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Examining the temporal relationship between psychological climate, work attitude, and staff turnover

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Abstract

Relative to the broader industrial-organizational (I-O) psychology field, research on the turnover of substance use disorder (SUD) treatment staff is in its infancy. Despite its long and rich history, recent reviews of the turnover literature within I-O psychology have noted there remains considerable room for improvement. In particular, recommendations have been made for research that considers time in the turnover process and explores more distal causes of staff turnover. Addressing these gaps, this paper examined the temporal relationship between latent measures of psychological climate, work attitude, and staff turnover. Using data from 95 SUD treatment staff clustered within 29 treatment organizations, multilevel discrete-time survival analyses revealed that a latent measure of work attitude (e.g., job satisfaction, pay satisfaction, turnover intentions) fully mediated the temporal relationship between latent measures of psychological climate (e.g., supervisor support, coworker support, role conflict) and subsequent staff turnover.

Keywords

staff; employee; turnover; retention; multilevel; mediation

Relative to staff turnover research within the field of industrial-organizational (I-O) psychology, which includes several theories of the staff turnover process (e.g., Lee & Mitchell, 1994; March & Simon, 1958; Mobley, Horner, & Hollingsworth, 1978; Muchinsky & Morrow, 1980; Steel, 2002), and reviews or meta-analyses of its voluminous literature (Cotton & Tuttle, 1986; Griffeth, Hom, & Gaertner, 2000; Holtom, Mitchell, Lee, & Eberly, 2008; Hom, Caranikas-Walker, Prussia, & Griffeth, 1992; Steel & Lounsbury, 2009; Steel & Ovalle, 1984), research on turnover of substance use disorder (SUD) staff is only in its infancy. Indeed, Eby, Burk, & Maher (2010) noted as part of their review of the staff turnover literature within SUD treatment that “Despite the claim that turnover is a serious concern, we are aware of no published studies that systematically track the employment status of individuals over time to ascertain actual turnover” (p. 264). Eby and colleagues (2010) further noted that estimates of SUD staff turnover to date had relied on program administrators’ estimates of clinician turnover rates (Gallon, Gabriel, & Knudsen, 2003; Johnson & Roman, 2002; Knudsen, Johnson, & Roman, 2003) or were from larger studies that did not describe how rates of clinician turnover were obtained or calculated (Carise, Gurel, McLellan, Dugosh, & Kendig, 2005; Carise, McLellan, Gifford, & Kleber, 1999; McLellan, Carise, & Kleber, 2003). More recently, researchers (Eby & Rothrauff-Laschober, 2012; Knight, Landrum, Becan, & Flynn, 2012) have noted that in order to better

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understand the turnover process, research needs to extend beyond the study of “turnover intentions” (e.g., Ducharme, Knudsen, & Roman, 2008; Duraisingam, Pidd, & Roche, 2009; Knudsen, Ducharme, & Roman, 2006, 2007, 2008) to the study of “actual turnover.”

1.1 Research on the predictors of staff turnover within substance use disorder treatment

In terms of research on “actual turnover” of SUD staff (hereafter referred to as simply staff turnover), only nine studies have been conducted to date. The first study was conducted approximately five years ago by McNulty, Oser, Johnson, Knudsen, & Roman (2007). Using data from 217 organizations that completed a cross-sectional survey between 1997 and 1998, McNulty and colleagues examined the relationships between several organizational-level measures and past year turnover rates as reported between 2000 and 2001. Results from the final multivariate model revealed that organizational-level turnover rates in subsequent years were significantly higher for organizations that were for-profit and had greater: capacity for clients, levels of prior turnover, percentages of female staff, levels of prior staff turnover, percentages of staff in recovery, percentages of staff that were certified, percentages of non-minority staff, and percentages of non-managed care referrals. Additionally, they found higher levels of organizational commitment to be significantly predictive of lower turnover rates. An important limitation of this study, however, was that the sample of staff used to create the organizational-level predictors was not the same as the staff upon which the turnover rates were based.

