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Substance Abuse-Specific Knowledge Transfer or Loss? Treatment Program Turnover versus Professional Turnover among Substance Abuse Clinicians

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Abstract

This longitudinal study investigated the extent to which substance abuse (SA) clinician turnover is associated with SA-specific knowledge loss due to change in professions (professional turnover) versus SA-specific knowledge transfer due to movement from one SA clinical setting to another (treatment program turnover). For this study, clinicians had to voluntarily leave their current treatment program. Eligible clinicians completed a quantitative survey while employed and a qualitative post-employment exit interview 1 year later. Compared to those that exited the SA profession (N = 99), clinicians who changed treatment programs (N = 120) had greater SA-specific formal knowledge and were more likely to be personally in recovery. No differences were found between the two groups in terms of SA-specific practical knowledge.

Keywords

clinician turnover; addiction treatment staff turnover; human capital investment; knowledge workers

INTRODUCTION

Approximately four million individuals seek substance abuse (SA) treatment annually.¹ Due to this high demand, the need for SA and behavioral disorder counselors is projected to increase 27% between 2010 and 2020,² which is almost double the estimated growth rate across all professions (14.3%).³ The professional outlook is especially favorable for clinicians who have SA-specific education, training, or experience.² Notwithstanding these favorable employment projections, SA treatment programs struggle with high rates of

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clinician turnover. Research on actual turnover behavior shows that approximately 19% – 33% of SA clinicians turn-over voluntarily each year.⁴⁻⁶

Voluntary turnover creates concerns about the availability of clinicians with SA-specific knowledge to provide high quality SA treatment services.^{7,8} However, little is known about the extent to which voluntary turnover leads to SA-specific knowledge transfer from one SA clinical setting to another (i.e., treatment program turnover) versus the loss of SA-specific knowledge as a result of leaving the SA field completely (i.e., professional turnover). Investigating the extent of transfer or loss of SA-specific knowledge among SA clinicians who turn-over voluntarily is the purpose of the current study. This investigation is important because findings have broad implications for clinicians, their patients, and SA clinical settings.

Clinician Turnover in Substance Abuse Treatment Programs

Research is still in the early stages of understanding clinician turnover in SA clinical settings. Two turnover constructs have been the focus of existing research on SA clinicians: turnover intentions (thoughts of quitting) and turnover behavior (actual turnover). Turnover intentions precede turnover behavior and were the early focus of SA research that identified a number of predictors including co-worker support,⁷ organizational functioning,⁸ clinical supervision, emotional exhaustion, and organizational culture,^{9,10} research participation,¹¹ and management practices.¹² More recent research focuses on actual turnover behavior and predictors include program-level factors,^{13,14} job and pay satisfaction,¹⁵ supervisor and co-worker support,¹⁵ and clinician performance.⁶ Eby et al. also identified longitudinal patterns of turnover behavior^{4,6,8} and reasons for turnover.⁴

The progression of SA clinician turnover research highlights the need for more fine-grained definitions and measures of turnover such as differentiating voluntary from involuntary turnover^{4,6,8,16} and distinguishing between treatment program turnover and professional turnover.¹⁷ Voluntary turnover occurs when a clinician makes the decision to leave the treatment program whereas involuntary turnover occurs when the treatment program terminates the clinician. Most research to date has focused on voluntary turnover because of the relatively small percentage (5% – 7%) of turnover that takes place involuntarily.^{4,6} Treatment program turnover occurs when a clinician leaves one SA treatment program for another and is more common than professional turnover.¹⁸ By contrast, professional turnover arises when a clinician leaves one SA treatment program and finds employment in a profession other than SA treatment.

To date, very few published studies in the SA treatment field have distinguished between treatment program turnover and professional turnover. One exception is Rothrauff et al. who looked into predictors, mediators, and moderators of professional (occupational) turnover intentions.¹⁷ They found significant relationships between professional turnover intentions and clinicians' perceptions of distributive and procedural justice, organizational commitment, certification in SA counseling, and age. They concluded that there is no widespread concern that SA professional knowledge is lost and diverted into other professions, at least based on turnover intentions.

