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AN EXPLORATION INTO THE PREDICTORS OF TURNOVER IN THE  
HEALTHCARE FIELD: A META-ANALYSIS

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AN EXPLORATION INTO THE PREDICTORS OF TURNOVER IN THE  
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A DISSERTATION APPROVED FOR THE  
DEPARTMENT OF PSYCHOLOGY

BY

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## Abstract

A substantial shortage of professionals in the healthcare field (e.g., nurses, physicians) places a priority on retention and turnover research. The purpose of the present research is to examine the relationships between various predictors of turnover (i.e., personal characteristics, role states, job characteristics, group/leader relations, organizational/environmental perceptions, attitudinal reactions) and measures of job search intentions and behaviors, turnover cognitions and intentions, and actual turnover in the healthcare field. In addition, meta-analyzed correlations of the data were subjected to a path analysis in order to better explore the relationships among the study variables. Based on 124 primary studies published between 1971-2010, results indicate that attitudinal reactions (e.g., job satisfaction, commitment) are the strongest predictors of turnover, and that a variety of role states also relate to turnover outcomes. Implications for theory and practice are discussed.



## **An Exploration into the Predictors of Turnover in the Healthcare Field: A Meta-analysis**

The healthcare field is currently experiencing a growing shortage of professionals (e.g., nurses, physicians), placing a priority on retention and turnover research. There are several factors that are contributing to these shortages. First, employment in the healthcare field is expected to grow faster than the average job over the next decade (Bureau of Labor Statistics, 2010). Related to this issue, older workers from the baby boom generation are starting to retire, which is causing problems associated with knowledge and skill transfer (Buerhaus, 2008). In addition, a 2007 report by Kovner et al. on newly licensed registered nurses (RNs) found that 37% of RNs intended to search for new employment within the next year while 13% of RNs had already changed jobs after one year. Beyond a shortage of employees, turnover has been shown to have negative effects on several organization-level variables. For instance, high turnover rates have been linked to decreased customer satisfaction (Koys, 2001), future revenue growth (Baron, Hannan, & Burton, 2001), productivity (Huselid, 1995), and profitability (Glebbeck & Bax, 2004). This suggests that there will be an increased need for organizations to focus on retaining healthcare workers, and thus a need for further exploration into the causes of staff turnover.

Determining the various antecedents to employee turnover has been a primary emphasis of previous research (Griffeth, Hom, & Gaertner, 2000). Over the past 25 years, researchers have begun to use meta-analysis as a way of compiling primary research findings to determine the strongest and most consistent predictors of turnover. However, with the exception of Irvine and Evans (1995), previous meta-analyses have

focused on the prediction of turnover in non-healthcare environments, or have not considered work environments explicitly. As such, the purpose of the present research is to broadly explore the factors that are associated with turnover in the healthcare field, providing information to address the issues outlined above.

### **Models of Turnover**

A variety of models of employee turnover have been offered and tested in the literature over the years. Possibly one of the first models of turnover comes from March and Simon (1958). According to this model, individuals that are dissatisfied with their work will begin to ponder the decision to voluntarily leave the organization. The two key factors that impact this decision process are the desirability of movement and the ease of movement. More specifically, the decision to leave the organization will depend upon the person wanting to leave as well as the perception that desirable job alternatives exist. While this model is intuitive, it does not explain what factors contribute to dissatisfaction, nor does it offer any potential mediating variables that might help explain the relationship between dissatisfaction and actual turnover.

In an attempt to more thoroughly explain withdrawal behavior, Porter and Steers (1973) explored the role of met expectations. An individual's expectations are thought to be met when the positive and negative experiences that are encountered at work match what the person anticipated would occur. Different employees often times have dissimilar expectations upon taking a job. As such, it is expected that any given construct will likely have varied effects on individuals' withdrawal decisions depending upon their expectations. Therefore, when people's expectations are not met, the likelihood of them withdrawing from work should increase. Porter and Steers explain

that using such a broad construct as overall job satisfaction does little to inform why individuals are dissatisfied or what should be done in order to retain them.

Subsequently, factors associated with both the organization and the individual should be examined, including organization-wide factors (e.g., pay and promotion, organization size), immediate work environment factors (e.g., supervisory style, work unit size, peer group interaction), job content factors (e.g., reaction to job content, task repetitiveness, job autonomy and responsibility, role clarity), and personal factors (e.g., age, tenure, personality characteristics).

Mobley (1977) proposed a process model of employee turnover that focused on the linkage between job dissatisfaction and turnover. Until this point, the bulk of the literature had focused on the relationship between job satisfaction and turnover, without considering the process in which job dissatisfaction leads to voluntary quitting. As such, Mobley suggested that greater emphasis be placed on exploring potential mediating variables that might exist between satisfaction and turnover. In fact, the key contribution of his model was in the elaboration of the cognitive processes that occur with regards to individuals' decision to withdraw from work.

Mobley's process model of turnover (1977) begins with the evaluation of one's job which results in an emotional state that ranges from satisfaction to dissatisfaction. If individuals experience dissatisfaction as a result of the evaluation of their job they are likely to experience consequences, such as thoughts of quitting. Thoughts of quitting are expected to lead to an evaluation of the expected utility of searching and evaluate the cost of quitting. At this point, individuals might take into consideration several pieces of information, such as the likelihood of finding a new job or the various costs

they will accrue as a result of the search. The outcome of this evaluation is then expected to be compared to the various costs associated with quitting, such as the loss of benefits and seniority, and the potential loss of social connections (e.g., coworkers). The evaluation of the expected utility of search and cost of quitting is closely related to the perceived ease of movement theory that was proposed by March and Simon (1958). If the evaluation of expected utility of search reveals that the potential for alternative employment exists, and the costs associated with the search or quitting are relatively minor, intentions to search alternative employment are likely to develop. Mobley notes that factors not specific to the job, such as spouse's ability to relocate, may impact behavioral intentions. These behavioral intentions are then anticipated to lead to an actual search for alternatives. If this search reveals that actual alternatives exist, an evaluation of the identified alternatives is hypothesized to take place. The evaluation of the alternatives is then compared to the evaluation of the present job. If this evaluation comes down in support of the alternative, it should result in a behavioral intention to quit the present job, which would then result in the decision to actually withdraw from the job. However, if the evaluation does not favor the alternative, employees may continue to search for new alternatives, reevaluate the previously found alternatives and/or the present job, or accept the current situation and remain with the job. Mobley also noted that the decision to quit is sometimes impulsive, and that many or all of the steps in his process model may be skipped if the personal characteristics and situational factors are conducive.

In reviewing the literature on employee turnover, Price and Mueller (1981) highlighted a major weakness in the explanatory models that had been previously

presented. The main criticism of these models was in their lack of inclusiveness. These authors note that the models differ to a large degree in the variables that have been included, and that this lack of inclusiveness has resulted in the inability to accurately assess the relative importance of each of the variables. In order to remedy this problem, Price and Mueller used a turnover model that focused on voluntary leaving from an organization (turnover) as the dependent variable. By using the determinants that had previously been identified in the turnover literature, Price and Mueller were able to test the relative importance of each of the determinants. In all, the model incorporated 11 determinants of turnover including: 1) opportunity, 2) routinization, 3) participation, 4) instrumental communication, 5) integration, 6) pay, 7) distributive justice, 8) promotional opportunity, 9) professionalism, 10) general training, and 11) kinship responsibility. Job satisfaction and intent to stay were proposed as intervening variables between the various determinants and turnover. Using a sample of nurses, the researchers found mixed support for their model with intent to stay having the largest effect on turnover. The second largest effect was found for opportunity, providing additional support for March and Simon (1958). Producing both direct and indirect effects on turnover, general training was found to be the third largest effect, such that better trained employees were more likely to leave their job. Lastly, job satisfaction was found to be a strong mediating variable between the determinants and turnover.

### **Previous Research on Causes of Turnover**

An abundance of research examining the various antecedents and correlates of turnover has been conducted over the past several decades. A review of the literature suggests that these variables can be loosely classified into the following categories:

personal characteristics, role states, job characteristics, group/leader relations, organizational/environmental perceptions, and attitudinal reactions. Research findings relating each category of variables to turnover will be summarized in the following sections.

**Personal characteristics.** Several studies have considered the effects of various personal characteristics on turnover and variables related to turnover. For instance, Crossley, Bennett, Jex, and Burnfield (2007) found a negative relationship between age and several measures related to turnover (e.g., voluntary turnover, intentions to search, intentions to quit). Additionally, Gerhart (1990) identified a negative relationship between job tenure and voluntary turnover, such that individuals who were employed longer with the organization were less likely to quit. Meta-analytic work by Mathieu and Zajac (1990) on organizational commitment, which has been shown to reduce voluntary turnover (Cooper-Hakim & Viswesvaran, 2005), considered several personal characteristics as antecedents to organizational commitment, such as age, sex, education, marital status, position and organization tenure, perceived competence, ability, salary, and work ethic. Results indicated a positive relationship between commitment and the personal characteristics of age, position and organization tenure, perceived competence, ability, salary, and work ethic. They also found that married individuals and women tend to be more committed than single individuals and men. On the other hand, Mathieu and Zajac found a negative relationship between education and commitment. This finding may be explained by individuals with more education having a greater number of alternate employment opportunities or a different set of expectations upon entering the job compared to their less educated counterparts.

Individual differences, including personality traits, have also been the focus of research on turnover (March & Simon, 1958; Mobley, Griffeth, Hand, & Meglino, 1979; Muchinsky & Morrow, 1980; Steers & Mowday, 1981). Through meta-analysis, Zimmerman (2008) sought to model the direct and indirect effects of dispositions on employee turnover and individual propensity to leave. All facets of the five-factor model of personality (Costa & McCrae, 1985), with the exception of openness to experience, were hypothesized to be negatively related to both intention to quit and turnover. More specifically, conscientiousness was anticipated to be negatively related to turnover because conscientious individuals are likely to experience stronger ethical and moral obligations to stay with the organization (Maertz & Griffeth, 2004). It was anticipated that extraverts would be less likely to turnover because they tend to become more quickly socialized at work (Maertz & Campion, 2004) and develop more social relationships with others in the organization (McCrae & Costa, 1997). People low in emotional stability were expected to have higher levels of turnover due to the fact that they tend to have negative views of their environments (Watson, Clark, & Tellegen, 1988), and are therefore more likely to depart (Maertz & Griffeth). Agreeable individuals were thought to be less likely to leave as they have a tendency to develop positive relationships with others at work (Organ & Lingl, 1995). Lastly, openness was anticipated to be positively related to turnover as individuals higher on this facet are more likely to want to change jobs in favor of some other alternative (Maertz & Griffeth). Results of the Zimmerman meta-analysis revealed that emotional stability was the best predictor for intentions to quit, and that conscientiousness and agreeableness were most predictive of actual turnover. Beyond the direct effects, the

personality constructs also produced indirect effects on turnover through job satisfaction and job performance.

The presence (or lack) of training has also been considered with regards to turnover. Conventional wisdom might lead some to believe that a lack of training opportunities would spark dissatisfaction among workers, which might then result in a search for new employment and eventual turnover. However, some theorists believe the opposite to be true. It has been proposed that higher amounts of training will result in a decrease in individuals' intent to stay with an organization due to an increase in perceived alternative employment (Hulin, Roznowski, & Hachiya, 1985; Price & Mueller, 1986). That is, the acquisition of new knowledge, skills, and attitudes might make people feel more prepared and more qualified to take on a new job.

**Role states.** Role states, including role ambiguity, role conflict, and role overload have been offered as potential antecedents to turnover and variables related to turnover, such as organizational commitment (Mathieu & Zajac, 1990). More specifically, people that report higher levels of role strain are more likely to report lower levels of organizational commitment. Role stress, as indicated by role ambiguity and role conflict, has also been shown to be negatively linked to job performance and job satisfaction (King & King, 1990) and positively related to propensity to leave (Jackson & Schuler, 1985). Additional meta-analytic support from Fried, Shirom, Gilboa, and Cooper (2008) indicates that role stress has a small, but positive influence on propensity to leave.

Inter-role conflict has been conceptualized as the interference of community, family, or personal affairs by one's job, or the interference of one's job by community,



family, or personal affairs. Inter-role conflict has been shown to indirectly affect turnover through decreased job satisfaction and increased withdrawal cognitions (Hom & Kinicki, 2001). According to Greenhaus and Beutell (1985), work-family conflict exists when there is a mismatch between the demands from one role (e.g., family member) compared to the demands of the other role (e.g., employee). Research has demonstrated that an increase in work-family conflict is associated with greater intentions to quit (Lyness & Thompson, 1997) and higher levels of turnover (Greenhaus, Collins, Singh, & Parasuraman, 1997).

Job strain, burnout, and health are other constructs that have been shown to have an impact on turnover. Job strain has been defined as aversive reactions to stressors that can take on both physical (e.g., increased blood pressure, headaches) and psychological forms (e.g., anxiety, frustration). Research has shown that higher levels of strain are associated with higher intentions to turnover (Parasuraman, 1982). Individuals that face prolonged exposure to stressors may begin to experience a syndrome known as burnout. Burnout consists of three dimensions: emotional exhaustion, cynicism and detachment from the job, and a reduced sense of personal accomplishment (Maslach, 1993). Burnout is very common among healthcare workers, and as such, an abundance of burnout research has focused on people working in these environments (e.g., Maslach, Schaufeli, & Leiter, 2001). Previous research has shown that increased burnout levels are associated with higher turnover intentions (Leiter & Maslach, 2009).

**Job characteristics.** Various job characteristics, including skill variety, autonomy, job scope, and job challenge have been positively linked to organizational commitment (Mathieu & Zajac, 1990) and as such, might also play a role in the

decision to turnover. Hackman and Oldham's (1976) Job Characteristics Model may be the most popular theory on job design. The core job dimensions of this model include skill variety, task identity, task significance, autonomy, and feedback, and can be collectively referred to as job scope (Raja & Johns, 2010). The theory underlying this model is that higher scope jobs are more challenging and complex, and that this should lead to the experience of positive psychological states and subsequent positive work outcomes. Based on this premise, it should also hold that an increase in job scope should result in a reduction in turnover. In fact, a meta-analysis by Griffeth et al. (2000) produced a true-score correlation between job scope and turnover of  $-.14$ . In relation to this, high levels of perceived autonomy have been associated with lower levels of intent to turnover and actual turnover (Spector, 1986). Job complexity has been suggested by Morgeson and Campion (2003) to include the components of the job characteristics model as well as other job related aspects, including job control, mental demand, specialization, and responsibility. Zimmerman's (2008) meta-analysis revealed a direct, negative effect of job complexity on turnover, such that employees with more complex jobs were less likely to quit. One possible explanation offered for this finding is that complex jobs are often higher-level professional jobs, and when compared to lower-level jobs, it may be more difficult for the people occupying these positions to find alternative employment.

Other job characteristics have also been examined with regards to turnover. For instance, challenge-related job stressors, such as level of attention required by the job or role demands, pressure to complete tasks, time urgency, and quantitative and subjective workloads, are negatively related to turnover and turnover intentions (Podsakoff,

LePine, & LePine, 2007). These challenge-related stressors were directly and positively related to job satisfaction and organizational commitment, and through these effects, were negatively related to turnover and turnover intentions. However, research employing a nursing sample has also shown that higher levels of job demand was associated with lower levels of job satisfaction (Cortese, Colombo, & Ghislieri, 2010), and could therefore lead to higher turnover. In sum, there appear to be conflicting findings in the literature, pointing to the need for further research and meta-analysis.

Job embeddedness is another factor that has been offered to help explain turnover and retention. The construct of job embeddedness, as offered by Mitchell, Holtom, Lee, Sablinski, and Erez (2001), consists of three key components. The first component includes links to other people and groups within the organization. The second component concerns the extent to which community, job, and organization fit with one another. The third component involves what workers would have to forfeit if they left their present setting. Empirical support provided by Mitchell and colleagues demonstrated that job embeddedness had a positive relationship with job satisfaction and organizational commitment, and a negative relationship to voluntary turnover and intention to leave.