Three years later, Eby et al. (2010) published the first prospective examination of SUD staff turnover. Using data collected from 27 treatment organizations (26 affiliated with the National Institute on Drug Abuse’s Clinical Trials Network [CTN] and 1 non-CTN treatment organization), Eby et al. (2010) reported a 33% average annual counselor turnover rate and a 23% average annual clinical supervisor turnover rate. Additionally, Eby and colleagues (2010) listed reasons for staff turnover that were obtained from each respective treatment organization’s staff records (e.g., information collected as part of exit interviews). Results indicated that among clinicians who quit voluntarily and provided a reason ($n = 162$), the number one reason for turnover was a new job/other opportunity (42%), with other job-related reasons including: job dissatisfaction (4%), higher pay (3%), and other job-related reason (1%). Personal reasons for voluntary turnover of counselors included: relocation (10%), personal health (8%), return to school (3%), other personal reason (3%), retired (2%), and family (2%). Among clinical supervisors who quit voluntarily and provided a reason ($n = 22$), the number one reason for turnover was again a new job/other opportunity (59%), with other job-related reasons including: higher pay (5%) and other job-related reason (9%). Personal reasons for voluntary turnover of supervisors included: retired (9%), relocation (5%), personal health (5%), return to school (5%), and family (5%). As these authors noted, an important study limitation is that because reasons for staff turnover were obtained from organizational records, these reported reasons may not reflect actual reasons for quitting.

Knight, Broome, Edwards, and Flynn (2011) examined the extent to which organizational-level measures of program structure (e.g., ownership status, parent affiliation, service approach, staff size) and work attitudes (i.e., job satisfaction, burnout, director leadership) predicted organizational-level turnover of at least one supervisor (i.e., program or clinical director). Based on data from 90 outpatient treatment programs, final results indicated the odds of having at least one supervisor turnover was significantly higher among organizations that had: a parent organization, a larger average number of client counseling hours, and a lower average staff satisfaction rating. A key limitation, however, was the inability to link individual-level turnover information back to individual-level survey data.

Knudsen, Abraham, Roman, and Studts (2011) used data from 122 community-based substance abuse treatment programs participating in the CTN to examine associations between organizational characteristics and nurse turnover. Final multivariate analyses indicated organizations with greater raw numbers of nurses quitting were significantly more likely to: have a larger number of currently employed nurses, be located in a non-hospital setting, offer residential treatment, offer adolescent-only treatment services, and have reduced operations in the past 2 years. In addition to not knowing to what extent turnover of nurses generalizes to turnover of other SUD treatment staff (e.g., clinicians, supervisors), the cross-sectional nature of the data was an important study limitation.

Finally, a recent special issue related to organizational dynamics in substance abuse included five studies related to SUD staff turnover (Eby & Rothrauff-Laschober, 2012; Garner, Hunter, Godley, & Godley, 2012; Garner, Hunter, Modisette, Ihnes, & Godley, 2012; Knight, Becan, & Flynn, 2012; Knight, Landrum, Becan, & Flynn, 2012). Due to their focus on the consequences of staff turnover rather than predictors of staff turnover, the articles by Garner, Hunter, Modisette, et al. (2012) and Knight, Becan, et al. (2012) were excluded as part of this overview. The other three articles, however, are briefly described below (ordered alphabetically).

Using the same sample as reported by Eby et al. (2010), but with turnover data extended out to three years, Eby and Rothrauff-Laschober (2012) examined the extent to which staff perceptions of the organizational environment and clinical supervisor leadership effectiveness predicted voluntary turnover. Separate multivariate analyses, which each controlled for race, tenure, gender, and certification status, found that the likelihood of staff turnover was significantly higher for staff reporting lower levels of job satisfaction, distributive justice, procedural justice, and organizational support. An important limitation, however, was that analyses did not take into account the multilevel nature of the data (i.e., staff clustered within organizations). This is important given ignoring the clustering of data has been shown to increase the risk for Type I errors (Raudenbush & Bryk, 2002).