SA-Specific Knowledge and Turnover: Theoretical Framework

Clinicians' SA-specific knowledge can be gained through formal education, practical work experience,^{2,19–21} and personal experience with SA.²² Clinicians need SA-specific knowledge to address the unique and diverse needs of patients. This includes expertise in SA counseling, awareness of SA as a chronic medical disorder, infectious diseases, hepatitis, and tuberculosis, co-occurring and co-morbid disorders, and use of evidence-based SA treatment practices.^{2,19–21}

The current study draws on human capital theory^{23,24} and the side-bet theory of commitment²⁵ to develop predictions how SA-specific knowledge relates to clinicians' treatment program turnover versus professional turnover. Human capital theory proposes that clinicians vary in the investments they make in developing personal skills and abilities. These investments in time, energy, and money typically manifest in years of education, and amount or breadth of training and experience.^{26,27} For example, clinicians may decide to get certified or licensed as SA counselors or obtain training in different aspects of SA counseling. The development of human capital is important because it confers advantages to clinicians in terms of greater healthcare career opportunities²³ and to SA treatment programs because SA-specific knowledge contributes to a treatment program's performance.

The side-bet theory also focuses on the investments or "sunk costs" that clinicians accrue the longer they remain employed at a SA treatment program.²⁵ These investments include social relationships, social and economic benefits, and financial incentives, which collectively increase clinicians' commitment to their treatment program and reduce the likelihood of voluntary turnover due to the costs associated with leaving. Side-bet theory can also apply to professional commitment in terms of investments clinicians make in their profession through training, education, and experience.

Taken together, these theories suggest that any type of turnover is likely to incur a cost to clinicians. Importantly, the cost associated with changing professions is far greater than the cost associated with transferring SA-specific knowledge from one SA treatment program to another. This leads to the hypotheses that clinicians with greater SA-specific knowledge gained through (1) formal education are more likely to change treatment programs than they are to change professions, (2) practical experience are more likely to change treatment programs than they are to change professions, and (3) their own SA recovery experience are more likely to change treatment programs than they are to change professions.

METHOD

Study Design and Sample

The longitudinal data for the present study came from the Managing Effective Relationships in Treatment Services (MERITS I) project. MERITS I is a longitudinal study funded by the National Institute on Drug Abuse (NIDA) and carried out by researchers affiliated with the University of Georgia. Detailed information on the study design, sampling strategy, and treatment program characteristics has been published previously.^{4,8} All procedures were approved by the Institutional Review Board at the University of Georgia. Quantitative survey data from clinicians, archival turnover data from SA treatment program records

(collected 10–12 months after quantitative survey data), and qualitative post-employment exit interview data from clinicians (collected 12–16 months after archival turnover data) were used for this study.

Management representatives from participating treatment programs provided an initial list of 1,921 clinicians employed at their treatment programs, of which 1,704 completed at least one quantitative survey during the three years of data collection (88.70% response rate). During these three years, 695 of the 1,704 clinicians turned over (40.79%). Of the 695 clinicians who left their treatment programs, 83 did not provide contact information at the time of survey completion for an exit interview in the event of turnover, 342 completed the exit interview, 239 could not be reached for the interview, 24 refused, and 7 were deceased.

We had four criteria for clinician inclusion in this study: (1) at least one quantitative survey was completed over the three year study period ($n = 1,704$), (2) archival records indicated that the clinician was no longer employed by the treatment program ($n = 695$), (3) a post-employment exit interview was completed by the clinician ($n = 342$), and (4) the clinician confirmed in the exit interview that turnover was voluntary ($n = 219$). If clinicians completed more than one survey over time, data from the year immediately prior to turnover was used. Clinicians who did not meet all four criteria were excluded from the study because survey data contained predictor information, exit interview data provided post-turnover employment status, and the study focused only on clinicians who voluntarily left their treatment program.

