

Provided for non-commercial research and education use.
Not for reproduction, distribution or commercial use.



This article appeared in a journal published by Elsevier. The attached copy is furnished to the author for internal non-commercial research and education use, including for instruction at the authors institution and sharing with colleagues.

Other uses, including reproduction and distribution, or selling or licensing copies, or posting to personal, institutional or third party websites are prohibited.

In most cases authors are permitted to post their version of the article (e.g. in Word or Tex form) to their personal website or institutional repository. Authors requiring further information regarding Elsevier's archiving and manuscript policies are encouraged to visit:

<http://www.elsevier.com/copyright>



Regular article

Burnout among the addiction counseling workforce: The differential roles of mindfulness and values-based processes and work-site factors

Roger Vilardaga, (M.A.)^{a,*}, Jason B. Luoma, (Ph.D.)^b, Steven C. Hayes, (Ph.D.)^a,
Jacqueline Pistorello, (Ph.D.)^a, Michael E. Levin, (M.A.)^a, Mikaela J. Hildebrandt, (M.S.)^a,
Barbara Kohlenberg, (Ph.D.)^c, Nancy A. Roget, (M.S.)^d, Frank Bond, (Ph.D.)^e

^aDepartment of Psychology, University of Nevada, Reno, NV 89557, USA

^bPortland Psychotherapy Clinic, Research, and Training Center, OR 97212, USA

^cUniversity of Nevada School of Medicine, Reno, NV 89557, USA

^dCenter for the Application of Substance Abuse Technologies, Reno, NV 89509, USA

^eGoldsmiths, University of London, London, SE14 6NW, United Kingdom

Received 26 April 2010; received in revised form 28 November 2010; accepted 29 November 2010

Abstract

Although work-site factors have been shown to be a consistent predictor of burnout, the importance of mindfulness and values-based processes among addiction counselors has been little examined. In this study, we explored how strongly experiential avoidance, cognitive fusion, and values commitment related to burnout after controlling for well-established work-site factors (job control, coworker support, supervisor support, salary, workload, and tenure). We conducted a cross-sectional survey among 699 addiction counselors working for urban substance abuse treatment providers in six states of the United States. Results corroborated the importance of work-site factors for burnout reduction in this specific population, but we found that mindfulness and values-based processes had a stronger and more consistent relationship with burnout as compared with work-site factors. We conclude that interventions that target experiential avoidance, cognitive fusion, and values commitment may provide a possible new direction for the reduction of burnout among addiction counselors. © 2011 Elsevier Inc. All rights reserved.

Keywords: Addiction counselors; Burnout; Experiential avoidance; Values commitment; Cognitive fusion; Work-site factors

1. Introduction

Addiction counselors work under difficult conditions: funding cuts, restrictions on the delivery of services, changing certification and licensure standards, mandated clients, and clients that need special care (Austad, Sherman, Morgan, & Holstein, 1992; Carpenter, 1999; Ivey, Scheffler, & Zazzali, 1998; Manderscheid, Henderson, Witkin, & Atay, 2000; Osborn, 2004). In addition, other situational factors such as low salaries, staff turnover, agency upheaval, and limited opportunities for career development create additional burdens (Ogborne, Braun, & Schmidt, 1998); not to

mention, the well-known difficulty of working with clients who have high relapse rates (Festinger, Rubenstein, Marlowe, & Platt, 2001; Hubbard, Flynn, Craddock, & Fletcher, 2001) and high rates of psychiatric comorbidity (McGovern, Xie, Segal, Siembab, & Drake, 2006).

Under those circumstances, burnout has been reported as a prevalent problem among addiction counselors and other providers of mental health care (Balogun, Titiloye, Balogun, Oyeyemi, & Katz, 2002; Maslach, Schaufeli, & Leiter, 2001; Osborn, 2004; Sarata, 1983), especially among those rendering direct services to their recipients (Peterson, 1990). Burnout is associated with job turnover (Ducharme, Knudsen, & Roman, 2008; Knudsen, Ducharme, & Roman, 2006; Knudsen, Ducharme, & Roman, 2009; Schaufeli & Bakker, 2004), which exacerbates the chaos within agencies that often are already unstable, underfunded, and struggling.

* Corresponding author. Department of Psychology MS 298, University of Nevada, Reno, 1664 N. Virginia St., Reno, NV 89557, USA.

E-mail address: roger.vilardaga@gmail.com (R. Vilardaga).

Burnout also impacts other aspects of the counselors' functioning, including the counselor–client therapeutic relationship (Garner, 2006), the counselors' morale (Cushway & Tyler, 1996), and counselors' job efficacy and commitment (Maslach et al., 2001). Data from research on both addiction counselors and other health professionals show that work-site factors of job control, coworker social support, supervisor support, workload, and tenure are linked to burnout (e.g., Alotaibi, 2003; Ducharme et al., 2008; Frese & Zapf, 1994; Hackman & Lawler, 1971; Knudsen, Ducharme, & Roman, 2008; Maslach et al., 2001; Ogborne et al., 1998; Terry & Jimmieson, 1999). Although organizational interventions such as reducing workload or increasing job control are helpful in reducing burnout, this pathway can be difficult to implement in agencies that treat substance use disorders due to inadequate funding and unstable organizational environments. Furthermore, targeting organizational factors alone may not adequately address the problem of burnout. Although task control relates to job satisfaction, other job control factors, such as the degree of involvement in organizational decisions and control over work scheduling, do not seem to increase it (Sargent & Terry, 1998), and some reports indicate that social support does not relate significantly to some aspects of burnout, including depersonalization and sense of accomplishment (van Dierendonck, Schaufeli, & Buunk, 1998).

A second pathway to burnout prevention and remediation might be interventions aimed at altering the psychological factors that contribute to burnout, such as mindfulness and values-based approaches (e.g., Hayes, Follette, & Linehan, 2004). Mindfulness processes have shown some promise, having been found to reduce therapists' stress (Shapiro, Brown, & Biegel, 2007) and to increase well-being (Brown & Ryan, 2003; Epstein, 1999). Acceptance and commitment therapy (ACT; Hayes, Strosahl, & Wialson, 1999) incorporates mindfulness and acceptance into a larger context of commitment and behavior change processes linked to values. A number of studies based on this model have shown that ACT is relevant to issues faced by addiction counselors. For example, ACT interventions have been shown to reduce substance abuse among those with an addiction (Gifford et al., 2004; Hayes, Wilson, et al., 2004), reduce self-stigma in addiction patients (Luoma, Kohlenberg, Hayes, Bunting, & Rye, 2008), increase adoption of evidence-based practices among addiction counselors (Luoma et al., 2007; Varra, Hayes, Roget, & Fisher, 2008), and reduce work-site stress (Bond & Bunce, 2001, 2003; McCracken & Yang, 2008).

Most directly relevant to this article is preliminary efficacy data showing that an intervention based on an ACT model reduced burnout in addictions counselors with effects at least partially mediated through these processes (Hayes, Bissett, et al., 2004). Although preliminary efficacy data are promising, it is not yet known if the processes ACT targets are generally important in burnout among addiction counselors. Three such processes are examined in this study

and further described below: experiential avoidance, cognitive fusion, and values commitment.

Experiential avoidance is “a verbal process that involves the unwillingness to remain in contact with particular thoughts, feelings, memories, bodily sensations or behavioral predispositions and the direct and deliberate attempts to alter the form and frequency of those events or the context in which they appear” (Hayes, Wilson, Gifford, & Follette, 1996, p.1154), which is argued to lead to insensitivity to the environment and to rigid and ineffective patterns of behavior. Experiential avoidance is associated with higher levels of depression, anxiety, and low quality of life (Hayes, Strosahl, et al., 2004) and a wide variety of other negative outcomes, such as sexual victimization and distress (Polusny, Rosenthal, Aban, & Follette, 2004), posttraumatic stress disorder (Marx & Sloan, 2005; Plumb, Orsillo, & Luterek, 2004), self-harm behaviors (Chapman, Gratz, & Brown, 2006), and parental distress and adjustment difficulties (Greco et al., 2005). Changes in experiential avoidance have also been found to mediate the impact of ACT on clinical outcomes in several randomized controlled trials (Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Ost, 2008; Powers, Vording, & Emmelkamp, 2009).