Turnover models also suggest that job rewards play a role in the decision to turnover (Hulin et al, 1985; Mobley et al, 1979; Price & Mueller, 1986). It has been hypothesized that increasing rewards (e.g., pay, opportunity for promotion, autonomy) will make employees more likely to stay with the organization. When comparing employees that stayed with the organization to those that left, Rusbult and Farrell (1983) found that those who left had experienced a substantial decrease in reward value,

such that pay, opportunity for promotion, autonomy, and other reward variables were seen to be less rewarding in comparison to the costs associated with the job.

The healthcare field can often be a stressful environment. As such, it is important to identify variables that can help reduce or buffer the negative effects of stress. McVicar's (2003) review of the literature identified that a lack of recognition for quality work is a cause of experienced distress. In fact, research has demonstrated the importance of recognition with regards to increasing workers' intentions to stay employed with their current organizations (AbuAlRub & Al-Zaru, 2008). Related to this point, the strength and quality of communication networks might help buffer the negative effects of experienced distress and in turn reduce the intent to quit. In fact, Mossholder, Setton, and Henagan (2005) found that network centrality, or having more interconnections within the workplace, reduces the likelihood of turnover.

**Group/Leader relations.** Several group-leader relation variables have shown positive relationships with organizational commitment, including group cohesiveness, task interdependence, leader initiating structure and consideration, leader communication, and participatory leadership (Mathieu & Zajac, 1990), and thus may play a role in employee turnover. Support from both coworkers and supervisors provides valuable resources to employees in terms of adjustment and work attitudes. Research by Ng and Sorensen (2008) found that perceived supervisor support had a stronger link to intentions to quit than did perceived coworker support. More specifically, perceived supervisor support led to perceived organizational support, which led to an increase in both job satisfaction and affective commitment, which then led to a decrease in intentions to quit. This echoes the findings of Gerstner and Day's

(1997) meta-analysis which found that the quality of relationships with supervisors influences turnover intentions, such that higher quality relationships between leaders and followers served to increase retention.

**Organizational/environmental perceptions.** Another set of antecedents that have been used to help explain turnover is individual's organizational/environmental perceptions. Some examples of organizational/environmental perceptions include person-organization (P-O) fit, perceptions of organizational politics, job insecurity, and the psychological contract. P-O fit has been defined by Kristof (1996) as "the compatibility between people and organizations that occur when: (a) at least one entity provides what the other needs, or (b) they share similar fundamental characteristics, or (c) both." Schneider's (1987) attraction-selection-attrition (ASA) theory helps explain the link between P-O fit and turnover. From the ASA point of view, applicants are attracted to organizations that match their values and interests. Additionally, organizations select candidates who are most similar to them in terms of values and interests. After being hired, individuals whose values differ from the organization tend to leave. As a result, the organization should be left with more individuals that have a higher level of congruence regarding values and interests. Research has shown that individuals with a higher level of congruence will display more favorable work attitudes (e.g., job satisfaction, organizational commitment, less intent to turnover; Arthur, Bell, Villado, & Doverspike, 2006; Verquer, Beehr, & Wagner, 2003).

The perceptions of politics are another aspect of organizational life that has been thought to influence work attitudes and behaviors (Chang, Rosen, & Levy, 2009). While some political activities are healthy and beneficial to members of the

organization, others are seen as self-serving and detrimental to other individuals and the organization as a whole (Ferris, Russ, & Fandt, 1989). Previous research has suggested that high perceptions of politics are likely to result in higher turnover intentions (Ferris et al., 1989). Results of a meta-analysis by Chang et al. found a moderately positive relationship between perceived organizational politics and turnover intentions.

In recent years, organizations have been changing the way they conduct business. Some of these changes include downsizing, layoffs, and moving to more temporary, contract-based employment (Sparks, Faragher, & Cooper, 2001). These changes have led to a heightened concern regarding continued employment with the organization, or job insecurity. Two different meta-analyses have found a positive relationship between job insecurity and turnover intentions (Cheng & Chan, 2008; Sverke, Hellgren, & Näswall, 2002). It should be noted that this relationship was stronger for shorter tenured employees compared to longer tenured employees, and stronger for younger workers than older workers.

The psychological contract is another construct that has been shown to play a role in the turnover process. The psychological contract has been defined by Rousseau (1989) as the expectations that employees hold regarding what they owe their employers and what their employers owe them in return. When employees perceive that their organization has failed to fulfill its promise or obligation, a breach of the psychological contract has occurred (Robinson & Rousseau, 1994). Breach of the psychological contract has been shown to result in negative work attitudes, such as intention to turnover (Zhao, Wayne, Glibkowski, & Bravo, 2007). In this research, it was hypothesized that breach of contract would result in actual turnover, as doing so

puts an end to the dissatisfactory employment relationship and punishes the organization, but tests revealed a non-significant relationship. Caution should be used however when interpreting this finding as results were based on data from a small set of studies.

The perception of available alternative employment opportunities is likely to have an impact on the turnover decision process. As outlined in Mobley's (1977) turnover model, people are more likely to look for other jobs and leave their current employer if they feel that other employment opportunities exist. In fact, previous research has demonstrated a positive link between perceived ease of movement and both turnover intentions and actual turnover (Posthuma, Maertz, & Dworkin, 2007).

**Attitudinal reactions.** A final set of variables that have been used to explain employee turnover involve attitudinal constructs. Of these, satisfaction and commitment have received the most exposure in the literature. Most models of turnover suggest that job satisfaction is a strong motivator behind an employee's decision to stay with or leave an organization (e.g., March & Simon, 1958; Mobley, 1977; Porter & Steers, 1973; Price & Mueller, 1981). A large amount of empirical support has been found in favor of the link between job satisfaction and turnover. In fact, a meta-analysis by Zimmerman (2008) found a negative relationship between job satisfaction and the intent to quit.

Several forms of organizational commitment (e.g., continuance, affective, normative) have been suggested to reduce the likelihood of turnover intentions and actual turnover. Organizational commitment involves the degree of identification and involvement with an organization (Porter, Steers, Mowday, & Boulian, 1974). In

addition to the broader construct, more specific facets of organizational commitment have been identified and studied in the literature. Affective commitment is how well a person relates to and is interested in being a member of his or her organization (Meyer & Allen, 1991). Continuance commitment involves how easy (or difficult) it is for a person to leave the organization (Meyer & Allen). Lastly, normative commitment develops after a person has been with the organization for a period of time and he or she feels compelled to stay with the organization because it is something he or she is supposed to do (Meyer & Allen).

Cooper-Hakim and Viswesvaran's (2005) meta-analysis found stronger correlations between turnover intentions and organizational, affective, and normative commitment than with actual turnover. Additionally, Harrison, Newman, and Roth's (2006) meta-analysis found that overall job attitude, as indicated by job satisfaction and organizational commitment had a significant and negative relationship with turnover.

Other positive attitudinal reactions are also thought to impact the turnover decision process. For instance, employee engagement with work, or the positive work-related state of mind that accompanies the job is likely to create a degree of loyalty with the company (Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002). Research has found a negative relationship between employee engagement and several turnover-related variables, including turnover cognitions, intent to search, and intent to quit (Simpson, 2009).

**Turnover.** The decision to leave one's organization has been previously described as a process (Mobley, 1977; Porter & Steers, 1973). That is, turnover is not a decision that occurs in a vacuum; rather it is a result of a series of steps that ends in the



decision to leave a job. As such, when considering how different factors affect turnover it is important to consider how each step in the turnover decision process is impacted. To gain a more complete understanding of turnover the relationship amongst the turnover process variables should also be examined. Mobley's model of turnover states that turnover cognitions are likely to occur after experienced job dissatisfaction. Turnover cognitions mark the beginning of the turnover decision process and involve thoughts about quitting. Following turnover cognitions is the intention to search for alternatives, or planning to look for another job. Research by Mobley, Horner, and Hollingsworth (1978) found a strong correlation (.62) between turnover cognitions and intent to search. Actual job search behavior, or actively looking for alternative employment, is likely to follow the intent to search. Research by Hom, Griffeth, and Sellaro (1984) observed a correlation of .42 between turnover cognitions and search behaviors, and a correlation of .55 between intention to search and job search behaviors. Intention to quit is the penultimate step in the turnover decision process. It is at this point that the employee has likely weighed the potential alternatives vis-à-vis the current job and will consider whether or not he or she will leave the organization. Hom et al. found strong correlations between intention to quit and other turnover-related variables, including turnover cognitions (.66), intent to search (.75), and search for alternatives (.44). Lastly, the decision to voluntarily leave the organization is the final step in the turnover process model. As Mobley mentions, the decision to leave the organization is sometimes done impulsively, and the some or all of the steps in the process model might be skipped depending on the individual and situational determinants. Hence the relatively lower correlations observed by Hom et al. between

voluntary turnover and the other turnover-related variables, including turnover cognitions (.23), intent to search (.31), search for alternatives (.30), and intent to quit (.24).

### **The Present Study**

The purpose of the present research is to broadly explore the factors associated with turnover in the healthcare field. The hope is that this research will reveal the relative importance of various factors related to employment in the healthcare field, and shed light on factors that may have been neglected in previous research. The decision to study this population is important for several reasons. First, there may be certain characteristics of healthcare work that are similar to and different from other industries in terms of retaining a qualified workforce, and it is important that research be used to identify these characteristics. Secondly, turnover is a widespread and costly problem within the healthcare industry (e.g., Waldman, Kelly, Arora, & Smith, 2004), and integrating research findings across studies is necessary to identify the most important causal factors so interventions aimed at reducing turnover in the healthcare field can be properly targeted.

Using theory and the findings of previous research, Figure 1 outlines a hypothesized model of employee turnover. The distal antecedents of turnover include personal characteristics, role states, job characteristics, group/leader relations, and organizational/environmental perceptions as described above. Stemming from these antecedents are the proximal antecedents of attitudinal reactions (e.g., job satisfaction, commitment). These attitudinal reactions are hypothesized to result in turnover cognitions and turnover intentions, which are then expected to result in actual employee

turnover. It should be noted that the ability to test the hypothesized model was dependent on the availability of primary research studies examining the relationships between the various predictors and turnover-related outcomes.

## **Methods**

### **Literature Search**

An extensive literature search using both electronic and manual techniques was carried out to identify empirical studies that have examined voluntary turnover in the healthcare industry. The literature search covered articles that had been published from 1971 to 2010. The electronic portion of the search covered eight computer databases (*CINAHL, MEDLINE, PsycINFO, SocINDEX, ERIC, Health Source: Nursing/Academic Edition, PubMed, and Dissertation Abstracts*). The following keywords for turnover were used: *turnover, retention, quit*. The following keywords for healthcare industry were used: *health care, healthcare, hospital, nurse, physician, therapist, surgeon, doctor, medical, paramedic*. Truncation characters such as (\*) were used whenever possible to retrieve alternate tenses and word forms (e.g., *nurs\** retrieves *nurse, nurses, nursing, etc.*). In addition to the electronic search, a manual search of recent meta-analyses on turnover, key journals in the area of nursing and turnover, and recent conference proceedings (e.g., Society for Industrial and Organizational Psychologists, Work, Stress, and Health, Academy of Management) was conducted. Additionally, requests were posted on industry message boards in an attempt to attract relevant unpublished data. Authors that published manuscripts without relevant effect sizes were also contacted in order to capture more data. The initial search resulted in

approximately 6,325 English language citations. Based on the inclusion criteria, 124 studies with unique samples were retained.

### **Inclusion Criteria**

A set of rules were established to determine if a given study would be retained given the purpose of the current meta-analysis. First, the study must have been conducted in a healthcare environment. The taxonomy of healthcare environments provided by the Bureau of Labor Statistics (BLS) was used to determine potential environments. Example environments include ambulatory health care services, hospitals, nursing and residential care facilities, and home healthcare services. Second, all participants in the study needed to be directly responsible for providing health care to patients. Again, the taxonomy of healthcare positions provided by the BLS was consulted. Example healthcare positions included therapists, physicians and surgeons, assistants/aides, emergency medical technicians and paramedics, and nurses. Lastly, studies needed to report sample sizes and correlations between at least one predictor and some voluntary turnover measure (e.g., turnover intentions, actual turnover, retention).

### **Coding of Studies**

Three graduate students in Industrial/Organizational Psychology familiar with the turnover literature coded all of the studies. All graduate students were involved in a training program that was designed specifically for this meta-analysis. During training, coders were exposed to the database and data entry process. Construct definitions were also provided and each construct was discussed individually. At the end of training, all three graduate students practiced coding a sample article. Problems and discrepancies stemming from the practice article were discussed and resolved through consensus.

After training, coding disagreements and discrepancies were resolved through consensus meetings. Agreement among raters before consensus for the entire set of articles across all decision points was 92%.

## **Analysis**

The full database of potential constructs included 85 variables generated from theory and previous research (see Table 1). Any additional predictors of turnover or turnover cognitions encountered in the articles was also coded to ensure comprehensive coverage of factors influencing turnover. The meta-analysis was conducted using Excel for any variables where at least two studies reported effect sizes between the predictor and a criterion (Valentine, Pigott, & Rothstein, 2010). The meta-analytic procedures outlined by Hunter and Schmidt (2004) were used to calculate construct-level effect sizes. The Hunter and Schmidt methodology assumes a random-effects model and its use is appropriate when the goal is to draw conclusions that go beyond the articles included in the meta-analysis. Of the potential artifacts that alter the findings of a given study, corrections were applied for sampling error and measurement reliability. When a study failed to provide reliability coefficients the mean of the observed reliabilities for the focal variable was calculated. Some researchers have also corrected for turnover base rates in their meta-analyses (e.g., Tett & Meyer, 1993), however Williams (1990) has argued against this correction as turnover may be considered a natural dichotomy and differences across studies in turnover rate may be due to true sources of variation. To determine significant correlations, 95% confidence intervals were computed, with intervals not including zero being deemed significant. Additionally, 90% credibility intervals were also computed in order to detect the presence of potential moderators.

**Moderator analysis.** To further explore the data, tests of potential moderating effects were also conducted. Several suggestions have been provided by Hunter and Schmidt (2004) to determine if moderators are present. First, if after correcting for artifacts the 90% credibility interval reveals a large range of possible effects, a search for potential moderating variables is justified. Secondly, Hunter and Schmidt offer a 75% rule of thumb for moderator detection, where if 75% or more of the variance in effect size is due to artifacts, then the remaining 25% is also assumed to be due to artifacts for which no correction has been made, rather than to a potential moderator. Attempts were made to categorically code for several study characteristics including healthcare position, work environment, and work location (i.e., U.S. versus non-U.S.). Non-overlapping confidence intervals were used to determine significant differences between subgroups.

**Path analysis.** In order to further explore the theoretical relationships among the variables included in the meta-analysis, a path analysis was also conducted on the meta-analytic data to test an exemplar path model. A matrix of corrected correlations among the study variables was analyzed using AMOS software to test the proposed model. We included variables in the matrix from each predictor category that had at least two studies with as many other variables as possible. To fill-in empty cells in the matrix we searched for additional literature beyond the original 124 studies. All studies contributing to the correlation matrix were conducted on healthcare populations.

## Results

### Meta-analysis

**Turnover cognitions.** The relationships between turnover cognitions and the other study variables are presented in Table 2. Turnover cognitions share a positive relationship with age ( $\rho = .09$ ). However, organizational tenure is not related to turnover cognitions ( $\rho = .06$ ). Role states including job strain ( $\rho = .42$ ) and role overload ( $\rho = .11$ ) are both positively associated with turnover cognitions. In addition, organizational/environmental perceptions, as indicated by perceived job alternatives ( $\rho = .18$ ), are positively related to turnover cognitions. Several attitudinal reactions share a negative relationship with turnover cognitions, including job satisfaction ( $\rho = -.49$ ), satisfaction with pay ( $\rho = -.33$ ), satisfaction with promotion ( $\rho = -.27$ ), satisfaction with supervision ( $\rho = -.27$ ), satisfaction with coworkers ( $\rho = -.22$ ), satisfaction with work ( $\rho = -.32$ ), and organizational commitment ( $\rho = -.48$ ). Surprisingly, estimates suggest that affective commitment is positively related to turnover cognitions ( $\rho = .09$ ). However, this finding should be interpreted with caution as the finding was based on data from only two primary studies. As a group, attitudinal reactions are the strongest predictor of turnover cognitions compared to the other predictor categories. Lastly, turnover cognitions are positively linked to the other turnover criteria, including intention to leave the organization ( $\rho = .68$ ) and voluntary turnover ( $\rho = .40$ ).