Quantitative survey data from clinicians were obtained during site visits conducted by trained research assistants over three consecutive years starting in 2007. During data collection, participants were offered the opportunity to provide contact information so that they could be invited to participate in a post-employment exit interview if they left their treatment program. After each year of data collection, program administrators provided archival data on the employment status of each clinician. This was used to identify clinicians who were no longer employed at the treatment program.

During the exit interview, clinicians indicated whether they were currently working in a SA treatment program (treatment program turnover) or in another profession (professional turnover). When someone was currently unemployed ($n = 3$), the desired new job was used to classify the case as treatment program turnover ($n = 2$) or professional turnover ($n = 1$). When someone indicated that they retired from their previous treatment program voluntarily and were currently working ($n = 3$), their current employment was used to determine treatment program turnover ($n = 1$) versus professional turnover ($n = 2$). When they were retired from their previous treatment program voluntarily and not currently working ($n = 1$), their turnover was coded as professional turnover. This resulted in a final sample of 219 clinicians, of which 120 changed SA treatment programs and 99 changed their profession.

Measures

Turnover—As described above, archival treatment program records obtained from program administrators were used to identify clinicians who were no longer employed 10–12 months after each survey completion. We then followed up with clinicians to verify that

they were no longer employed at their former treatment program, to ask whether they left the treatment program voluntarily or involuntarily, and if re-employed, if they were still working in a SA treatment program or changed their profession.

SA-specific knowledge: Clinician formal education, practical experience, and SA recovery experience—

To examine formal education and practical experience as predictors of turnover, formative measures were created, which are comprised of theoretically relevant individual measures that cause or lead to the resultant composite factor.^{28,29} Formative measurement assumes that if any one of these measures increases, the resultant factor increases. With formative measurement there is no assumption of homogeneity of item content across individual measures that comprise the resultant factor and no assumption that individual measures “hang together” in a factor analysis, are correlated, or demonstrate internal consistency.^{30,31}

First, the formative measure of *clinician formal education* was created with four items. On the quantitative survey, clinicians answered questions about their certification or licensure as SA counselors (0 = *no*, 1 = *yes*), highest education level (recoded for the formative measure as 0 = *less than a master's degree*, 1 = *master's degree or higher*), the extent to which their formal educational training included SA coursework (recoded for the formative measure as 0 = *none/some extent*, 1 = *great extent*), and the extent to which their formal educational training included mental health counseling coursework (recoded for the formative measure as 0 = *none/some extent*, 1 = *great extent*). The formative measure was created by adding the number of “1” responses.

Second, the formative measure of *clinician practical experience* was created with four items. The survey inquired as to how long (in years) clinicians have been working in behavioral health, as SA counselors, in their current SA treatment program, and in their current position as clinicians. The formative measure was created by adding the total number of years. Third, *SA recovery experience* was measured with the question “Are you personally in recovery?” Response options were 0 = *no* and 1 = *yes*.

Clinician characteristics—The quantitative survey also asked questions regarding gender (0 = *male*, 1 = *female*), race (recoded to 0 = *racial minority*, 1 = *Caucasian*), age in years, whether children are living at home (recoded to 0 = *no*, 1 = *yes*), annual income in dollars, number of hours worked per week, and relationship status [recoded to 0 = *not in a relationship* (single/divorced/widowed), 1 = *in a relationship* (married/cohabiting)].

Control variable—Year of data collection was added as a control variable to the logistic regression analysis to reduce the possibility of a time effect (e.g., somewhat different economic conditions, local and national unemployment rates, and labor market demands) on voluntary turnover, because the data for this study were combined over a three year period.