Cognitive fusion, another important process in ACT, is a broad construct that refers to the domination of thinking in behavioral regulation over other available processes (Hayes et al., 1999; Masuda, Hayes, Sackett, & Twohig, 2004). Fusion can be reduced by mindfully seeing thoughts as an ongoing cognitive process rather than merely interacting with the world as if it was structured by these thoughts (Hayes & Melancon, 1989). Changes in cognitive fusion, or the ability to see thoughts as “just thoughts,” have also been shown to mediate the outcomes of ACT interventions in several controlled trials (e.g., Hayes, Bissett, et al., 2004; Zettle & Hayes, 1986). Since cognitive fusion can take many forms, and stigma toward substance abusers has been found to be a prevalent problem in this subset of health care providers (Crisp, Gelder, Rix, Meltzer, & Rowlands, 2000), previous ACT studies have looked at fusion with stigmatizing thoughts, feelings, and attitudes toward substance abusers as a specific and problematic manifestation of cognitive fusion among addiction counselors (Hayes, Bissett, et al., 2004).

A third process in ACT, values commitment, refers to engagement in patterns of behavior consistent with values. Values are further defined as “verbally constructed, globally desired life directions” (Wilson, Hayes, Gregg, & Zettle, 2001, p.235; see also Plumb, Stewart, Dahl, & Lundgren 2009 for a more extended review on values from an ACT perspective). Values are known to be a key feature of the motivation to sustain healthy behaviors over time (Cohen, Garcia, Purdie-Vaughns, Apfel, & Brzustoski, 2009; Elliot & Harackiewicz, 1996; Sheldon & Elliot, 1999), and from an ACT perspective, burnout may be increased due to a disconnect between one's values and one's day-to-day actions. Therefore, a target process in ACT becomes commitment to values.

Although there are several studies examining processes predicting burnout among addiction counselors (e.g., Broome, Knight, Edwards, & Flynn, 2009; Ducharme et al., 2008; Knudsen et al., 2008, 2009; Ogborne et al., 1998; Peterson, 1990), and mindfulness treatments have received increasing attention in the substance abuse treatment field (e.g., Bowen et al., 2006; Carrico, Gifford, & Moos, 2007; Leigh, Bowen, & Marlatt, 2005; Ostafin & Marlatt, 2008), to our knowledge, no large study has yet examined the relationship between mindfulness and values-based processes (such as those proposed by ACT) and burnout among addiction counselors. In this study, we examined the role of ACT processes on burnout as compared to traditional work-site factors, including job control, salary, social support, workload, and tenure in a sample of addiction counselors. We hypothesized that both sets of factors play a role, but that ACT processes will have a relationship with burnout even after accounting for work-site factors. If this proves to be the case, it supports the argument that these processes would be important targets for burnout reduction interventions.

2. Materials and methods

2.1. Sample and procedure

Participants were 699 alcohol and drug abuse counselors recruited to participate in a National Institute of Drug Abuse-funded trial that tested workshop-based interventions for burnout during years 2006–2007. Participants were told that the study was aimed to help them “overcome barriers to effectiveness with difficult and different clients.” In return for participation, participants were provided with free tuition, continuing education credits, a \$25 gift certificate to a department store for completion of the preassessment, a \$25 gift certificate for postassessment, and a \$50 gift certificate for the 3-month follow-up assessment. The data analyzed in this study were drawn from the preintervention assessment of this larger study. We do not report details of the intervention or post and follow-up assessments in this article, as they are not relevant to this analysis, which focuses on baseline scores.

Participants were recruited through as many outreach formats as possible, by primarily using the master lists of licensed/certified alcohol and drug abuse counselors provided by Addiction Technology Transfer Centers, a national network of regional training and technical assistance centers that design and implement activities to strengthen and improve the substance abuse treatment workforce, funded by the Center for Substance Abuse Treatment under the Substance Abuse Mental Health Services Administration (SAMHSA). We sent out e-mails and letters to individual counselors as well as substance abuse treatment agencies in states that were in the vicinity of the training venue and encouraged recipients of the e-mails to forward them to other

substance abuse counselors who might be interested. In addition, we announced the event in specialized listservs that could have reached addiction counselors in that venue. The training events were also advertised on the national Addiction and Technology Transfer Center (ATTC) Network Web site. In an effort to maximize the sample's representativeness, we established training venues across the nation: Las Vegas, NV; Sacramento, CA; Los Angeles, CA; Phoenix, AZ; Vancouver, WA; Orlando, FL; and Chicago, IL. It is not possible to calculate the response rate per se due to the digital nature of the outreach and inability to know how many individuals received or read the study announcements. Table 1 compares our sample to the addiction workforce nationally. On various demographic variables such as age, gender, education, current licensure/certification, and salary compensation, the sample is similar to national norms (ATTC National Office, 2009). The study was approved by the Institutional Review Board of the University of Nevada, Reno, and informed consent was obtained from all addiction counselors at the training site. Participants completed the baseline self-report measures that were used in the analyses reported in this article in a paper-and-pencil format.

Criteria for inclusion in our final sample were being an addiction counselor or trainee working toward licensure or certification, being employed by an organization that provides substance abuse treatment services, being supervised, agreement to participate in the full course of the 2-day workshop-based interventions to reduce burnout, and agreement to complete assessment packets at pre, post, 3-month, and 12-month follow-ups. Participants also had to be fluent in English. Participants agreed ahead of time to undergo the consent process on site before the workshop and provided their name and contact information so we had a priori knowledge of individuals who would be present at a particular date and site: fewer than five individuals agreed to come and then no-showed or canceled; one individual declined to participate after reading the consent form.

Our participants (60.8% female, 39.2% male, $N = 697$) had an average age of 49.7 years ($SD = 10.6$, $N = 681$). Their education levels were as follows: 0.58% never attended high school, 3.35% had a high school degree, 18.63% reported at least some college education, 11.21% had an associate's degree, 27.22% had a Bachelor's degree, 34.06% had a master's degree, 3.20% had a PhD, and 1.75% indicated “other” ($n = 687$). The average number of years in their current job was 5.2 years ($SD = 5.3$, $N = 692$). Self-reports indicated that our sample was 58.5% White, 27% African American, 3.6% American Indian, 2% Asian, 1.3% Pacific Islander, and 7.6% reporting “other” ($n = 644$), with 9.2% missing data. For ethnicity, 12.7% identified as Latino(a)/Hispanic. Fifty-one percent of the participants described their job responsibilities as line staff (counseling), 26.5% as supervisors, 11.7% as administrators, and 10.7% as trainers or educators ($n = 618$). Changes in our demographic forms during the course of our study resulted in a missing rate of

Table 1
Demographic comparison with U.S. national data from 2009 ATTC workforce summary

Variable	Study sample	Workforce summary
Age	$M = 49.7$	$M = 45–50^a$
Gender	60.8% female	50%–70% female ^b
Race	58.5% White	70%–90% White ^c
Education	64.5% with BA or more	Several studies 80% with BA or more ^d
Certification	76.2% currently certified/licensed in substance abuse treatment	Two studies reported 60% with BA ^e
Salary	73.1% made between \$20,000 and \$50,000	45%–75% certified across various studies ^f Counselors' average salary = 30,000 Directors' = between \$40,000 and \$75,000 ^g

Note. BA = bachelor of arts.

^a Kaplan, 2003; NAADAC, 2003; RMC, 2003a, 2003b; NTIES 2001; Harwood, 2002.

^b Mulvey, Hubbard, & Hayashi, 2003; RMC, 2003a, 2003b; Knudsen & Gabriel, 2003; NAADAC, 2003; Harwood, 2002; NEDs 2001, Johnson, Knudsen, & Roman, 2002.

^c RMC, 2003a, 2003b; Harwood, 2002; Knudsen & Gabriel, 2003; Landis, Earp, & Libretto, 2002; Mulvey et al., 2003.

^d Johnson et al., 2002; Knudsen & Gabriel, 2003; RMC, 2003b.

^e RMC, 2003a; Gallon, Gabriel, & Knudsen, 2003.

^f SAMHSA 2003; Harwood, 2002; RMC, 2003a.

^g Kaplan, 2003.

11.6% on this variable. Finally, 73.1% of the sample had income between \$20,000 and \$50,000 per year ($n = 671$).