Within the context of a large national evidence-based treatment (EBT) implementation initiative that included 34 adolescent treatment organizations and 121 staff, Garner, Hunter, Godley, et al. (2012) examined the extent to which staff turnover could be predicted by staff background characteristics and measures assessed as part of a Survey of Organizational Functioning (SOF), which is an expanded version of the widely used Organizational Readiness for Change (ORC) instrument (Lehman, Greener, & Simpson, 2002). Exploratory multilevel analyses, which bivariate regressed staff turnover measured at three separate time points (i.e., 6, 9, and 12 months post-training) on each of the potential predictors, found that the odds of turnover were significantly higher for males; staff with less than a Master's degree; and staff that reported higher program needs, lower mission clarity, lower job autonomy, higher burnout, lower job satisfaction, lower director leadership, and lower collective responsibility. As the authors noted, an important limitation of this study was that the number of exploratory tests increased the odds that some of the findings were spurious.

Using a subset of the larger sample (N = 115 programs) described by Knight et al. (2011), Knight, Landrum, et al. (2012) used data from 25 programs and 206 staff to examine the extent to which staffs' perceptions of program needs and change orientation (i.e., average of items measured as part of two SOF measures: openness to change, director leadership) predicted staff turnover. Results of the final multilevel analysis found the odds of staff turnover to be significantly higher for staff with less tenure and that reported higher programs needs, higher change orientation, and lower job satisfaction. Additionally, they found a significant interaction between program needs and change orientation. In addition to the noted limitation that the analyzed sample only represented 22% of programs that

participated in the larger project, another important limitation was that staff survey data could only be linked to turnover data for 57% of staff who left.

Based on the above overview, research on the predictors of SUD treatment staff turnover represents a relatively new area of research, but one that appears to be growing rapidly. Collectively, studies to date have identified numerous factors as significant predictors of the turnover of SUD treatment staff. Job satisfaction, however, has been the most consistently identified predictor, being a significant predictor in the final model for each of the four studies that included it as part of its analyses (Eby & Rothrauff-Laschober, 2012; Garner, Hunter, Godley, et al., 2012; Knight et al., 2011; Knight, Landrum, et al., 2012). Given the current state of research on the predictors of SUD treatment staff, each of these studies represents important advancements in the understanding of the turnover process for SUD staff. Nevertheless, we suggest that, rather than conducting studies that essentially replicate research findings previously established in the broader staff turnover literature (e.g., Griffeth et al., 2000), future research on turnover of SUD treatment staff be conducted with the aim of representing significant advancements in overall knowledge about the complex process of staff turnover.

1.2 The current study

Despite the considerable progress that has been made in improving the overall understanding of the staff turnover process, there remains considerable room for improvement. Indeed, Holtom et al. (2008) concluded from their review of the broader I-O psychology literature on staff turnover and retention that there is a need for more research that considers the factor of time in the turnover process. This is consistent with recommendations by Steel and colleagues (Steel, 2002; Steel & Lounsbury, 2009), who have called for staff turnover research to move beyond “static cohort methods” to longitudinal methods. Steel and Lounsbury (2009) also noted as part of their review of turnover process models that research describing the “instigating mechanisms” of staff turnover is lacking and that “research exploring the root causes of turnover decisions is sorely needed” (p. 280). Thus, in an effort to advance the extant knowledge about predictors of staff turnover, this study aimed to answer the following three questions: a) to what extent are staffs’ perceptions of their work environment (referred to as psychological climate factors; see James & Jones, 1974) predictive of staff turnover?; b) to what extent are staffs’ *evaluations* of their work environment perceptions (referred to as work attitude factors; see Parker et al., 2003) predictive of staff turnover?; and c) to what extent does a latent measure of work attitude mediate the temporal relationship between latent measures of psychological climate and staff turnover? In addition to being consistent with recommendations for future research to examine staff turnover using more parsimonious models that merge redundant concepts into higher order constructs (Hom et al., 1992; Hom & Griffeth, 1991), this latter question seeks to extend related findings by Parker et al. (2003), who found work attitude fully mediated the relationship between psychological climate and other important work outcomes (i.e., motivation and job performance). Given Parker and colleagues’ research did not include staff turnover as part of their analyses, the current study represents the first known study to examine the extent to which work attitude mediates the relationship between psychological climate and staff turnover. Moreover, the current study represents one of the first known studies to model the temporal relationship between psychological climate (measured at study entry), work attitude (measured 3 months post-study entry), and staff turnover (measured between 4 and 18 months post-study entry).