Data Analysis

General linear models were conducted to test for differences in clinician characteristics between those who changed treatment programs versus those who changed professions due to differences in sample sizes between treatment program turnover and professional turnover

groups (see Table 1). Descriptive statistics were calculated and correlations were computed to examine the intercorrelations among the study variables, which did not indicate multicollinearity issues (see Table 2). Then we determined whether the nested structure of our data (clinicians nested within treatment programs) should be taken into consideration when testing the hypotheses. The intraclass correlation coefficients (ICCs) were less than .06, supporting the use of logistic regression analysis without nested data. The generally accepted rule is that ICCs greater than .10 indicate the need to account for the nested structure of the data.³² The logistic regression model was run in one step and included the two formative measures of clinician formal education and clinician practical experience, clinician recovery status, and the control variable (year of data collection) (see Table 3). All data were analyzed using SAS 9.3.

RESULTS

Clinician Characteristics

Table 1 shows that there were more similarities than differences in characteristics between clinicians who changed treatment programs versus those who changed their profession. Clinicians were similar in the average number of years they worked in behavioral health, as SA counselors, in their current treatment program, and in their current position, and the average number of hours worked per week. They were also similar in their reports of gender, race/ethnicity, education, marital status, children living at home, and extent of formal mental health counseling coursework. In contrast, clinicians who changed treatment programs reported higher annual incomes, were older, more were certified/licensed SA counselors, in recovery, and had a great extent of formal SA coursework compared to clinicians who changed their profession.

Descriptive Statistics of and Correlations among Study Variables

Table 2 shows that clinicians who changed treatment programs had an average of 2.33 years of formal education (0–4 scale), 20.61 years of combined practical experience, and that 35% of them were in recovery. In contrast, clinicians who left the SA treatment profession had a mean of 1.92 years of formal education (0–4 scale), 16.06 years of combined practical experience, and 21% of them were in recovery. In addition, type of turnover was significantly and positively correlated with both formal education and SA recovery experience, indicating that those who changed treatment programs compared to those who left the SA profession tended to have greater formal education and have SA recovery experience. Practical experience was significantly positively associated with formal education and SA recovery experience. Year of data collection was not significantly related to any of the other variables.

Logistic Regression Results

As shown in Table 3, compared to clinicians who changed professions, those who changed treatment programs were 1.41 times more likely to have greater SA-specific knowledge through formal education and 2.02 times more likely to have personal experience with SA recovery ($p < .05$). No statistically significant ($p > .05$) results were found between clinicians who changed professions compared to those who changed treatment programs

regarding SA-specific knowledge through practical experience and type of turnover. Year of data collection was not significantly ($p > .05$) related to turnover.

DISCUSSION

Previous SA treatment research has pointed out the need to distinguish between treatment program turnover and professional turnover and pay greater attention to the job decisions made after clinicians leave their SA treatment programs.^{4,6,8,16} This study answers this call for research and is the first in the SA treatment field to examine predictors of different types of actual voluntary clinician turnover. Based on our findings, we conclude that clinicians' SA-specific knowledge gained through formal education and SA recovery experience is more likely to be transferred to other SA treatment programs than to be lost due to changes in professions. Interestingly, no differences in practical experience are found when comparing treatment program turnover and professional turnover.

SA-Specific Knowledge and Turnover

As suggested by the human capital theory,^{23,24} SA clinicians with greater SA-specific knowledge through formal education and SA recovery experience are more likely to change treatment programs (treatment program turnover) than they are to change professions (professional turnover). The finding regarding formal education could be a function of clinicians' greater marketability and ease of movement between SA treatment programs when they have more SA-specific knowledge that is sought out in the SA treatment field, such as formal education, licensure, and training in SA treatment.² It also supports the premise that clinicians make investments in their profession that motivate them to stay or that keep them in the SA clinical setting due to the costs associated with leaving.²³⁻²⁵