2.2. Measurement

2.2.1. ACT processes

Our measures of ACT processes included assessments of experiential avoidance, cognitive fusion, and values commitment.

The Acceptance and Action Questionnaire (AAQ; Hayes, Strosahl, et al., 2004) in its most recent version, the AAQ-II, measures the experiential avoidance component of ACT. The AAQ-II contains 10 items rated on a 7-point Likert scale that ranges from 1 (*never true*) to 7 (*always true*). Item 1, for example, reads "It's OK if I remember something unpleasant." Because of a square root transformation to normalize scores for analyses, high scores on this scale indicate high levels of experiential avoidance. This scale typically obtains Cronbach's alpha coefficients in the range of .76 to .87 (Bond et al., n.d.). This study obtained an adequate Cronbach's alpha of .73.

The Stigmatizing Attitudes—Believability Scale (SAB, 20 items; Hayes, Bissett, et al., 2004) is a measure of cognitive fusion (or cognitive believability) with common negative attitudes of treatment providers toward substance abusers. The measure asks participants to rate the believability of 20 items referring to negative thoughts or attitudes about substance abusers on a 7-point Likert scale ranging from 1 (*not at all believable*) to 7 (*completely believable*). An example item is "one can never really overcome their history of substance abuse." This measure is relatively new. In previous studies, this measure was found to have a Cronbach's alpha of .78 (Hayes, Bissett, et al., 2004). This study obtained a moderate Cronbach's alpha of .81. Previous research has successfully shown the mediational effect of cognitive fusion measures in other settings (Bach & Hayes, 2002; Zettle & Hayes, 1986), and in a previous study, this

specific measure partially mediated the effects of ACT on burnout outcomes (Hayes, Bissett, et al., 2004). The SAB does not measure the content or presence of particular negative attitudes or the level of emotion attached to it, but the degree in which the counselor believes them. Higher scores on this scale indicate higher cognitive fusion with negative attitudes toward substance abusers.

The Work Values Questionnaire is a relatively new measure that constitutes a shortened version of the Personal Values Questionnaire, an unpublished measure developed by Blackledge, Spencer, and Ciarrochi (May, 2007) grounded in previous work by Sheldon, Kasser, Smith, and Share (2002). In this measure, participants were asked to write in a few sentences about their work values and rate nine items in relation to this values statement. Examples of participant's values were the following: "I want to be personally successful, and in that process, successful in helping others" or "[to be] an effective worker and team player." Only the final item of this scale was used in this study because it refers to how successful participants were in the accomplishment of their value in the past month, with response options ranging from 1 (0%–20% successful), to 5 (81%–100% successful). This percentage of success served us as our index of commitment to work-related values, with scores transformed using a square root transformation. Because of this data transformation, high scores on this item indicate low commitment to work-related values. Because this was a single-item measure, no reliability analyses were conducted.

2.2.2. Work-site factors

Traditional predictors of burnout have been work-site factors. In particular, levels of job control and social support have shown to be reliable predictors of burnout (Ganster, Fusilier, & Mayes, 1986; Perrewe & Ganster, 1989).

Job control was measured using a shortened version (Smith, Tisak, Hahn, & Schmieder, 1997) of the longer 21-

item Job Control Scale (Lee & Ashforth, 1996) that has been shown to have adequate psychometric properties. Participants rated nine items from 1 (*very little*) to 5 (*very much*) that attempt to measure participants' perceived control over their work environment. For example, Item 3 reads: "How much control do you have over when you take vacation or days off?" This study obtained a moderate Cronbach's alpha of .82.

Social support at work was measured using two subscales of the Job Content Questionnaire, a widely used measure of workplace characteristics (Karasek et al., 1998). One of them, the coworker support subscale has six items ("People I work with are friendly"), with high scores indicating high levels of coworker support. In our sample, this subscale obtained a moderate Cronbach's alpha of .85. The Supervisor Support Subscale contains six items ("my supervisor is concerned about the welfare of those under him/her"), with high scores indicating high supervisor support. In our sample, this subscale obtained a moderate Cronbach's alpha of .89.

The variable salary was obtained with a single item that asked "What is your approximate income." Each response option (1 through 6) provided the participant with a salary range (\$0–\$20,000/year; \$20,000–\$35,000/year; \$35,000–\$50,000/year; \$50,000–\$65,000/year; \$65,000–\$80,000/year; \$80,000 and up/year, respectively) and an additional opt-out answer ("I'd rather not say").

Tenure and workload were measured with three open questions. For tenure, participants were asked to write down "years of experience in addictions" and the number of months, if applicable. High scores on tenure indicate more experience in the addictions field. For workload, participants were first asked if they performed addiction counseling-related duties, and then, they were asked: "If yes about how many hours per week?" Higher scores on this variable indicate higher workload. Because salary, workload, and tenure were single item measures, no reliability analyses were conducted.

2.2.3. Criterion variables

The Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1996) is a measure of burnout containing 22 items that can be scored from 0 (*never*) to 6 (*every day*). This questionnaire has three subscales that can be interpreted independently (Maslach et al., 1996): exhaustion, which measures the depletion of emotional energy and is different in nature than physical debilitation or mental tiredness (e.g., Item 20 is "I feel like I'm at the end of my rope"); depersonalization, which measures personal sensitivity to service recipients (e.g., Item 10 is "I've become more callous toward people since I took this job"); and personal accomplishment, which measures effectiveness and success in having a positive impact on recipients of care (e.g., Item 19 is "I have accomplished many worthwhile things in this job"). For the sake of consistency of interpretation, direction of scores was set so that higher scores on these three

subscales indicated higher levels of exhaustion, depersonalization, and low accomplishment. In our sample, we found alpha levels of .91 for exhaustion, .69 for depersonalization, and .75 for accomplishment, whereas previous reports have established alpha levels of .90, .79, and .71, respectively (Maslach et al., 1996).

2.3. Data analytic strategy

Data were double entered using the SPSS Data Entry Builder module (version 4.0). We evaluated accuracy of data entry, missing values, outliers and fit with assumptions by examining frequencies and histograms and calculating skewness, kurtosis, and *z* scores. Workload, tenure, and salary had 9.9%, 3.7%, and 4% of missing values, respectively. Accomplishment had one missing value; experiential avoidance, two; values commitment, eight; and supervisor support, one. In addition, 18 did not report their age, and 2 their gender. None of the other predictor and predicted variables had missing values. Finally, 27 counselors did not have a supervisor and were excluded from our final analyses because the model we were testing was not relevant to them. The only dichotomous variable, gender, had an appropriate split (61%–39%), so we retained it in our analyses. Based on the *z* scores and the observations of histograms and box plots, we identified several outliers before data transformation. Square root and logarithmic transformations produced near-normal distributions and eliminated outliers.

To preserve our sample power and reduce undue bias as a result of missing values, we used a multiple-imputation technique. Multiple imputation is one of the best techniques for dealing with missing data, allowing less stringent assumptions on its latent causes (Croy & Novins, 2005; Graham, 2009; Rubin, 1987; Schafer, 1999). After transforming the variables and adjusting them to a multivariate normal distribution, we used AMOS (version 18.0) to perform 10 stochastic regression imputations that included 14 auxiliary variables that were part of our model. Using simulations, Rubin (1987) has shown that 3 to 10 imputations can achieve almost equivalent efficiencies; thus, based on this standard, we opted for a conservative approach and decided to perform 10 imputations. Each imputed data set was exported to a data file in PASW (version 18.0), where our final analyses were conducted. Parameter estimates, standard errors, *t* statistics, and degrees of freedom were calculated in Microsoft Excel following the steps described by Schafer (1999) and Rubin (1987). This procedure allowed us to collapse each scalar into a single coefficient of determination for each variable in the entire group of imputed data sets. The statistical significance of each coefficient was determined comparing the *t* statistic to the Student's *t* distribution.

