

DISSERTATION

PREDICTORS AND OUTCOMES OF OCCUPATIONAL BURNOUT:
A FIVE-WAVE LONGITUDINAL STUDY

Submitted by

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In partial fulfillment of the requirements

For the Degree of Doctor of Philosophy

Colorado State University

Fort Collins, Colorado

Summer 2013

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ABSTRACT

PREDICTORS AND OUTCOMES OF OCCUPATIONAL BURNOUT: A FIVE-WAVE LONGITUDINAL STUDY

The current study investigated both intraindividual and interindividual change in occupational burnout in a sample of early-career nurses. This research utilizes Conservation of Resources theory in order to understand the trajectory of burnout over time, whether burnout predicts important outcomes for individuals and organizations, and whether burnout can be predicted by personality traits and recovery experiences. Nursing students were surveyed three times during their nursing program and an additional two times after they began their employment. Latent growth models were used to investigate the trajectory of burnout, assess variance in both the initial status and rate of change in burnout, and examine covariances of the rates of change of burnout with health, job attitudes, and recovery experiences. Autoregressive models provided additional information about the direction of relationships between burnout and these variables. Results indicated that average burnout levels declined during nursing school but then began to increase when the nurses entered their careers. Burnout predicted declines in physical health and satisfaction with the occupation, and reciprocal relationships between burnout and mental health were observed. Personality traits were related to the participants' initial burnout levels, and engaging in psychological detachment during time away from work was associated subsequent decline in burnout. Implications, directions for future research, and limitations are discussed.

ACKNOWLEDGEMENTS

I am incredibly grateful for all of the support I have received from so many people during my time in graduate school. I want to thank all of my colleagues, faculty, fellow students, family, and friends who have helped me along the way.

My advisor, Dr. Peter Chen, has continually supported me and provided me with numerous opportunities over the past six years. I am deeply appreciative of the time he has so generously committed to my professional development. I also want to express my gratitude to my committee members, Drs. Kim Henry, Alyssa Gibbons, and John Rosecrance, for their suggestions on this dissertation as well as their guidance throughout my graduate work.

A special thank you goes to our faculty partners at the University of Northern Colorado, Drs. Melissa Henry, Vicki Wilson, Alison Merrill, and Jackie Dougherty, who shared their insights and research ideas and provided invaluable help in reaching out to nursing students. I was fortunate enough to work with many talented individuals at CSU, but I am especially grateful to my colleague, friend, and research partner on this study, Dr. Julie Sampson.

Most importantly, I could never adequately express my gratitude toward my mom and dad for their constant support in everything I do. I am also incredibly lucky to have had the encouragement of my parents-in-law. I want to thank all of my friends who have cheered me on along the way, especially the best cohort ever: Christa, Stefanie, and Natalie. Above all, I want to thank my husband and best friend, Will, for his endless encouragement, understanding, and love. I sincerely thank everyone who believed I could achieve this goal.

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INTRODUCTION

Since its emergence in the literature over three decades ago, the topic of burnout has received widespread attention from researchers and practitioners. Given the fact that so many people can relate to feeling “stressed” at work (National Institute for Occupational Safety and Health, 1999), the fascination with the topic of burnout is understandable. However, burnout is not merely an interesting phenomenon. Research has indicated that burnout is associated with a variety of negative outcomes for individuals and organizations, including diminished job satisfaction, reduced commitment to the organization, stronger intentions to leave the organization (Lee & Ashforth, 1996), poor performance on the job (Taris, 2006; Bakker, Demerouti, & Verbeke, 2004), as well as increased cardiovascular disease risk (Melamed, Shirom, Toker, Berliner, & Shapira, 2006) and increased mortality risk (Ahola, Väänänen, Koskinen, Kouvonen, & Shirom, 2010).

Burnout can be defined as a reaction to ongoing stress that involves a gradual depletion of an individual’s energetic resources over time and includes feelings of emotional exhaustion, physical fatigue, and cognitive weariness (Shirom, 1989; 2003). Despite the vast amount of burnout studies in the published literature, there are some critical issues that remain. First, whether explicit or implicit in our understanding of burnout, there is a pervasive belief that an individual’s level of burnout changes over time (i.e., burnout develops over time), at least for some people or in some situations (Maslach & Leiter, 2008; van Vegchel, de Jonge, Soderfeldt, Dormann, & Schaufeli, 2004; Toppinen-Tanner, Kalimo, & Mutanen, 2002; Savicki & Cooley, 1994). It is assumed that an individual who reaches a high level of burnout has not always been at this high level (Bakker, Schaufeli, Sixma, Bosveld, & van Dierendonck, 2000; Golembiewski, 1999; Ashforth & Lee, 1997). Rather, this individual should begin a job or a career with

relatively low levels of burnout, but these burnout levels will increase over time. In contrast, another individual in the same work environment may never develop high levels of burnout. Instead, he or she would maintain low levels of burnout over time. However, this description of the individual differences in the burnout process has not been captured empirically. The vast majority of burnout studies do not involve longitudinal designs or individuals who are at the entry point of their careers. Therefore, there is a research opportunity to test some of the assumptions about burnout by utilizing these design features.

Second, the reliance on cross-sectional designs in the majority of burnout research has been insufficient for describing and examining how burnout affects important outcomes, such as an individual's health or attitudes toward his or her work environment. It is valuable to demonstrate a relationship between two variables at one point in time, but the dynamics of the process, such as change in burnout (e.g., an increase in burnout) predicting change in outcomes (e.g., a decline in mental health), cannot be captured by a cross-sectional design. The current study will provide an opportunity to consider the direction of such relationships. For example, does change in burnout levels lead to changes in health status? Or, does change in health status lead to change in burnout levels?

Third, most of the burnout research has emphasized organizational factors which are believed to lead to burnout, and these factors are important to identify so that modifications can be made in the work environment. However, recent research in line with Conservation of Resources theory (Hobfoll, 1989) suggests that the activities that individuals engage in during their time away from work may either help or hinder their recovery from daily stress, which over time would influence their levels of burnout (Sonnetag & Fritz, 2007). Additional evidence has demonstrated that individual differences, such as personality characteristics, are also predictive

of burnout, and the relationship between personality and burnout has yet to be fully understood (Shirom, 2011).

The current study will aim to advance the literature by examining burnout of individuals over multiple time points while they trained for their careers and as they began their careers. There are three primary goals of this work. First, this study will evaluate whether burnout changes over time, what the change function looks like, and if there are individual differences in how people change over time. Second, this research will investigate whether changes in burnout can predict changes in outcomes of mental and physical health, occupational satisfaction, occupational commitment, and turnover intentions. Finally, this study will consider whether the changes in burnout can be predicted by recovery experiences and personality characteristics (see conceptual model in Figure 1).

Burnout at its Foundation

In order to understand the current state of the burnout literature, it is important to consider where this research began. As noted by Maslach, Schaufeli, and Leiter (2001), the term burnout once held a connotation of being colloquial, nonacademic, and even considered as “pop psychology.” In part, this can be explained by its origins in observations from the clinical work of Freudenberg and the social psychology work of Maslach. The tone of these early writings was of an applied nature with a focus on description. The purpose was to make the depiction of burnout relatable to the very individuals who were experiencing it, and there was not much concern for connecting the observations to a theoretical framework. The goal of the earliest work on burnout was to describe what was happening to professionals working in human service jobs with particular emphasis on the emotional and behavioral response to on-the-job demands. These responses included mental health symptoms and damage to the relationships between the service

professional and his or her clients, patients, or service recipients (Maslach, Schaufeli, & Leiter, 2001).

The earliest formal writing on burnout came from Freudenberger and was informed by his experience working in free clinics during the 1960s and 1970s, although there were almost certainly observations about burnout before this time. Freudenberger made a number of remarks regarding burnout, including a typical onset after someone has spent about one year working in an institution, a sense of doubt in one's ability to heal, feelings of exhaustion or fatigue, and psychosomatic symptoms. He noted that these people are dedicated to helping members of their community, but a great deal of job demands comes along with that desire to help (Freudenberger, 1975). Freudenberger also made several suggestions to organizations, such as rotating job tasks, positive recognition, open-sharing of experiences, limiting work hours, providing developmental opportunities, encouraging physical exercise, and, for individuals, having an outside-life that is separate from work-life. He also suggested protecting the organization against rapid turnover by helping people to select themselves out during a training period, since workers who will leave quickly can have a negative effect on the remaining staff. This early description still holds true for how we think about burnout today, and many of Freudenberger's suggested interventions are consistent with reputable organizational interventions and individual stress management.

Around the same time that Freudenberger began writing about these observations, Maslach also began discussing the phenomenon of burnout and published a measure that would become synonymous with the burnout concept itself (Maslach & Jackson, 1981). At this time, Maslach's research focused on service professionals, and Maslach began to define burnout as a syndrome that consisted of emotional exhaustion, depersonalization, and reduced personal accomplishment. Though she noted that emotional exhaustion and depletion of emotional

resources was the key aspect of burnout, Maslach also felt that the development of negative, cynical attitudes toward clients or patients (labeled as depersonalization) and a reduced sense of personal accomplishment on the job were also components of burnout (Maslach, Schaufeli, & Leiter, 2001). Maslach and colleagues maintained that depersonalization develops as a reaction to exhaustion, where service providers must establish some distance with the individuals they serve in order to manage the demands of the work. Reduced personal accomplishment or lack of professional efficacy seems to be prompted by exhaustion, depersonalization/cynicism, or some combination, because these experiences would logically make someone less effective in his or her work role (Maslach, Schaufeli, & Leiter, 2001).

Maslach's Burnout Inventory (MBI) opened the doorway for the abundance of empirical work that followed during the latter part of the 1980s and the 1990s when industrial-organizational psychologists began to link burnout with research on job stress (Maslach, Schaufeli, & Leiter, 2001). Maslach had observed that burnout was correlated with a variety of negative outcomes for the individual and the organization, such as poor quality of work, turnover, absenteeism, poor morale, personal distress, drug and alcohol use, as well as marital and family problems (Maslach & Jackson, 1981). During the first two decades of burnout research, there was continued interest in linking burnout to specific work-related predictors and outcomes (Maslach, Schaufeli, & Leiter, 2001), culminating in the Lee and Ashforth (1996) meta-analysis which indicated that burnout is consistently related to job stressors, poor social support, limited job enhancement opportunities, and poor job attitudes. Until the late 1990s, the vast majority of burnout researchers relied on the MBI and did not question the definition and measurement of this construct.