**Intent to search.** The relationships between intent to search and the other study variables that data was available for are presented in Table 3 and are organized by category. Several findings are worth noting. Neither of the personal characteristics of age ( $\rho = .03$ ) or organizational tenure ( $\rho = -.01$ ) are related to intent to search. The

organizational/environmental characteristic perceived job alternatives is positively associated with intent to search ( $\rho = .10$ ). Intent to search is negatively related to attitudinal reactions (i.e., job satisfaction,  $\rho = -.58$ ; satisfaction with supervisor,  $\rho = -.38$ ; organizational commitment,  $\rho = -.62$ ). Results suggest that attitudinal reactions, compared to the other predictors, share the strongest relationships with intent to search. Lastly, intent to search and the other turnover variables as a group have the strongest correlations. More specifically, estimates indicate that turnover cognitions ( $\rho = .65$ ), intention to leave the organization ( $\rho = .58$ ), job search behaviors ( $\rho = .71$ ), and voluntary turnover ( $\rho = .56$ ) are all positively linked to intent to search.

**Job search behaviors.** The estimates of the relationships between job search behavior and the other study variables are listed in Table 4. For the personal characteristics, neither age ( $\rho = -.04$ ) nor organizational tenure ( $\rho = -.01$ ) are related to job search behaviors. On the other hand, salary has a positive relationship with job search behaviors ( $\rho = .12$ ). Estimates indicate that job search behaviors are positively related to role states, including role ambiguity ( $\rho = .21$ ) and role conflict ( $\rho = .31$ ). Organizational/environmental perceptions, indicated by perceived job alternatives, is also positively related to job search behaviors ( $\rho = .32$ ). Several attitudinal reactions are inversely related to job search behaviors, including job satisfaction ( $\rho = -.51$ ), organizational commitment ( $\rho = -.39$ ), affective commitment ( $\rho = -.31$ ), continuance commitment ( $\rho = -.12$ ), and normative commitment ( $\rho = -.23$ ). Attitudinal reactions are the strongest predictor of job search behaviors compared to the other predictor categories. Lastly, job search behaviors are positively linked to the other turnover



criteria, including turnover cognitions ( $\rho = .69$ ), intention to leave the organization ( $\rho = .50$ ), and voluntary turnover ( $\rho = .31$ ).

**Turnover intentions (organization).** Table 5 contains the estimates of the relationships between intention to turnover from the organization and the other study variables. Several personal characteristics are negatively related to intention to leave the organization, including age ( $\rho = -.08$ ), profession tenure ( $\rho = -.17$ ), and position tenure ( $\rho = -.07$ ). In addition, results suggest that men were more likely to have intentions to leave the organization than were women ( $\rho = .08$ ). Other personal characteristics do not appear to be related to intention to leave the organization, including organizational tenure ( $\rho = .00$ ) and salary ( $\rho = .01$ ). In addition, intention to turnover from the organization has a positive relationship with several role states, including job strain ( $\rho = .37$ ), emotional exhaustion ( $\rho = .48$ ), depersonalization ( $\rho = .54$ ), role overload ( $\rho = .18$ ), role ambiguity ( $\rho = .26$ ), and role conflict ( $\rho = .29$ ). In contrast, personal accomplishment ( $\rho = -.36$ ), positive mental health ( $\rho = -.44$ ), and positive physical health ( $\rho = -.23$ ) were negatively related to intention to turnover from the organization.

Several job characteristics are negatively related to intent to leave the organization, including task autonomy ( $\rho = -.29$ ), job control ( $\rho = -.25$ ), job embeddedness ( $\rho = -.40$ ), job demands ( $\rho = -.21$ ), procedural justice ( $\rho = -.40$ ), and recognition ( $\rho = -.24$ ). Of note, neither full-time status ( $\rho = -.03$ ) nor network centrality ( $\rho = .04$ ) are related to intentions to leave the organization. Additionally, several group/leader relations are negatively related to intentions to leave the organization,

including perceived leader support ( $\rho = -.34$ ), perceived team support ( $\rho = -.31$ ), group cohesiveness ( $\rho = -.23$ ), and participative leadership ( $\rho = -.25$ ).

Results indicate that both positive and negative relationships exist between organizational/environmental perceptions and intention to leave the organization. More specifically, perceived job alternatives ( $\rho = .21$ ) and job insecurity ( $\rho = .30$ ) are positively linked to intention to leave the organization. On the other hand, perceived organizational support ( $\rho = -.39$ ) and P-O fit ( $\rho = -.39$ ) are inversely related to intention to leave the organization.

The strongest group of predictors for intention to turnover from the organization is attitudinal reactions. Job satisfaction ( $\rho = -.57$ ), satisfaction with pay ( $\rho = -.27$ ), satisfaction with promotion ( $\rho = -.30$ ), satisfaction with supervisor ( $\rho = -.33$ ), satisfaction with coworkers ( $\rho = -.32$ ), satisfaction with work ( $\rho = -.44$ ), affective commitment ( $\rho = -.51$ ), normative commitment ( $\rho = -.34$ ), occupational commitment ( $\rho = -.37$ ), organizational commitment ( $\rho = -.54$ ), job involvement ( $\rho = -.35$ ), employee engagement ( $\rho = -.48$ ), intrinsic motivation ( $\rho = -.38$ ), and extrinsic motivation ( $\rho = -.47$ ) are all negatively related to intention to leave the organization. Surprisingly, continuance commitment has a positive ( $\rho = .06$ ), albeit small, relationship with intention to leave the organization. As a group, attitudinal reactions are the strongest predictors of intention to turnover from the organization.

Lastly, estimates indicate that intention to turnover is positively associated with the other turnover criteria, including intention to leave the healthcare field ( $\rho = .57$ ) and voluntary turnover ( $\rho = .32$ ).

**Turnover intentions (healthcare).** The relationships between intention to leave the healthcare field and the other study variables are presented in Table 6. Results indicate that personal characteristics have the weakest relationship with intention to leave healthcare, with age having a small relationship ( $\rho = -.04$ ) and organizational tenure being unrelated ( $\rho = .02$ ). The role state of job strain has a positive relationship with intention to leave healthcare ( $\rho = .35$ ). Results show that group/leader relations are negatively associated with intention to leave the healthcare field, as indicated by perceived leader support ( $\rho = -.21$ ), perceived team support ( $\rho = -.11$ ), and perceived organizational support ( $\rho = -.62$ ). Lastly, several attitudinal reactions are inversely related to intentions to leave healthcare, including job satisfaction ( $\rho = -.40$ ), satisfaction with pay ( $\rho = -.26$ ), satisfaction with promotion ( $\rho = -.40$ ), satisfaction with supervisors ( $\rho = -.22$ ), satisfaction with coworkers ( $\rho = -.37$ ), satisfaction with work ( $\rho = -.62$ ), affective commitment ( $\rho = -.56$ ), normative commitment ( $\rho = -.39$ ), occupational commitment ( $\rho = -.54$ ), and organizational commitment ( $\rho = -.50$ ). Estimates indicate that continuance commitment is not related to intention to leave the healthcare field ( $\rho = .02$ ). As a group, attitudinal reactions have the strongest relationships with intention to leave healthcare.

**Voluntary turnover.** The estimated relationships between voluntary turnover and the other study variables are listed in Table 7. Some personal characteristics have a negative relationship with voluntary turnover, including age ( $\rho = -.13$ ), organizational tenure ( $\rho = -.14$ ), and position tenure ( $\rho = -.12$ ). On the other hand, sex ( $\rho = .00$ ) and salary ( $\rho = .02$ ) are not related to voluntary turnover. Role ambiguity ( $\rho = .13$ ) is the only role state that is positively linked to turnover. Estimates suggest that both job

strain ( $\rho = .04$ ) and role overload ( $\rho = -.01$ ) are unrelated to voluntary turnover. A couple of job characteristic variables are negatively related to turnover, including task autonomy ( $\rho = -.11$ ) and network centrality ( $\rho = -.23$ ). On the other hand, the job characteristics full-time status ( $\rho = -.04$ ) and size of organization ( $\rho = -.06$ ) are unrelated to voluntary turnover. Neither of the group/leader relations variables that had enough data appear to be related to turnover, including perceived leader support ( $\rho = -.04$ ) and perceived team support ( $\rho = .05$ ). In contrast, the organizational/environmental perception of perceived job alternatives is positively associated with actual turnover ( $\rho = .10$ ). Lastly, several attitudinal reactions are inversely associated with voluntary turnover, including job satisfaction ( $\rho = -.16$ ), satisfaction with pay ( $\rho = -.08$ ), satisfaction with promotion ( $\rho = -.11$ ), satisfaction with coworkers ( $\rho = -.14$ ), satisfaction with work ( $\rho = -.16$ ), occupational commitment ( $\rho = -.12$ ), organizational commitment ( $\rho = -.17$ ), and job involvement ( $\rho = -.10$ ). Surprisingly, estimates indicate that affective commitment ( $\rho = .20$ ) and continuance commitment ( $\rho = .20$ ) are both positively associated with voluntary turnover. However, these results should be interpreted cautiously as the findings are based on a small sample of primary studies. As a group, attitudinal reactions are the strongest predictors of voluntary turnover.

### **Moderator Analysis**

To further explore the data, we conducted moderator analyses on the predictor-criterion relationships where the smaller group contained a minimum of 25% the number of primary studies compared to that of the larger group. This threshold ensured that the relationship estimates would be stable for each subgroup. The samples for 84% of the primary studies were made up of nurses, and as such moderator analyses were not

performed on healthcare position. Additionally, 71% of the primary studies were conducted in hospital settings. Other work environments such as clinics, nursing homes, and mental health facilities made up the other 29%. Since none of these groups reached the 25% threshold, work environment was not included in the moderator analysis. The results of the moderator analyses are presented in Table 8.

We conducted subgroup analyses to determine if the relationships between the predictors and the turnover variables were stable across location (i.e., U.S. versus non-U.S.). Of the 124 studies, 51 were conducted outside of the U.S. The following countries contributed studies to the meta-analysis: Canada (22), Taiwan (7), Netherlands (5), Australia (4), Belgium (2), Israel (2), Japan (2), Jordan (2), China (1), Finland (1), Saudi Arabia (1), Singapore (1), and Sweden (1).

Intention to leave the organization was the only dependent variable on which enough data existed to conduct the moderator analysis. The results indicate that the relationship between age and intention to leave the organization is stable between U.S. and non-U.S. samples as the confidence intervals overlapped. On the other hand, location did appear to be a moderator with regards to some of the other attitudinal reactions. First, the relationship between job satisfaction and intentions to leave the organization were stronger in the U.S. ( $\rho = -.60$ ) compared to non-U.S. samples ( $\rho = -.55$ ). However, the opposite appears to be true for satisfaction with pay, with this relationship being stronger for non-U.S. samples ( $\rho = -.34$ ) compared to U.S. samples ( $\rho = -.25$ ). Estimates indicate that affective commitment has a stronger relationship with intent to leave the organization for non-U.S. samples ( $\rho = -.59$ ) than for U.S. samples ( $\rho = -.46$ ). However, the data indicate the opposite for organizational commitment, with

this relationship being stronger for U.S. samples ( $\rho = -.57$ ) compared to non-U.S. samples ( $\rho = -.50$ ).

### **Path Analysis**

Table 9 displays the matrix of meta-analyzed correlations among the variables in the exemplar path model. We used the harmonic mean (Viswesvaran & Ones, 1995) of 2600 to calculate path coefficients. We first tested a fully-mediated model in which job satisfaction and organizational commitment mediated the relationship between the exogenous variables and intent to turnover. Intent to turnover was then directly related to voluntary turnover. We also allowed all predictors to correlate. All path coefficients in this model were significant.

Several indices are available to determine the fit of the model to the data. Each fit index comes with its strengths and weaknesses, and as such, several indexes should be presented in order to arrive at a better understanding of model fit. Here we present four fit statistics: chi-square ( $\chi^2$ ), GFI, AGFI, and RMSEA. Loehlin (2004) provides information on the benefits and drawbacks of each fit index. The chi-square statistic is one of the most frequently reported fit indexes; however it is biased by large samples. GFI, which rewards models for complexity, evaluates the amount of variance in the sample covariance matrix accounted for by the estimated population covariance matrix. The AGFI attempts to address the issues of the GFI by adjusting the  $R^2$  by a ratio of degrees of freedom. Values of .90 or higher are indicative of good fitting models. Lastly, RMSEA is seen as a superior indicator of model fit as it takes into account model complexity and is not affected by sample size. RMSEAs of below .10 indicate a good fit of the data.

The fully-mediated model fit the data well ( $\chi^2 [10] = 234.27, p < .01$ ; GFI = .979; AGFI = .923; RMSEA = .093; See Figure 2). In this model, leader support had the largest impact on both job satisfaction and organizational commitment compared to the other predictor variables. We next tested a partially mediated model where age, role overload, role ambiguity, and perceived leader support had direct effects on intention to turnover as well as indirect effects through both job satisfaction and organizational commitment. All path coefficients, with the exception of the direct effect from role ambiguity to intent to turnover, were significant. The fit for the partially-mediated model was good ( $\chi^2 [6] = 70.02, p < .01$ ; GFI = .993; AGFI = .960; RMSEA = .064; See Figure 3). Again, perceived leader support had the largest effect of the predictor variables on both job satisfaction and organizational commitment, as well as the largest direct effect on intent to turnover. A chi-square difference test (Schermelel-Engel, Moosburgger, & Müller, 2003) revealed that these two models were significantly different from one another ( $\chi^2_{diff} [4] = 164.25, p < .001$ ), with the partially-mediated model fitting the data better than the fully-mediated model.

### **Discussion**

The purpose of the present research was threefold. First, we were interested in determining the relative strengths of the predictors of turnover in the healthcare field. Over fifteen years has passed since Irvine & Evans (1995) conducted their meta-analysis on nurse job satisfaction and turnover; as such an updated quantitative analysis was past due. In addition, we were interested in identifying variables that might have been neglected in previous healthcare turnover research. Lastly, we wanted to test a

theory-based model of turnover that used data specifically from the healthcare field to reach a better understanding of the process leading up to the decision to quit.

There were several interesting findings with regards to the relative strength of predictors of turnover. First, attitudinal reactions consistently produced the strongest correlations with all of the turnover criteria. This lends support to our model based on turnover theory that proximal predictors will have a stronger impact on turnover than the more distal predictors. More specifically, job satisfaction and general organizational commitment were generally the strongest predictors for all turnover criteria. Secondly, negative role states such as job strain, health, and burnout (i.e., emotional exhaustion, depersonalization, reduced personal accomplishment) were also consistent predictors of turnover criteria. More specifically, individuals experiencing negative role states were more likely to think about quitting, have intentions to search for new jobs, actually search for new jobs, have intentions to quit their jobs, and actually follow through with the decision to quit. This finding is expected as the burnout problem among nurses has been well documented (e.g., Perrewe et al., 2002; Poghosyan, Aiken, & Sloan, 2009). Tenure variables (i.e., organizational tenure, position tenure) were also shown to be moderate predictors of turnover criteria. These relationships appeared to be stronger for variables that were closer to the final turnover decision (e.g., intent to turnover, actual turnover). Perceived leader support was also a small to moderate predictor of turnover criteria. Lastly, examining the relative strengths of perceived job alternatives and the various turnover criteria provides support for Mobley's (1977) process model of turnover. For the most part, our data demonstrates that components of the process model that are more proximally located have stronger



correlations than those that are further apart in the model. Thus, our data provide empirical evidence for the structure of the process model of turnover in the healthcare field.

The current meta-analysis expands upon Irvine and Evans' (1995) meta-analysis in several ways. First, the current investigation took a broader approach so as to include other healthcare positions beyond nurses. Second, we also expanded the number of predictors of turnover substantially compared to Irvine and Evans. The previous meta-analysis focused on the relationship between job satisfaction and turnover, as well as the relationship between behavioral intentions (i.e., intent to stay, intent to quit, intent to search) and turnover. In the current investigation, we extensively reviewed the turnover literature in attempts to gain a more holistic understanding of the causes of turnover. In fact, the number of studies rose from 19 studies to 124, and included a total of 48 variables.