To test our theoretical rationale, we produced three sequential multiple regressions with the aim of parsing out the effect of work-site factors on burnout from the effect of the ACT processes. One regression was run for each burnout subscale: exhaustion, depersonalization, and accomplishment. In each of these regressions, we controlled for

Table 2
Zero-order correlations ($n = 699$) of variables entered in our regression analysis

Variable	1	2	3	4	5	6	7
1. Exhaustion	1						
2. Depersonalization	.52 **	1					
3. Low accomplishment	.29 **	.28 **	1				
4. Experiential avoidance	.34 **	.31 **	.26 **	1			
5. Low values commitment	.28 **	.24 **	.26 **	.27 **	1		
6. Cognitive fusion	.15 **	.15 **	.21 **	.19 **	.10 *	1	
7. Job control	-.29 **	-.13 **	-.11 *	-.14 **	-.21 **	-.06	1
8. Coworker support	-.26 **	-.15 **	-.19 **	-.11 *	-.19 **	-.05	.39 **
9. Supervisor support	-.21 **	-.08 *	-.04	-.01	-.09 *	-.04	.37 **
10. Salary	.05	.08 *	-.06	-.03	-.04	-.10 *	.24 **
11. Age	-.12 *	-.10 *	-.16 **	-.02	-.08 *	-.03	.03
12. Gender	.05	-.03	.01	-.05	0	-.05	-.04
13. Education	.09 *	.04	-.12 *	-.02	-.05	-.12 *	.08 *
14. Tenure	-.07	-.06	-.05	-.05	-.07	-.13 **	.20 **
15. Workload	.07	.01	-.04	.05	.03	.03	-.12 **

	8	9	10	11	12	13	14
8. Coworker support	1						
9. Supervisor support	.50 **	1					
10. Salary	-.01	-.00	1				
11. Age	-.05	-.06	.15 **	1			
12. Gender	0	-.02	-.06	-.20 **	1		
13. Education	-.01	-.02	.35 **	-.01	.10 *	1	
14. Tenure	-.03	-.05	.32 **	.54 **	-.13 **	.09 *	1
15. Workload	-.01	-.12 **	-.09 *	-.03	-.04	-.13 **	-.06

* $p < .05$.
** $p < .01$.

demographic variables (age, gender, and education) by entering them as the first step. Since work-site factors have a stronger support in the literature and are arguably a primary source of influence in addiction counselor's burnout (e.g., Alotaibi; 2003; Frese & Zapf, 1994; Hackman & Lawler, 1971; Maslach et al., 2001; Ogborne et al., 1998; Terry & Jimmieson, 1999), we entered work-site factors as a block in the second step, and ACT processes in the third and last step to test if there was additional variance accounted by these psychological factors. The same logic was applied to the other burnout dimensions, depersonalization, and low accomplishment. The ratio of cases to predictor variables surpassed the minimum recommended by the literature (Clarke & Wheaton, 2007; Tabachnick & Fidell, 2007).

3. Results

3.1. Descriptive statistics

All variables entered had low zero-order correlations (see Table 2), suggesting that the subscales were sufficiently different from each other to guarantee separate consideration in the analysis. The largest correlations observed were between tenure and age ($r = .54$) and between depersonalization and exhaustion ($r = .52$). The rest of the correlations were low as confirmed by high indices of tolerance found in our regression

analyses (all of them above .93 except for tenure and workload with tolerance levels of .70 and .83, respectively).

Prior to transformations and multiple imputation, we calculated the raw mean scores of the variables we entered in the overall model. Our sample had a mean score for job control of 28.85 ($SD = 6.88, n = 699$), a mean of 18.59 ($SD = 3.15, n = 699$) for coworker support, and a mean of 15.72 ($SD = 3.36, n = 671$) for supervisor support. The rest of our work-site variables, annual salary¹, workload and tenure had means of 2.77 ($SD = 1.06, n = 671$), 25.78 ($SD = 13.90, n = 630$), and 11.13 ($SD = 7.95, n = 673$), respectively. Finally, our raw sample mean score for experiential avoidance² was 55.21 ($SD = 7.12, n = 697$), values commitment had a mean score of 4.03 ($SD = 1.01, n = 691$), and cognitive fusion a mean of 56.40 ($SD = 15.70, n = 699$).

We compared burnout in our sample (see Table 3) to norms for mental health providers provided by Maslach et al (1996). Average exhaustion scores in our sample were within one standard deviation above the mean provided by Maslach ($M = 16.89, SD = 8.90$), average depersonalization scores were within one standard deviation below the mean reported by Maslach ($M = 7.72, SD = 4.62$), and average

¹ In the item used to measure salary, two corresponded to a \$20,000–\$35,000 salary range and three to a \$35,000–\$50,000 range.

² Before data transformations, higher scores in this scale indicated less experiential avoidance.

Table 3
Total burnout raw scores with breakdown by recruitment site prior data transformations

Total/U.S. state	Exhaustion		Depersonalization		Accomplishment		n
	M	SD	M	SD	M	SD	
Total score	18.73	11.16	5.43	4.89	39.73	6.42	699
Nevada	14.74	9.02	4.84	4.98	42.58	6.17	58
California	16.94	11.09	4.60	4.40	37.73	7.86	135
Arizona	20.92	10.23	6.18	5.10	39.64	5.32	108
Oregon	20.18	11.57	6.69	5.22	40.32	5.56	146
Orlando	19.82	10.73	5.58	4.73	40.21	5.57	89
Illinois	18.25	11.83	4.60	4.59	39.63	6.58	163

accomplishment scores were about one standard deviation above the mean reported by Maslach ($M = 30.87$, $SD = 7.34$). Peterson (1990) reported similar levels of burnout to those reported by Maslach. Overall, our sample was slightly higher on exhaustion, slightly lower in depersonalization, and higher in accomplishment than other normative samples of mental health providers. A breakdown of the levels of burnout of our sample by recruitment site can be found in Table 3.

3.2. Sequential multiple regressions

All the regressions suggested a workable model to account for burnout, as indicated by the significance of the overall analysis of variance in the last step. In these regressions, demographics were entered in the first step, work-site factors in the second, and ACT processes in the third. All the demographic variables, work-site factors, and ACT processes incrementally accounted for the three dimensions of burnout, as can be seen in Tables 4, 5, and 6.

In the second step, demographic factors accounted for 2% of the variance in exhaustion, 2% of the variance in depersonalization, and 4% of the variance in accomplishment. In the second step, work-site factors alone (ΔR^2) significantly accounted for 12% of the variance in exhaustion, 4% of the variance in depersonalization, and 6% of the variance in low accomplishment above and beyond demographic variables. In the last step of the sequential multiple regression, ACT processes alone (ΔR^2) accounted for 12% of the variance in exhaustion, 10% of the variance in depersonalization, and 12% of the variance in low accomplishment above and beyond work-site factors and demographic variables.

Thus, across the three sequential multiple regressions for the three dimensions of burnout, work-site factors accounted for 4% to 12% ($M = 7\%$) of the variance above and beyond demographic variables, and ACT processes accounted for 10% to 12% ($M = 11\%$) of the variance of burnout above and beyond demographic variables and work-site factors.

We used the following relationship size criteria (Cohen, 1992; Cohen, Cohen, West, & Aiken, 2003) to report the incremental predictive utility of the R -square coefficients in accounting for the levels of burnout of this sample of

addition counselors: small (.02), medium (.15), and large (.35). For exhaustion, ACT processes increased the predictive utility of the overall model from a medium relationship size to a large relationship size; in this case, ACT processes increased the amount of variance explained from 15% to a quarter of the variance (27%). For depersonalization, the model went from a small relationship size (6%) to a medium relationship size (16%), with the addition of the ACT variables. On low accomplishment, there was an

Table 4
Summary of sequential regression analysis by blocks of variables predicting the exhaustion subscale of the MBI ($n = 671$)

Step	Exhaustion			
	b (SE)	β	R^2	ΔR^2
1. Demographics			.024 *	.024
Age	-.015 (.005) *	-0.11		
Gender	.054 (.113)	0.019		
Education	.095 (.039) *	0.094		
2. Work-site factors			.148 **	.124
Age	-.021 (.006) **	-0.16		
Gender	.036 (.106)	0.013		
Education	.074 (.04) †	0.074		
Job control	-.05 (.009) **	-0.24		
Coworker support	-.064 (.019) **	-0.15		
Supervisor support	-.135 (.11)	-0.05		
Salary	.133 (.057) *	0.099		
Workload	.003 (.004)	0.033		
Tenure	.037 (.052)	0.033		
3. ACT processes			.265 **	.117
Age	-.019 (.005) **	-0.15		
Gender	.106 (.099)	0.037		
Education	.071 (.038) †	0.07		
Job control	-.039 (.008) **	-0.19		
Coworker support	-.043 (.017) *	-0.1		
Supervisor support	-.202 (.103) *	-0.08		
Salary	.134 (.053) *	0.1		
Workload	.002 (.003)	0.024		
Tenure	.059 (.049)	0.053		
Experiential avoidance	.391 (.053) **	0.262		
Low values commitment	.535 (.143) **	0.134		
Cognitive fusion	.119 (.046) *	0.089		

Note. b = unstandardized regression coefficient; β = standardized regression coefficient; R^2 = at each step; ΔR^2 = change in R^2 at each step.