Conceptual and Measurement Controversy

Recently, controversy has emerged regarding how to conceptualize and, subsequently, how to measure burnout (Shirom, 2003; 2011). Maslach's measure has become the most widely used assessment of burnout, to the extent that many researchers may believe that it is the only way to define and measure burnout. However, the Maslach conceptualization has its limitations, and it can be argued that an alternative conceptualization, captured by the Shirom-Melamed Burnout Measure, addresses these weaknesses in the Maslach measure and provides a preferable alternative (Shirom, 2003; 2011). Due to the reliance on the Maslach framework in the literature, some of the criticisms of the MBI and other popular measures of burnout will be reviewed here, as these critiques have substantial relevance for burnout theory.

One of the major limitations to Maslach's conceptualization is the lack of a theoretical foundation. The development of the MBI consisted of creating items which were intended to assess burnout and deriving the three dimensions through a series of exploratory factor analyses (Maslach & Jackson, 1981) rather than basing the dimensions on theory. It has been argued that there are no theoretical grounds on which the three dimensions covered by the MBI should be grouped together under the term "burnout" (Shirom & Melamed, 2006).

Another limitation of the MBI is the conceptual issue of the three-component structure. While Maslach and colleagues (2001) have acknowledged that exhaustion is the central component, they have maintained that the other two components are also necessary for understanding burnout. However, other researchers have supported separating exhaustion from the other components of Maslach's burnout syndrome. Garden (1987) was unable to replicate Maslach's three-factor structure of burnout. Specifically, the depersonalization factor did not emerge during factor analysis, and Garden concluded that depersonalization was not a relevant

construct for all individuals. Furthermore, depersonalization/cynicism may actually capture a coping mechanism for responding to the exhaustion which is the hallmark of burnout (Garden, 1987; Abraham, 2000). Koeske and Koeske (1989) also concluded that depersonalization and reduced personal accomplishment were distinct but related variables that might result as a response to emotional exhaustion. Golembiewski, Boudreau, Goto, and Murai (1993) described burnout with a phase model where low levels of some components could exist alongside high levels of other components, further supporting the isolation of exhaustion and the notion that one could experience exhaustion without experiencing the other components. Although researchers claimed it was premature for any one definition of burnout to be accepted (Garden, 1987), the Maslach conceptualization has dominated the literature.

Other conceptualizations and measures of burnout have also been proposed. The definition of burnout provided by Pines and colleagues is highly similar to that provided by Shirom, which is used in the current study. Shirom (2003) defined burnout as a gradual depletion of individuals' intrinsic energetic resources over time, including emotional exhaustion, physical fatigue, and cognitive weariness, and Pines has defined burnout as a state of physical, emotional, and mental exhaustion caused by long-term involvement in situations that are emotionally demanding (Pines & Aronson, 1988); however, in developing their Burnout Measure, Pines and colleagues included a variety of symptoms, such as hopelessness, anxiety, and decreased self-esteem, that make it difficult for the measure to show discriminant validity from phenomena such as depression and anxiety (Shirom & Ezrachi, 2003). Further complicating Pines' conceptualization of burnout is the fact that Pines does not limit the burnout phenomenon to the workplace but also extends it to relationships and marriage (Pines, 1996; Pines, 1988). This is a

key conceptual distinction between Pines' work and the work of other burnout researchers that makes it difficult for organizational researchers to utilize Pines' framework.

The Oldenburg Burnout Inventory (OLBI) was also created as a response to perceived weaknesses in the MBI (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Demerouti et al. eliminated the personal accomplishment dimension of burnout, believing it had a looser connection to the core components of emotional exhaustion and depersonalization. In order to expand the scope of the measure, the authors referred to broader subscales of exhaustion and disengagement. Exhaustion was extended to physical and cognitive components as well as the typical emotional or affective component. Disengagement expanded on the traditional depersonalization dimension by including aspects of one's work environment in general in addition to one's relationships with other individuals. They also included both positively-worded items and negatively-worded items in each subscale as another contrast to and expected improvement upon the MBI (Demerouti et al., 2001). The inclusion of disengagement has made the measure popular with some researchers.

Shirom and colleagues offered an alternative approach to the conceptualization of burnout, partly in response to the limitations they observed in burnout measures such as the MBI (Shirom, 1989; 2003; 2011; Shirom & Melamed, 2006). According to Shirom's definition, burnout is a reaction to ongoing stress which consists of a depletion of energetic resources over time, including emotional exhaustion, physical fatigue, and cognitive weariness (Shirom, 2003, 2011). This definition retains the key content of burnout, as it has been noted that exhaustion appears to be the core component (Schaufeli & Van Dierendonck, 1993; Koeske & Koeske, 1989). This approach resulted in the creation of a new measure, the Shirom-Melamed Burnout Measure (SMBM), which has a theoretical basis in Hobfoll's (1989) Conservation of Resources

(COR) theory. COR theory states that stress occurs when an individual loses resources or is threatened with losing resources (Hobfoll & Shirom, 2001). These resources are what people value and strive to protect. There are many types of resources available to an individual, but the Shirom and Melamed concept of burnout refers specifically to an individual's energetic resources (i.e., physical, cognitive, and emotional energy).

Furthermore, burnout according to Shirom (2011) is distinct from other constructs such as cynicism, self-efficacy, depression, anxiety, or self-esteem, although these concepts are related to each other (Ahola & Hakanen, 2007). To clarify, Shirom and Melamed (2006) distinguished burnout from behaviors which could be considered mechanisms to cope with exhaustion (e.g., distancing oneself from the work) or outcomes of exhaustion (e.g., diminished performance on the job). Thus, the Shirom-Melamed conceptualization and measure of burnout has important theoretical, conceptual, and empirical advantages over other measures and will be utilized in the current study.

Conservation of Resources

After the first decade of burnout research, it was noted that this line of research lacked a major theoretical paradigm of its own (Schaufeli, Maslach, & Marek, 1993). Rather, researchers tended to borrow from areas of research such as the broader stress literature. Since then, the model of Conservation of Resources (COR; Hobfoll, 1989) has emerged as key to understanding burnout. The basic principle of COR is that individuals make every effort to maintain and build their resources, and the loss or threat of loss of resources has harmful effects. Resources may be objects, personal characteristics, conditions, or energies that are valued by individuals. When faced with stressors, people will attempt to minimize resource loss. When not immediately faced with stressors, people will attempt to build additional resources (Hobfoll, 1989). Furthermore,

some individuals will have greater resource pools than others, which make them less likely to experience a high degree of resource drain (Hobfoll, 1989). For example, individuals with a strong network of social support are more likely to receive emotional support as well as assistance managing tasks during stressful times. In contrast, individuals with weak networks of social support must attempt to manage the burden on their own (Hobfoll & Shirom, 2001).

Hobfoll and Shirom (2001) noted that it is important to understand the stress process as an unfolding of events rather than any single event. It is normal for an individual to experience some degree of energy resource loss when exposed to stressors on any given day. However, when the individual is away from these stressors, there is an opportunity for replenishing these energy resources. Problems occur when this process does not occur regularly and an individual enters into a downward spiral cycle of resource loss. Thus, burnout is described by Hobfoll and Shirom (2001) as a gradual wearing down of an individual's combination of physical, cognitive, and emotional energy resources over time.

For example, a nurse may drain physical energy from being on his or her feet all day for a 12-hour shift. This individual may also drain cognitive energy after a long period of concentrating on one's job tasks, such as remaining focused and attentive to multiple patients' needs and their medical details. Plus, he or she may drain emotional energy after a day of dealing with the concerned relatives of a sick or injured patient or attempting to appease frustrated individuals who have waited to get medical attention. This nurse may feel some combination of physical, cognitive, or emotional energy drain at the end of the work day, but, after a period of rest and a mental break from work, he or she can return to work the next day feeling reenergized. It is only when this cycle of resource drain continues over time without sufficient resource replenishment that long-term problems begin to occur. As an individual drains these cognitive,

emotional, and physical energies over time, then his or her experience of burnout increases (Shirom, 2003). The current study will utilize COR theory as a way to understand the development of burnout, how burnout affects outcomes of interest, and how individual differences in recovery experiences and personality might predict changes in burnout.

The COR principles which link energy resources with burnout can be found in other stress theories as well. For example, Ursin and Eriksen (2004) discussed that an accumulation of chronic stress depletes an individual's energy and leads to a state of exhaustion. Lazarus (2001) suggested that the depletion of coping resources leads to negative emotional reactions. Frese and Zapf (1994) argued that an individual's energetic resources are limited, can be depleted when coping with stress, and take time to be replenished. Thus, there seems to be a common view among stress experts on the significance of energy resources which COR theory emphasizes and extends.

COR theory also has relevance for hypothesizing about the direction of relationships in the stress process. COR asserts that exposure to stressors without proper recovery will lead to a drain of energetic resources over time (i.e., burnout according to Shirom, 1989; 2003), and burnout will lead to long-term strains. Research has shown that burnout has negative consequences such as poor health and problems on the job (e.g., Melamed et al., 2006). This is consistent with most stress models which show stressors leading to strains (e.g., Kahn & Byosiere, 1992; French & Kahn, 1962).

However, Hobfoll (1989, 2001) also reasoned that individuals who have fewer resources to begin with would be more likely to enter into a cycle of resource loss, and supporters of COR have reasoned that reverse causal stress process (i.e., strains to stressors) is expected based on this theory. For example, good health is a resource, the absence of which makes an individual

less equipped to handle stressors. Based on COR, one would predict that an individual in poor health would be more likely to drain additional energy in order to manage tasks at work and, therefore, would be more likely to experience burnout. This reasoning is similar to the drift hypothesis (Kohn & Schooler, 1983) whereby individuals in poor health drift over time into worse jobs that contain more stressors. Similar logic can be found in the strain-to-stressor hypothesis, an example of which is a depressed individual who begins to lose personal relationships (i.e., reduced social support) when he or she withdraws from the environment as a result of his or her depression. Using COR as a basis for their predictions, a recent study found support for the reverse causation stress hypothesis, specifically that psychological strain predicted perceptions of the work environment at a future time point (Ode-Dusseau, Herleman, Britt, Moore, Castro, & McGurk, 2013).