Our results also compliment findings from other recent turnover meta-analyses from outside the healthcare population. For instance, Zimmerman and Darnold (2009) found a -.22 correlation between job satisfaction and voluntary turnover. In the present study, a -.16 correlation was observed between these two variables. Previous work by Cooper-Hakim and Viswesvaran (2005) found a corrected correlation between general organizational commitment and turnover intentions of -.57 and a corrected correlation of -.23 between general organizational commitment and actual turnover. In the previous study, we observed corrected correlations of -.54 and -.17 respectively for the same relationships. Ng and Sorensen's (2008) meta-analysis examined the relationships between turnover intentions and perceived supervisor support ( $r = -.36$ ), and turnover

intentions and perceived coworker support ( $r = -.19$ ). Our results were similar, with an observed correlation of  $-.34$  between turnover intentions and perceived supervisor support. We observed a slightly stronger correlation ( $-.31$ ) between perceived team support and turnover intentions, suggesting that team support may play a larger role in the decision to turnover in the healthcare field.

### **Limitations and Future Research**

In addition to finding the strongest predictors of turnover in the healthcare field, we were also interested in identifying variables that had not received much attention in the literature. Our initial variable list consisted of 85 variables. However, we were unable to locate sufficient data for 37 of the variables listed in Table 1. More specifically, we were unable to locate any articles from the healthcare literature that assessed the relationships between the five-factor model of personality and turnover. Likewise, a dearth of literature exists with regards to other personal characteristics such as general cognitive ability and work ethic. There also appears to be a lack of empirical studies in the healthcare field on the relationship between several job characteristics (e.g., job challenge, job complexity, job level, skill variety) and turnover criteria. In addition, future research on turnover in the healthcare field should look to include more organizational level variables, such as organizational climate, organizational politics, and socialization tactics. Lastly, there appears to be a shortage of empirical work examining group and leader relations in regards to turnover. For instance, no studies from the healthcare literature were identified that examined the relationship between leadership style or leadership behaviors and turnover. Our analyses revealed that perceived leader support had a consistent, negative relationship with turnover. Given

this finding, it would be interesting to see if different leadership styles produce differences in the turnover criteria. As such, future research should consider the role of leadership style in the turnover decision process. We also were unable to examine the effects of variables often expected to be of particular importance in healthcare positions, including staffing shortages, shiftwork and job schedules, and lack of career development opportunities, due to lack of sufficient data.

Beyond a need for more research on additional predictors of turnover, the current study revealed other gaps in the literature that should be addressed in the future. First, the majority of articles that we identified for the current study involved nurses. While nurses make up a large percentage of the healthcare population, other positions certainly exist that deserve additional research regarding turnover. Nurses are likely one of the most convenient groups to sample, however, efforts should be made to sample from different healthcare occupations in order to broaden our understanding of turnover in the healthcare field. Secondly, most of the research identified in this meta-analysis was conducted in a hospital setting. Future research should continue to explore other healthcare environments to help determine if the causes of turnover are stable or differ across environments. In addition, examining different units within the same organization might reveal interesting patterns among the relationships between turnover predictors and criteria. For example, people working in emergency rooms or trauma centers are likely to have vastly different work experiences than do people working in rehabilitation units or out-patient services. Identifying the driving mechanisms of turnover in the various units within a hospital will help the organization and management tailor interventions to reduce the prevalence of turnover. When

researchers do use multiple types of positions or work environments, reporting correlations separately for these groups would be beneficial to understanding the differences among them. Lastly, economic conditions are likely to play a role in the decision to quit. Future research should try to incorporate data on local economic conditions into the turnover research to determine if the same factors that lead to turnover are as relevant in economically prosperous times as they are during poor economic conditions.

### **Practical Implications**

Based on the meta-analytic results as well as the path models, several practical implications are in order. First, it is clear from our results that job satisfaction and general organizational commitment are the strongest predictors of turnover. For the most part, people that experience dissatisfaction and are less committed to the organization are more likely to consider alternative employment as well as be more likely to voluntarily leave the organization. As such, managers need to monitor the morale and commitment of their team members. Many factors are likely to have an impact on both satisfaction and commitment levels. Role states such as ambiguity, job strain, and burnout are likely to decrease both satisfaction and commitment. Therefore managers should make efforts to clearly define work roles for employees. In order to combat burnout and job strain employees should be exposed to training where they are provided with resources to cope with environmental stressors that lead to strain and burnout. Other ways to prevent strain might include providing regular breaks throughout the work day for employees to escape the stressful situations at work.

Having an adequately staffed work group is also important as this will help reduce the stress load on the employees as a group.

Although some previous research has resulted in equivocal findings about the relationship of job demand and turnover intentions, our findings demonstrate that employees in the healthcare field generally experience less intention to leave the job when their positions offer challenging job demands as well as the opportunity to control aspects of the work, embeddedness within the workplace, procedural justice, and recognition. Thus, nurse managers should strive to develop assignments for healthcare workers to include adequate challenge, as well as autonomy, fairness, and feedback on high quality work. As network centrality was also found to be a predictor of actual turnover, managers may endeavor to establish a supportive community within units, to enable front line workers to develop the social capital available from professional networks. Interestingly, although salary was not a significant predictor of actual turnover, satisfaction with pay was. Thus, the importance of pay may be relative and based on expectations.

Additionally, our results indicate that positive leader relations may help increase job satisfaction and general organizational commitment. Leader-member exchange theory suggests that positive leader-follower dyads should result in organizational success (Graen & Uhl-Bien, 1995). Managers should receive training on how to identify the different needs of individual employees in order to raise job satisfaction and general organizational commitment.

## References

References marked with an asterisk indicate studies included in the meta-analysis.

- \* Abualrub, R. F., & Al-Zaru, I. M. (2008). Job stress, recognition, job performance and intention to stay at work among Jordanian hospital nurses. *Journal of Nursing Management, 16*, 227-236.
- \* AbuAlRub, R. F., Omari, F. H., & Al-Zaru, I. M. (2009). Support, satisfaction and retention among Jordanian nurses in private and public hospitals. *International Nursing Review, 56*, 326-332.
- \* Alexander, J. A. (1988). The effects of patient care unit organization on nursing turnover. *Health Care Management Review, 13*, 61-70
- \* Alexander, J. A., Lichtenstein, R., Oh, H. J., & Ullman, E. (1998). A causal model of voluntary turnover among nursing personnel in long-term psychiatric settings. *Research in Nursing & Health, 21*, 415-427.
- Arthur, W., Jr., Bell, S. T., Villado, A. J., & Doverspike, D. (2006). The use of person-organization fit in employment decision making: An assessment of its criterion-related validity. *Journal of Applied Psychology, 91*, 786-801.
- Baron, J. N., Hannan, M. T., & Burton, M. (2001). Labor pains: Change in organizational models and employee turnover in young, high-tech firms. *American Journal of Sociology, 106*, 960-1012. doi:10.1086/320296
- \* Bedeian, A. G., & Armenakis, A. A. (1981). A path-analytic study of the consequences of role conflict and ambiguity. *Academy of Management Journal, 24*, 417-424.
- \* Bedeian, A. G., Mossholder, K. W., & Armenakis, A. A. (1983). Role perception-outcome relationships: Moderating effects of situational variables. *Human Relations, 36*, 167-184.
- \* Begley, T. M. (1998). Coping strategies as predictors of employee distress and turnover after an organizational consolidation: A longitudinal analysis. *Journal of Occupational and Organizational Psychology, 71*, 305-329.
- \* Begley, T. M., & Czajka, J. M. (1993). Panel analysis of the moderating effects of commitment on job satisfaction, intent to quit, and health following organizational change. *Journal of Applied Psychology, 78*, 552-556.

- \* Birnbaum, D., & Somers, M. J. (1993). Fitting job performance into turnover model: An examination of the form of the job performance-turnover relationship and a path model. *Journal of Management*, 19, 1-11.
- \* Bozionelos, N. (2009). Expatriation outside the boundaries of the multinational corporation: A study with expatriate nurses in Saudi Arabia. *Human Resource Management*, 48, 111-134.
- \* Brady-Schwartz, D. C. (2005). Further evidence on the magnet recognition program: Implications for nursing leaders. *Journal of Nursing Administration*, 35, 397-403.
- \* Brannon, D., Barry, T., Kemper, P., Schreiner, A., & Vasey, J. (2007). Job perceptions and intent to leave among direct care workers: Evidence from the better care demonstrations. *The Gerontologist*, 47, 820-829.
- Buerhaus, P. I. (2008). Current and future state of the US nursing workforce. *Journal of the American Medical Association*, 300, 2422-2424.
- \* Bunderson, J. S. (2001). How work ideologies shape the psychological contracts of professional employees: Doctors' responses to perceived breach. *Journal of Organizational Behavior*, 22, 717-741.
- Bureau of Labor Statistics.(2010). *Career Guide to Industries, 2010-11 Edition, Healthcare*. Retrieved from <http://www.bls.gov/oco/cg/cgs035.htm>
- \* Cai, C., & Zhou, Z. (2009). Structural empowerment, job satisfaction, and turnover intention of Chinese clinical nurses. *Nursing and Health Sciences*, 11, 397-403.
- \* Castle, N. G. (2006). Organizational commitment and turnover of nursing home administrators. *Health Care Management Review*, 31, 156-165.
- \* Cavanagh, S. J., & Coffin, D. A. (1992). Staff turnover among hospital nurses. *Journal of Advanced Nursing*, 17, 1369-1376.
- \* Chang, H-T., Chi, N-W., & Miao, M-C. (2007). Testing the relationship between three-component organizational/occupational commitment and organizational/occupational turnover intention using a non-recursive model. *Journal of Vocational Behavior*, 70, 352-368.
- Chang, C-H., Rosen, C. C., & Levy, P. E. (2009). The relationship between perceptions of organizational politics and employee attitudes, strain, and behavior: A meta-analytic examination. *Academy of Management Journal*, 52, 779-801.

- \* Chang, C-S., Du, P-L., & Huang, I-C. (2006). Nurses' perceptions of severe acute respiratory syndrome: Relationship between commitment and intervention to leave nursing. *Journal of Advanced Nursing*, 54, 171-179.
  - \* Chapman, S. A., Blau, G., Pred, R. S., & Lindler, V. (2009). Testing for correlates of intent to leave one's job versus intent to leave one's occupation among cancer registrars. *Journal of Allied Health*, 38, 24-30.
  - \* Chen, H-C., Chu, C-I., Wang, Y-H., & Lin, L-C. (2008). Turnover factors revisited: A longitudinal study of Taiwan-based staff nurses. *International Journal of Nursing Studies*, 45, 277-285.
  - \* Cohen, A. (1998). An examination of the relationship between work commitment and work outcomes among hospital nurses. *Scandinavian Journal of Management*, 14, 1-17.
  - \* Cohen, A., & Golan, R. (2007). Predicting absenteeism and turnover intentions by past absenteeism and work attitudes: An empirical examination of female employees in long term nursing care facilities. *Career Development International*, 12, 416-432.
- Cooper-Hakim, A., & Viswesvaran, C. (2005). The construct of work commitment: Testing an integrative framework. *Psychological Bulletin*, 131, 241-259. doi: 10.1037/0033-2909.131.2.241
- Cortese, C. G., Colombo, L., & Ghislieri, C. (2010). Determinants of nurses' job satisfaction: The role of work-family conflict, job demand, emotional charge and social support. *Journal of Nursing Management*, 18, 35-43. doi: 10.1111/j.1365-2834.2009.01064.x
- Costa, P. T., & McCrae, R. R. (1985). *The NEO personality inventory manual*. Odessa, FL: Psychological Assessment Resources.
- \* Cowin, L. S., Johnson, M., Craven, R. G., & Marsh, H. W. (2008). Causal modeling of self-concept, job satisfaction, and retention of nurses. *International Journal of Nursing Studies*, 45, 1449-1459.
  - \* Cram, E. (2002). *The effect of consistent operating room nursing teams on operating room nurses' perceptions of job stress, group cohesion, conflict, job satisfaction and anticipated turnover*. Unpublished dissertation. The University of Iowa, Iowa City, IA.
  - \* Cropanzano, R., James, K., & Konovsky, M. A. (1993). Dispositional affectivity as a predictor of work attitudes and job performance. *Journal of Organizational Behavior*, 14, 595-606.



- \* Cropanzano, R., Rupp, D. E., & Byrne, Z. S. (2003). The relationship of emotional exhaustion to work attitudes, job performance, and organizational citizenship behaviors. *Journal of Applied Psychology, 88*, 160-169.
  
- Crossley, C. D., Bennett, R. J., Jex, S. M., & Burnfield, J. L. (2007). Development of a global measure of job embeddedness and integration into a traditional model of voluntary turnover. *Journal of Applied Psychology, 92*, 1031-1042.  
doi:10.1037/0021-9010.92.4.1031
  
- \* Dailey, R. C. (1990). Role perceptions and job tension as predictors of nursing turnover. *NursingConnections, 3*, 33-42.
  
- \* De Gieter, S., De Cooman, R., Pepermans, R., & Jegers, M. (2010). The psychological reward satisfaction scale: Developing and psychometric testing two refined subscales for nurses. *Journal of Advanced Nursing, 66*, 911-922.
  
- \* Decker, F. H. (1985). Socialization and interpersonal environment in nurses' affective reactions to work. *Social Sciences & Medicine, 20*, 499-509.
  
- \* Dolan, S. L., Van Ameringen, M. R., Corbin, S., & Arsenault, A. (1992). Lack of professional latitude and role problems as correlates of propensity to quit amongst nursing staff. *Journal of Advanced Nursing, 17*, 1455-1459.
  
- \* Ellis, B. H., & Miller, K. I. (1993). The role of assertiveness, personal control, and participation in the prediction of nurse burnout. *Journal of Applied Communication Research, 21*, 327-342.
  
- \* Fang, Y. (2001). Turnover propensity and its causes among Singapore nurses: An empirical study. *International Journal of Human Resource Management, 12*, 859-871.
  
- Ferris, G. R., Russ, G. S., & Fandt, P. M. (1989). Politics in organizations. In R. A. Giacalone, & P. Rosenfeld (Eds.), *Impression management in the organization* (pp. 423-452). Hillsdale, NJ: Erlbaum.
  
- \* Fisher, C. D. (1985). Social support and adjustment to work: A longitudinal study. *Journal of Management, 11*, 39-53.
  
- \* Friss, L. (1982). Why RNs quit: The need for management reappraisal of the 'propensity to leave'. *Hospital & Health Services Administration, 27*, 28-44.
  
- \* Gardner, D. L. (1992). Career commitment in nursing. *Journal of Professional Nursing, 8*, 155-160.
  
- Gerhart, B. (1990). Voluntary turnover and alternative job opportunities. *Journal of Applied Psychology, 75*, 467-476.

- Gerstner, C. R., & Day, D. V. (1997). Meta-analytic review of leader-member exchange theory: Correlates and construct issues. *Journal of Applied Psychology, 82*, 827-844.
- \* Geurts, S. A., Schaufeli, W. B., & Rutte, C. G. (1999). Absenteeism, turnover intention and inequity in the employment relationship. *Work & Stress, 13*, 253-267.
- Glebbeek, A. C., & Bax, E. H. (2004). Is high employee turnover really harmful? An empirical test using company records. *Academy of Management Journal, 47*, 277-286.
- Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years applying a multilevel multidomain perspective. *Leadership Quarterly, 6*, 219-247.
- Greenhaus, J. H., & Beutell, N. J. (1985). Sources of conflict between work and family roles. *Academy of Management Review, 10*, 76-88.
- Greenhaus, J. H., Collins, K. M., Singh, R., & Parasuraman, S. (1997). Work and family influences on departure from public accounting. *Journal of Vocational Behavior, 50*, 249-270.
- \* Gregory, D. M., Way, C. Y., LeFort, S., Barrett, B. J., & Parfey, P. S. (2007). Predictors of registered nurses' organizational commitment and intent to stay. *Health Care Management Review, 32*, 119-127.
- Griffeth, R. W., Hom, P. W., & Gaertner, S. (2000). A meta-analysis of antecedents and correlates of employee turnover: Update, moderator tests, and research implications for the next millennium. *Journal of Management, 26*, 463-488.
- Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance, 16*, 250-279.
- \* Hanson, C. M., Jenkins, S., & Ryan, R. (1990). Factors related to job satisfaction and autonomy as correlates of potential job retention for rural nurses. *The Journal of Rural Health, 6*, 302-316.
- \* Harrell-Cook, G., Ferris, G. R., & Dulebohn, J. H. (1999). Political behaviors as moderators of the perceptions of organizational politics-work outcomes relationships. *Journal of Organizational Behavior, 20*, 1093-1105.