* $p < .05$.
** $p < .001$.
† $p < .10$.

Table 5
Summary of sequential regression analysis by blocks of variables predicting the depersonalization subscale of the MBI (*n* = 671)

Step	Depersonalization			
	<i>b</i> (<i>SE</i>)	β	R^2	ΔR^2
1. Demographics			.018 *	.018
Age	-.004 (.001) *	-.115		
Gender	-.038 (.031)	-.049		
Education	.018 (.011) †	.067		
2. Work-site factors			.059 ***	.042
Age	-.005 (.002) *	-.130		
Gender	-.037 (.030)	-.048		
Education	.007 (.011)	.025		
Job control	-.006 (.003) *	-.109		
Coworker support	-.013 (.005) *	-.107		
Supervisor support	.000 (.031)	.000		
Salary	.050 (.016) *	.136		
Workload	.000 (.001)	.002		
Tenure	-.007 (.015)	-.024		
3. ACT processes			.159 ***	.100
Age	-.004 (.002) *	-.119		
Gender	-.001 (.029)	-.025		
Education	.006 (.011)	.023		
Job control	-.004 (.002)	-.063		
Coworker support	-.007 (.005)	-.062		
Supervisor support	-.016 (.030)	-.023		
Salary	.050 (.015) *	.138		
Workload	.000 (.001)	-.005		
Tenure	-.001 (.014)	-.004		
Experiential avoidance	.093 (.015) **	.229		
Low values commitment	.144 (.042) **	.132		
Cognitive Fusion	.036 (.013) *	.098		

Note: *b* = unstandardized regression coefficient; β = standardized regression coefficient; R^2 = at each step; ΔR^2 = change in R^2 at each step.

* *p* < .05.
** *p* < .001.
† *p* < .10.

increment from a small relationship size (10%) to a medium relationship size (22%) with the addition of the ACT variables.

We also analyzed the standardized beta coefficients of each variable from the three regressions specified above as a means to assess their individual strength when entered in the last step of the equation. All three ACT processes (see Tables 4, 5, and 6) were significantly related to all three dimensions of burnout. More specifically, experiential avoidance was a significant predictor of exhaustion, depersonalization, and low accomplishment. Low commitment to values was a significant predictor of exhaustion, depersonalization, and low accomplishment. Finally, cognitive fusion was also a significant predictor of exhaustion, depersonalization, and low accomplishment.

Other work-site factors also reached statistical significance in this last step of the model. In particular, exhaustion was predicted by job control, coworker support, supervisor support, and salary. Depersonalization was only predicted by salary, and low accomplishment was predicted by coworker support, workload, and tenure.

Table 6
Summary of sequential regression analysis by blocks of variables predicting the accomplishment subscale of the MBI (*n* = 671)

Step	Low accomplishment			
	<i>B</i> (<i>SE</i>)	β	R^2	ΔR^2
1. Demographics			.044	.044
Age	-.019 (.004) *	-.186		
Gender	-.055 (.085)	-.025		
Education	-.091 (.030) *	-.105		
2. Work-site factors			.099	.055
Age	-.024 (.004) **	-.244		
Gender	-.054 (.083)	-.025		
Education	-.095 (.032)	-.123		
Job control	-.009 (.007) **	-.055		
Co-worker support	-.067 (.015) **	-.199		
Supervisor support	.101 (.087)	.052		
Salary	-.002 (.046) *	-.002		
Workload	-.006 (.003)	-.086		
Tenure	.084 (.041)	.097		
3. ACT processes			.218	.119
Age	-.023 (.004) **	-.231		
Gender	.006 (.077)	.003		
Education	-.095 (.030) *	-.123		
Job control	-.001 (.007)	-.009		
Co-worker support	-.050 (.014) **	-.149		
Supervisor support	.067 (.081)	.035		
Salary	.003 (.043)	.003		
Workload	-.007 (.003) *	-.092		
Tenure	.107 (.038) *	.125		
Experiential avoidance	.208 (.042) **	.182		
Low values commitment	.557 (.114) **	.182		
Cognitive Fusion	.167 (.036) **	.164		

Note: *b* = unstandardized regression coefficient; *SE* = standard error; β = Standardized regression coefficient; R^2 = at each step; ΔR^2 = change in R^2 at each step.

* *p* < .05.
** *p* < .001.

Some demographics also accounted for variance in burnout. Education predicted low accomplishment, and age predicted all three dimensions of burnout: exhaustion, depersonalization, and low accomplishment.

4. Discussion

Although burnout has been noted in a variety of settings, empirical studies exploring the nature and prevalence of burnout among addiction counselors are just starting to emerge (e.g., Broome et al., 2009; Ducharme et al., 2008; Knudsen et al., 2006, 2008, 2009; Ogborne et al., 1998; Peterson, 1990). However, to our knowledge, very few studies have explored the construct of burnout as proposed by Maslach et al (1996) in all of its three dimensions (e.g., Hayes, Bissett, et al., 2004; Peterson, 1990), and only one study has explored the role of mindfulness and values-based processes in this particular population (Hayes, Bissett, et al., 2004). The sample of addiction counselors in our multisite study had levels of burnout similar to those of other mental health care providers but considerably lower than those of

other health care professions, such as physical and occupational therapy (e.g., Balogun, Titiloye, Balogun, Oyeyemi, & Katz, 2002).

This study also confirmed the importance of work-site factors in statistically predicting burnout among addiction counselors, but ACT processes increased the utility of the model by accounting for, on average, 11% of the variance of burnout above and beyond work-site factors and demographic variables. The resulting model, after the addition of the ACT processes in the last step, had a large-size relationship to exhaustion and a medium-size relationship to depersonalization and low accomplishment (Cohen, 1992; Cohen et al., 2003), with the set of predictors accounting for 27% of the variance of exhaustion, 16% of the variance of depersonalization, and 22% of the variance of low accomplishment.

More specifically, experiential avoidance, cognitive fusion with negative attitudes toward clients, and lack of commitment to work-related values were independently related to the three dimensions of burnout. Experiential avoidance had the largest relationship with burnout, especially with exhaustion. This relationship was not surprising, since experiential avoidance is the construct that has had the most support for its impact on psychological functioning of any of the processes studied (Hayes et al., 2006; Ost, 2008; Powers et al., 2009). As might be expected, commitment to work-related values had the stronger relationship with low accomplishment, but the relationship of values with the different dimensions of burnout was also considerable. Based on our theoretical rationale, we would have expected that cognitive fusion with stigmatizing attitudes would be more strongly related to depersonalization than to the other two dimensions of burnout, but it was not the case; its stronger relationship was to low accomplishment. We do not have a clear explanation for this finding, but it may be that addiction counselors are exposed to methods designed to reduce this kind of cognitive fusion, such as multicultural training. Successful assimilation of these methods might have boosted the counselors' sense of accomplishment.

With regard to the work-site factors, analyses also showed that job control had a strong negative relationship with exhaustion and a nonsignificant relationship with depersonalization; in contrast, accomplishment was only associated with coworker support, workload, and tenure. This pattern of findings is consistent with that of other studies in which it is not overall job control that relates to burnout, but control over specific aspects of the work environment that are important (Sargent & Terry, 1998).