Furthermore, COR makes the argument for reciprocal relationships in the stress process, as this theory specified resource loss begetting further resource loss over time. Hobfoll (2001) described cycles of resource loss (the “downward spiral”) where an initial loss makes individuals more vulnerable to continued resource loss over time. Thus, COR describes a reciprocal process consisting of not only a typical stressor-to-strain process but also a reversed strain-to-stressor process. It will be important for the current study to test for reverse causation and reciprocal relationships that are described by COR theory in order to understand whether there is support for these reciprocal relationships. Methods such as bivariate autoregressive models allow for testing the direction of effects between variables by comparing causal, reverse causal, and reciprocal models (e.g., de Lange, Taris, Kompier, Houtman, & Bongers, 2004; de Jonge, Dormann, Janssen, Dollard, Landeweerd, & Nijhuis, 2001).

Investigating Burnout over Time

Process Models.

Speculation on how burnout develops over time is not new in the literature. However, a great deal of the theorizing and discussion of the process of burnout has been limited to arguments over the causal ordering of Maslach's three components: emotional exhaustion, depersonalization, and reduced personal accomplishment (Cordes & Dougherty, 1993). One implication of this issue is that the onset of burnout would have different warning signs (Ashforth & Lee, 1997). There have been two major camps taking a position on this issue. Golembiewski, Munzenrider, and Carter (1983) suggested that depersonalization leads to reduced personal accomplishment. They then argued that emotional exhaustion would develop after these two stages. In contrast, Maslach, Leiter, and colleagues put forth a model in which emotional exhaustion develops in response to stressors. This emotional exhaustion leads to depersonalization as people attempt to gain some distance from their stressors in order to cope. Finally, depersonalization leads to a sense of reduced personal accomplishment because individuals feel they have developed such a negative attitude toward their work (Leiter & Maslach, 1988). Others have argued that emotional exhaustion can simultaneously create both depersonalization and reduced personal accomplishment but still argue that the process begins by developing emotional exhaustion (Bakker, Schaufeli, Sixma, Bosveld, & van Dierendonck, 2000).

Cordes, Dougherty, and Blum (1997) found that the Maslach model provided somewhat of a better fit to the data than the Golembiewski model. Ashforth and Lee (1997) argued for a stronger rationale of the Maslach stage model since it is more reasonable to conceptualize depersonalization as a response to emotional exhaustion. Furthermore, research has established a

stronger relationship between emotional exhaustion and depersonalization than of either of these dimensions with reduced personal accomplishment (Lee & Ashforth, 1996). However, this debate over the ordering of the three MBI components has obscured other issues which could be addressed with longitudinal studies of burnout. For example, longitudinal research could clarify what the change function looks like (e.g., does burnout increase over time?) and whether there is variance in how people change over time. These issues will be investigated in the current study.

Understanding change over time.

Although there are many studies of burnout and its relationships with other variables, the vast majority of studies on burnout are cross-sectional. Such research has provided a wealth of knowledge about the variables that consistently covary with burnout. However, as our understanding of burnout implies change in burnout levels over time, it is also important that burnout researchers consider how burnout changes over time, how change in burnout influences change in outcomes of interest, and how change in burnout might be predicted by certain individual differences.

As Chan (1998) noted, the interest in how a variable changes over time may be less apparent for an organizational researcher as compared to a psychologist studying child development. If a theory suggests that one variable causes another, then this is actually stating that at some point in time, a shift in the value of the first variable is followed by a shift in the value of the second variable. Furthermore, if these phenomena could be captured at the appropriate times, then change could be assessed. Assumptions of change may, at times, be implicit, but they are still present. Therefore, our theories cannot be adequately tested and our variables cannot really be understood with cross-sectional data. Understanding the change that

occurs in variables of interest is a critical step in order to advance theories in psychological and organizational research.

Many studies reporting a longitudinal design only measure the variables of interest at two points in time. This two-wave design is limited because it only captures two points in what is considered to be a continuous process. In contrast, longitudinal designs with three or more time points allow the researcher to capture intraindividual (i.e., within-person) change over time (Chan, 1998), which is essential for psychologists, who typically believe that people change in different ways and that these differences matter. One of the major limitations with analytical methods such as repeated measures analysis of variance is that these methods only allow the researcher to consider the average change in a group. As a result, any variation from this average (i.e., between-persons) is ignored.

Methods such as latent growth curve modeling allow researchers to answer interesting questions about the way in which variables are changing by modeling interindividual differences in intraindividual change over time (Chan, 1998). For example, it is possible to describe the change function of a particular variable, which may be increasing or decreasing over time in a linear fashion or it may take on a quadratic function. It is also possible to consider whether individuals are changing in the same way or whether there are differences in how people change. Both interindividual differences in initial status (i.e., where people start), which indicates between-person variability at Time 1, and in the rate of change, which indicates between-person variability in how people change over time, can be observed (Chan, 1998). The current study will extend burnout research by capturing burnout levels in a group of individuals across multiple points in time and examining individual differences in how people change over time.

Capturing differences in initial burnout and change over time

It has been acknowledged that the dynamics of the burnout process are not well-understood (Ashforth & Lee, 1997). There are some implicit assumptions in our understanding of burnout which have not been examined empirically. The first of these assumptions is that individuals do not begin a job or career experiencing high levels of burnout. Instead, researchers tend to assume that high levels of burnout develop over some amount of time. However, if research has not assessed individuals at the beginning of their careers, then it is impossible to uphold or challenge this assumption. There has been a call for more research on the process of burnout with samples of newcomers to a job (or preferably a career) so as to capture the emergence of burnout (Ashforth & Lee, 1997). The second assumption is that burnout develops over time, at least for some individuals. This implies not only change over time but also individual differences in how people change.

Initial Levels of Burnout.

Although there appears to be an implicit assumption that people do not begin a career (or the training for their career) experiencing high levels of burnout, there is little or no evidence supporting this belief. In fact, there is evidence to the contrary. High levels of exhaustion have been reported by physicians in their first year after medical school (Dahlin, Fjell, & Runeson, 2010), teachers beginning their careers (Goddard, O'Brien, & Goddard, 2006), and newly graduated nurses (Laschinger, Grau, Finegan, & Wilk, 2010). Schaufeli and Enzmann (1998) noted burnout tends to occur early in one's career and age is the demographic variable most consistently related to burnout, with younger employees experiencing burnout more often than employees who are in their 30s or 40s. Meta-analytic evidence supports a significant negative relationship between age and emotional exhaustion and also between years of experience in a

field and emotional exhaustion, indicating that older and more experienced employees are less prone to burnout (Brewer & Shapard, 2004).

Focusing research on these individuals can be limited since experienced individuals have likely found ways to adapt to their environment, and those who could not adapt may have left the organization or the profession. One cannot hope to capture the emergence of burnout in an experienced worker population. The issue of survivor bias has been raised in the burnout literature (Maslach, Schaufeli, & Leiter, 2001; Schaufeli & Enzmann, 1998). Those individuals who did not burn out early in their careers are the ones who are still in the workforce, while those who burned out early probably left their job, organization, or even their profession (Schaufeli & Enzmann, 1998). Cordes and Dougherty (1993) reached a similar conclusion in their review. Thus, there is likely a selection effect in samples of experienced or older workers.

Is it possible that our assumption is incorrect and some individuals actually do experience a high level of burnout very early in their career? In order to answer this question, researchers would need to obtain data from individuals who are just starting their careers or have not yet started their careers. As noted by Burisch (2002), there must be a reason to expect change. Burisch suggested studying individuals before a major work-related event in their lives, such as job entry or, ideally, during training for entry into a profession, provided that the training allows exposure to the future work environment. This approach will be utilized in the current study, and, given the evidence mentioned above, it is anticipated that there will be variability in initial burnout levels.

Hypothesis 1: There will be significant variance in initial burnout levels.

Change in burnout over time.

The next assumptions that will be tested in the current study are: 1) burnout levels change over time and 2) individuals vary in how their burnout levels change over time. Given that the vast majority of burnout research has been cross-sectional, there has been limited investigation into these issues. In order for the burnout literature to move forward, variables of interest must be captured with repeated measures (Ashforth & Lee, 1997). As noted by Maslach, Schaufeli, and Leiter (2001), research on the developmental trajectory of burnout over time has been scarce, not for lack of interest but for the difficulties of conducting longitudinal studies.

Some researchers have noted that burnout exhibits a remarkable degree of stability over time as evidenced by cross-time correlations in the .50 to .60 range (e.g., Bakker et al., 2000). This data has been interpreted as evidence that burnout is chronic in nature (e.g., Shirom, 2011), which would suggest that burnout does not change. However, as pointed out by Schaufeli (1998), such stability coefficients are indicative of stability in the rank order of individuals across time and do not indicate that mean levels of burnout are the same over time. Relatively high stability coefficients have been reported in studies where mean levels of burnout increased over time (Enzmann, 1996) and also in studies where mean levels of burnout decreased over time (Bakker et al., 2000). While burnout may be “chronic” in nature after high levels of burnout are experienced, this does not necessarily mean that the level of burnout has always been high. On the contrary, it would be logical to believe that burnout levels were low at some earlier point in time, but these burnout levels increased as individuals were exposed to stressors in their environment.

Furthermore, it is generally acknowledged that burnout is experienced by some people while others manage to avoid it, even while working in the same career, organization, or job.

This would suggest variability in change in burnout over time. Burnout levels increase for some people and not for others. Experts have recognized that some individuals seem to perform well in their role, find many years of fulfilling work, and avoid negative strain outcomes, while others experience burnout (Ashforth & Lee, 1997). There are environmental factors which lead to burnout, but there are also personal factors which may predispose certain individuals to experience burnout. As commented by Ashforth and Lee (1997, p. 705):

“Although burnout is typically viewed as a gradual erosion of emotional energy, there is tremendous variability in the ‘slope’ of this erosion across individuals, occupations, organizations, industries, and possibly nations. Some people burnout relatively quickly, while others never do...As yet, there is no cogent theory regarding such temporal dynamics as the onset and duration of burnout, the lag between causal effects, and the pace of progression.” Such observations imply differences between individuals at any one point in time, the possibility of burnout changing over time, and potential differences in how individuals change over time.

Hypothesis 2: There will be significant variance in the rate of change in burnout over time.

Outcomes of Burnout

Individual Health.

Research has supported negative correlations between burnout and a variety of physical health outcomes (Melamed, Shirom, Toker, Berliner, & Shapira, 2006; Ahola et al., 2010) and mental health outcomes (Schaufeli & Enzmann, 1998). However, the designs of the overwhelming majority of these studies have not allowed researchers to delve into the dynamic nature of these relationships across time. The current study will investigate whether change in burnout over time predicts subsequent changes in both physical and mental health (see Figure 1).