- Harrison, D. A., Newman, D. A., & Roth, P. L. (2006). How important are job attitudes? Meta-analytic comparisons of integrative behavioral outcomes and time sequences. *Academy of Management Journal*, *49*, 305-325.
- \* Hart, S. E. (2005). Hospital ethical climates and registered nurses' turnover intentions. *Journal of Nursing Scholarship*, *37*, 173-177.
- \* Hemingway, M. A., & Smith, C. S. (1999). Organizational climate and occupational stressors as predictors of withdrawal behaviours and injuries in nurses. *Journal of Occupational and Organizational Psychology*, *72*, 285-299.
- \* Holtom, B. C., & O'Neill, B. S. (2004). Job embeddedness: A theoretical foundation for developing a comprehensive nurse retention plan. *The Journal of Nursing Administration*, *34*, 216-227.
- \* Hom, P. W., & Griffeth, R. W. (1991). Structural equations modeling test of a turnover theory: Cross-sectional and longitudinal analyses. *Journal of Applied Psychology*, *76*, 350-366.
- \* Hom, P. W., Griffeth, R. W., Palich, L. E., & Bracker, J. S. (1998). An exploratory investigation into theoretical mechanisms underlying realistic job previews. *Personnel Psychology*, *51*, 421-451.
- \* Hom, P. W., Griffeth, R. W., & Sellaro, C. L. (1984). The validity of Mobley's (1977) model of employee turnover. *Organizational Behavior and Human Performance*, *34*, 141-174.
- Hom, P. W., & Kinicki, A. J. (2001). Toward a greater understanding of how dissatisfaction drives employee turnover. *Academy of Management Journal*, *44*, 975-987.
- Hulin, C. L., Roznowski, M., & Hachiya, D. (1985). Alternative opportunities and withdrawal decisions: Empirical and theoretical discrepancies and an integration. *Psychological Bulletin*, *97*, 233-250.
- Hunter, J. E., & Schmidt, F. L. (2004). *Methods of meta-analysis: Correcting for error and bias in research findings*. Thousand Oaks, CA: Sage Publications, Inc.
- Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, *38*, 635-672. doi:10.2307/256741
- Irvine, D. M., & Evans, M. G. (1995). Job satisfaction and turnover among nurses: Integrating research findings across studies. *Nursing Research*, *44*, 246-253.

- \* Iverson, R. D., & Pullman, J. A. (2000). Determinants of voluntary turnover and layoffs in an environment of repeated downsizing following a merger: An event history analysis. *Journal of Management*, 26, 977-1003.
  
- Jackson, S. E., & Schuler, R. S. (1985). A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings. *Organizational Behavior and Human Decision Processes*, 36, 16-78.
  
- \* Jamal, M. (1981). Shift work related to job attitudes, social participation and withdrawal behavior: A study of nurses and industrial workers. *Personnel Psychology*, 34, 535-547.
  
- \* Jamal, M. (1990). Relationship of job stress and Type-A behavior to employees' job satisfaction, organizational commitment, psychosomatic health problems, and turnover motivation. *Human Relations*, 43, 727-738.
  
- \* Jamal, M., & Baba, V. V. (1991). Type A behavior, its prevalence and consequences among women nurses: An empirical examination. *Human Relations*, 44, 1213-1228.
  
- \* Jamal, M., & Baba, V. V. (1992). Shiftwork and department-type related to job stress, work attitudes and behavioral intentions: A study of nurses. *Journal of Organizational Behavior*, 13, 449-464.
  
- \* Janssen, P. P. M., de Jonge, J., & Bakker, A. B. (1999). Specific determinants of intrinsic work motivation, burnout and turnover intentions: A study among nurses. *Journal of Advanced Nursing*, 29, 1360-1369.
  
- \* Jex, S. M., Beehr, T. A., & Roberts, C. K. (1992). The meaning of occupational stress items to survey respondents. *Journal of Applied Psychology*, 77, 623-628.
  
- \* Jinnett, K., & Alexander, J. A. (1999). The influence of organizational context on quitting intention: An examination of treatment staff in long-term mental health care settings. *Research on Aging*, 21, 176-204.
  
- \* Jolma, D. J. (1990). Relationship between nursing work load and turnover. *Nursing Economic\$, 8*, 110-114.
  
- \* Jones, J. M. S. (2000). *The impact of hospital mergers on organizational culture, organizational commitment, professional commitment, job satisfaction, and intent to turnover on registered professional nurses on medical-surgical hospital units*. Unpublished dissertation. State University of New York at Buffalo, Buffalo, NY.

- \* Judge, T. A. (1993). Does affective disposition moderate the relationship between job satisfaction and voluntary turnover? *Journal of Applied Psychology, 78*, 395-401.
  - \* Karsh, B., Booske, B. C., & Sainfort, F. (2005). Job and organizational determinants of nursing home employee commitment, job satisfaction and intent to turnover. *Ergonomics, 48*, 1260-1281.
  - \* Keil, J. M., Armstrong-Stassen, M., Cameron, S. J., & Horsburgh, M. E. (2000). Part-time nurses: The effect of work status congruency on job attitudes. *Applied Psychology: An International Review, 49*, 227-236.
- King, L. A., & King, D. W. (1990). Role conflict and role ambiguity: A critical assessment of construct validity. *Psychological Bulletin, 107*, 48-64.
- \* Kiyak, H. A., Namazi, K. H., & Kahana, E. F. (1997). Job commitment and turnover among women working in facilities serving older persons. *Research on Aging, 19*, 223-246.
- Kovner, C. T., Brewer, C. S., Fairchild, S., Poornima, S., Kim, H., & Djukic, M. (2007). Newly licensed RNs' characteristics, work attitudes, and intentions to work. *American Journal of Nursing, 107*, 58-70.
- Koys, D. J. (2001). The effects of employee satisfaction, organizational citizenship behavior, and turnover on organizational effectiveness: A unit-level, longitudinal study. *Personnel Psychology, 54*, 101-114.
- \* Krausz, M., Sagie, A., & Bidermann, Y. (2000). Actual and preferred work schedules and scheduling control as determinants of job-related attitudes. *Journal of Vocational Behavior, 56*, 1-11.
- Kristof, A. L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology, 49*, 1-49.
- \* Kudo, Y., Satoh, T., Hosoi, K., Miki, T., Watanabe, M., Kido, S., & Aizawa, Y. (2006). Association between intention to stay on the job and job satisfaction among Japanese nurses in small and medium-sized private hospitals. *Journal of Occupational Health, 48*, 504-513.
- \* Lane, I. M., Mathews, R. C., & Presholdt, P. H. (1988). Determinants of nurses' intentions to leave their profession. *Journal of Organizational Behavior, 9*, 367-372.

- \* Lankau, M. J., & Scandura, T. A. (2002). An investigation of personal learning in mentoring relationships: Content, antecedents, and consequences. *Academy of Management Journal*, 45, 779-790.
  - \* Laschinger, H. K. S., Leiter, M., Day, A., & Gilin, D. (2009). Workplace empowerment, incivility, and burnout: Impact on staff nurse recruitment and retention outcomes
  - \* Leiter, M. P., Harvie, P., & Frizzell, C. (1998). The correspondence of patient satisfaction and nurse burnout. *Social Science & Medicine*, 47, 1611-1617.
  - \* Leiter, M. P., Jackson, N. J., & Shaughnessy, K. (2009). Contrasting burnout, turnover intention, control, value congruence and knowledge sharing between baby boomers and generation x. *Journal of Nursing Management*, 17, 100-109.
  - \* Leiter, M. P., & Maslach, C. (2009). Nurse turnover: The mediating role of burnout. *Journal of Nursing Management*, 17, 331-339.
- Loehlin, J. C. (2004). *Latent variable models: An introduction to factor, path, and structural analysis*. Hillsdale, NJ: Erlbaum.
- \* Lu, K-Y., Lin, P-L., Wu, C-M., Hsieh, Y-L., & Chang, Y-Y. (2002). The relationships among turnover intentions, professional commitment, and job satisfaction of hospital nurses. *Journal of Professional Nursing*, 18, 214-219.
  - \* Lum, L., Kervin, J., Clark, K., Reid, F., & Sirola, W. (1998). Explaining nursing turnover intent: Job satisfaction, pay satisfaction, or organizational commitment? *Journal of Organizational Behavior*, 19, 305-320.
- Lyness, K. S., & Thompson, D. E. (1997). Above the glass ceiling? A comparison of matched samples of female and male executives. *Journal of Applied Psychology*, 82, 359-375.
- \* Lynn, M. R., Morgan, J. C., & Moore, K. A. (2009). Development and testing of the satisfaction in nursing scale. *Nursing Research*, 58, 166-174.
  - \* Lyons, T. F. (1971). Role clarity, need for clarity, satisfaction, tension, and withdrawal. *Organizational Behavior and Human Performance*, 6, 99-110.
- Maertz, C. P., & Campion, M. A. (2004). Profiles in quitting: Integrating process and content turnover theory. *Academy of Management Journal*, 47, 566-582.
- Maertz, C. P., & Griffeth, R. W. (2004). Eight motivational forces and voluntary turnover: A theoretical synthesis with implications for research. *Journal of Management*, 30, 667-683. doi: 10.1016/j.jm.2004.04.001

- \* Mantler, J., Armstrong-Stassen, M., Horsburgh, M. E., & Cameron, S. J. (2006). Reactions of hospital staff nurses to recruitment incentives. *Western Journal of Nursing Research*, 28, 70-84.
- March, J. G., & Simon, H. A. (1958). *Organizations*. New York: Wiley.
- \* Martin, T. N. (1982). Commitment predictors of nursing personnel's intent to leave. *Medical Care*, 20, 1147-1153.
- Maslach, C. (1993). Burnout: A multi-dimensional perspective. In W. B. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 19-32). Taylor & Francis, Washington, DC.
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, 52, 397-422.
- Mathieu, J. E., & Zajac, D. M. (1990). A review and meta-analysis of the antecedents, correlates, and consequences of organizational commitment. *Psychological Bulletin*, 108, 171-194.
- \* Mauno, S., Kinnunen, U., Mäkikangas, A., & Nätti, J. (2005). Psychological consequences of fixed-term employment and perceived job insecurity among health care staff. *European Journal of Work and Organizational Psychology*, 14, 209-237.
- McCrae, R. R., & Costa, P. T. (1997). Personality trait structure as a human universal. *American Psychologist*, 52, 509-516.
- McVicar, A. (2003). Workplace stress in nursing: A literature review. *Journal of Advanced Nursing*, 44, 633-642.
- Meyer, J. P., & Allen, N. J. (1991). A three-component conceptualization of organizational commitment. *Human Resource Management Review*, 1, 61-89.
- \* Miller, P. E. (2008). The relationship between job satisfaction and intention to leave of hospice nurses in a for-profit corporation. *Journal of Hospice and Palliative Nursing*, 10, 56-64.
- Mitchell, T. R., Holtom, B. C., Lee, T. W., Sablynski, C. J., & Erez, M. (2001). Why people stay: Using job embeddedness to predict voluntary turnover. *Academy of Management Journal*, 44, 1102-1121.
- Mobley, W. H. (1977). Intermediate linkages in the relationship between job satisfaction and employee turnover. *Journal of Applied Psychology*, 62, 237-240.

- Mobley, W. H., Griffeth, R. W., Hand, H. H., & Meglino, B. M. (1979). Review and conceptual analysis of the employee turnover process. *Psychological Bulletin*, *86*, 493-522.
- \* Mobley, W. H., Horner, S. O., & Hollingsworth, A. T. (1978). An evaluation of precursors of hospital employee turnover. *Journal of Applied Psychology*, *63*, 408-414.
- Morgeson, F. P., & Campion, M. A. (2003). Work design. In W. C. Borman, & D. R. Ilgen (Eds.), *Handbook of psychology: Industrial and organizational psychology* (Vol. 12, pp. 423-452). New York: John Wiley & Sons.
- \* Mossholder, K. W., Settoon, R. P., & Henagan, S. C. (2005). A relational perspective on turnover: Examining structural, attitudinal, and behavioral predictors. *Academy of Management Journal*, *48*, 607-618.
- \* Mowday, R. T., Koberg, C. S., & McArthur, A. W. (1984). The psychology of the withdrawal process: A cross-validated test of Mobley's intermediate linkages model of turnover in two samples. *Academy of Management Journal*, *27*, 79-94.
- Muchinsky, P. M., & Morrow, P. C. (1980). A multidisciplinary model of voluntary employee turnover. *Journal of Vocational Behavior*, *17*, 263-290.
- \* Newman, J. E. (1974). Predicting absenteeism and turnover: A field comparison of fishbein's model and traditional job attitude measures. *Journal of Applied Psychology*, *59*, 610-615.
- Ng, T. W. H., & Sorensen, K. L. (2008). Toward a further understanding of the relationships between perceptions of support and work attitudes: A meta-analysis. *Group & Organization Management*, *33*, 243-268.
- \* O'Reilly, C. A., III, Parlette, G. N., & Bloom, J. R. (1980). Perceptual measures of task characteristics: The biasing effects of differing frames of reference and job attitudes. *Academy of Management Journal*, *23*, 118-131.
- Organ, D. W., & Lingl, A. (1995). Personality, satisfaction, and organizational citizenship behavior. *Journal of Social Psychology*, *135*, 339-350.
- Parasuraman, S. (1982). Predicting turnover intentions and turnover behavior: A multivariate analysis. *Journal of Vocational Behavior*, *21*, 111-121.
- \* Parker, L. E. (1993). When to fix it and when to leave: Relationships among perceived control, self-efficacy, dissent, and exit. *Journal of Applied Psychology*, *78*, 949-959.



- \* Parry, J. (2008). Intention to leave the profession: Antecedents and role in nurse turnover. *Journal of Advanced Nursing*, *64*, 157-167.
- Perrewe, P. L., Hochwater, W.A., Rossi, A. M., Wallace, A., Maigan, I., Castro, S. L., et al. (2002). Are work stress relationships universal? A nine-region examination of stressors, general self-efficacy, and burnout. *Journal of International Management*, *8*, 163-187.
- \* Pisarski, A., Brook, C., Bohle, P., Gallois, C., Watson, B., & Winch, S. (2006). Extending a model of shift-work tolerance. *Chronobiology International*, *23*, 1363-1377.
- Podsakoff, N. P., LePine, J. A., & LePine, M. A. (2007). Differential challenge stressor-hindrance stressor relationships with job attitudes, turnover intentions, turnover, and withdrawal behavior: A meta-analysis. *Journal of Applied Psychology*, *92*, 438-454. doi: 10.1037/0021-9010.92.2.438
- Poghosyan, L., Aiken, L. H., & Sloane, D. M. (2009). Factor structure of the Maslach Burnout Inventory: An analysis of data from large scale cross-sectional surveys of nurses from eight countries. *International Journal of Nursing Studies*, *46*, 894-902.
- Porter, L. W., & Steers, R. M. (1973). Organizational, work, and personal factors in employee turnover and absenteeism. *Psychological Bulletin*, *80*, 151-176.
- Porter, L. W., Steers, R. M., Mowday, R. T., & Boulian, P. V. (1974). Organizational commitment, job satisfaction, and turnover among psychiatric technicians. *Journal of Applied Psychology*, *59*, 603-609.
- \* Posthuma, R. A., Maertz, C. P., Jr., & Dworkin, J. B. (2007). Procedural justice's relationship with turnover: Explaining past inconsistent findings. *Journal of Organizational Behavior*, *28*, 381-398.
- \* Prestholdt, P. H., Lane, I. M., & Mathews, R. C. (1987). Nurse turnover as reasoned action: Development of a process model. *Journal of Applied Psychology*, *72*, 221-227.
- Price, J. L., & Mueller, C. W. (1981). A causal model of turnover for nurses. *Academy of Management Journal*, *24*, 543-565.
- Price, J. L., & Mueller, C. W. (1986). *Absenteeism and turnover among hospital employees*. Greenwich, CT: JAI Press.
- \* Purk, J. K., & Lindsay, S. (2006). Job satisfaction and intention to quit among frontline assisted living employees. *Journal of Housing for the Elderly*, *20*, 117-131.