2. Method

2.1 Study design

Data used in this study were collected between January 2008 and March 2011 as part of a larger project called the Reinforcing Therapist Performance (RTP) experiment. Descriptions of the RTP experiment have been described by Garner, Godley, Dennis, Godley, and Shepard (2010) and Garner et al. (in press). Briefly, however, the RTP experiment is a cluster randomized experiment designed to test the effectiveness and cost-effectiveness of using pay-for-performance methods to improve treatment staff implementation of an evidence-based treatment for adolescent substance use. As part of this experiment, participants were asked to complete a 30–45 minute survey at study entry, as well as three months post-entry. Informed consent from participants was obtained prior to completion of the surveys, which were mailed to participants along with a postage-paid return envelope. In addition to informing participants that their responses to the survey questions were for research purposes only and would not be shared with anyone outside of the research team, participants were informed to skip any questions they did not feel comfortable answering. Participants received \$50 for the completion of each survey, and all study procedures were approved by the appropriate institutional review boards. All analyses and findings reported in the present article are unique and have not been conducted or reported in prior studies.

2.2 Participants

Of the 120 eligible treatment staff members, which were clustered within 29 treatment organizations, 105 (88%) agreed to participate in the RTP experiment. Of the 15 who did not participate, 7 indicated they wanted to participate but despite numerous reminders, never turned in the informed consent and survey; 6 indicated they did not want to participate because they were too busy; and 2 did not respond to our recruitment attempts. Overall, study participants were female (77%), with an average age in years of 36 ($SD = 11$). Racial composition of the sample was 54% Caucasian, 23% Hispanic/Latino, 16% African American, 4% American Indian/Alaskan Native, and 2% Asian. The average number of years of experience in substance use counseling was 4 ($SD = 5$), with 2% having a doctoral degree, 53% having a master's degree, 40% having a bachelor's degree, and the remaining 6% having some college or an associate's degree. In addition, 6% of the therapists reported they were in recovery. Of these 105 participants, one left their organization (i.e., turnover) prior to the 3-month survey, and nine (9%) did not complete the 3-month follow-up survey. The remaining 95 (90%) participants were used for all analyses of this study. Background characteristics for these 95 participants, which are shown in Table 1, were not significantly different from those of the larger sample.

2.3 Measures

2.3.1 Background characteristics—Participants were asked about background characteristics as part of the survey. These included: age in years, race (coded as 1 = Caucasian and 0 = non-Caucasian for this study), gender (coded as 1 = female and 0 = male for this study), highest level of education (coded as 1 = master's degree or higher and 0 = less than a master's degree for this study), months of experience in substance use counseling (based on median split, was coded as 1 = 24 months or more and 0 = less than 24 months for this study), recovery status (coded as 1 = consider in recovery and 0 = do not consider in recovery for this study), average hours worked per week, annual salary, treatment competency status (coded as 1 = demonstrated the ability to competently deliver the EBT and 0 = not yet demonstrated the ability to competently deliver the EBT), and supervisory duties (coded as 1 = at least some supervisor duties and 0 = no supervisor duties for this study).

2.3.2 Condition Assignment—As part of the cluster randomized RTP experiment, each participating organization (N = 29) was assigned via urn randomization (Stout, Wirtz, Carbonari, & Del Boca, 1994) to either an implementation-as-usual (IAU) control condition (n = 15) or an experimental pay-for-performance (P4P) condition (n = 14). Thus, unlike the other measures, which represent individual-level measures, condition assignment represents an organizational-level measure.

2.3.3 Psychological Climate—Psychological climate was assessed using items adapted from the Psychological Climate Questionnaire (James & Sells, 1981) and the organizational climate domain of the Organizational Readiness for Change instrument (Lehman et al., 2002). Examination of items using principal axis factor analysis (Costello & Osborne, 2005) resulted in a five-factor solution. These factors included: 1) supervisor support (19 items; alpha = .96; 33% of the variance), 2) coworker support (12 items; alpha = .94; 9% of the variance), 3) role overload (13 items; alpha = .92; 5% of the variance), 4) role clarity (5 items; alpha = .87; 4% of the variance), and 5) job challenge & autonomy (7 items; alpha = .68; 3% of the variance). Confirmatory factor analysis of psychological climate as a higher order factor indicated excellent fit ($\chi^2(5) = 5.10$, $p = 0.40$, root mean square error of approximation (RMSEA) = .015; comparative fit index (CFI) = .998; Tucker-Lewis index (TLI) = .996, standardized root mean square residual (SRMR) = .042).