The finding that formal education is transferred between SA treatment programs has implications for SA clinical settings, clinicians, and their patients. Clinical settings benefit when SA-specific knowledge obtained through secondary education, coursework, and licensure is transferred to other SA treatment programs. Clinicians with SA-specific knowledge profit because they have made an investment in their SA profession, which is in demand and is expected to increase.^{2,3} Moreover, when treatment programs are unable to quickly fill vacant positions with educated clinicians, remaining clinicians have to pick up greater caseloads to meet treatment needs, which is related to increased stress^{33,34} and quality of patient care.^{35,36} Thus, professional turnover which reduces the availability of qualified clinicians in SA clinical settings would have greater negative effects than treatment program turnover on clinicians who persist in the SA treatment field.

The finding that clinicians who are personally in recovery are also more likely to remain in the SA profession than change the profession suggests that personal recovery status may be a valued experience-based factor that enhances treatment program mobility across various SA clinical settings for some clinicians. It may also indicate that those who are personally in recovery are more likely to stay in SA treatment due to a stronger sense of professional commitment³⁷ or a believe that they are "called" to do SA treatment work.³⁸

It is somewhat surprising that we do not find significant differences in practical experience between clinicians who change treatment programs versus clinicians who change professions. It may be that some clinicians with more years of experience in SA treatment are exiting the profession due to burnout or compassion fatigue^{39,40} whereas others are using their practical experience as currency to find better jobs within SA clinical settings. Future research specific knowledge that makes it different from formal education and recovery status.

Our findings have additional implications for clinicians. SA clinicians with more breadth and depth of SA-specific knowledge have greater SA employment opportunities upon turnover than those with less expertise and fewer credentials.^{2,24} Additionally, SA clinical settings hold promising employment opportunities for individuals interested in the helping profession, particularly those with SA-specific knowledge. However, almost as many clinicians in our study are changing treatment programs as compared to clinicians who leave the SA profession. Thus, clinician turnover does appear to create a potential gap in the availability of clinicians to provide services to an increasing number of individuals who are estimated to seek SA treatment in the future.² One strategy to address this concern is to encourage clinicians to obtain formal training in SA treatment through licensure and credentialing requirements. This will help professionalize SA treatment, and as a consequence it may help reduce the professional stigma that is often associated with SA treatment counseling.⁴¹

Limitations and Conclusion

Two main limitations of this study need to be considered when interpreting the results beyond this sample. First, obtaining survey data from clinicians, actual turnover data from treatment program records, and follow-up data from clinicians once they exit a SA treatment program is labor intensive and reduces the sample size. We were not able to conduct post-employment interviews with some clinicians because of lack of or out-of-date contact information and difficulty scheduling follow-up interviews (e.g., no shows, cancellations). Second, this study examined specific predictors of treatment program turnover versus professional turnover. Future research should examine more diverse predictors as well as mediators, moderators, and outcomes specific to treatment program turnover compared to professional turnover.

In conclusion, this is the first empirical study to investigate SA clinicians' voluntary treatment program turnover versus professional turnover within the context of SA-specific knowledge transfer or loss. We find that clinicians who leave one SA treatment program for another treatment program are more likely to have greater SA-specific knowledge in the form of formal education and personal experience with SA recovery compared to clinicians who leave the SA treatment profession. However, we also find that SA-specific knowledge regarding practical experience is as likely to be transferred within the SA clinical setting as it is to be lost to other professions.