Physical Health.

Recent research suggests that burnout may have a strong link to one's physical health status. Researchers have taken various approaches to the assessment of physical health, including investigations of mortality risk (Ahola et al., 2010), the development of chronic disease (Armon, Melamed, Shirom, & Shapira, 2010; Melamed, Shirom, Toker, Berliner et al., 2006; Melamed, Shirom, Toker, & Shapira, 2006), and self-reported health (Vinokur, Pierce, & Lewandowski-Romps, 2009). In a study of mortality risk, Ahola et al. (2010) followed up with a large sample of Finnish workers after ten years and found that the exhaustion component of the MBI was a significant predictor of increased mortality risk, even after adjusting for sociodemographic factors and common health risk factors and taking initial health status into account (Ahola et al., 2010).

There is substantial evidence to suggest that burnout is linked to physical health, with a particular emphasis on cardiovascular disease (CVD). CVD accounts for one out of three deaths in the United States, with more than 2200 Americans dying of CVD each day, which translates to one death every 39 seconds (Roger, Go, Lloyd-Jones, Benjamin, Berry, Borden et al., 2012). Melamed et al. (2006) reviewed evidence of the link between burnout and CVD concluded that burnout posed a risk that was similar to that of commonly accepted risk factors such as body-mass index, smoking, and blood pressure. In their review, Melamed et al. discussed some of the possible ways that burnout may lead to changes in physical health over time.

One of the proposed ways that burnout may lead to CVD is through wear and tear on the body's tissues resulting from chronic activity of the body's stress system (Melamed et al., 2006). Specifically, one possible mechanism which could explain the burnout-health linkage is an association between burnout and various aspects of the metabolic system, which includes

components such as obesity, cholesterol levels, high glucose levels, and high blood pressure. These metabolic factors greatly increase Type 2 diabetes risk, which further enhances risk for CVD, and burnout has been associated with each of these metabolic factors (Melamed et al., 2006).

Another mechanism is hypothalamic-pituitary-adrenal (HPA) axis dysregulation (Melamed et al., 2006). Stressors activate the HPA axis and the sympathetic nervous system, and these systems have an effect on the immune system and inflammation. Among other functions, the HPA axis is involved in the release of stress response hormones such as cortisol, and immune system responses are largely inhibited by cortisol. However, interpreting these findings becomes more complicated given the research findings on stress and cortisol. While there is strong evidence that acute stressors increase cortisol levels, there is also evidence that exposure to chronic stressors may be associated with either high or low cortisol levels. Burnout has been associated with both an elevated and a diminished cortisol response, and evidence suggests that this dysregulation of the body's stress response (i.e., either an overactive or underactive cortisol response) may have damaging effects on one's health (Melamed et al., 2006). HPA axis dysregulation may also be related to the sleep problems that burned-out individuals tend to experience, because elevated evening cortisol and decreased morning cortisol have been observed in people suffering with insomnia, and research has shown that burnout is associated with difficulty falling asleep, staying asleep, and feeling rested upon waking (Melamed et al., 2006).

Chronic inflammation, another physiological response to stressors, may provide another link to CVD. Burnout has been associated with a number of proteins that are released in the blood in order to respond to injury or infection as well as immune system suppression. Another

possible explanation for the burnout-health relationship is that there is a link between burnout and engaging in poor health behaviors. There is some evidence of a relationship between emotional exhaustion and alcohol use, diet, and lack of physical activity (Gorter, Eijkman, & Hoogstraten, 2000); however other evidence suggests that burnout and health behaviors are independent but interact to increase CVD risk (Melamed et al., 2006). Additionally, burnout has been identified as a risk factor for developing Type 2 diabetes (Melamed et al., 2006), associated with the onset of musculoskeletal pain (Armon et al., 2010), and related to poorer self-reported health (Vinokur et al., 2009).

Based on the burnout and physical health research presented along with COR (Hobfoll, 1989), it is expected that, as individuals enter their careers, some of them will begin to experience the drain of physical, cognitive, and emotional energies that are indicative of burnout. As burnout levels increase, various physiological changes may be occurring which would lead to self-reports of worsening physical health over time, as described in the research above. The negative effect on physical health would be greatest (i.e., steepest decline in physical health) for those individuals who are experiencing high levels of burnout very early in their career or who are experiencing increasing levels of burnout as they progress through the first years of their careers. Although researchers have tended to argue that increasing burnout leads to declining health (Melamed et al., 2006), any conclusions about the causal ordering of this process are tenuous and should be tested empirically.

Hypothesis 3a: The greater the initial level of burnout, the greater the rate of decline in physical health.

Hypothesis 3b: The greater the rate of increase in burnout, the greater the rate of decline in physical health.

Hypothesis 3c: Burnout will negatively predict subsequent physical health.

Mental Health.

Burnout has demonstrated negative correlations with indicators of mental health, with the most commonly studied being depression (Ahola & Hakanen, 2007; Glass & McKnight, 1996) and general mental health (Brinkborg, Michanek, Hesser, & Berglund, 2011; Demerouti, Mostert, & Bakker, 2010; Bovier, Arigoni, Schneider, & Gallacchi, 2009). There has been some challenge to the notion that burnout is distinct from mental health outcomes such as depression, given that physical energy loss is one of the criteria for diagnosing depression (Suls & Bunde, 2005). It is not surprising that burnout and depression share a fair amount of variance (Schaufeli & Enzmann, 1998). However, research has stood up to this challenge and defended the distinction between burnout and depression.

In fact, burnout can be distinguished from depression both from a conceptual standpoint as well as an empirical standpoint. Conceptually, burnout is specific to the job and the work environment, while depression is generalized toward a wider domain of activity (Maslach, Schaufeli, & Leiter, 2001). Furthermore, burnout does not encompass symptoms of depression such as general sadness, hopelessness, or feelings of worthlessness. Empirically, the two constructs share variance but not so much variance that the two concepts should be considered redundant (Glass & McKnight, 1996).

The relationship between burnout and depression appears complex. In terms of the direction of the relationship, the argument that has garnered the most support is that burnout can lead to depression and mental health issues (Shirom, 2011). As such, in terms of the stress process, burnout appears to be a proximal indicator of strain while poor mental health is considered a more distal indicator of strain (see Figure 1). In studies of general mental health,

researchers have shown that burnout is negatively associated with good mental health (Demerouti et al., 2010; Bovier et al., 2009). In an intervention study with social workers, the treatment group showed both significantly decreased burnout levels and increased general mental health compared to a control group (Brinkborg et al., 2011). Furthermore, empirical research has supported burnout as a mediator of the relationship between stressors and depression (Ahola & Hakanen, 2007).

Based on COR theory, individuals who begin to experience the cognitive, emotional, and physical resource drain that is indicative of burnout may continue to drain resources over time, thereby increasing their burnout levels over time. As discussed by Shirom (2011), if individuals stay in this cycle where they are unable to replenish their resources, then over time this could lead to more severe depressive symptoms or other mental health issues. It is in this advanced stage of burnout where mental health problems (e.g., depression) would be the predominant symptom. There is some empirical evidence that burnout predicts new cases of depression, but there is also evidence that depression can lead to burnout. Since there was evidence for both burnout-to-depression and depression-to-burnout, this suggests a cyclical process (Ahola & Hakanen, 2007). Therefore, it will be important to examine the reverse causation hypothesis that mental health may lead to burnout (Zapf, Dormann, & Frese, 1996) as well as the reciprocal hypothesis that burnout and mental health influence each other over time. It is expected that increasing levels of burnout would result in mental health declines and high initial levels of burnout will predict mental health declines, as these are individuals who are already experiencing significant resource drain. The direction of the burnout-mental health relationship will be tested in this study.

Hypothesis 4a: The greater the initial level of burnout, the greater the rate of decline in mental health.

Hypothesis 4b: The greater the rate of increase in burnout, the greater the rate of decline in mental health.

Hypothesis 4c: Burnout will negatively predict subsequent mental health.

Job Attitudes

Burnout has been linked to outcomes that are important to organizations such as lower organizational commitment, lower job satisfaction, greater turnover intentions (Lee & Ashforth, 1996), increased absenteeism (Ybema, Smulders, & Bongers, 2010; Firth & Britton, 1989), and poorer job performance (Taris, 2006). Emotional exhaustion appears to have an effect on organizational deviance via its effects on job satisfaction and organizational commitment (Mulki, Jaramillo, & Locander, 2006). In healthcare, burnout has been linked to perceptions of a less safe environment, lower frequency of reporting near misses (Halbesleben, Wakefield, Wakefield, & Cooper, 2008), greater use of safety workarounds to bypass a safety procedure (Halbesleben, 2010), and medical errors (West, Tan, Habermann, Sloan, & Shanafelt, 2009). It appears that burnout can have devastating consequences not only for an individual's health and well-being but also for the individual's work experiences and his or her organization.

Job satisfaction, organizational commitment, and turnover intentions have been the most commonly studied job attitudes in the burnout literature (Schaufeli, 1998). While these variables are often discussed as outcomes of burnout (see Lee & Ashforth, 1996), Schaufeli (1998) noted that most research with these variables and burnout has been cross-sectional. The current study will focus turnover intentions as well as a variation of organizational variables that are frequently

investigated in studies of burnout: occupational commitment and occupational satisfaction (see Figure 1).

Occupational Satisfaction.

Job satisfaction is likely the most researched job attitude in the organizational psychology literature. For decades, researchers have been striving to understand what makes for a satisfied employee, with the hope that a happy worker is also a productive worker (Judge, Bono, Thoresen, & Patton, 2001). Job satisfaction can be considered as a global attitude or a set of more specific attitudes about the job (e.g., satisfaction with pay, satisfaction with supervision, etc.; Hulin & Judge, 2003).

In addition, job satisfaction is one of the most frequently investigated consequences of the job stress process (Kahn & Byosiere, 1992), and it is one of the most frequently hypothesized outcomes of burnout. Early research on burnout claimed that one of the consequences of burnout is changes in attitudes related to the job (Leiter & Maslach, 1988). Meta-analyses have confirmed a negative relationship between burnout and job satisfaction (Lee & Ashforth, 1996; Schaufeli & Enzmann, 1998; Alarcon, 2011), and recent research has also supported this negative relationship (Yang, 2010; Griffin, Hogan, Lambert, Tucker-Gail, & Baker, 2010; Lee, Lim, Yang, & Lee, 2011).