2.3.4 Work Attitude—Work attitude was assessed using participant reports on items from the short form of the Minnesota Satisfaction Questionnaire (Weiss, Dawis, England, & Lofquist, 1967), the pay satisfaction questionnaire (Heneman & Schwab, 1985), the job involvement scale (Lodahl & Kejner, 1965; Reeve & Smith, 2001), and the turnover intentions scale, which was developed for this study based on items used by Walsh, Ashford, and Hill (1985). Examination of these items using principal axis factor analysis (Costello & Osborne, 2005) resulted in a five-factor solution. These factors included: 1) job satisfaction (17 items; alpha = .93; 31% of the variance), 2) pay satisfaction (10 items; alpha = .95; 9% of the variance), 3) benefit satisfaction (4 items; alpha = .94; 6% of the variance), 4) turnover intentions (4 items; alpha = .79; 4% of the variance), and 5) job involvement (3 items; alpha = .70; 3% of the variance). Confirmatory factor analysis of work attitude as a higher order factor indicated acceptable fit according to several fit statistics ($\chi^2(5) = 9.29$, $p = 0.10$, RMSEA = .095; CFI = .918; SRMR = .049), with one fit statistics indicating slightly less than acceptable fit (TLI = .836).

2.3.5 Turnover—Each participant's employment status was tracked as part of his/her participation in the RTP experiment. For participants who left their organization during the course of the RTP experiment (i.e., turnover), we document both the turnover date and type (voluntary turnover [i.e., initiated at the choice of the staff] vs. involuntary turnover [i.e., initiated at the choice of the employer]). Consistent with the broader body of turnover literature reviewed above and due to the very low occurrence of involuntary turnover (n = 1) observed in this study, we focused on predicting voluntary turnover (coded as 1 = turnover and 0 = no turnover). Both overall and annualized rates of turnover were calculated. Overall turnover rates, which do not take into account time, were calculated simply by dividing the number of staff turnovers by the total number of staff hired. Annualized rates of staff turnover, which do take time into account, were calculated by dividing the number of turnover events by the total number of observation days and then multiplying this by the unit of observation [(turnover events/number of observation days) * 365 days]. This method produces annualized rates of staff turnover that are identical to other established methods (Glebbeek & Bax, 2004; Shaw, Gupta, & Delery, 2005), which calculate annualized turnover by dividing the number of turnovers by the average number of staff employed during the period, and then multiplying this by the appropriate annualization factor

[(turnover events/average number of staff employed during observation period) * (365/days in observation period)].

2.4 Analytic Plan

Analyses for this study (i.e., mediation analysis using multilevel discrete-time survival analysis with latent variables) combined the strengths of longitudinal data analysis (e.g., Singer & Willett, 2003), multilevel modeling (e.g., Raudenbush & Bryk, 2002; Snijders & Bosker, 1999), survival analysis (e.g., Morita, Lee, & Mowday, 1989; Muthén & Masyn, 2005; Singer & Willett, 1993, 2003; Willett & Singer, 1993), structural equation modeling (e.g., Bollen, 1989; Hoyle, 1995), and mediation analysis (Baron & Kenny, 1986). In terms of missing data, one person was missing a score for supervisor support, one person was missing a score for job challenge & autonomy, and two people were missing benefits satisfaction. All analyses were conducted using Mplus analytic software (Muthén & Muthén, 1998–2010), with participants nested within organizations and using maximum likelihood estimation (MLR) with robust standard errors. Consistent with another recent multilevel discrete-time survival analyses (Petras, Masyn, Buckley, Ialongo, & Kellam, 2011), we coded turnover into discrete time periods (months 4–6, months 7–9, months 10–12, and months 13–18). Thus, turnover was represented as a latent factor with four binary event indicators where 1 = turnover and 0 = no turnover and with event indicators coded as missing once turnover occurred or the observation period ended. As the initial step, bivariate relationships between each study measure and turnover were examined. In addition to identifying any significant ($p < .05$) measures to include as control variables in subsequent mediational analyses, these bivariate relationships provide information about each direct relationship with turnover, which is useful for making comparisons with both past and future research. In order to examine the extent to which work attitude mediated the relationship between psychological climate and turnover, we followed the causal steps modeling approach recommended by Baron and Kenny (1986).

