the high prevalence of depressive symptoms among individuals in substance use treatment, there is a continued need for research that examines potentially modifiable factors that could impact depression in this population. These factors could then become targets of intervention during substance use treatment. In a sample of adult men seeking residential substance use treatment, we examined the relationships between dispositional mindfulness and spirituality and depressive symptom clusters (affective, cognitive, and physiological). To our knowledge, this is the first study to simultaneously examine these factors as related to depression in a substance use treatment sample.

Results were consistent with a growing body of literature demonstrating dispositional mindfulness to be negatively associated with depressive symptoms. However, this is the first study, to our knowledge, to demonstrate this relationship for different depressive symptom clusters in a substance use treatment sample. These results were found even after controlling for alcohol and drug use, age, and spirituality. This is a notable finding given the high rates of depression among individuals seeking substance use treatment (Bradizza et al., 2006) and suggests that dispositional mindfulness may be a protective factor for developing depressive symptoms in this population. Because higher levels of dispositional mindfulness is believed to reflect a tendency toward accepting all experiences, without judgment, and allowing experiences to naturally

Table 2
Hierarchical Multiple Regression Analyses Predicting Depressive Symptoms

Depression–Total	B	*SE*	β	R^2	*F*
Model 1				.28	13.24***
Age	−.09	.12	−.07		
AUDIT	.58	.13	.43***		
DUDIT	.59	.12	.51***		
Model 2				.40 ($\Delta R^2 = .12$)	12.94***
Age	−.07	.11	−.05		
AUDIT	.39	.12	.29**		
DUDIT	.38	.12	.33**		
DSES	−.02	.06	−.03		
MAAS	−5.31	1.27	−.37***		

Depression–Affective	B	*SE*	β	R^2	*F*
Model 1				.27	12.12***
Age	−.22	.13	−.15		
AUDIT	.64	.14	.44***		
DUDIT	.53	.13	.42***		
Model 2				.37 ($\Delta R^2 = .10$)	11.56***
Age	−.19	.13	−.13		
AUDIT	.44	.14	.29**		
DUDIT	.31	.14	.24*		
DSES	−.03	.07	−.04		
MAAS	−5.57	1.43	−.36***		

Depression–Cognitive	B	*SE*	β	R^2	*F*
Model 1				.23	9.78***
Age	.06	.12	.05		
AUDIT	.41	.12	.33**		
DUDIT	.57	.11	.54***		
Model 2				.30 ($\Delta R^2 = .07$)	8.37***
Age	.07	.11	.06		
AUDIT	.29	.12	.24*		
DUDIT	.40	.12	.37**		
DSES	−.13	.06	−.19*		
MAAS	−2.49	1.26	−.19*		

Depression–Physiological	B	*SE*	β	R^2	*F*
Model 1				.17	6.78***
Age	−.07	.12	−.06		
AUDIT	.40	.12	.33**		
DUDIT	.41	.12	.38**		
Model 2				.29 ($\Delta R^2 = .12$)	8.02***
Age	−.05	.11	−.05		
AUDIT	.25	.12	.20*		
DUDIT	.27	.12	.26*		
DSES	.08	.06	.13		
MAAS	−4.97	1.24	−.39***		

Note. M = mean; SE = standard error; AUDIT = Alcohol Use Disorders Identification Test; DUDIT = Drug Use Disorders Identification Test; DSES = Daily Spiritual Experiences Scale; MAAS = Mindful Attention Awareness Scale.
*$p < .05$. **$p < .01$. ***$p < .001$.

rise and fall away (Baer, Walsh, & Lykins, 2009), it makes theoretical sense that dispositional mindfulness would be negatively associated with the affective, cognitive, and physiological components of depression. As discussed below, it is possible that mindfulness-based interventions for substance use may have the concurrent benefit of reducing depressive symptoms.

Our findings also demonstrated that spirituality remained negatively associated with the cognitive cluster of depressive symptoms after controlling for alcohol and drug use, age, and dispositional mindfulness. The cognitive cluster of depression comprises beliefs of hopelessness, worthlessness, and personal failure (Morey, 2003). It is likely that individuals higher in spirituality would be protected from the cognitive symptoms of depression, such as thoughts about hopelessness, for example, because of the belief in a "higher power" or the belief that there is meaning and purpose in everything that happens in life (Bassett, Lloyd, & Tse, 2008). In other words, even in the face of adversity, such as mental health problems, spirituality can instill a sense of hope that recovery will occur (Bassett et al., 2008). These findings should be considered preliminary, however, until they are replicated and extended in future research.