A possible explanation for this well-established relationship can be found in COR theory. COR would suggest that as energetic resources are drained and employees begin to experience the physical, cognitive, and emotional exhaustion of burnout, then employees would be less likely to appraise their jobs with positive affect, thoughts, and evaluations. As burnout levels increase over time, employees would experience a decrease in their job satisfaction. Unfortunately, most of this research on burnout and satisfaction relies on cross-sectional data,

making it more difficult to evaluate whether the expected direction of this relationship (burnout to job dissatisfaction) holds true.

This study will focus on satisfaction with the occupation, rather than satisfaction with any particular job. Targeting satisfaction with the occupation offers advantages in a study with individuals who are new to the profession. First, this makes it possible to assess satisfaction at the beginning of an individual's career before he or she enters a particular organization. Second, even if an individual changes organizations, it is still reasonable to evaluate their satisfaction with the occupation. It is expected that as employees' emotional, cognitive, and physical energy is drained by their work, any positive affect and thoughts toward their occupation may decline and they would begin to appraise their occupation in a less positive manner. High levels of burnout at an early stage or increasing levels of burnout over time would be related to decreasing satisfaction with the occupation over time.

Hypothesis 5a: The greater the initial level of burnout, the greater the rate of decline in satisfaction with the occupation.

Hypothesis 5b: The greater the rate of increase in burnout, the greater the rate of decline in satisfaction with the occupation.

Hypothesis 5c: Burnout will negatively predict subsequent satisfaction with the occupation.

Occupational Commitment.

Organizational researchers and practitioners have long been interested in the concept of organizational commitment because of the belief that individuals who experience a strong connection to the organization will perform better in their jobs and be less likely to quit. Years of research on organizational commitment has upheld these beliefs (Cooper-Hakim & Viswesvaran,

2005; Riketta, 2008). There has been a particular interest in studying commitment in newcomers due to the belief that early experiences on the job are important for the development of organizational commitment (Morrow, 2011). However, most of the commitment research has been cross-sectional and considered commitment as a static variable rather than analyzing changes in commitment (Bentein et al., 2005).

There are a variety of reasons for an individual to feel committed to an organization. Allen and Meyer's (1990) tripartite model consisting of affective, continuance, and normative commitment has been the primary way to classify types of organizational commitment. Affective commitment has been described as commitment due to an emotional attachment or identification with the organization. In contrast, continuance commitment is based on one's investments in the organization or the costs associated with leaving the organization. Finally, normative commitment focuses on one's sense of loyalty or obligation to the organization (Allen & Meyer, 1990). Thus, an individual can be committed to the organization because he or she feels a positive emotional attachment toward the organization, perceives significant costs of leaving the organization, or maintains a sense of obligation to the organization. This has sometimes been described as an employee's desire to remain with the organization because he or she wants to (i.e., affective commitment), needs to (i.e., continuance commitment), or ought to (i.e., normative commitment), and employees can experience all three types of commitment in varying degrees (Meyer, Allen, & Smith, 1993). Each form of commitment has been negatively associated with turnover intentions, but the underlying reasons for an individual's commitment can be very different.

In recent years, commitment researchers have been required to defend the continued relevance of organizational commitment, based on the fact that both organizations and

employees no longer enter into same long-term relationship that they did years ago. While Meyer (2009) argued that organizational commitment is still relevant, he acknowledged employer-employee relations are changing and that other forms of commitment, such as occupational commitment, may have enhanced relevance in the absence of commitment to organizations. The current study will focus on commitment to the occupation rather than commitment to the organization. Another advantage of focusing on occupational commitment is that, in the context of this longitudinal study of newcomers, it will be possible to assess commitment to the occupation before an individual enters the workforce and to track their levels of occupational commitment over time.

Occupational commitment has been investigated in the commitment literature, although with less frequency than organizational commitment (Cooper-Hakim & Viswesvaran, 2005). Occupational commitment has demonstrated relationships with job satisfaction and turnover intentions (Irving, Coleman, & Cooper, 1997), but empirical research focusing on burnout and occupational commitment has not been conducted. Empirical studies have established that there is a positive correlation between organizational commitment and occupational commitment (Wallace, 1993). The two concepts utilize the same domain of commitment with the only difference being the target of that commitment. Therefore, it is appropriate to draw upon the greater body of literature addressing organizational commitment and its relationship with burnout.

Applying the logic of the vast literature on organizational commitment, an individual's early experiences in an occupation are likely to be critical for the formation of occupational commitment. Meyer, Allen, and Smith (1993) applied the three-component commitment model to the occupational commitment domain and confirmed that the three components of

occupational commitment were distinct from one another and also distinct from organizational commitment. Subsequent research has upheld the three component model of occupational commitment (Irving et al., 1997). The current study will investigate all three forms of occupational commitment and consider how they relate to burnout over time.

Affective commitment to the occupation.

Research investigating burnout and organizational commitment has tended to focus on the affective component only. The negative correlation between burnout and affective commitment to the organization is well-established in the literature. Specifically, higher levels of burnout have been related to lower affective organizational commitment (Hu, Schaufeli, & Taris, 2011; Demerouti et al., 2010; Leiter & Maslach, 1988). In a study of U.S. Air Force personnel, researchers found that perceptions of resource loss have adverse effects on burnout and affective organizational commitment (Vinokur, Pierce, Lewandowski-Romps, Hobfoll, & Galea, 2011).

Meyer et al. (1993) argued that the antecedents of the varying types of occupational commitment would differ. For example, if being involved in the occupation is a satisfying experience, then affective commitment would be expected to develop. As discussed by Meyer et al. (1993), both affective and normative commitments arise from positive experiences at work, and both tend to be associated with positive outcomes. Their study found that as nursing students progressed through their nursing program, continuance commitment to the occupation tended to increase while affective and normative commitment to the occupation tended to decrease (Meyer et al., 1993); however, this finding was based on correlations between year in the program and commitment. Researchers have typically found that affective commitment to the organization declines over time, especially when the study assesses individuals during the first few months of work (Bentein et al., 2005; Lance, Vandenberg, & Self, 2000; Farkas & Tetrick, 1989).

If research tends to show a decline in affective commitment over time, then this decline is likely to be strengthened by burnout. As reasoned by Leiter and Maslach (1988), when employees feel emotionally exhausted by their work then they are likely to feel less enthusiasm toward the organization and less dedication toward its goals. The same could be said about one's occupation. If an employee feels like the work is draining his or her emotional, cognitive, and physical energy, then this employee may begin to feel less of an emotional attachment and identification with the occupation.

There is some support for burnout preceding changes in job attitudes (Cordes et al., 1997). Proponents of Maslach's three-component approach to burnout have discussed how individuals react to emotional exhaustion by distancing themselves from their work in order to cope with stressors in the environment (Maslach & Leiter, 2008). This is basically the cynicism or depersonalization component in Maslach's burnout conceptualization, and researchers who have investigated the ordering of the three Maslach components have contended that these attitudes (e.g., cynicism) develop subsequent to exhaustion.

As discussed in COR theory, employees who enter cycles of resource loss without subsequent regain or replenishment are likely to develop burnout over time. As individuals experience this drain of their cognitive, emotional, and physical resources, they may begin to reevaluate how they think and feel about the work and change their attitudes about their occupation (see Figure 1). As their burnout increases, their positive emotional attachment toward their occupation may begin to wane as they decrease their identification with the occupation in order to get some distance from it.

Hypothesis 6a: The greater the initial level of burnout, the greater the rate of decline in affective commitment to the occupation.

Hypothesis 6b: The greater the rate of increase in burnout, the greater the rate of decline in affective commitment to the occupation.

Hypothesis 6c: Burnout negatively predicts subsequent affective commitment.

Continuance commitment to the occupation.

Continuance commitment is often discussed as commitment based on the perceived costs associated with leaving (Allen & Meyer, 1990). The individual considers what would be given up if he or she left the organization or, in this case, the occupation. An individual who is committed for more practical reasons may still be highly committed, but this commitment is not due to an identification with or emotional attachment to the occupation. However, continuance commitment is not necessarily negative. It is simply a reality that making investments in a career path makes a person more reluctant to exit that career.

The current study will utilize occupational commitment rather than the typical organizational commitment, but a similar logic applies to the development of continuance commitment to the occupation. If the individual invests time and effort into developing occupationally-specific skills, then increasing levels of continuance commitment would be the result of these increasing investments in the occupation combined with the belief that the skills one is developing are not easily transferable to another occupation (Meyer, Allen, & Smith, 1993; Allen & Meyer, 1990). In contrast to affective and normative organizational commitment, both of which tend to decline in the first few months on the job, continuance organizational commitment appears less likely to decline. Any change in continuance commitment is more likely to be an increase rather than a decrease. In their study of nursing students, Meyer et al. (1993) found that continuance commitment to the occupation increased over their time in nursing school, but this finding was based on correlations between year in the program and commitment.

The same pattern would likely be expected of occupational continuance commitment while individuals are training for their career. When these individuals are at the point of career entry, they have already made considerable investments in the occupation, at least in the case of occupations which require considerable education or extensive training prior to obtaining a job. Thus, continuance commitment to the occupation would have a positive trajectory during school. It is possible to see a slight increase in their occupational continuance commitment as they begin working, but their investment in the occupation is already quite high and is unlikely to increase much at that point in time. Furthermore, their occupational continuance commitment is unlikely to decrease, because they are continuing to make investments in the occupation and would be sacrificing that time and effort if they left the occupation. Thus, it is unlikely that they would begin to perceive less sacrifice related to the leaving the occupation. Consistent with the organizational continuance commitment findings, it is reasonable to expect a flat trajectory (i.e., no change) in occupational continuance commitment for employees. Even if the work required of the occupation is not ideal, an employee might feel “stuck” due to investments already made. This is consistent with research on individuals who have already entered their careers and change in organizational continuance commitment was not observed (Bentein et al., 2005; Lance, Vandenberg, & Self, 2000).