3. Results

3.1 Rates of turnover

Total sample—Of the 105 total participants, 26 left their organization during the course of the study, which represents an overall turnover rate of 25%. Of these 26 turnovers, 25 (96%) were voluntary, thus representing an overall voluntary turnover rate of 24%. In addition to these overall rates of turnover, we also computed the annualized turnover rate for each organization, which adjust for length of time in the study. The annualized rate was 24% for any therapist turnover and 23% for voluntary turnover.

Analytic sample—Of the 95 participants (90% of total sample) who did not turnover within the first three months and completed both the baseline and 3-month survey, which was the criteria for being included as part of the study's analytic sample, 19 (20%) left their organization during the course of the study, representing an overall turnover rate of 20%. Of these 19 turnovers, 18 (95%) were voluntary, representing an overall voluntary turnover rate of 19%. The annualized rate was 19% for any therapist turnover and 18% for voluntary turnover.

3.2 Direct relationships with turnover

Table 1 presents descriptive statistics for each study measure, as well as information about the direct bivariate relationship between each measure and turnover. Neither the background characteristics nor condition assignment were found to be significantly related to turnover. However, turnover was found to be predicted significantly by the latent measures of psychological climate and work attitude, as well as several of the indicators that make up

these two higher order latent factors. For example, among the five indicators of psychological climate, four (i.e., supervisor support, coworker support, role overload, role clarity) were found to have significant bivariate relationships with turnover. Additionally, of the five indicators of work attitude, three (i.e., job satisfaction, turnover intentions, and job involvement) were found to have significant bivariate relationships with turnover.

3.3 Work attitude as a mediator

Figure 1 presents the three separate multilevel discrete-time survival analyses with latent variables used to test the extent to which work attitude measured at 3 months post-baseline temporally mediates the relationship between psychological climate measured at baseline and turnover measured between months 4 and 18 post-baseline. Following the steps of mediation testing described by Baron and Kenny (1986), model 1 illustrates that more positive psychological climate measured was significantly predictive of more positive work attitude measured ($\beta = .87, p < .001$). Although psychological climate already has been shown to have a significant direct relationship with staff turnover (see Table 1), model 2 re-illustrates this relationship ($hOR = .37, p < .05$). When both psychological climate and work attitude were included in the model together, there was no longer a significant direct relationship between psychological climate and turnover ($hOR = 0.95; p = .95$), which indicates that work attitude fully mediated the relationship between psychological climate and turnover. Thus, as shown in model 3, more positive psychological climate measured at baseline was significantly related to more positive work attitudes measured three months later ($\beta = .82, p < .001$) and explained 68% of the variance in work attitude. Moreover, more positive work attitude measured at month 3 was significantly related to decreased odds ($hOR = 0.26, p < .05$) of turnover out to 18 months later. Together, psychological climate and work attitudes explained 16% of the variance in staff turnover.

4. Discussion

As overviewed previously, few studies to date have examined predictors of “actual” SUD staff turnover. Indeed, our review of the staff turnover literature within SUD treatment only identified seven studies. Of the limited factors that have been examined as part of these studies, job satisfaction was found to be the most consistently identified predictor of SUD staff turnover. Although job satisfaction as a predictor of staff turnover represents a new and important finding for the SUD treatment field, job satisfaction has long been shown to be one of the best predictors of staff turnover within the broader field of I-O psychology (Griffeth et al., 2000). Thus, in addition to replicating findings from the I-O literature, future research is needed to identify predictors of staff turnover that may be unique to the SUD treatment field. One such example may be an individual’s perception of the agency’s needs given two SUD studies (Garner, Hunter, Godley, et al., 2012; Knight, Landrum, et al., 2012) found that individuals who reported greater “program needs” (e.g., help increasing program participation by clients; measuring client performance; raising overall quality of counseling) were significantly more likely to turnover. Additionally, although only 5% of the therapists in the current study reported being in recovery, recovery status nonetheless represents another example of a potential staff turnover predictor that may be of unique interest to the SUD treatment field.