Social support (both from coworkers and supervisors) was examined separately. First, there was a strong association between coworker support and supervisor support, indicating that if coworkers are supportive of each other, this tends to be paired with supportive supervisors. This suggests that at an organizational level, supervisors might be more supportive when there is high peer support and/or that supervisor support enhances high peer support as

well. Secondly, supervisor support was not significantly related to depersonalization and accomplishment, a finding that contradicts previous reports (Lee & Ashforth, 1996), but its relationship to exhaustion was statistically significant. This could be explained by the fact that despite working in an organizational setting, most addiction counselors interact individually with their clients and are forced to make independent decisions, which would make the impact of not being supported by their superiors less crucial in preventing burnout. Finally, social support from coworkers seemed to be relevant to accomplishment and exhaustion, but not to depersonalization. Peer support relates to exhaustion and accomplishment probably because supportive social interactions in work settings have the effect of ameliorating the impact of work-related stressors and increase the perceived value of daily accomplishments. However, this does not necessarily translate into undermining the counselor's levels of stigma toward recipients of care unless (maybe) there was peer influence to do so.

Our analyses indicated that higher salary levels predicted higher levels of exhaustion and depersonalization. People with higher salaries often have greater levels of job control; thus, it was not thought that higher salary levels would be related to higher levels of burnout. It is possible, though, that those counselors with higher salaries are under more pressing organizational demands, have worked in their jobs for longer (higher exhaustion), and are in less direct contact with the human struggles and successes of people who are seeking treatment—the latter might foster lower levels of depersonalization. Workload also had a role in our model as it reached a statistically significant relationship with low accomplishment, indicating that increasing levels of workload were associated with a higher sense of accomplishment. Tenure was positively associated to low accomplishment, probably as a manifestation of the chronically precarious conditions of the addiction counselors' field. An interesting finding was that the demographic variable age was consistently related to the three dimensions of burnout, suggesting that the older addiction counselors are, the less their tendency to objectify their recipients, the less exhaustion they feel in their jobs, and the higher their sense of accomplishment. This finding dovetails with the knowledge that addiction counselors who are less than 5 years in the field are more likely to endorse the intention to leave their job or the field (ATTC, 2009). Although age as a variable is not very informative of the specific processes that might facilitate burnout reduction, it would be important to elucidate the role that overall life experience has on other psychological factors in future research or whether this is simply a selection effect due to burnout prone individuals leaving the field. The demographics data also suggested that higher levels of education increase counselors' sense of accomplishment.

As discussed elsewhere (e.g., Pedhazur & Pedhazur Schmelkin, 1991; Tabachnick & Fidell, 2007), model specification is of great importance in using sequential

multiple regression strategies to avoid interpretive problems, especially given the cross-sectional nature of the current research. For that reason, we used a well-developed prior theoretical model (Hayes et al., 2006) to guide the examination of psychological processes in burnout, in comparison to important work-site predictors of burnout: job control, social support, salary, workload, and tenure. Our analytic strategy consisted of statistically controlling for the effect of work-site factors while observing the effect of ACT processes on the remaining variance, which led to entering work-site factors earlier in the equation. This is justified not just because work-site factors are arguably clear environmental influences that can have a strong impact on burnout but also because the literature has consistently shown those effects (e.g., Maslach, Schaufeli & Leiter, 2001). Despite our attempts to minimize the limitations of a cross-sectional design that highly relied on self-report measures of internal states or events and the potential implications of this for method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), this could have affected the interpretation of our results in negative ways, which inevitably constitutes a limitation of our study.

Our study included one of the few large samples of addiction counselors in the literature to date recruited in several areas of the United States, and our sample seems representative of the addiction workforce nationwide. The availability of a recent Addiction Technology Transfer Center Workforce Study (ATTC National Office, 2009) allowed us to compare our demographic information to available U.S. data from 2003 to 2008 on the addictions treatment workforce (see Table 1 for a comparison). Results showed that our sample appears comparable to the best available national data in terms of age, gender, education, rates of certification or licensure, and salary. The racial diversity of our sample was also more than adequate, possibly because three of the sites were in areas with higher concentrations of African Americans (Chicago) and Latino (California and Florida) populations. In terms of burnout rates, our participants were generally similar to other health care providers as reported by Maslach et al. (1996). So although we cannot establish the actual response rate for participation in this study due to the nature of the recruitment process, it does appear that our sample is similar to national samples on most demographic variables as well as burnout.

The ACT model specifies other psychological processes for which specific measures were not available at the time of this study. It remains possible that inclusion of measures of these processes, namely, mindfulness of the present moment, values clarification, and contact with an observer self, might have resulted in models that accounted for even more variance in burnout.

These data suggest that comprehensive interventions targeting both ACT processes and structural changes in the work-site could yield larger effects on burnout than targeting either domain alone. This study also suggests that interven-

tion strategies that target ACT processes might have benefits for burnout reduction above and beyond work-site factors. Structural work-site changes are difficult to implement in treatment agencies due to their prevalent underfunding and chronic instability (Austad et al., 1992; Carpenter, 1999; Ivey et al., 1998; Manderscheid et al., 2000; Ogborne et al., 1998; Osborn, 2004), which are currently aggravated by the overall downturn in economic resources nationally. Mindfulness and values-based approaches, such as ACT, could provide a cheaper alternative to structural work-site changes by helping counselors to identify, clarify, and commit to their work-related values; decrease their levels of experiential avoidance; and further their capacity to undermine the effects of cognitive fusion with stigmatizing attitudes when they emerge. ACT interventions have been delivered in a variety of formats to professional audiences, with studies demonstrating positive effects, for example, via workbook (Muto, Hayes, & Jeffcoat, in press), via training sessions (Bond & Bunce, 2001; Flaxman & Bond, 2010), and even in one time continuing education workshop (Hayes, Bissett, et al., 2004; Varra et al., 2008). Further research is needed to examine the durability of these interventions and how to utilize ACT processes in conjunction with structural changes targeting work-site factors to optimally prevent burnout.

Acknowledgments

The project described was supported by Grant R01DA017868 from the National Institute on Drug Abuse (PI: Steven C. Hayes). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute On Drug Abuse or the National Institutes of Health. In addition, we would like to thank Robert Gallop, PhD, for his comments and feedback in the early versions of this article.

References

- Addiction and Technology Transfer Center (ATTC) National Office. (2009). *Understanding American's substance use disorders treatment workforce: A summary report*. Kansas City: Missouri.
- Alotaibi, A. G. (2003). Job burnout among employees in the Kuwaiti Civil Service and its relationship with type a personality and intention to leave. *Journal of the Social Sciences*, 31, 347–385.
- Austad, C. S., Sherman, W. O., Morgan, T., & Holstein, L. (1992). The psychotherapist and the managed care setting. *Professional Psychology: Research and Practice*, 23, 329–332.
- Bach, P., & Hayes, S. C. (2002). The use of acceptance and commitment therapy to prevent the rehospitalization of psychotic patients: A randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 70, 1129–1139.
- Balogun, J. A., Titiloye, V., Balogun, A., Oyeyemi, A., & Katz, J. (2002). Prevalence and determinants of burnout among physical and occupational therapists. *Journal of Allied Health*, 31, 131–139.
- Blackledge, J. T., Spencer, R., & Ciarrochi, J. (2007, May). Initial validation of the personal values questionnaire. Paper presented at the 33rd Annual Convention of the Association for Behavior Analysis International, San Diego, CA.