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References

1. Substance Abuse and Mental Health Services Administration. [accessed September 20, 2013] Results from the 2010 National Survey on Drug Use and Health: summary of national findings. 2010. <http://www.samhsa.gov/data/nsduh/2k10nsduh/2k10results.htm>
2. Bureau of Labor Statistics, U.S. Department of Labor. [accessed July 28, 2013] Occupational Outlook Handbook, 2012–13 edition, substance abuse and behavioral disorder counselors. 2012. <http://www.bls.gov/ooh/About/Occupational-Information-Included-in-the-OOH.htm>
3. Bureau of Labor Statistics, U.S. Department of Labor. [accessed April 04, 2014] Occupational information included in the OOH. 2012. Available at: <http://www.bls.gov/ooh/community-and-social-service/substance-abuse-and-behavioral-disorder-counselors.htm>
4. Eby LT, Burk H, Maher CP. How serious of a problem is staff turnover in substance abuse treatment? A longitudinal study of actual turnover. *J Subst Abuse Treat.* 2010; 39:264–271. [PubMed: 20675097]
5. Garner BR, Hunter BD, Modisette KC, Ihnes PC, Godley SH. Treatment staff turnover in organizations implementing evidence-based practices: turnover rates and their association with client outcomes. *J Subst Abuse Treat.* 2012; 42:134–142. [PubMed: 22154040]
6. Laschober TC, de Tormes Eby LT. Substance abuse counselors' job performance and turnover after 1 year: linear or curvilinear relationship? *Adm Policy Ment Health Ment Health Serv Res.* 2013; 40:300–310.
7. Ducharme LJ, Knudsen HK, Roman PM. Emotional exhaustion and turnover intention in human service occupations: the protective role of coworker support. *Sociol Spectrum.* 2008; 28:81–104.
8. Eby LT, Rothrauff-Laschober TC. The relationship between perceptions of organizational functioning and voluntary counselor turnover: a four-wave longitudinal study. *J Subst Abuse Treat.* 2012; 42:151–158. [PubMed: 22116013]
9. Knudsen HK, Ducharme LJ, Roman PM. Counselor emotional exhaustion and turnover intention in therapeutic communities. *J Subst Abuse Treat.* 2006; 31:173–180. [PubMed: 16919745]
10. Knudsen HK, Ducharme LJ, Roman PM. 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. *J Subst Abuse Treat.* 2008; 35:387–395. [PubMed: 18424048]
11. Knudsen HK, Ducharme LJ, Roman PM. Research participation and turnover intention: an exploratory analysis of substance abuse counselors. *J Subst Abuse Treat.* 2007; 33:211–217. [PubMed: 17376638]
12. Knudsen HK, Johnson JA, Roman PM. Retaining counseling staff at substance abuse treatment centers: effects of management practices. *J Subst Abuse Treat.* 2003; 24:129–135. [PubMed: 12745030]
13. Knight D, Broome K, Edwards J, Flynn P. Supervisory turnover in outpatient substance abuse treatment. *J Behav Health Serv Res.* 2011; 38:80–90. [PubMed: 19949883]
14. Knight DK, Landrum B, Becan JE, Flynn PM. Program needs and change orientation: implications for counselor turnover. *J Subst Abuse Treat.* 2012; 42:159–168. [PubMed: 22154025]
15. Garner BR, Hunter BD. Examining the temporal relationship between psychological climate, work attitude, and staff turnover. *J Subst Abuse Treat.* 2013; 44:193–200. [PubMed: 22658290]
16. McNulty TL, Oser CB, Johnson JA, Knudsen HK, Roman PM. Counselor turnover in substance abuse treatment centers: an organizational-level analysis. *Sociol Inq.* 2007; 77:166–193.
17. Rothrauff TC, Abraham AJ, Bride BE, Roman PM. Occupational turnover intentions among substance abuse counselors. *J Subst Abuse Treat.* 2011; 40:67–76. [PubMed: 20947285]
18. Blau G. Does a corresponding set of variables for explaining voluntary organizational turnover transfer to explaining voluntary occupational turnover? *J Vocational Behav.* 2007; 70:135–148.