Despite its long and rich history, the broader staff turnover research has been recently criticized for having only limited research that considers time as a factor in the turnover process (Holtom et al., 2008) or that explores the more distal causes of staff turnover (Steel & Lounsbury, 2009). In an effort to help address these important gaps in the extant staff turnover literature, this study examined the temporal relationship between latent measures of psychological climate, work attitude, and staff turnover. Consistent with the extant staff turnover literature (Griffeth et al., 2000), bivariate analyses indicated the likelihood of staff

turnover was significantly less for staff with more positive psychological climate and work attitude perceptions. Additionally, extending the extant staff turnover literature, we found the temporal relationship between psychological climate and staff turnover was fully mediated by work attitude. To the best of our knowledge, this study is the first to have modeled the temporal relationship between psychological climate, work attitude, and staff turnover. These findings are consistent with Parker and colleagues' (2003) meta-analytic findings, which indicated that work attitudes fully mediated the relationship between psychological climate and other important work outcomes (i.e., motivation, performance). Additionally, these findings are consistent with research that has examined correlational relationships between measures of psychological climate, work attitude, and turnover intentions (Biswas, 2010; Martin, Jones, & Callan, 2005).

4.1 Implications

This study found that more positive baseline perceptions of psychological climate (e.g., supervisor support, coworker support, role clarity) were predictive of having more positive 3-month work attitudes (e.g., job satisfaction, pay satisfaction), which in turn was negatively related to staff turnover between months 4 and 18. Thus, one important implication of this study is that it provides rare empirical evidence that psychological climate and work attitude are more than merely correlated with each other. Although not surprising, this finding is significant given the use of correlational data has been a commonly noted limitation of much of the turnover-related literature (Holtom et al., 2008; Steel, 2002; Steel & Lounsbury, 2009). Another important theoretical implication of this study is that it extends prior models of the turnover process that have posited job satisfaction as the most distal antecedent of staff turnover (e.g., Hom et al., 1992; Mobley, 1977). Finally, an important practical implication of this study is that it introduces researchers to an advanced analytic approach (i.e., mediation analysis using multilevel discrete-time survival analysis with latent variables). Perhaps this or similar analytic approaches will help future researchers better model and subsequently understand the complex and dynamic process of staff turnover.

4.2 Limitations

One limitation of the present study is that staff turnover was examined within the context of both a large federally funded dissemination and implementation project and a cluster randomized P4P experiment. Thus, the extent to which these findings generalize to other settings is unknown. However, given the increasing efforts to implement EBPs in practice settings, we believe the study's context has the strength of reflecting therapists in usual practice settings attempting to implement EBPs. A second limitation is that we did not assess individuals' perceptions of the "probability of finding an acceptable alternative," which also has been hypothesized to be an important predictor of staff turnover (e.g., Mobley et al., 1978). A third limitation is that the sample size was relatively small. Finally, and perhaps the most important limitation is that although establishing temporal order represents an advance beyond correlational methods, it nonetheless does not allow for inferences of causality.

4.3 Directions for Future Research

Future research clearly will be needed to examine the extent to which this temporal model of the staff turnover process generalizes to staff working in other occupations and settings. Additionally, consistent with recent staff turnover research examining how various predictors of staff turnover change over time (Bentein, Vandenberg, Vandenberghe, & Stinglhamer, 2005; Boswell, Boudreau, & Tichy, 2005; Boswell, Shipp, Payne, & Culbertson, 2009; Chen, Ployhart, Thomas, Anderson, & Bliese, 2011; Hausknecht, Sturman, & Roberson, 2011; Kammeyer-Mueller, Wanberg, Glomb, & Ahlburg, 2005), future research is needed to examine the following questions: a) to what extent do latent

measures or specific dimensions of psychological climate and work attitude change over time, b) to what extent can dynamic measurement of these constructs explain significantly more variance in staff turnover beyond what can be explained by their statically measured counterparts, and c) to what extent can changes over time in work attitudes be explained by changes in psychological climate? Additionally, whereas the current study focused on examining the extent to which the common variance of different measures of psychological climate and work attitude predicted turnover, it may also be useful for future research to examine the extent to which the unique variances of these constructs are predictive of staff turnover. For example, is there some part of supervisor support that is not common with other dimensions of psychological climate (i.e., is unique) and which is an important predictor of turnover in its own right? Ideally, research addressing these and related questions will lead to the development of highly effective approaches to improving staff retention.