However, what effect would burnout have on continuance commitment? The effect of burnout on satisfaction or affective commitment seems fairly intuitive, and there are empirical studies supporting the negative relationships between burnout and both satisfaction and affective commitment. It can easily be reasoned that as burnout increases, then positive affect and evaluations of the occupation decrease. Although one study demonstrated a negative relationship between emotional exhaustion and continuance commitment, research on burnout and

continuance commitment is lacking in the literature (Lapointe, Vandenberghe, & Panaccio, 2011). Furthermore, an explanation for the effect of burnout on continuance commitment may be less obvious. In the case that an individual develops high levels of burnout, it is expected that his or her continuance commitment would decline, just as his or her affective commitment is expected to decline (see Figure 1). The actual time and effort that the individual has invested in the occupation has not changed, but his or her evaluation of that time and effort would change. Thus, such employees experience a change in perception and might begin to reevaluate the sacrifice associated with exiting the occupation. As employees experience a continuous drain of their physical, cognitive, and emotional energies which they are not able to replenish and their burnout levels increase, what was perceived as an enormous sacrifice to leave the occupation no longer seems so enormous.

Thus, under normal circumstances which do not involve burnout, even an employee who does not love his or her occupation still perceives a great sacrifice associated with leaving. In contrast, an employee who develops high levels of burnout begins to reinterpret this sacrifice as smaller in magnitude. While there may be zero average change in continuance commitment over time, there can still be variance. Some individuals might be stable over time and others decreasing over time, and latent growth modeling allows the researcher to capture this variation. It is expected that increasing levels of burnout will be related to declining levels of continuance commitment to the occupation.

Hypothesis 6d: The greater the initial level of burnout, the greater the rate of decline in continuance commitment to the occupation.

Hypothesis 6e: The greater the rate of increase in burnout, the greater the rate of decline in continuance commitment to the occupation.

Hypothesis 6f: Burnout negatively predicts subsequent continuance commitment.

Normative commitment to the occupation.

As discussed by Allen and Meyer (1990), normative commitment is obligation-based commitment based on beliefs about one's personal morals or norms which dictate that staying is the right thing to do. Specifically, normative commitment to the occupation is based on a sense of responsibility or other internal pressure to remain dedicated to the occupation or a perceived obligation to reciprocate based on benefits received. For example, normative commitment to the occupation might result from pressure such as having a family member in the occupation or receiving funding to pursue training for the occupation (Meyer, Allen, & Smith, 1993).

Compared to affective and continuance commitment, there is considerably less research on normative commitment in general. Not surprisingly, there is a lack of research on normative occupational commitment and burnout. However, it is well-established that normative and affective commitment are often positively correlated, although they are distinct variables. Furthermore, these two variables tend to show similar patterns in their relationships with other variables, such as job satisfaction and turnover intentions, although relationships with normative commitment are often smaller in magnitude as compared to affective commitment (Cooper-Hakim & Viswesvaran, 2005).

In terms of how normative commitment changes over time, Meyer et al. (1993) concluded that nursing students' normative commitment to the occupation tended to decrease throughout nursing school, but this was based on negative correlations between year in the program and commitment. Researchers have found that normative commitment to the organization declines over time, at least in a sample of individuals who are relatively new to the organization (Bentein et al., 2005). The Bentein et al. (2005) study took place over three waves

of surveys each separated by three months. Bentein and colleagues argued that normative commitment is sensitive to violations of the social exchange relationship that exists between the individual and the organization. That is, if the individual receives benefits from his or her relationship with the organization, then the individual would feel the need to reciprocate by offering his or her commitment. However, if the organization breaches its obligations to the employee, then it would be expected for the employee to change his or her level of obligation to the employer.

There is very limited longitudinal research on normative commitment, but based on the nature of the construct, it becomes possible to see how burnout would influence one's obligation or feelings of responsibility toward the occupation. Similar to affective commitment, increasing levels of burnout should be associated with a decline in normative commitment over time (see Figure 1). As an individual begins to experience a drain of his or her energy resources over time and burnout levels begin to increase, then he or she may begin to reevaluate his or her obligation or responsibility to the occupation. Any decline in normative commitment should be enhanced by increasing levels of burnout. It is expected that as burnout increases, then normative commitment will begin to decrease.

Hypothesis 6g: The greater the initial level of burnout, the greater the rate of decline in normative commitment to the occupation.

Hypothesis 6h: The greater the rate of increase in burnout, the greater the rate of decline in normative commitment to the occupation.

Hypothesis 6i: Burnout negatively predicts subsequent normative commitment.

Turnover Intentions.

As noted in numerous stress models, an individual's response to stressors can be physiological, psychological, or behavioral (Kahn & Byosiere, 1992). One of the organizational outcomes of primary interest to stress researchers, and organizational researchers in general, is turnover. In the organizational literature, turnover is defined as an employee leaving a workplace voluntarily and permanently (Hom, 2010). Research has supported turnover intentions as one of the best predictors of actual turnover (Griffeth, Hom, & Gaertner, 2000), a finding which is consistent with the theory of reasoned action (Ajzen & Fishbein, 1977). In the burnout literature, a major concern is that organizations and professions may be losing motivated, caring employees who want to make a difference in people's lives but become overwhelmed by the demands of the work. Thus, turnover intentions are a relevant and significant outcome for burnout research.

In their 1996 meta-analysis, Lee and Ashforth identified a positive correlation between burnout and turnover intentions. More recent studies have confirmed this relationship (Liljegen & Ekberg, 2009; Butler, Simpson, Brennan, & Turner, 2010; Hu, Schaufeli, & Taris, 2011). Although the study included only two time points, Lee and Ashforth (1993) found that emotional exhaustion was predictive of future turnover intentions. Butler et al. (2010) found that home care personal assistant workers who had left their jobs had experienced significant increases in their levels of emotional exhaustion between Time 1 and Time 2.

If the interest is to predict turnover intentions of employees at the end of their first year on the job, then it would be reasonable to expect different outcomes for employees whose burnout increased during the past year versus employees whose burnout remained unchanged or even decreased during this time period. If employees begin to experience a cycle of drain of their cognitive, emotional, and physical energy resources over time, and their burnout levels begin to

increase over time, then they would be more likely to indicate a desire to exit the organization or the occupation. The current study will investigate whether a change in burnout over time can predict subsequent turnover intentions.

Hypothesis 7a: The greater the initial level of burnout, the greater the final level of turnover intentions.

Hypothesis 7b: The greater the rate of increase in burnout, the greater the final level of turnover intentions.

Predictors of Burnout

A variety of work-related factors have been identified as predictors of burnout. Job demands, such as workload and time pressure, and role stressors, such as role conflict and role ambiguity, have demonstrated consistent positive relationships with emotional exhaustion (Lee & Ashforth, 1996; Maslach, Schaufeli, & Leiter, 2001; Schaufeli & Enzmann, 1998). A lack of feedback appears positively related to burnout while participation in decision making and autonomy are negatively related to burnout (Schaufeli & Enzmann, 1998). Social support has also been a consistent predictor of emotional exhaustion (Lee & Ashforth, 1996; Maslach, Schaufeli, & Leiter, 2001), with a stronger negative relationship found for work-related sources of social support (e.g., supervisors and coworkers) as compared to non-work-related sources of social support (Halbesleben, 2006). In addition, participative leadership and person-job fit have been negatively related to emotional exhaustion (Mulki, Jaramillo, & Locander, 2006).

In contrast to situational factors, investigations of individual factors such as off-work activities and personality characteristics have been less prevalent in the burnout literature. There are certainly many examples of situations where some individuals will experience high levels of burnout and others will not, even in the same job. A review of the literature on burnout

interventions shows that these programs tend to focus on the individual. While some might argue this is not the correct approach, the belief that there is something about the individual, which either predisposes or makes one resilient to burnout, is pervasive. Relying on COR theory, the current study will consider how recovery experiences (i.e., experiences one has while away from work) and personality traits may provide higher initial levels of resources or help rebuild resources and, therefore, make certain individuals more resilient to burnout (see Figure 1).

Recovery Experiences.

The COR concepts of resource loss and replenishment have been utilized in research on recovery, a process by which individuals return to a state of psychological well-being during time away from work after exposure to work-related stressors (Sonnentag & Fritz, 2007). In recent years, research has begun to identify activities or experiences during time away from work which either facilitate or inhibit the recovery process and are either positive or negatively associated with well-being upon returning to work (e.g., Fritz & Sonnentag, 2005; Rook & Zijlstra, 2006). Based on COR theory, it is believed that certain experiences while away from work enhance well-being because they facilitate regaining or rebuilding of cognitive, emotional, or energy resources (Fritz & Sonnentag, 2005).

For a while, recovery researchers focused on specific off-work activities, such as positive work reflection (Binnewies, Sonnentag, & Mojza, 2009; Fritz & Sonnentag, 2005), social activity (Fritz & Sonnentag, 2007), and physical activity (Rook & Zijlstra, 2006). These are all experiences that are believed to support the recovery process due to their positive relationship with well-being upon returning to work. However, certain experiences while away from work can have a negative impact on well-being upon returning to work, and these activities are believed to inhibit the recovery process. Rather than being removed from job stressors when

individuals are away from work, these experiences actually impose further stressors/demands and thus draw additional resources (Fritz & Sonnentag, 2006). Empirical evidence has confirmed these expectations. For example, nonwork hassles, which are ongoing stressors experienced in daily life such as accumulated housework, conflicts with a partner, or car problems, impair the process of rebuilding resources because they are additional stressors (Fritz & Sonnentag, 2005). Essentially, recovery research attempts to understand activities that are resource-rebuilding and facilitate returning to a state of well-being versus activities that are resource-draining and further impair well-being.

Sonnentag and Fritz (2007) emphasized the underlying psychological experience of recovery rather than the specific off-work activities. For example, individuals could undertake a variety of activities during their time away from work, such as taking a walk or reading a book, which might all serve the purpose of psychological detachment (Sonnentag & Fritz, 2007). The concept of psychological detachment is a recognition that being physically away from one's work is not always enough. Psychological detachment goes beyond the physical separation from the workplace to capture the sense of being mentally away from one's work (Sonnentag & Fritz, 2007).

Recovery researchers have identified the need for longitudinal studies to assess whether recovery experiences can predict changes in well-being indicators, such as burnout (Sonnentag & Fritz, 2007). Most of the research on recovery has been cross-sectional or has involved short-term daily diary studies (e.g., Mojza, Lorenz, Sonnentag, & Binnewies, 2010; Fritz, Sonnentag, Spector, & McInroe, 2010). While these studies have provided insight into short-term and daily processes, it is also important to consider how recovery experiences affect longer-term processes.

The current study will consider whether the recovery experience of psychological detachment is predictive of changes in burnout over time.

Psychological Detachment.