19. National Institute on Drug Abuse [NIDA]. [accessed April 04, 2014] Treatment approaches for drug addiction. 2009. http://www.nida.nih.gov/PDF/InfoFacts/IF_Treatment_Approaches_2009_to_NIDA_92209.pdf
20. Substance Abuse and Mental Health Services Administration [SAMHSA]. [accessed April 04, 2014] Clinical supervision and professional development of the substance abuse counselor part 3: a review of the literature. Treatment Improvement Protocol (TIP) Series 52. 2008. http://store.samhsa.gov/shin/content/SMA09-4435/TIP52_LitRevblk.pdf
21. Substance Abuse and Mental Health Services Administration [SAMHSA]. [accessed April 04, 2014] Clinical supervision and professional development of the substance abuse counselor. Treatment Improvement Protocol (TIP) Series 52. 2009. <http://www.readytotest.com/PDFs/TIP52.pdf>
22. Center for Substance Abuse Treatment [CSAT]. [accessed September 28, 2013] Clinical supervision and professional development of the substance abuse counselor. Treatment Improvement Protocol (TIP) Series 52. 2009. <http://www.ncbi.nlm.nih.gov/books/NBK64845/pdf/TOC.pdf>
23. Becker, GS. Human capital. Chicago, IL: University of Chicago Press; 1975.
24. Becker, GS. Human capital: a theoretical and empirical analysis, with special reference to education. 3. Chicago: University of Chicago Press; 1993.
25. Becker HS. Notes on the concept of commitment. *Am J Soc.* 1960; 60:32–40.
26. Ng TWH, Eby LT, Sorensen KL, Feldman DC. Predictors of objective and subjective career success: a meta-analysis. *Personnel Psychol.* 2005; 58:367–408.
27. Wayne SJ, Liden RC, Kraimer ML, Graf IK. The role of human capital, motivation and supervisor sponsorship in predicting career success. *J Organizational Behav.* 1999; 20:577–595.
28. Diamantopoulos A, Winklhofer HM. Index construction with formative indicators: An alternative to scale development. *J Mark Res.* 2001; 38:296–277.
29. MacCallum RC, Brown MW. The use of causal modeling in covariance structure models: Some practical issues. *Psychol Bull.* 1993; 114:533–551. [PubMed: 8272469]
30. Bollen KA, Lennox R. Conventional wisdom on measurement: A structural equation perspective. *Psychol Bull.* 1991; 110:305–314.
31. MacKenzie SB, Podsakoff PM, Jarvis CB. The problem of measurement model misspecification in behavioral and organizational research and some recommended solution. *J Appl Psychol.* 2005; 90:710–730. [PubMed: 16060788]
32. Kreft, I.; de Leeuw, J. Introducing multilevel modeling. London: Sage Publications; 1998.
33. Knight DK, Broome KM, Simpson DD, Flynn PM. Program structure and counselor-client contact in outpatient substance abuse treatment. *Health Serv Res.* 2007; 43:616–634. [PubMed: 18370970]
34. Powell MJ, York RO. Turnover in county welfare agencies. *J Appl Soc Sci.* 1992; 16:111–127.
35. Ducharme LJ, Knudsen HK, roman PM. Emotional exhaustion and turnover intention in human service occupations: the protective role of coworker support. *Sociological Spectrum.* 2008; 28:81–104.
36. Lum J, Kervin J, Clark K, Reid F, Sirola W. Examining nursing turnover intent: job satisfaction, pay satisfaction or organizational commitment? *J Organizational Behav.* 1998; 19:305–320.
37. Curtis S, Eby LT. Recovery at work: the relationship between social identity and commitment among substance abuse counselors. *J Subst Abuse Treat.* 2010; 39:248–254. [PubMed: 20674241]
38. Eby, LT. Career calling as a protective factor for burnout among individuals working in stigmatized occupations. Paper presented at the annual meeting of the Society for Industrial and Organizational Psychology; Atlanta, GA. April, 2010;
39. Substance Abuse and Mental Health Services Administration [SAMHSA]. [accessed April 04, 2014] Substance abuse treatment for persons with child abuse and neglect issues. Treatment Improvement Protocol (TIP) Series 36. 2000. <http://www.ncbi.nlm.nih.gov/books/NBK64902/>
40. Shoptaw S, Stein JA, Rawson RA. Burnout in substance abuse counselors. Impact of environment, attitudes, and clients with HIV. *J Subst Abuse Treat.* 2000; 19:117–126. [PubMed: 10963923]
41. Center for Substance Abuse Treatment [CSAT]. . Changing the conversation: the national treatment plan initiative. Rockville, MD: Author; 2000.