- Bond, F. W., & Bunce, D. (2001). Job control mediates change in a work reorganization intervention for stress reduction. *Journal of Occupational Health Psychology, 6*, 290–302.
- Bond, F. W., & Bunce, D. (2003). The role of acceptance and job control in mental health, job satisfaction, and work performance. *Journal of Applied Psychology, 88*, 1057–1067.
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Orcutt, H. K., Waltz, T. et al. (n.d.). Preliminary psychometric properties of the Acceptance and Action Questionnaire—II: A revised measure of psychological flexibility and acceptance. Submitted.
- Bowen, S., Witkiewitz, K., Dillworth, T. M., Chawla, N., Simpson, T. L., Ostafin, B. D., et al. (2006). Mindfulness meditation and substance use in an incarcerated population. *Psychology of Addictive Behaviors, 20*, 343–347.
- Broome, K. M., Knight, D. K., Edwards, J. R., & Flynn, P. M. (2009). Leadership, burnout, and job satisfaction in outpatient drug-free treatment programs. *Journal of Substance Abuse Treatment, 37*, 160–170.
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*, 822–848.
- Carpenter, M. C. (1999). Job rewards and concerns for social workers: The impact of changes in funding and delivery of mental health services. *Smith College Studies in Social Work, 70*, 69–84.
- Carrico, A. W., Gifford, E. V., & Moos, R. H. (2007). Spirituality/Religiosity promotes acceptance-based responding and 12-step involvement. *Drug and Alcohol Dependence, 89*, 66–73.
- Chapman, A. L., Gratz, K. L., & Brown, M. Z. (2006). Solving the puzzle of deliberate self-harm: The experiential avoidance model. *Behaviour Research and Therapy, 44*, 371–394.
- Clarke, P., & Wheaton, B. (2007). Addressing data sparseness in contextual population research—Using cluster analysis to create synthetic neighborhoods. *Sociological Methods & Research, 35*, 311–351.
- Cohen, G. L., Garcia, J., Purdie-Vaughns, V., Apfel, N., & Brzustoski, P. (2009). Recursive processes in self-affirmation: Intervening to close the minority achievement gap. *Science, 324*, 400–403.
- Cohen, J. (1992). *A Power Primer Psychological Bulletin, 112*, 155–159.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences*, (3rd ed.). Mahwah, NJ: Lawrence Erlbaum Associates.
- Crisp, A. H., Gelder, M. G., Rix, S., Meltzer, H. I., & Rowlands, O. J. (2000). Stigmatisation of people with mental illnesses. *British Journal of Psychiatry, 177*, 4–7.
- Croy, C., & Novins, D. (2005). Methods for addressing missing data in psychiatric and developmental research. *Journal of the American Academy of Child and Adolescent Psychiatry, 44*, 1230–1240.
- Cushway, D., & Tyler, P. (1996). Stress in clinical psychologists. *International Journal of Social Psychiatry, 42*, 141–149.
- Ducharme, L. J., Knudsen, H. K., & Roman, P. M. (2008). Emotional exhaustion and turnover intention in human service occupations: The protective role of coworker support. *Sociological Spectrum, 28*, 81–104.
- Elliot, A. J., & Harackiewicz, J. M. (1996). Approach and avoidance achievement goals and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology, 70*, 461–475.
- Epstein, R. M. (1999). Mindful practice. *Jama-Journal of the American Medical Association, 282*, 833–839.
- Festinger, D. S., Rubenstein, D. F., Marlowe, D. B., & Platt, J. J. (2001). *Relapse: Contributing factors, causative models, and empirical considerations*. New Haven, CT, US: Yale University Press.
- Flaxman, P., & Bond, F. W. (2010). A randomised worksite comparison of acceptance and commitment therapy and stress inoculation training. *Behaviour Research and Therapy, 48*, 816–820.
- Frese, M., & Zaph, D. (1994). Action as the core of work psychology: A German approach. In H. C. Triandis, M. D. Dunnette & L. Hough (Eds.), *Handbook of industrial and organizational psychology* (Vol. 4, pp. 271–340). Palo Alto, California: Consulting Psychologists Press.
- Gallon, S., Gabriel, R., & Knudsen, J. (2003). The toughest job you'll ever love: A Pacific Northwest Treatment Workforce Survey. *Journal of Substance Abuse Treatment, 24*, 183–196.
- Ganster, D. C., Fusilier, M. R., & Mayes, B. T. (1986). Role of social support in the experience of stress at work. *Journal of Applied Psychology, 71*, 102–110.
- Garner, B. R. (2006). The impact of counselor burnout on therapeutic relationships: A multilevel analytic approach. *Dissertation Abstracts International, 67*, 581.
- Gifford, E. V., Kohlenberg, B. S., Hayes, S. C., Antonuccio, D. O., Piasecki, M. M., Rasmussen-Hall, M. L., et al. (2004). Acceptance-based treatment for smoking cessation. *Behavior Therapy, 35*, 689–705.
- Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology, 60*, 549–576.
- Greco, L. A., Heffner, M., Poe, S., Ritchie, S., Polak, M., & Lynch, S. K. (2005). Maternal adjustment following preterm birth: Contributions of experiential avoidance. *Behavior Therapy, 36*, 177–184.
- Hackman, J. R., & Lawler, E. E. (1971). Employee reactions to job characteristics. *Journal of Applied Psychology, 55*, 259–286.
- Hayes, S. C., Bissett, R., Roget, N., Padilla, M., Kohlenberg, B. S., Fisher, G., et al. (2004). The impact of acceptance and commitment training and multicultural training on the stigmatizing attitudes and professional burnout of substance abuse counselors. *Behavior Therapy, 35*, 821–835.
- Hayes, S. C., Follette, V. M., & Linehan, M. M. (2004). *Mindfulness and acceptance: Expanding the cognitive-behavioral tradition*. New York: Guilford Press.
- Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behaviour Research and Therapy, 44*, 1–25.
- Hayes, S. C., & Melancon, S. M. (1989). Comprehensive distancing, paradox, and the treatment of emotional avoidance. In L. M. Ascher (Ed.), *Therapeutic paradox* (pp. 184–218). New York: Guilford Press.
- Hayes, S. C., Strosahl, K., Wilson, K. G., Bissett, R. T., Pistorello, J., Toarmino, D., et al. (2004). Measuring experiential avoidance: A preliminary test of a working model. *Psychological Record, 54*, 553–578.
- Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change*. New York: Guilford Press.
- Hayes, S. C., Wilson, K. G., Gifford, E. V., Bissett, R., Piasecki, M., Batten, S. V., et al. (2004). A preliminary trial of twelve-step facilitation and acceptance and commitment therapy with polysubstance-abusing methadone-maintained opiate addicts. *Behavior Therapy, 35*, 667–688.
- Hayes, S. C., Wilson, K. G., Gifford, E. V., & Follette, V. M. (1996). Experiential avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology, 64*, 1152–1168.
- Hardwood, H. J. (2002, November). Survey on Behavioral Health Workplace. *Frontlines linking alcohol services research & practice*. Washington, DC: National Institute of Alcohol Abuse and Alcoholism in conjunction with Academy Health.
- Hubbard, R. L., Flynn, P. M., Craddock, S. G., & Fletcher, B. W. (2001). *Relapse after drug abuse treatment*. New Haven, CT, US: Yale University Press.
- Ivey, S. L., Scheffler, R., & Zazzali, J. L. (1998). Supply dynamics of the mental health workforce: Implications for health policy. *Milbank Quarterly, 76*, 25.
- Johnson, J. A., Knudsen, H. K., & Roman, P. M. (2002). Counselor turnover in private facilities. *Frontlines: Linking alcohol services research and practice*. Washington, DC: National Institute of Alcohol Abuse and Alcoholism.
- Kaplan, L. (2003). Substance abuse treatment workforce environmental scan. Substance Abuse and Mental Health Services Administration (SAMHSA). Retrieved on January 5, 2007 from http://pfr.samhsa.gov/docs/Environmental_Scan.pdf.
- Karasek, R., Brisson, C., Kawakami, N., Houtman, I., Bongers, P., & Amick, B. (1998). The Job Content Questionnaire (JCQ): An instrument