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Model 1: Psychological climate as a predictor of work attitude

Model 2: Psychological climate as a predictor of turnover

Model 3: Work attitude as a mediator of the relationship between psychological climate and turnover

Figure 1.

Work attitude as a mediator of the temporal relationship between psychological climate and staff turnover. Unless otherwise indicated, values associated with paths are standardized coefficients. SS = supervisor support; CS = coworker support; RO = role overload; RC = role clarity; JCA = job challenge & autonomy; JS = job satisfaction; PS = pay satisfaction; BS = benefit satisfaction; ITQ = intentions-to-quit; JI = job involvement. When both psychological climate and work attitude were included in the model together, there was no longer a significant direct relationship between psychological climate and turnover (hOR = 0.95; $p = .95$). Model 1 fit statistics ($\chi^2(34) = 38.10$, $p = 0.29$, RMSEA = .036; CFI = .972; TLI = .964; SRMR = .061). Model 2 fit statistic ($\chi^2(9) = .84$, $p = .99$). Model 3 fit statistic ($\chi^2(8) = .57$, $p = .99$). Mplus does not report the following fit statistics for binary outcomes: RMSEA, CFI, TLI, and SRMR. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 1

Descriptive statistics for study measures and bivariate relationships with staff turnover

Study Measure	M (SD) or %	b	SE	hOR	Lower Bound	Upper Bound
Background Characteristics						
Female	73%	-0.02	0.65	0.98	0.28	3.49
White	56%	-0.31	0.51	0.73	0.27	1.97
Age in years	36 (11)	0.04	0.02	1.04	1.00	1.08
Recovery status	5%	0.17	1.17	1.19	0.12	11.82
Master's degree or higher	55%	-0.41	0.61	0.67	0.20	2.20
2+ years counseling experience	60%	0.01	0.66	1.01	0.28	3.63
Average hours worked per week	34 (15)	0.01	0.01	1.01	0.98	1.03
Annual salary	\$34,769 (\$7,494)	0.00	0.00	1.00	1.00	1.00
Competence achieved	53%	-0.01	0.57	0.99	0.33	2.97
At least some supervisor duties	15%	0.18	0.66	1.20	0.33	4.39
Condition Assignment						
P4P	53%	0.99	0.62	2.70	0.80	9.02
Psychological Climate						
Supervisor support	5.35 (1.09)	-0.99	0.44	0.37	0.16	0.88
Coworker support	5.62 (0.97)	-0.56	0.24	0.57	0.35	0.91
Role overload	3.60 (1.26)	0.52	0.22	1.69	1.11	2.58
Role clarity	5.73 (0.98)	-0.59	0.24	0.56	0.35	0.90
Job challenge & autonomy	5.25 (0.70)	0.09	0.53	1.09	0.38	3.13
Work Attitude						
Job satisfaction	3.40 (0.73)	-1.04	0.45	0.35	0.15	0.84
Pay satisfaction	2.34 (0.95)	-0.22	0.37	0.80	0.39	1.65
Benefits satisfaction	2.82 (1.07)	-0.07	0.30	0.94	0.52	1.70
Intentions-to-quit	2.83 (1.43)	0.87	0.24	2.39	1.49	3.86
Job involvement	3.22 (1.06)	-0.76	0.29	0.47	0.26	0.84

Note: Statistically significant ($p < .05$) relationships are indicated in bold. With the exception of job satisfaction, pay satisfaction, and benefit satisfaction, which were measured on a 5-point Likert scale, all scales were measured on a 7-point Likert scale. Standardized scores were used for analyses, while unstandardized scores were used for each scale's mean (*M*) and standard deviation (*SD*). *hOR* = hazard Odds Ratio.