When individuals leave the workplace after a day of work, they are physically away from their work; however, whether they are mentally away from their work is a separate issue.

Psychological detachment is the sense of being mentally away from work (Etzion, Eden, & Lapidot, 1998). The term indicates that someone is not engaged in work-related activities and is not thinking about one's work activities. If the person is no longer mentally involved with work, then his or her energy resources are no longer being drained and these energies can begin to be replenished. However, if the person fails to detach from work, then resource drain is still occurring and the individual cannot recover (Sonnentag & Fritz, 2007).

Detachment has been shown to be a positive predictor of feeling recovered after the weekend. In turn, these feelings of recovery were related to increased personal initiative during the following week (Binnewies, Sonnetag, & Mojza, 2010). Detachment is also related to positive affective states at the end of the weekend (Fritz, Sonnentag, Spector, & McInroe, 2010). In a study of military members on reserve service, detachment during one's time on reserve strengthened the impact of the reserve experience on reducing levels of burnout when the individual returned to active military duty (Etzion, Eden, & Lapidot, 1998). Detachment is negatively related to health complaints, depressive symptoms, self-reported emotional exhaustion (Sonnentag & Fritz, 2007), other-reported emotional exhaustion (Fritz, Yankelevich, Zarubin, & Barger, 2010), and positively associated with work engagement (Kühnel, Sonnentag, & Westman, 2009). Evidence has also demonstrated that psychological detachment during off-work time buffers the relationship between job demands and psychosomatic complaints as well

as the relationship between job demands and decreased work engagement (Sonnentag, Binnewies, & Mojza, 2010).

According to COR theory, it is necessary for individuals to regularly replenish resources that are lost due to exposure to workplace stressors. Furthermore, individuals who have a greater resource pool to draw from will be less likely to enter cycles of resource drain. If an individual typically returns home and is able to detach from his or her work, then this person would be expected to be successful at replenishing any resources that were lost during the workday. Over time, such individuals are less likely to drain resources. Thus, these people are less likely to experience high levels of early burnout compared to individuals who do not regularly detach from work upon returning home (see Figure 1). Furthermore, individuals who engage in detachment during time away from work would be less likely to enter into a cycle of drain of their physical, cognitive, and emotional resources that is indicative of burnout. In contrast, individuals who do not engage in detachment would be expected to experience increasing levels of burnout over time.

Hypothesis 8a: The lower the initial level of psychological detachment during time away from work, the greater the rate of increase in burnout.

Hypothesis 8b: The greater the rate of decline in psychological detachment, the greater the rate of increase in burnout.

Hypothesis 8c: Psychological detachment negatively predicts subsequent burnout.

Personality Traits.

While recovery research has emphasized the resource replenishment mechanism as a means to maintain well-being and avoid the experience of strains, another mechanism which may reduce risk of strains relates to individual differences in initial levels of resources. Hobfoll

(1989) suggested that personality traits may serve as resources in the stress process. Personality traits can be described as individual differences in consistent behavioral patterns and within-person emotional, motivational, and cognitive processes (Burger, 2000). Hobfoll also stated that individuals who are lacking in particular resources may be more susceptible to the cycle of resource loss whereby cognitive, emotional and physical energies are depleted over time. Thus, personality traits may serve to reduce initial loss of resources such as the physical, cognitive, and emotional energies that are indicative of burnout.

As noted in burnout reviews, there has been considerably less research on the role of individual difference variables and their impact on burnout, particularly during the early years of burnout research (Burisch, 2002; Halbesleben & Buckley, 2004, Shirom, 2011). Some researchers have gone so far as to argue that individual difference variables have little effect on burnout, and that in the absence of problems in the organization, burnout is unlikely to occur (Moore, 2000). Other researchers have called for more burnout research investigating the role of personality (Shirom, 2011; Halbesleben & Buckley, 2004). The purpose of the current study is not to deny the importance of organizational stressors in leading to burnout but to examine the role that personality may play in the prediction of burnout over time.

There are several reasons why personality might predict burnout and changes in burnout levels over time. First, individuals with certain traits can create more stressors for themselves by selecting themselves into more stressful jobs or by creating stressors through the way they interact with people around them (Spector, Zapf, Chen, & Frese, 2000; Wiebe & Smith, 1997; Parkes, 1994; Suls & Rittenhouse, 1990). Second, certain personality traits may lead an individual to perceive more stressors (Spector et al., 2000), which would affect how the individual then responds to the environment which has been deemed as stressful (Barsky,

Thoresen, Warren, & Kaplan, 2004). Furthermore, personality may influence an individual's physiological reactivity which over time taxes the body's organs and systems and leads to strains (Suls & Rittenhouse, 1990; Contrada, Leventhal, & O'Leary, 1990). Third, personality may influence how an individual copes with stressors (Connor-Smith & Flachsbart, 2007; O'Brien & DeLongis, 1996). Fourth, personality traits may serve to strengthen or weaken relationships between stressors and strains (Korotkov, 2008; Gunthert, Cohen, & Armeli, 1999; Parkes, 1986; Spector et al., 2000). Personality can moderate the relationship between objective and perceived stressors (Gunthert, Cohen, & Armeli, 1999; see Wiebe & Smith, 1997 and Parkes, 1994 for discussion), such that a trait influences the appraisal of the environment as threatening and strengthens the relationship between objective events and the perception of an event as a stressor. Personality can also moderate the relationship between perceived stressors and the individual's response, often in the form of various coping behaviors (Parkes, 1986; see Wiebe & Smith, 1997 and Parkes, 1994 for discussion). Furthermore, personality can moderate the relationship between perceived stressors and strain (Korotkov, 2008), sometimes referred to as the hyperresponsivity mechanism (Spector et al, 2000). Moreover, personality is not limited to playing only one of these roles.

Recent meta-analytic results suggested that burnout is related to a variety of personality traits (Alarcon, Eschleman, & Bowling, 2009), demonstrating a significant relationship between personality and burnout at one point in time. However, what remains to be seen, is if personality traits can also predict the change in burnout over time (see Figure 1), since few studies have incorporated longitudinal designs which would capture change. Are certain traits associated with a faster rate of increase in burnout while other traits predict stability at low levels of burnout?

The current study will consider selected personality traits within the context of the Five Factor Model, which has become a commonly used taxonomy of personality in psychological and organizational research. These traits are conscientiousness, neuroticism, agreeableness, and extraversion. All of these personality traits have well-established correlations with health outcomes and have been implicated in the stress process. Furthermore, meta-analysis has demonstrated that each of these traits is related to emotional exhaustion (Alarcon et al., 2009), but research has yet to demonstrate that these personality traits can predict changes in burnout over time.

Conscientiousness.

The personality trait of conscientiousness has been described as a tendency to be well-organized, self-disciplined, plan-adhering, careful, thorough, hardworking, and persevering (McCrae & Costa, 1987). According to Costa, McCrae, and Dye (1991), facets such as competence (capable, sensible, accomplished), order (tidy, well-organized), dutifulness (adherence to standards for proper behavior), achievement striving (drive for excellence), self-discipline (persistence), and deliberation (planning, caution, thoughtfulness) comprise the broader construct of conscientiousness. Conscientiousness has predicted health outcomes such as greater longevity (Kern & Friedman, 2008) and has been negatively related to substance use disorders, anxiety disorders (Trull & Sher, 1994), and depression (Anderson & McLean, 1997; Trull & Sher, 1994). Conscientiousness has also been associated with less fatigue (Calderwood & Ackerman, 2011) and tendencies to engage in healthy behaviors (Bogg & Roberts, 2004).

Highly conscientious individuals have a natural tendency toward planning, organizing, time management, self-discipline, and achievement, which may help them to reduce some of the stressors in their environment and actually conserve their energy resources. In contrast, low

conscientious individuals may experience more stressors, and these individuals would be expected to drain more cognitive, emotional, or physical energies and, therefore, experience higher levels of burnout. Conscientiousness has also been associated with more positive coping behavior, such as problem-solving coping (Connor-Smith & Flachsbart, 2007; O'Brien & DeLongis, 1996), and less negative coping behavior, such as emotion-focused or avoidance coping (O'Brien & DeLongis, 1996). Thus, conscientiousness may actually help individuals to resolve stressful situations more quickly and effectively.

Conscientiousness has also demonstrated negative correlations with emotional exhaustion (Morgan & de Bruin, 2010; Alarcon, Eschleman, & Bowling, 2009). However, it is unclear whether conscientiousness could predict the rate of change in burnout over time. If this predictive relationship could be demonstrated, then it would expand our knowledge of burnout by showing that this personality trait does not only correlate with someone's level of burnout at one point in time. Instead, it would be possible to demonstrate that one's conscientiousness level actually influences how one's burnout level increases or decreases over an extended period of time.

Based on COR, there is reason to believe that conscientiousness would do so. Individuals with high levels of conscientiousness, with their tendencies toward organizing and accomplishing tasks, are better prepared to handle the stressors in their environment, while individuals with lower levels of conscientiousness are more likely to struggle. Everyone is faced with stressors to some degree. Thus, individuals who are low in conscientiousness are likely to drain more of their physical, cognitive, and emotional energy as they attempt to manage the inevitable stressors in their environment. In contrast, highly conscientious people are less likely to experience resource loss. Then, these individuals should be less likely to experience high

levels of burnout and would also be less likely to experience increasing burnout over time. In contrast, increasing levels of burnout would be observed in low-conscientious individuals, because they would be more likely to enter a cycle of resource loss over time.

Hypothesis 9a: The lower the level of conscientiousness, the greater the initial level of burnout.

Hypothesis 9b: The lower the level of conscientiousness, the greater the rate of increase in burnout.

Neuroticism.

Neuroticism is broadly defined as a tendency to experience negative emotions (McCrae & Costa, 1987), with the opposite end of the spectrum described as emotional stability (Digman, 1990). The key elements of neuroticism are negative affect, distressing thoughts, and related problematic behavior (McCrae & Costa, 1987). This trait is generally believed to be equivalent to trait negative affectivity (Thoresen, Kaplan, Barsky, Warren, & Chermont, 2003), which is defined in a similar manner although descriptions of this trait developed from a different line of personality research. In comparison, individuals who are high in emotional stability tend to be calm and experience fewer negative emotions than their counterparts. There is substantial evidence to suggest negative correlations between neuroticism and physical health (Grant and Langan-Fox, 2007) as well as mental health (Trull & Sher, 1994) and well-being (Moyle, 1995). Neuroticism has also been associated with higher levels of reported fatigue (Calderwood & Ackerman, 2011).