- Raja, U., & Johns, G. (2010). The joint effects of personality and job scope on in-role performance, citizenship behaviors, and creativity. *Human Relations*, 63, 981-1005. doi: 10.1177/0018726709349863
- Robinson, S. L., & Rousseau, D. M. (1994). Violating the psychological contract: Not the exception but the norm. *Journal of Organizational Behavior*, 15, 245-259.
- \* Rondeau, K. V., Williams, E. S., & Wagar, T. H. (2008). Turnover and vacancy rates for registered nurses: Do local labor market factors matter? *Health Care Management Review*, 33, 69-78.
- \* Rosse, J. G., & Hulin, C. L. (1985). Adaptation to work: An analysis of employee health, withdrawal, and change. *Organizational Behavior and Human Decision Processes*, 36, 324-347.
- Rousseau, D. M. (1989). Psychological and implied contracts in organizations. *Employee Responsibilities and Rights Journal*, 2, 121-139.
- Rusbult, C. E., & Farrell, D. (1983). A longitudinal test of the investment model: The impact on job satisfaction, job commitment, and turnover of variations in rewards, costs, alternatives, and investments. *Journal of Applied Psychology*, 68, 429-438.
- Schaufeli, W. B., Salanova, M., Gonzalez-Roma, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A confirmative analytic approach. *Journal of Happiness Studies*, 3, 71-92.
- Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research Online*, 8, 23-74.
- Schneider, B. (1987). The people make the place. *Personnel Psychology*, 40, 437-453.
- \* Schuler, R. S., Aldag, R. J., & Brief, A. P. (1977). Role conflict and ambiguity: A scale analysis. *Organizational Behavior and Human Performance*, 20, 111-128.
- \* Seery, B. L., & Corrigan, E. A. (2009). Emotional labor: Links to work attitudes and emotional exhaustion. *Journal of Managerial Psychology*, 24, 797-813.
- \* Shelledy, D. C., Mikles, S. P., May, D. F., & Youtsey, J. W. (1992). Analysis of job satisfaction, burnout, and intent of respiratory care practitioners to leave the field or the job. *Respiratory Care*, 37, 46-60.

- \* Sheridan, J. E. (1985). A catastrophe model of employee withdrawal leading to low performance, high absenteeism, and job turnover during the first year of employment. *The Academy of Management Journal*, 28, 88-109.
- \* Shimizu, T., Eto, R., Horiguchi, I., Obata, Y., Feng, Q., & Nagata, S. (2005). Relationship between turnover and periodic health check-up data among Japanese hospital nurses: A three-year follow-up study. *Journal of Occupational Health*, 47, 327-333.
- \* Simpson, M. R. (2009). Predictors of work engagement among medical-surgical registered nurses. *Western Journal of Nursing Research*, 31, 44-65.
- \* Sims, R. L., & Kroeck, K. G. (1994). The influence of ethical fit on employee satisfaction, commitment and turnover. *Journal of Business Ethics*, 13, 939-947.
- \* Sjoberg, A., & Sverke, M. (2001). The interactive effect of job involvement and organizational commitment on job turnover revisited: A note on the mediating role of turnover intention. *Scandinavian Journal of Psychology*, 41, 247-252
- \* Smith, H. L., Hood, J. N., Waldman, J. D., & Smith, V. L. (2005). Creating a favorable practice environment for nurses. *Journal of Nursing Administration*, 35, 525-532.
- \* Somers, M. J. (2009). The combined influence of affective, continuance and normative commitment on employee withdrawal. *Journal of Vocational Behavior*, 74, 75-81.
- \* Sourdif, J. (2004). Predictors of nurses' intent to stay at work in a university health center. *Nursing and Health Sciences*, 6, 59-68.
- Sparks, K., Faragher, B., & Cooper, C. L. (2001). Well-being and occupational health in the 21<sup>st</sup> century workplace. *Journal of Occupational and Organizational Psychology*, 74, 489-509.
- Spector, P. E. (1986). Perceived control by employees: A meta-analysis of studies concerning autonomy and participation at work. *Human Relations*, 39, 1005-1016. doi: 10.1177/001872678603901104
- Sverke, M., Hellgren, J., & Näswall, K. (2002). No security: A meta-analysis and review of job insecurity and its consequences. *Journal of Occupational Health Psychology*, 7, 242-264. doi: 10.1037//1076-8998.7.3.242
- \* Szigeti, E., Largent, R. N., & Eberhardt, B. J. (1990). An exploratory study of the correlates of intent to quit among certified registered nurse anesthetists in North Dakota. *The Journal of Rural Health*, 6, 317-327.

- \* Taylor, C., & Pillemer, K. (2009). Using affect to understand employee turnover: A context-specific application of a theory of social exchange. *Sociological Perspectives*, 52, 481-504.
- \* Taunton, R. L., Krampitz, S. D., & Woods, C. Q. (1989). Absenteeism-retention links. *The Journal of Nursing Administration*, 19, 13-21.
- \* Teng, C-I., Shyu, Y-I. L., & Chang, H-Y. (2007). Moderating effects of professional commitment on hospital nurses in Taiwan. *Journal of Professional Nursing*, 23, 47-54
- Tett, R. P., & Meyer, J. P. (1993). Job satisfaction, organizational commitment, turnover intention, and turnover: Path analyses based on meta-analytic findings. *Personnel Psychology*, 46, 259-293.
- \* Tsai, M-T., & Ya-Ti., H. (2008). A resource-based perspective on retention strategies for nurse epidemiologists. *Journal of Advanced Nursing*, 61, 188-200.
- \* Tsai, Y., & Wu, S-W. (2010). The relationships between organisational citizenship behaviour, job satisfaction and turnover intention. *Journal of Clinical Nursing*, 19, 3564-3574.
- \* Tourangeau, A., Cranley, L., Laschinger, H. K. S., & Pachis, J. (2010). Relationships among leadership practices, work environments, staff communication and outcomes in long-term care. *Journal of Nursing Management*, 18, 1060-1072.
- Valentine, J. C., Pigott, T. D., & Rothstein, H. R. (2010). How many studies do you need? A primer on statistical power for meta-analysis. *Journal of Educational and Behavioral Statistics*, 35, 215-247. doi: 10.3102/1076998609346961
- \* Van Bogaert, P., Meulemans, H., Clarke, S., Vermeyen, K., & Van de Heyning, P. (2009). Hospital nurse practice environment, burnout, job outcomes and quality of care: Test of a structural equation model. *Journal of Advanced Nursing*, 65, 2175-2185.
- \* van der Heijden, B. I. J. M., van Dam, K., & Hasselhorn, H. M. (2009). Intention to leave nursing: The importance of interpersonal work context, work-home interference, and job satisfaction beyond the effect of occupational commitment. *Career Development International*, 14, 616-635.
- \* vanDierendonck, 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.

- \* Van Yperen, N. W. (1995). Communal orientation and the burnout syndrome among nurses: A replication and extension. *Journal of Applied Social Psychology, 26*, 338-354.
- Verquer, M. L., Beehr, T. A., & Wagner, S. H. (2003). A meta-analysis of relations between person-organization fit and work attitudes. *Journal of Vocational Behavior, 63*, 473-489. doi: 10.1016/S0001-8791(02)00036-2
- Viswesvaran, C., & Ones, D. S. (1995). Theory testing: Combining psychometric meta-analysis and structural equations modeling. *Personnel Psychology, 48*, 865-885.
- \* Wagner, C. M. (2010). Predicting nursing turnover with catastrophe theory. *Journal of Advanced Nursing, 66*, 2071-2084.
- Waldman, J. D., Kelly, F., Arora, S., & Smith, H. L. (2004). The shocking cost of turnover in health care. *Health Care Management Review, 29*, 2-7.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*, 1063-1070.
- \* Way, C., Gregory, D. G., Davis, J., Baker, N., LeFort, S., Barrett, B., & Parfrey, P. (2007). The impact of organizational culture on clinical managers' organizational commitment and turnover intentions. *The Journal of Nursing Administration, 37*, 235-242.
- \* Weisman, C. S., Alexander, C. S., & Chase, G. A. (1981). Determinants of hospital staff nurse turnover. *Medical Care, 19*, 431-443.
- Williams, C. R. (1990). Deciding when, how, and if to correct turnover correlations. *Journal of Applied Psychology, 75*, 732-737.
- \* Williams, E. S., Konrad, T. R., Scheckler, W. E., Pathman, D. E., Linzer, M., McMurray, J. E., et al. (2001). Understanding physicians' intentions to withdraw from practice: The role of job satisfaction, job stress, mental and physical health. *Health Care Management Review, 26*, 7-19.
- \* Wise, L. C. (1993). The erosion of nursing resources: Employee withdrawal behaviors. *Research in Nursing & Health, 16*, 67-75.
- \* Zellars, K. L., Hochwarter, W. A., Perrewe, P. L., Miles, A. K., & Kiewitz, C. (2001). Beyond self-efficacy: Interactive effects of role conflict and perceived collective efficacy. *Journal of Managerial Issues, 13*, 483-499.
- \* Zeytinoglu, I. U., Denton, M., Davies, S., Baumann, A., Blythe, J., & Boos, L. (2006). Retaining nurses in their employing hospitals and in the profession: Effects of

job preference, unpaid overtime, importance of earnings and stress. *Health Policy*, 79, 57-72.

Zhao, H., Wayne, S. J., Glibkowski, B. C., & Bravo, J. (2007). The impact of psychological contract breach on work-related outcomes: A meta-analysis. *Personnel Psychology*, 60, 647-680.

Zimmerman, R. D. (2008). Understanding the impact of personality traits on individuals' turnover decisions: A meta-analytic path model. *Personnel Psychology*, 61, 309-348.

Zimmerman, R. D., & Darnold, T. C. (2009). The impact of job performance on employee turnover intentions and the voluntary turnover process: A meta-analysis and path model. *Personnel Review*, 38, 142-158.

\* Zurmehly, J., Martin, P. A., & Fitzpatrick, J. J. (2009). Registered nurse empowerment and intent to leave current position and/or profession. *Journal of Nursing Management*, 17, 383-391.

Table 1  
*Variables coded in the meta-analysis*

<b>Personal Characteristics</b>	Age	Openness
	Agreeableness	Organizational Tenure
	Conscientiousness	Position Tenure
	Education	Profession Tenure
	Extraversion	Salary
	General Cognitive Ability	Sex
	Information Seeking	Training
	Marital Status	Work Ethic
	Neuroticism	
<b>Role States</b>	Job Strain	Role Conflict
	Role Ambiguity	Role Overload
	Work-family Conflict	
<b>Job Characteristics</b>	Contingent Status	Network Centrality
	Full/Part Time Status	Organization Size
	Job Challenge	Procedural Justice
	Job Complexity	Recognition
	Job Control	Rewards
	Job Demands	Skill Variety
	Job Embeddedness	Task Autonomy
	Job Level	Work Schedule
	Job Scope	
<b>Group/Leader Relations</b>	Bullying	Mentoring
	Coworkers Intending to Leave	Participative Leadership
	Group Cohesiveness	Perceptions of Leader Support
	Leader Communication	Perceptions of Team Support
	Leader Consideration	Task Interdependence
	Leader Initiating Structure	
<b>Perceptions of the Organization</b>	Employment Outlook	Perceived Organizational Support
	Job Insecurity	Person-Organization Fit
	Organization Climate	Psychological Contract
	Organization Politics	Socialization Tactics
	Patient Aggression	Staffing Shortages
	Perceived Job Alternatives	Trust
<b>Attitudinal Reactions</b>	Affective Commitment	Overall Job Satisfaction

Table 1 (continued)

*Variables coded in the meta-analysis*

<b>Attitudinal Reactions (Continued)</b>	Extrinsic Motivation	Satisfaction with Pay
	Intrinsic Motivation	Satisfaction with Promotion
	Job Involvement	Satisfaction with Supervisor
	Normative Commitment	Satisfaction with Work
	Occupational Commitment	Satisfaction with Coworkers
	Organizational Commitment	Union Commitment
	Overall Motivation	Continuance Commitment
	Employee Engagement	
<b>Turnover Cognitions/ Intentions</b>	Intention to Search	Turnover Cognition
	Intention to Turnover (from organization)	Intention to Turnover (from healthcare field)
<b>Turnover</b>	Actual Turnover	



Table 2  
Meta-Analysis Results of Turnover Cognitions

	<i>k</i>	<i>N</i>	$\bar{r}$	$\rho$	$SD_{\rho}$	% Var.	90% CV		95% CI	
							<i>L</i>	<i>U</i>	<i>L</i>	<i>U</i>
<b>Personal characteristics</b>										
Age	4	1159	.08	.09	.19	11	-.23	.41	.03	.15
Organizational Tenure	4	1159	.05	.06	.13	22	-.15	.27	.00	.12
<b>Role States</b>										
Job Strain	2	1297	.37	.42	.06	34	.33	.52	.38	.47
Role Overload	2	1749	.09	.11	.18	5	-.20	.41	.06	.15
<b>Org./Environment Perceptions</b>										
Perceived Job Alternatives	4	805	.17	.18	.33	5	-.36	.72	.11	.25
<b>Attitudinal Reactions</b>										
Job Satisfaction	10	2639	-.41	-.49	.27	5	-.94	-.04	-.52	-.46
Satisfaction w/pay <sup>a</sup>	2	311	-.33	-.33	.05	70	-.41	-.25	-.43	-.23
Satisfaction w/promotion <sup>a</sup>	2	311	-.27	-.27	.09	43	-.41	-.12	-.37	-.16
Satisfaction w/supervisor	3	491	-.23	-.27	.00	100	-.27	-.27	-.35	-.18
Satisfaction w/coworkers <sup>a</sup>	2	311	-.22	-.22	.00	100	-.22	-.22	-.32	-.11
Satisfaction w/work <sup>a</sup>	2	311	-.32	-.32	.09	40	-.46	-.17	-.42	-.22
Affective Commitment	2	799	.08	.09	.28	4	-.38	.56	.02	.16
Organizational Commitment	5	1849	-.43	-.48	.18	7	-.78	-.18	-.52	-.44
<b>Turnover</b>										
Intention to Quit (Org.)	7	1841	.58	.68	.17	8	.39	.94	.64	.69
Voluntary Turnover	10	2227	.37	.40	.17	13	.12	.67	.36	.43

Note. *k* = number of studies. *N* = number of participants.  $\bar{r}$  = sample-weighted mean correlation.  $\rho$  = estimate of population correlation corrected for unreliability in the predictor and criterion.  $SD_{\rho}$  = standard deviation of corrected correlation. % Var. = percentage of variance explained by artifacts. 90% CV = 90% credibility value (*L* = Lower, *U* = Upper). 95% CI = 95% confidence interval (*L* = lower, *U* = upper).

<sup>a</sup>. Statistics are based on corrections for sampling error only.