It is worth noting that dispositional mindfulness remained negatively and significantly associated with all four indicators of depression in the regression models, whereas spirituality remained associated with only the cognitive depression cluster. Although these findings need replication, it is possible that dispositional mindfulness is a more robust predictor of various depressive symptom clusters than spirituality among men in substance use treatment. However, due to our unidimensional assessment of both mindfulness and spirituality in the current study, it is also plausible that different aspects of spirituality, and mindfulness, that we did not assess may be associated with depressive symptom clusters. Future research that employs a multidimensional assessment of both mindfulness and spirituality is needed to determine whether mindfulness remains a more robust predictor of depressive symptoms relative to spirituality.

Directions for Future Research

There are a number of directions for future research on the relationships between mindfulness, spirituality, and depression among individuals in substance use treatment. First, there is a clear need for longitudinal research that explores the temporal ordering of these relationships. It is certainly possible that low levels of dispositional mindfulness and spirituality precede substance use and depression, although it is equally as plausible that substance use and depression lead to reductions in dispositional mindfulness and spirituality over time. In addition, although we conceptualized spirituality in the current study as relevant for religious and nonreligious individuals, we did not explicitly assess for religiosity and how this may have affected levels of spirituality, mindfulness, or depression. Indeed, spirituality and religiosity are believed to be interrelated yet distinct constructs (Miller & Thoresen, 1999). However, spirituality is also considered a multidimensional construct of which religiosity may play an important role (Hood, Hill, & Spilka, 2009). Thus, including an assessment of religiosity in future studies may provide a more comprehensive understanding of the relationships between spirituality and depression among individuals in substance use treatment.

One question for future research is whether mindfulness- and spirituality-based interventions are effective at concurrently reducing substance use and depressive symptoms. Indeed, Brewer, Bowen, Smith, Marlatt, and Potenza (2010) have speculated that mindfulness-based interventions may be particularly efficacious for comorbid substance use and depression because of similar neurobiological and behavioral dysfunction that is common to both disorders. Because mindfulness-based interventions have demonstrated efficacy at reducing risk for relapse (Bowen et al., 2009), which may be partly because of decreased cravings when experiencing negative affect (Witkiewitz & Bowen, 2010), it is certainly plausible that these interventions could concurrently reduce depressive symptom clusters that may be associated with relapse.

Mindfulness-based interventions for substance use may also increase spirituality, and this may be particularly pronounced when mindfulness is included in treatments that also focus heavily on spirituality in recovery from substance use (e.g., 12-step programs). In fact, research with nonsubstance-using populations has demonstrated that mindfulness-based interventions enhance spirituality (Birnie, Speca, & Carlson, 2010; Greeson et al., 2011). Because the

majority of substance use treatment programs employing group therapy as their primary treatment modality (Kaminer, 2005), and the vast majority of mindfulness-based programs are intended to be delivered in a group format (e.g., Bowen et al., 2009), the inclusion of mindfulness-based interventions in substance use treatment programs would fit the majority of treatment facilities existing treatment modalities (e.g., group therapy and 12-step focused). Clearly there is a need for continued research on mindfulness-based interventions in substance use treatment populations.

Limitations

The current study has a number of limitations that should be addressed in future research. The cross-sectional design precludes the determination of causality among study variables. Longitudinal studies are needed to examine whether spirituality and dispositional mindfulness predict depressive symptoms over time. Our findings are also limited in generalizability due to the lack of ethnic diversity in our sample and future research should employ more diverse samples, including samples of women in substance use treatment. The treatment facility where charts were reviewed does not conduct structured diagnostic interviews. Future research should utilize structured diagnostic interviews to confirm substance use diagnoses and to evaluate comorbid mental health diagnoses (e.g., depression).

Our assessment of dispositional mindfulness also has a number of limitations. Although the MAAS is one of the most widely used measures of dispositional mindfulness, there is a debate in the literature as to whether dispositional mindfulness should be assessed as a unidimensional or a multidimensional construct (Baer et al., 2009). Other measures of dispositional mindfulness contain two (Davis, Lau, & Cairns, 2009), four (Baer, Smith, & Allen, 2004), and five (Baer et al., 2006) facets, and future research should replicate our findings and determine whether different facets of dispositional mindfulness predict depressive symptoms clusters. Similarly, spirituality may be best captured by the inclusion of multiple measures aimed at understanding the multidimensional nature of the construct (Underwood, 2011). Thus, future research should employ multiple spirituality measures.

Conclusion

Findings from the current study demonstrated that dispositional mindfulness was a robust predictor of depressive symptom clusters, even after controlling for alcohol use, drug use, age, and spirituality. In contrast, spirituality was associated only with the cognitive symptoms of depression when controlling for these factors. These findings highlight the importance of considering different depressive symptom clusters when examining how spirituality and dispositional mindfulness are related to depression among individuals seeking substance use treatment. It is possible that mindfulness-based interventions may have the concurrent benefit of reducing substance use and depression, and further research in this area is warranted.

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