Table 1
 Clinician Characteristics based on Treatment Program (N = 120) versus Professional (N = 99) Turnover (TO)

	Treatment Program TO		Professional TO		F
Clinician Formal Education (items included in Formative Measure) ^a					
Certified or licensed SA counselor (F, %)	66	55.93	32	32.65	11.71 ***
Master's degree or higher (F, %)	77	64.17	63	63.64	.01
Great extent of formal SA coursework (F, %)	52	43.33	25	25.25	7.78 **
Great extent of formal mental health counseling coursework (F, %)	84	70.00	70	70.71	.01
Clinician Practical Experience (items included in Formative Measure) ^a					
Tenure in behavioral health in years (M, SD)	9.59	7.77	7.63	7.73	3.42
Tenure as SA counselor in years (M, SD)	5.36	5.79	4.51	6.30	1.08
Tenure in current treatment program in years (M, SD)	3.21	4.80	2.31	3.52	2.42
Tenure in current position in years (M, SD)	2.47	3.82	1.76	3.27	2.14
In recovery (F, %) ^a	42	35.29	20	20.62	5.62 *
Annual income/\$1,000 (M, SD)	36.114	12.119	32.821	9.525	5.26 *
Age in years (M, SD)	42.21	12.12	37.55	12.85	7.52 **
Hours worked per week (M, SD)	44.38	7.92	42.71	7.56	2.53
Female (F, %)	89	74.17	69	69.70	.54
Caucasian (F, %)	79	65.83	74	74.75	2.05
Children living at home (F, %)	42	35.00	25	25.25	2.43
In a relationship (F, %)	56	46.67	51	51.52	.51

Note.

^aVariables included in the logistic regression model

* $p < .05$;

** $p < .01$;

*** $p < .001$.

Table 2

Descriptive Statistics of and Correlations among Study Variables

Variables	Treatment Program TO		Professional TO		1.	2.	3.	4.	5.
	M	SD (Range)	M	SD					
1. Turnover	N/A		N/A		1.00	.13	.19**	.16*	−.04
2. Formal education (formative)	2.33	1.04 (0–4)	1.92	1.08 (0–4)		1.00	.23***	.03	−.01
3. Practical experience (formative)	20.61	18.12 (1–111)	16.06	17.21 (.33–99)			1.00	.22**	−.05
4. Personally in recovery	.35	.48 (0–1)	.21	.41 (0–1)				1.00	.02
5. Year of data collection (control variable)	N/A		N/A						1.00

Note. Turnover (TO) coded 0=professional turnover and 1=treatment program turnover. Personally in recovery coded 0=not in recovery and 1=in recovery. Year of data collection (control variable) ranged from 2007–2009.

*
p < .05;
**
p < .01;

p < .001.

Table 3

Logistic Regression Results Predicting Type of Turnover

	B	SE	(95% CI)	OR
Formal education (formative measure)	.34	.14	(1.07, 1.85)	1.41*
Practical experience (formative measure)	.01	.01	(.99, 1.02)	1.01
Personally in recovery	.70	.33	(1.06, 3.86)	2.02*
Year of data collection (control variable)	-.07	.17	(.67, 1.29)	.93
Likelihood ratio (<i>n, df</i>)	14.20**	(216, 4)		

Note. Turnover coded 0=professional turnover and 1=treatment program turnover. Personally in recovery coded 0=not in recovery and 1=in recovery. Year of data collection (control variable) ranged from 2007–2009.

* $p < .05$;

** $p < .01$.