Table 3  
Meta-Analysis Results of Intent to Search

	<i>k</i>	<i>N</i>	$\bar{r}$	$\rho$	$SD_{\rho}$	% Var.	90% CV		95% CI	
							<i>L</i>	<i>U</i>	<i>L</i>	<i>U</i>
<b>Individual Characteristics</b>										
Age <sup>a</sup>	2	835	.03	.03	.22	22	-.33	.39	-.03	.10
Organizational Tenure <sup>a</sup>	2	835	-.01	-.01	.16	9	-.27	.24	-.08	.06
<b>Org./Environment Perceptions</b>										
Perceived Job Alternatives	3	648	.09	.10	.03	82	.04	.15	.02	.17
<b>Attitudinal Reactions</b>										
Job Satisfaction	4	819	-.49	-.58	.12	21	-.78	-.38	-.63	-.54
Satisfaction w/supervisor	2	383	-.33	-.38	.00	100	-.38	-.38	-.47	-.29
Organizational Commitment	2	433	-.54	-.62	.12	17	-.82	-.43	-.68	-.57
<b>Turnover</b>										
Turnover Cognitions	6	1704	.58	.65	.18	6	.36	.94	.62	.67
Intention to Quit (Org.)	5	1524	.51	.58	.32	2	.04	.99	.55	.61
Job Search Behaviors	2	436	.64	.71	.02	86	.68	.74	.67	.76
Voluntary Turnover	5	1524	.53	.56	.25	3	.14	.97	.52	.59

Note. *k* = number of studies. *N* = number of participants.  $\bar{r}$  = sample-weighted mean correlation.  $\rho$  = estimate of population correlation corrected for unreliability in the predictor and criterion.  $SD_{\rho}$  = standard deviation of corrected correlation. % Var. = percentage of variance explained by artifacts. 90% CV = 90% credibility value (L = Lower, U = Upper). 95% CI = 95% confidence interval (L = lower, U = upper).

<sup>a</sup>. Statistics are based on corrections for sampling error only.

Table 4  
Meta-Analysis Results of Job Search Behaviors

	<i>k</i>	<i>N</i>	$\bar{r}$	$\rho$	$SD_{\rho}$	% Var	90% CV		95% CI	
							<i>L</i>	<i>U</i>	<i>L</i>	<i>U</i>
<b>Personal characteristics</b>										
Age	2	324	-.03	-.04	.05	77	-.11	.04	-.14	.07
Organizational Tenure <sup>a</sup>	2	835	-.01	-.01	.16	9	-.27	.24	-.08	.06
Salary	2	324	.12	.12	.13	31	-.08	.33	.02	.23
<b>Role States</b>										
Role Ambiguity	2	202	.16	.21	.00	100	.21	.21	.07	.34
Role Conflict	2	202	.25	.31	.00	100	.31	.31	.18	.43
<b>Org./Environment Perceptions</b>										
Perceived Job Alternatives	3	557	.28	.32	.37	5	-.28	.92	.25	.40
<b>Attitudinal Reactions</b>										
Job Satisfaction	6	1062	-.44	-.51	.26	7	-.94	-.08	-.55	-.46
Organizational Commitment	2	365	-.33	-.39	.00	100	-.33	-.33	-.47	-.30
Affective Commitment	2	496	-.27	-.31	.07	47	-.43	-.19	-.39	-.23
Continuance Commitment	2	496	-.10	-.12	.00	100	-.12	-.12	-.21	-.03
Normative Commitment	2	496	-.20	-.23	.00	100	-.23	-.23	-.31	-.14
<b>Turnover</b>										
Turnover Cognitions	4	722	.60	.69	.37	2	.08	.99	.65	.73
Intention to Quit (Org.)	4	932	.45	.50	.12	18	.30	.71	.46	.55
Voluntary Turnover	6	1062	.28	.31	.06	61	.21	.40	.25	.36

*Note.* *k* = number of studies. *N* = number of participants.  $\bar{r}$  = sample-weighted mean correlation.  $\rho$  = estimate of population correlation corrected for unreliability in the predictor and criterion.  $SD_{\rho}$  = standard deviation of corrected correlation. % Var. = percentage of variance explained by artifacts. 90% CV = 90% credibility value (*L* = Lower, *U* = Upper). 95% CI = 95% confidence interval (*L* = lower, *U* = upper).

<sup>a</sup>. Statistics are based on corrections for sampling error only.

Table 5  
 Meta-Analysis Results of Turnover Intentions (Organization)

	<i>k</i>	<i>N</i>	$\bar{r}$	$\rho$	SD <sub><math>\rho</math></sub>	%	90% CV		95% CI	
							<i>L</i>	<i>U</i>	<i>L</i>	<i>U</i>
<b>Personal characteristics</b>										
Age	27	13993	-.07	-.08	.18	7	-.37	.22	-.09	-.06
Organizational Tenure	22	8822	.00	.00	.13	16	-.20	.21	-.02	.02
Professional Tenure	9	6939	-.16	-.17	.07	24	-.28	-.06	-.20	-.15
Position Tenure	6	2272	-.06	-.07	.06	46	-.16	.04	-.11	-.02
Sex <sup>a</sup>	8	4864	.07	.08	.00	8	.08	.08	.05	.11
Salary	6	3498	.01	.01	.09	23	-.13	.16	-.02	.04
<b>Role States</b>										
Job Strain	15	7410	.30	.37	.17	8	.09	.65	.35	.39
Emotional Exhaustion	17	6579	.41	.48	.17	8	.20	.76	.46	.50
Personal Accomplishment	10	3402	-.29	-.36	.23	7	-.74	.02	-.39	-.33
Depersonalization	10	4094	.43	.54	.12	15	.35	.74	.52	.56
Mental Health	5	2086	-.36	-.44	.12	15	-.63	-.24	-.47	-.40
Physical Health	5	3360	-.19	-.23	.10	18	-.39	-.07	-.27	-.20
Role Overload	16	17633	.15	.18	.19	4	-.13	.49	.17	.20
Role Ambiguity	16	11825	.21	.26	.13	11	.05	.47	.24	.28
Role Conflict	11	8835	.20	.29	.15	9	.04	.54	.27	.31
<b>Job Characteristics</b>										
Full-time	8	2936	-.02	-.03	.07	43	-.14	.09	-.06	.01
Task Autonomy	7	5265	-.20	-.29	.17	6	-.58	.00	-.31	-.26
Job Control	8	9600	-.20	-.25	.10	11	-.42	-.08	-.27	-.23
Job Embeddedness	3	990	-.34	-.40	.04	66	-.47	-.33	-.46	-.35
Job Demands	3	7251	-.13	-.21	.19	3	-.52	.10	-.23	-.19
Procedural Justice	3	1231	-.33	-.40	.17	9	-.67	-.12	-.44	-.35
Organization Size <sup>b</sup>	2	755	-.03	-.03	.09	25	-.18	.11	-.11	.04
Network Centrality	4	1276	.03	.04	.24	8	-.35	.43	-.02	.10
Recognition	3	3582	-.17	-.24	.06	33	-.33	-.15	-.27	-.21
<b>Group/Leader Relations</b>										
Leader Support	11	5558	-.29	-.34	.09	23	-.49	-.20	-.37	-.32
Team Support	7	3609	-.26	-.31	.04	67	-.37	-.26	-.34	-.29
Group Cohesiveness	7	4773	-.18	-.23	.21	5	-.57	.12	-.25	-.20
Participative Leadership	4	832	-.19	-.25	.17	20	-.52	.03	-.31	-.18
<b>Org./Environment Perceptions</b>										
Perceived Job Alternatives	9	5272	.17	.21	.16	8	-.06	.47	.18	.23
Organizational Support	5	2847	-.33	-.39	.14	9	-.63	-.16	-.43	-.36
P-O Fit	5	1832	-.32	-.39	.06	46	-.50	-.29	-.43	-.36
Job Insecurity	4	1606	.24	.30	.11	22	.12	.49	.26	.35
<b>Attitudinal Reactions</b>										
Job Satisfaction	58	21714	-.48	-.57	.19	6	-.88	-.27	-.58	-.56
Satisfaction w/pay	18	5058	-.23	-.27	.20	11	-.60	.06	-.30	-.25
Satisfaction w/promotion	16	7126	-.25	-.30	.27	4	-.75	.15	-.32	-.28
Satisfaction w/supervisor	14	5996	-.28	-.33	.10	23	-.49	-.17	-.35	-.30
Satisfaction w/coworkers	12	4436	-.27	-.32	.13	17	-.53	-.11	-.35	-.30
Satisfaction w/work	11	2249	-.38	-.44	.17	15	-.72	-.16	-.47	-.41
Affective Commitment	17	11781	-.41	-.51	.23	3	-.89	-.13	-.52	-.50
Continuance Commitment	8	2012	.04	.06	.31	6	-.46	.57	.01	.10

Table 5 (continued)  
 Meta-Analysis Results of Turnover Intentions (Organization)

	<i>k</i>	<i>N</i>	$\bar{r}$	$\rho$	$SD_{\rho}$	% Var.	90% CV		95% CI	
							<i>L</i>	<i>U</i>	<i>L</i>	<i>U</i>
<b>Attitudinal Reactions</b>										
Job Satisfaction	58	21714	-.48	-.57	.19	6	-.88	-.27	-.58	-.56
Satisfaction w/pay	18	5058	-.23	-.27	.20	11	-.60	.06	-.30	-.25
Satisfaction w/promotion	16	7126	-.25	-.30	.27	4	-.75	.15	-.32	-.28
Satisfaction w/supervisor	14	5996	-.28	-.33	.10	23	-.49	-.17	-.35	-.30
Satisfaction w/coworkers	12	4436	-.27	-.32	.13	17	-.53	-.11	-.35	-.30
Satisfaction w/work	11	2249	-.38	-.44	.17	15	-.72	-.16	-.47	-.41
Affective Commitment	17	11781	-.41	-.51	.23	3	-.89	-.13	-.52	-.50
Continuance Commitment	8	2012	.04	.06	.31	6	-.46	.57	.01	.10
Normative Commitment	5	1377	-.30	-.34	.18	11	-.64	-.03	-.38	-.29
Occupational Commitment	10	4673	-.31	-.37	.13	13	-.59	-.16	-.40	-.35
Organizational Commitment	25	7204	-.45	-.54	.09	29	-.69	-.39	-.56	-.52
Job Involvement	5	1384	-.28	-.35	.05	64	-.44	-.27	-.40	-.31
Employee Engagement	5	3080	-.40	-.48	.18	5	-.77	-.18	-.50	-.45
Intrinsic Motivation	7	11828	-.32	-.38	.22	1	-.74	-.02	-.40	-.37
Extrinsic Motivation	2	6886	-.41	-.47	.05	12	-.55	-.40	-.49	-.45
<b>Turnover</b>										
Intention to Quit-Health Care	9	6924	.49	.57	.14	5	.33	.80	.55	.58
Voluntary Turnover	18	78124	.28	.32	.19	7	.00	.64	.30	.34

*Note.* *k* = number of studies. *N* = number of participants.  $\bar{r}$  = sample-weighted mean correlation.  $\rho$  = estimate of population correlation corrected for unreliability in the predictor and criterion.  $SD_{\rho}$  = standard deviation of corrected correlation. % Var. = percentage of variance explained by artifacts. 90% CV = 90% credibility value (*L* = Lower, *U* = Upper). 95% CI = 95% confidence interval (*L* = lower, *U* = upper).

<sup>a</sup>. Men = 1, Women = 0.

<sup>b</sup>. Statistics are based on corrections for sampling error only.

Table 6  
 Meta-Analysis Results of Turnover Intentions (Healthcare)

	<i>k</i>	<i>N</i>	$\bar{r}$	$\rho$	$SD_{\rho}$	% Var.	90% CV		95% CI	
							<i>L</i>	<i>U</i>	<i>L</i>	<i>U</i>
<b>Personal characteristics</b>										
Age <sup>a</sup>	5	4540	-.04	-.04	.06	29	-.13	.06	-.07	-.01
Organizational Tenure	3	2979	.02	.02	.02	56	-.03	.07	-.02	.06
<b>Role States</b>										
General Job Strain	4	3827	.29	.35	.10	11	.18	.52	.32	.38
<b>Group/Leader Relations</b>										
Leader Support	2	1974	-.18	-.21	.09	14	-.36	-.07	-.25	-.17
Team Support	2	1974	-.09	-.11	.15	6	-.36	.14	-.15	-.07
Organizational Support	2	1632	-.49	-.62	.23	2	-.99	-.24	-.65	-.59
<b>Attitudinal Reactions</b>										
Job Satisfaction	7	6384	-.35	-.40	.09	10	-.57	-.24	-.42	-.38
Satisfaction w/pay	2	832	-.24	-.26	.08	27	-.39	-.12	-.32	-.19
Satisfaction w/promotion	2	832	-.35	-.40	.11	16	-.59	-.21	-.46	-.34
Satisfaction w/supervisor	2	1645	-.19	-.22	.07	22	-.34	-.09	-.26	-.17
Satisfaction w/coworkers	2	832	-.30	-.37	.00	100	-.37	-.37	-.43	-.31
Satisfaction w/work	2	832	-.49	-.62	.07	33	-.72	-.51	-.66	-.57
Affective Commitment	4	1262	-.49	-.56	.00	100	-.56	-.56	-.60	-.52
Continuance Commitment	2	507	.02	.02	.00	100	.02	.02	-.07	.11
Normative Commitment	3	881	-.33	-.39	.09	30	-.54	-.23	-.44	-.33
Occupational Commitment	6	4205	-.46	-.54	.15	5	-.79	-.28	-.56	-.52
Organizational Commitment	3	644	-.42	-.50	.05	61	-.60	-.41	-.56	-.45

*Note.* *k* = number of studies. *N* = number of participants.  $\bar{r}$  = sample-weighted mean correlation.  $\rho$  = estimate of population correlation corrected for unreliability in the predictor and criterion.  $SD_{\rho}$  = standard deviation of corrected correlation. % Var. = percentage of variance explained by artifacts. 90% CV = 90% credibility value (*L* = Lower, *U* = Upper). 95% CI = 95% confidence interval (*L* = lower, *U* = upper).

<sup>a</sup>. Statistics are based on corrections for sampling error only.

Table 7  
Meta-Analysis Results of Voluntary Turnover

	<i>k</i>	<i>N</i>	$\bar{r}$	$\rho$	$SD_p$	% Var.	90% CV		95% CI	
							<i>L</i>	<i>U</i>	<i>L</i>	<i>U</i>
<b>Personal characteristics</b>										
Age <sup>a</sup>	11	4165	-.13	-.13	.13	13	-.35	.10	-.16	-.10
Organizational Tenure <sup>a</sup>	11	4790	-.14	-.14	.10	18	-.31	.03	-.17	-.12
Position Tenure <sup>a</sup>	2	1340	-.12	-.12	.00	100	-.12	-.12	-.17	-.07
Sex <sup>b</sup>	5	2268	.00	.00	.00	100	.00	.00	-.04	.04
Salary <sup>a</sup>	5	1217	.02	.02	.09	35	-.13	.16	-.04	.07
<b>Role States</b>										
Job Strain	2	837	.04	.04	.00	100	.04	.04	-.03	.11
Role Overload	3	2153	-.01	-.01	.09	19	-.16	.13	-.06	.03
Role Ambiguity	3	1394	.11	.13	.13	16	-.08	.35	.08	.18
<b>Job Characteristics</b>										
Full-time <sup>a</sup>	4	1070	-.04	-.04	.03	78	-.09	.02	-.10	.03
Task Autonomy	3	2233	-.09	-.11	.00	100	-.11	-.11	-.15	-.07
Organization Size <sup>a</sup>	2	1073	-.06	-.06	.02	77	-.10	-.02	-.12	.00
Network Centrality	3	426	-.18	-.23	.00	100	-.23	-.23	-.32	-.14
<b>Group/Leader Relations</b>										
Leader Support	3	1542	-.04	-.04	.00	100	-.04	-.04	-.09	.01
Peer Support	2	591	.05	.05	.00	100	.05	.05	-.03	.13
<b>Org./Environment Perceptions</b>										
Perceived Job Alternatives	8	1878	.09	.10	.00	100	.10	.10	.06	.15
<b>Attitudinal Reactions</b>										
Job Satisfaction	16	3975	-.14	-.16	.03	87	-.20	-.11	-.19	-.13
Satisfaction w/pay	4	1459	-.07	-.08	.00	100	-.08	-.08	-.13	-.03
Satisfaction w/promotion	5	1680	-.10	-.11	.03	78	-.16	-.05	-.15	-.06
Satisfaction w/supervisor	3	353	-.08	-.08	.00	100	-.08	-.08	-.19	.02
Satisfaction w/coworkers	4	1459	-.13	-.14	.02	92	-.17	-.11	-.19	-.09
Satisfaction w/work	3	353	-.15	-.16	.00	100	-.16	-.16	-.26	-.06
Affective Commitment	4	1049	.18	.20	.25	7	-.22	.61	.14	.26
Continuance Commitment	2	840	.18	.20	.14	13	-.03	.42	.13	.26
Occupational Commitment	2	595	-.12	-.12	.00	100	-.12	-.12	-.20	-.05
Organizational Commitment	7	2323	-.16	-.17	.07	42	-.29	-.06	-.21	-.14
Job Involvement	3	857	-.09	-.10	.00	100	-.10	-.10	-.17	-.03

Note. *k* = number of studies. *N* = number of participants.  $\bar{r}$  = sample-weighted mean correlation.  $\rho$  = estimate of population correlation corrected for unreliability in the predictor and criterion.  $SD_p$  = standard deviation of corrected correlation. % Var. = percentage of variance explained by artifacts. 90% CV = 90% credibility value (*L* = Lower, *U* = Upper). 95% CI = 95% confidence interval (*L* = lower, *U* = upper).