- for internationally comparative assessments of psychosocial job characteristics. *Journal of Occupational Health Psychology*, 3, 322–355.
- Knudsen, H. K., Ducharme, L. J., & Roman, P. M. (2008). Clinical supervision, emotional exhaustion, and turnover intention: A study of substance abuse treatment counselors in the Clinical Trials Network of the National Institute on Drug Abuse. *Journal of Substance Abuse Treatment*, 35, 387–395.
- Knudsen, H. K., Ducharme, L. J., & Roman, P. M. (2009). Turnover intention and emotional exhaustion “at the top”: Adapting the job demands-resources model to leaders of addiction treatment organizations. *Journal of Occupational Health Psychology*, 14, 84–95.
- Knudsen, H. K., Ducharme, L. J., & Roman, P. M. (2006). Counselor emotional exhaustion and turnover intention in therapeutic communities. *Journal of Substance Abuse Treatment*, 31, 173–180.
- Knudsen, J., & Gabriel, R. (2003). *Advancing the current state of addictions treatment: A regional needs assessment of substance abuse treatment professionals in the pacific northwest*. Portland, OR: Danya Institute.
- Landis, R., Earp, B., & Libretto, S. (2002). Unpublished report on the state of the substance abuse treatment workforce in 2002: Priorities and possibilities. Danya International, Inc.
- Lee, R. T., & Ashforth, B. E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *Journal of Applied Psychology*, 81, 123–133.
- Leigh, J., Bowen, S., & Marlatt, G. A. (2005). Spirituality, mindfulness and substance abuse. *Addictive Behaviors*, 30, 1335–1341.
- Luoma, J. B., Hayes, S. C., Twohig, M. P., Roget, N., Fisher, G., Padilla, M., et al. (2007). Augmenting continuing education with psychologically focused group consultation: Effects on adoption of group drug counseling. *Psychotherapy*, 44, 463–469.
- Luoma, J. B., Kohlenberg, B. S., Hayes, S. C., Bunting, K., & Rye, A. K. (2008). Reducing self-stigma in substance abuse through acceptance and commitment therapy: Model, manual development, and pilot outcomes. *Addiction Research & Theory*, 16, 149–165.
- Manderscheid, R. W., Henderson, M. J., Witkin, M. J., & Atay, J. E. (2000). The U.S. mental health system of the 1990s: The challenges of managed care. *International Journal of Law and Psychiatry*, 23, 245–259.
- Marx, B. P., & Sloan, D. M. (2005). Peritraumatic dissociation and experiential avoidance as predictors of posttraumatic stress symptomatology. *Behaviour Research and Therapy*, 43, 569–583.
- Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *Maslach Burnout Inventory Manual* (3rd ed.). Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, 52, 397–422.
- Masuda, A., Hayes, S. C., Sackett, C. F., & Twohig, M. P. (2004). Cognitive defusion and self-relevant negative thoughts: Examining the impact of a ninety year old technique. *Behaviour Research and Therapy*, 42, 477–485.
- McCracken, L. M., & Yang, S. (2008). A contextual cognitive-behavioral analysis of rehabilitation workers' health and well-being: Influences of acceptance, mindfulness, and values-based action. *Rehabilitation Psychology*, 53, 479–485.
- McGovern, M. P., Xie, H. Y., Segal, S. R., Siembab, L., & Drake, R. E. (2006). Addiction treatment services and co-occurring disorders: Prevalence estimates, treatment practices, and barriers. *Journal of Substance Abuse Treatment*, 31, 267–275.
- Mulvey, K. P., Hubbard, S., & Hayashi, S. (2003). A National Study of the Substance Abuse Treatment Workforce. *Journal of Substance Abuse Treatment*, 24, 51–57.
- Muto, T., Hayes, S.C., Jeffcoat, T. (In press). The effectiveness of Acceptance and Commitment Therapy bibliotherapy for enhancing the psychological health of Japanese College students living abroad. *Behavior Therapy*.
- National Association of Alcoholism and Drug Abuse Counselors (NAA-DAC). (2003). *Practitioner Services Network: Report*.
- National Evaluation Data Services (NEDs). (2001). *Profile of Clinicians in the National Treatment Improvement Evaluation (NTIES)*.
- Ogborne, A. C., Braun, K., & Schmidt, G. (1998). Working in addictions treatment services: Some views of a sample of service providers in Ontario. *Substance Use & Misuse*, 33, 2425–2440.
- Osborn, C. J. (2004). Seven salutary suggestions for counselor stamina. *Journal of Counseling & Development*, 82, 319–328.
- Ost, L. G. (2008). Efficacy of the third wave of behavioral therapies: A systematic review and meta-analysis. *Behaviour Research and Therapy*, 46, 296–321.
- Ostafin, B. D., & Marlatt, G. A. (2008). Surfing the urge: Experiential acceptance moderates the relation between automatic alcohol motivation and hazardous drinking. *Journal of Social and Clinical Psychology*, 27, 404–418.
- Pedhazur, E. J., & Pedhazur Schmelkin, L. (1991). *Measurement, design, and analysis. An Integrated Approach*. New Jersey: Lawrence Erlbaum.
- Perrewe, P. L., & Ganster, D. C. (1989). The impact of job demands and behavioral control on experienced job stress. *Journal of Organizational Behavior*, 10, 213–229.
- Peterson, K. H. (1990). Occupational stress and burnout among addictions counselors. *Dissertation Abstracts International*, 50, 2781–2782.
- Plumb, J., Stewart, I., Dahl, J., & Lundgren, T. (2009). In search of meaning: Values in modern clinical behavior analysis. *Behavior Analyst*, 32, 85–103.
- Plumb, J. C., Orsillo, S. M., & Luterek, J. A. (2004). A preliminary test of the role of experiential avoidance in post-event functioning. *Journal of Behavior Therapy and Experimental Psychiatry*, 35, 245–257.
- Podsakoff, P., MacKenzie, S., Lee, J., & Podsakoff, N. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88, 879–903.
- Polusny, M. A., Rosenthal, M. Z., Aban, I., & Follette, V. M. (2004). Experiential avoidance as a mediator of the effects of adolescent sexual victimization on negative adult outcomes. *Violence and Victims*, 19, 109–120.
- Powers, M. B., Vording, M. B. Z. S., & Emmelkamp, P. M. G. (2009). Acceptance and commitment therapy: A meta-analytic review. *Psychotherapy and Psychosomatics*, 78, 73–80.
- RMC Research Corporation. (2003a). *Advancing the current state of addiction treatment. A regional needs assessment of substance abuse treatment professionals in the pacific northwest*. Portland, OR: RMC Research.
- RMC Research Corporation. (2003b). *Kentucky Workforce Survey 2002. Results of a statewide needs assessment of substance abuse treatment professionals*. Portland, OR: RMC Research.
- Rubin, D. B. (1987). *Multiple imputation for nonresponse in surveys*. New York: Wiley and Sons.
- Sarata, B. P. (1983). Burnout workshops for alcoholism counselors. *Journal of Alcohol and Drug Education*, 28, 34–46.
- Sargent, L. D., & Terry, D. J. (1998). The effects of work control and job demands on employee adjustment and work performance. *Journal of Occupational and Organizational Psychology*, 71, 219–236.
- Schafer, J. (1999). Multiple imputation: A primer. *Statistical Methods in Medical Research*, 8, 3–15.
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25, 293–315.
- Shapiro, S. L., Brown, K. W., & Biegel, G. M. (2007). Teaching self-care to caregivers: Effects of mindfulness-based stress reduction on the mental health of therapists in training. *Training and Education in Professional Psychology*, 1, 105–115.
- Sheldon, K. M., & Elliot, A. J. (1999). Goal striving, need satisfaction, and longitudinal well-being: The self-concordance model. *Journal of Personality and Social Psychology*, 76, 482–497.
- Sheldon, K. M., Kasser, T., Smith, K., & Share, T. (2002). Personal goals and psychological growth: Testing an intervention to enhance goal attainment and personality integration. *Journal of Personality*, 70, 5–31.
- Smith, C. S., Tisak, J., Hahn, S. E., & Schmieder, R. A. (1997). The measurement of job control. *Journal of Organizational Behavior*, 18, 225–237.

- Substance Abuse and Mental Health Services Administration. Alcohol and Drug Services Study (ADSS). (2003). The National Substance Abuse Treatment System: Facilities, clients, services, and staffing. Rockville, MD.
- Tabachnick, B. G., & Fidell, L. S. (2007). Using multivariate statistics, (5th ed). Boston: Allyn & Bacon.
- Terry, D. J., & Jimmieson, N. L. (1999). *Work control and employee well-being: A decade review*. New York, NY, US: Wiley & Sons.
- van Dierendonck, D., Schaufeli, W. B., & Buunk, B. P. (1998). The evaluation of an individual burnout intervention program: The role of inequity and social support. *Journal of Applied Psychology*, 83, 392–407.
- Varra, A. A., Hayes, S. C., Roget, N., & Fisher, G. (2008). A randomized control trial examining the effect of acceptance and commitment training on clinician willingness to use evidence-based pharmacotherapy. *Journal of Consulting and Clinical Psychology*, 76, 449–458.
- Wilson, K. G., Hayes, S. C., Gregg, J., & Zettle, R. D. (2001). Psychopathology and psychotherapy. In S. C. Hayes, D. Barnes-Holmes, & B. Roche (Eds.), *Relational frame theory: A post-Skinnerian account of human language and cognition* (pp. 211–237). New York: Kluwer Academic/Plenum Publishers.
- Zettle, R. D., & Hayes, S. C. (1986). Dysfunctional control by client verbal behavior. *The Analysis of Verbal Behavior*, 4, 30–38.