<sup>a</sup>. Statistics are based on corrections for sampling error only.

<sup>b</sup>. Men = 1, Women = 0.

Table 8  
Moderator Analyses for U.S. Versus Non-U.S. Study and Intent to Turnover (Organization)

	<i>k</i>	<i>N</i>	$\bar{r}$	$\rho$	$SD_{\rho}$	% Var.	90% CV		95% CI	
							<i>L</i>	<i>U</i>	<i>L</i>	<i>U</i>
<b>Personal characteristics</b>										
Age – U.S. <sup>a</sup>	17	8315	-.10	-.11	.16	9	-.36	.15	-.13	-.08
Age – Non U.S. <sup>a</sup>	11	5587	-.05	-.06	.20	6	-.39	.27	-.08	-.03
<b>Attitudinal Reactions</b>										
Job Satisfaction – U.S.	33	10357	-.50	-.60	.19	7	-.91	-.28	-.61	-.58
Job Satisfaction – Non U.S.	25	11357	-.46	-.55	.18	6	-.85	-.26	-.57	-.54
Satisfaction w/pay – U.S.	12	3164	-.21	-.25	.25	8	-.66	.16	-.28	-.21
Satisfaction w/pay – Non U.S.	5	1562	-.27	-.34	.01	98	-.35	-.33	-.38	-.30
Organizational Commitment – U.S.	12	3068	-.48	-.57	.10	26	-.72	-.41	-.59	-.54
Organizational Commitment – Non U.S.	13	4136	-.40	-.50	.18	10	-.79	-.20	-.52	-.47
Affective Commitment – U.S.	10	8959	-.38	-.46	.26	2	-.88	-.04	-.48	-.45
Affective Commitment – Non U.S.	6	2360	-.48	-.59	.09	23	-.74	-.45	-.62	-.57

*Note.* *k* = number of studies. *N* = number of participants.  $\bar{r}$  = sample-weighted mean correlation.  $\rho$  = estimate of population correlation corrected for unreliability in the predictor and criterion.  $SD_{\rho}$  = standard deviation of corrected correlation. % Var. = percentage of variance explained by artifacts. 90% CV = 90% credibility value (*L* = Lower, *U* = Upper). 95% CI = 95% confidence interval (*L* = lower, *U* = upper).

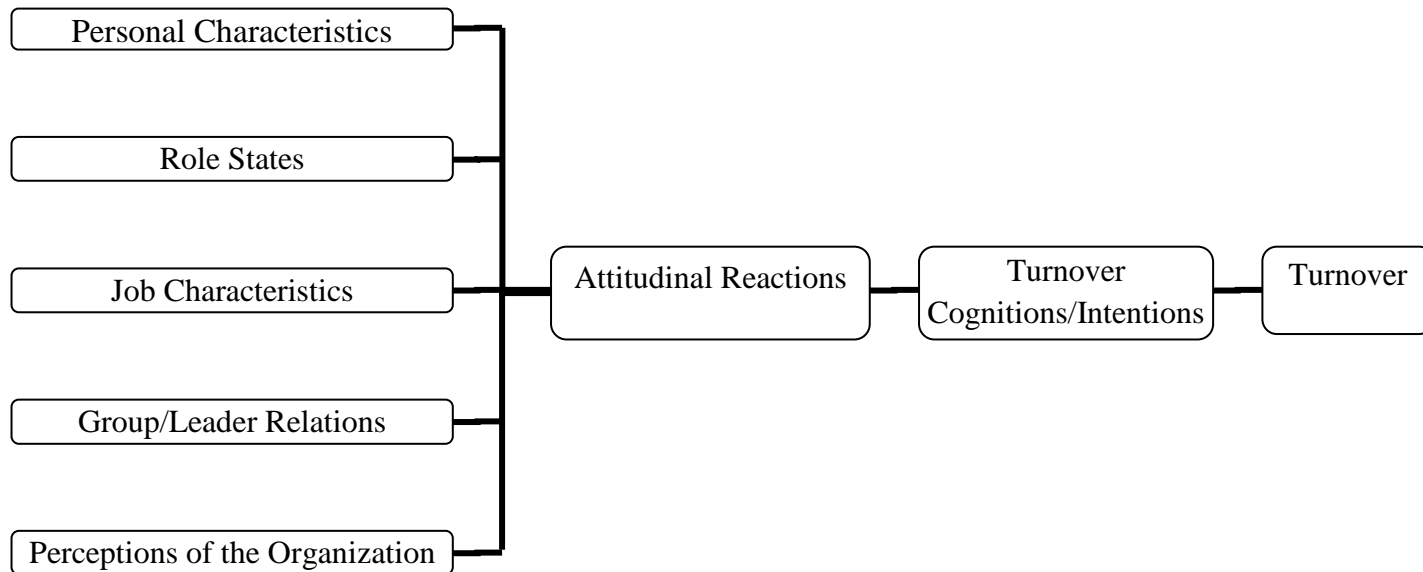
<sup>a</sup>. Statistics are based on corrections for sampling error only.



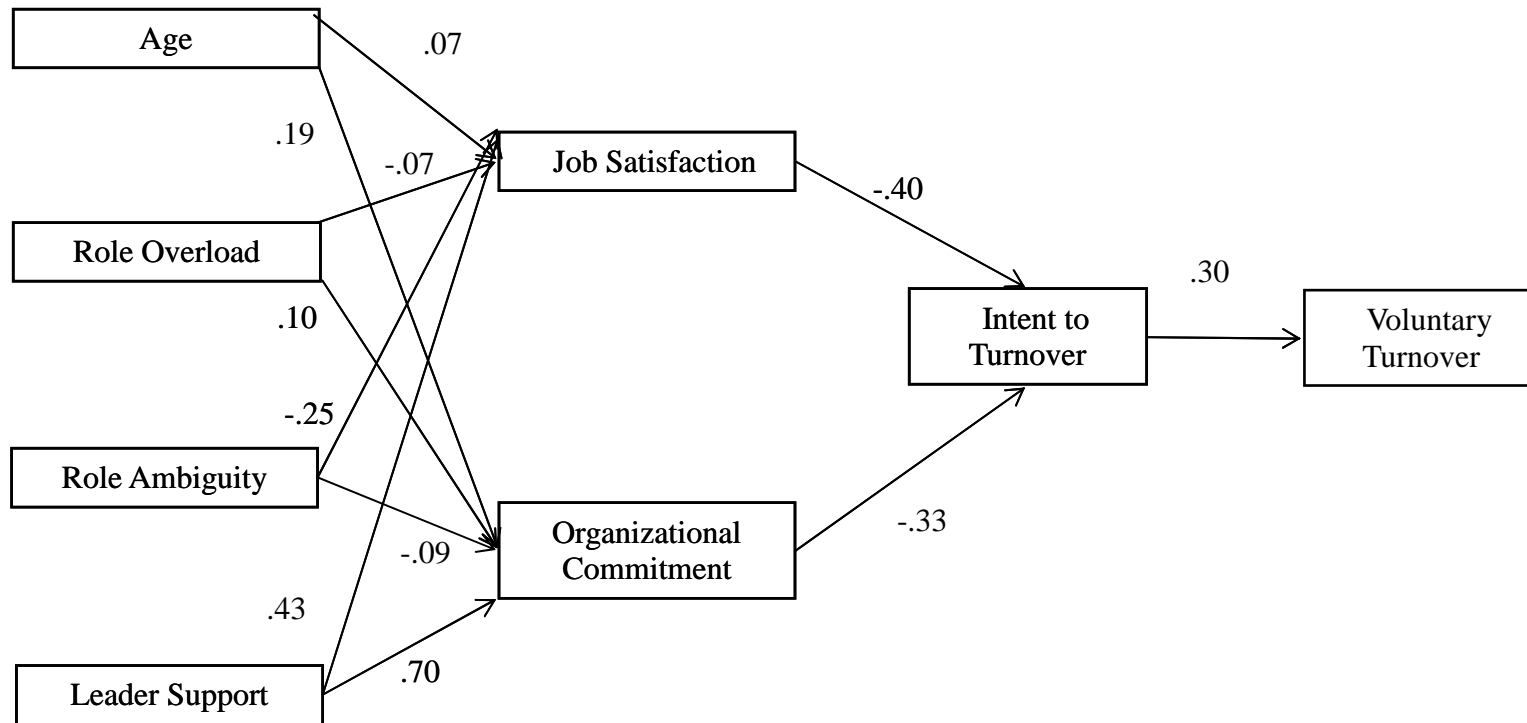
Table 9  
Meta-analyzed correlation matrix for path analysis

	Age			Role Overload			Role Ambiguity			Leader Support			Job Satisfaction			Organizational			Intent to Quit		
	r	$\rho$	95% CI	r	$\rho$	95% CI	r	$\rho$	95% CI	r	$\rho$	95% CI	r	$\rho$	95% CI	r	$\rho$	95% CI	r	$\rho$	95% CI
Age ( <i>k, N</i> )	-	-	-																		
Role Overload ( <i>k, N</i> )	-.08	-.09	-.12, -.07	-	-	-															
Role Ambiguity ( <i>k, N</i> )	-.07	-.09	-.14, -.04	.11	.13	.11, .15	-	-	-												
Leader Support ( <i>k, N</i> )	-.04	-.05	-.09, .00	-.08	-.10	-.16, -.04	-.16	-.21	-.28, -.14	-	-	-									
Job Satisfaction ( <i>k, N</i> )	.07	.08	.06, .10	-.12	-.15	-.18, -.11	-.26	-.35	-.37, -.32	.41	.48	.46, .50	-	-	-						
Organizational Commitment ( <i>k, N</i> )	.13	.15	.09, .19	-.02	.00	-.04, .03	-.18	-.24	-.28, -.20	.61	.70	.67, .73	.45	.52	.50, .54	-	-	-			
Intent to Quit (Org.) ( <i>k, N</i> )	-.07	-.08	-.09, -.06	.15	.18	.17, .20	.21	.26	.24, .28	-.29	-.34	-.37, -.32	-.48	-.57	-.58, -.56	-.45	-.54	-.56, -.52	-	-	-
Voluntary Turnover ( <i>k, N</i> )	-.13	-.13	-.16, -.10	-.01	-.01	-.06, .03	.11	.13	.08, .18	-.04	-.04	-.09, .01	-.14	-.16	-.19, -.13	-.16	-.17	-.21, -.14	.28	.32	.30, .34

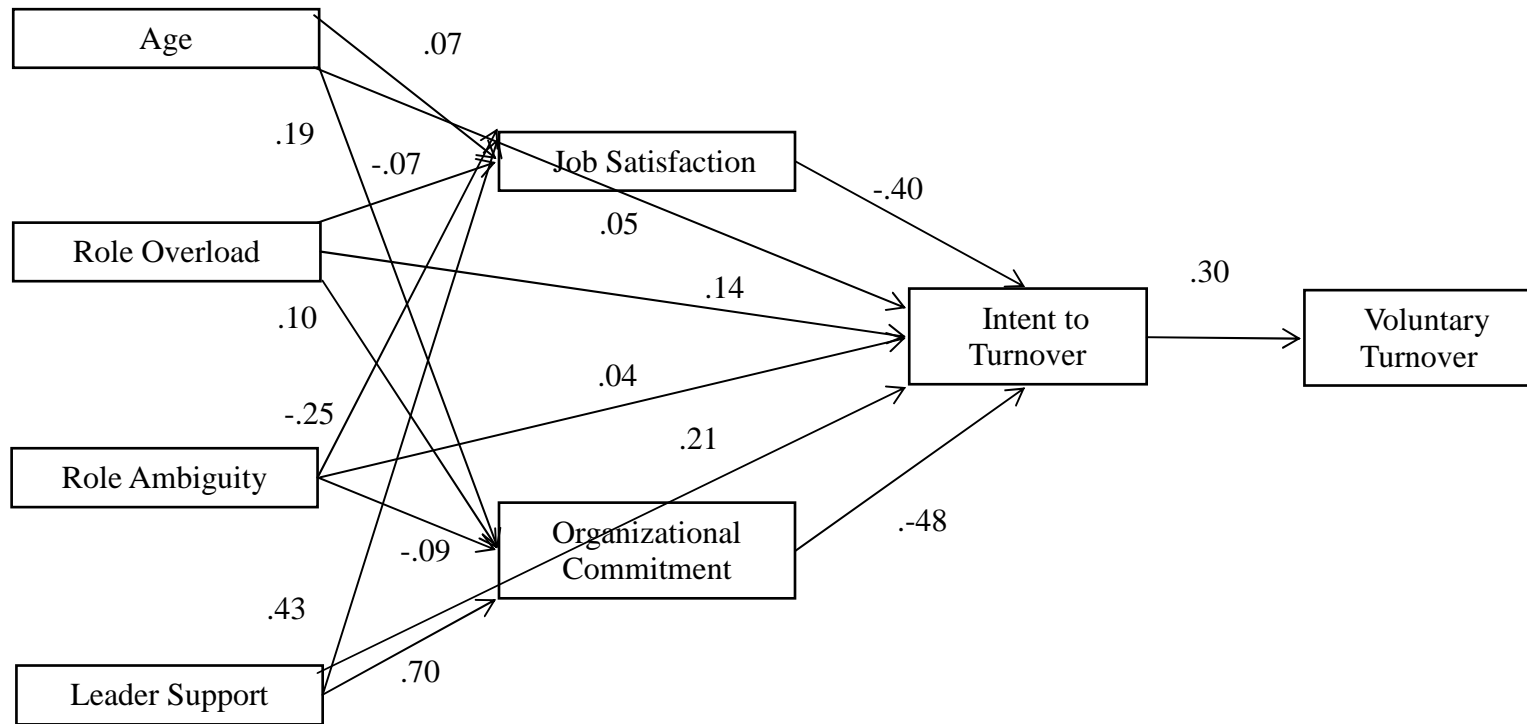
Note. Harmonic mean = 2600 was used to test the path model.  $\rho$  were used in the path analysis.



*Figure 1.* Hypothesized model of employee turnover.



*Figure 2.* Maximum-likelihood parameter estimates for the fully-mediated model. Statistics are standardized path coefficients. Covariance estimates: Age & Role Overload = -.09, Age & Role Ambiguity = -.09, Age & Leader Support = -.05, Role Overload & Role Ambiguity = .13, Role Overload & Leader Support = -.10, Role Ambiguity & Leader Support = -.21, Job Satisfaction & Organizational Commitment = .15. All coefficients are  $p < .01$ .  $\chi^2(10) = 234.27$ ,  $p < .01$ ; AGFI = .923; GFI = .979; RMSEA = .093. Harmonic mean  $N = 2600$ .



*Figure 3.* Maximum-likelihood parameter estimates for the partially-mediated model. Statistics are standardized path coefficients. Covariance estimates: Age & Role Overload = -.09, Age & Role Ambiguity = -.09, Age & Leader Support = -.05, Role Overload & Role Ambiguity = .13, Role Overload & Leader Support = -.10, Role Ambiguity & Leader Support = -.21, Job Satisfaction & Organizational Commitment = .15. All coefficients are  $p < .01$ .  $\chi^2(6) = 70.02$ ,  $p < .01$ ; AGFI = .960; GFI = .993; RMSEA = .064. Harmonic mean  $N = 2600$ .