Individuals who are high in neuroticism tend to experience negative emotions such as anxiety. Attempting to improve one's emotional state requires effort and energy resources, and these individuals would be expected to drain more of these energies. Additionally, these

individuals tend to create more stressors for themselves, such as interpersonal conflict, which is likely to lead to more strains (Spector et al., 2000; Wiebe & Smith, 1997). Gunthert, Cohen, and Armeli (1999) found that low emotional stability individuals appraised daily event stressors as more stressful than high emotional stability individuals. Thus, they tend to view their environment in a negative light and perceive the world around them as more threatening. High neuroticism individuals are likely to believe that they need to mobilize more energies and resources in order to deal with this threat, and so are likely to drain more resources.

Furthermore, it has been suggested by O'Brien and DeLongis (1996) that the coping behavior which individuals high in neuroticism tend to engage in serves to maintain anxiety rather than resolve the situation they have encountered. An individual who falls toward the emotional stability side of the spectrum is likely to engage in coping behaviors that aim to actually solve the problem. In contrast, an individual high in neuroticism is more likely to engage in avoidance coping behaviors, which will merely prolong the problem. Empirical evidence has demonstrated that neuroticism is associated with less problem-focused coping and more emotion-focused or avoidance forms of coping (O'Brien & DeLongis, 1996).

Neuroticism has consistently been related to higher levels of emotional exhaustion (Zellars, Perrewe, & Hochwarter, 2000; Zellars, Van Der Zee, Lewig, & Dollard, 2006; Ning & Ming-jie, 2011; Kiffin-Peterson, Jordan, & Soutar, 2011) with meta-analytic results confirming this relationship (Alarcon et al., 2009). It remains to be demonstrated that neuroticism predicts how burnout can change over time, and doing so would be a significant contribution toward the burnout literature. High neuroticism individuals may drain more cognitive, emotional, or physical energies simply through their negative affect, thoughts, and behavior. Furthermore, they may experience more stressors and they may exacerbate the effect of stressors on energy-related

resource drain. As they struggle to deal with stressors in their environment, individuals with high levels of neuroticism are likely to drain more of their energies/resources as compared to individuals with lower levels of neuroticism. They would be more likely to enter into a cycle of resource drain over time. Therefore, individuals with higher levels of neuroticism would be more likely to experience high levels of burnout and would also be more likely to experience increasing levels of burnout over time.

Hypothesis 10a: The greater the level of neuroticism, the greater the initial level of burnout.

Hypothesis 10b: The greater the level of neuroticism, the greater the rate of increase in burnout.

Agreeableness.

Individuals who possess high levels of the personality trait agreeableness have been described as courteous, sympathetic, generous, acquiescent, and warm, while individuals who are low in agreeableness tend to be antagonistic, oppositional, and uncooperative (McCrae & Costa, 1987). This trait has demonstrated correlations with a variety of indicators of health and well-being. First, agreeableness has a significant and positive relationship with longevity and a negative relationship with heart disease (Ozer & Benet-Martinez, 2006). Research has demonstrated a link between hostility, considered a component of low agreeableness, and sympathetic nervous system activation and the development of coronary artery disease (Ozer, 2006). Low agreeableness has also been linked to health risk behaviors such as tobacco and alcohol use (Hong & Paunonen, 2009) and has been related to substance use disorders, anxiety disorders, and depression (Trull & Sher, 1994). Furthermore, agreeableness is positively related to mental health (Löckenhoff, Duberstein, Friedman, & Costa, 2011) and overall subjective well-

being (i.e., life satisfaction/happiness; Deneve & Cooper, 1998). Finally, agreeableness has been associated with less emotional exhaustion (Zellars et al., 2000), and the credibility of this result has been strengthened by results of a recent meta-analysis (Alarcon et al., 2009).

Individuals high in agreeableness are caring and concerned with others. Such behavioral tendencies are helpful in most working environments and seem particularly advantageous for an individual working in a service-oriented profession. Individuals who are low in agreeableness tend to display less concern regarding other individuals' feelings. These disagreeable individuals may actually create more stressors at work, particularly interpersonal conflict, due to their negative interpersonal behavior. In contrast, agreeable individuals are likely to evoke a more positive response from their environment. They may positively alter the environment through their behavior, resulting in a workplace with fewer stressors as compared to disagreeable individuals. Agreeableness has predicted both giving and receiving social support in terms of positive job-related communication and non-job-related communication (Bowling, Beehr, & Swader, 2005). In the coping literature, agreeableness has predicted greater use of social support and cognitive restructuring, types of coping which are believed to deal with stressors rather than avoid them (Carver & Connor-Smith, 2010).

While agreeableness has demonstrated negative correlations with emotional exhaustion, it remains to be seen whether agreeableness would predict the change in burnout over time. It is anticipated that individuals who are high in agreeableness will be less likely to experience cognitive, emotional, or physical energy drain and enter into a cycle of continuous drain of their energies over time. Therefore, more agreeable individuals should experience less initial burnout. In contrast, increasing levels of burnout are more likely to be observed in disagreeable individuals.

Hypothesis 11a: The lower the level of agreeableness, the greater the initial level of burnout.

Hypothesis 11b: The lower the level of agreeableness, the greater the rate of increase in burnout.

Extraversion.

Extraversion has been described as a tendency to be sociable and talkative. In contrast, those individuals who are low in extraversion tend to be reserved, quiet, and less likely to join in social situations (McCrae & Costa, 1987). In addition to the sociability component, extraversion has been described as the equivalent of trait positive affectivity (PA), which is a general tendency to experience positive emotions (Thoresen et al., 2003). Individuals with high trait PA tend to engage with others and view their environment in a positive manner. It is important to consider trait PA in addition to trait negative affectivity (NA), because the two traits are not simply opposite ends of one spectrum. That is, low levels of neuroticism or trait NA does not necessarily indicate high levels of trait PA (Thoresen et al., 2003).

Extraversion is consistently related to indicators of health and well-being. This trait has been negatively related to substance use disorders and anxiety disorders (Trull & Sher, 1994) and positively related to self-reported physical health (Grant & Langan-Fox, 2007) and mental health (Löckenhoff et al., 2011). Extraversion has demonstrated a negative correlation with emotional exhaustion (Kiffin-Peterson et al., 2011; Morgan & de Bruin, 2010), and results of recent meta-analyses have provided further support for this extraversion-emotional exhaustion relationship (Alarcon et al., 2009; Thoresen et al., 2003).

Extraverts may alter their environment through their greater tendency toward sociability. Bowling et al. (2005) found that extraversion was associated with both giving and receiving

social support in the form of positive and non-job-related communication with coworkers. In their 2010 review, Carver and Connor-Smith noted that extraversion has consistently predicted greater use of engagement coping, such as problem solving and cognitive restructuring, which serve to deal with the stressor.

In the current study, it will be possible to assess whether extraversion is related to change in burnout over time. Previous research has demonstrated that a correlation exists, but it remains to be seen whether low levels of extraversion would predict increasing levels of burnout. Because of the ways that extraverts positively alter their environment, it is expected that extraverts will be less likely to experience drain of their energy resources. Therefore, they would experience lower levels of burnout at any one point in time. Additionally, they would be less likely to enter into a cycle of resource drain over time which would result in increasing burnout. Thus, in the current study, it is expected that extraverts will be less likely to experience the cognitive, emotional, and physical energy drain which, over time, results in increasing levels of burnout.

Hypothesis 12a: The lower the level of extraversion, the greater the initial level of burnout.

Hypothesis 12b: The lower the level of extraversion, the greater the rate of increase in burnout.

METHOD

Participants

Participants were drawn from an ongoing longitudinal study designed to examine the adjustment process to the nursing profession. The current study incorporates five waves of data collection. The participants were recruited for their first survey early in their first semester of a Bachelor's of Science in Nursing (BSN) program. They were surveyed two more times during their nursing program and then two times after they graduated and began their nursing career.

Nurses were selected for this study since they have been found to experience particularly high levels of occupational stress (Gelsema, Van der Doef, Maes, Akerboom, & Verhoeven, 2005), and their mental and physical health is a major concern. Additionally, nursing school has both an academic and clinical emphasis from the very beginning, in contrast to typical undergraduate education. The students must manage their clinical rotations in addition to their coursework. Thus, they experience academic stressors in addition to practical stressors which share great similarity with the tasks of an employed nurse (Rhead, 1995).

Three separate cohorts of nursing students participated in the study. Within each cohort, about one third of the students completed the program in 18 months while the other students graduated in just under two years. Cohort 1 began the nursing program in either June or September of 2007 and graduated between December 2008 and August 2009. Cohort 2 began the program in either June or September of 2008 and graduated between December 2009 and August 2010. Finally, Cohort 3 began the program during June and September of 2009, and they graduated between December 2010 and August 2011.

A total of 281 students participated in the Wave 1 survey (*M* age = 25.2 years, 92.5% female, and 88.4% White/Caucasian). A total of 254 students participated in the study at Wave 2.

Of these 254 respondents, 26 were individuals who were new to the study who had not participated in Wave 1. There were 53 students that participated in Wave 1 but did not participate in Wave 2 (81% response rate).

The Wave 3 survey consisted of 282 participants in total. There were 27 respondents who were new to the study and had not participated in either Wave 1 or 2. There were 64 students who participated in Wave 3 but had not participated in Wave 2. Of these 64 individuals, 53 had participated in Wave 1. A total of 204 individuals completed Waves 1, 2, and 3 (73% response rate).

During Waves 1, 2, and 3, the participants completed surveys at their university either before or after class. During Waves 4 and 5, students had graduated and were invited via email to complete the survey online. A total of 107 individuals participated in Wave 4 (38% response rate). A total of 93 individuals participated in Wave 5 (33% response rate). There were 22 participants who completed all five waves of the study (8%), while 70 participants completed at least four of the five waves (25%), and 179 participants completed at least three waves (64%).

Measures

Burnout.

Burnout was measured at Waves 1 through 5 with a 14-item scale developed by Shirom and Melamed, the Shirom-Melamed Burnout Measure (SMBM; 2005). This scale has demonstrated good internal consistency reliability ($\alpha = .86-.93$; Shirom, Oliver, & Stein, 2009; Shirom, Nirel, & Vinokur, 2006) and good test-retest reliability ($r = .70$; Shirom et al., 2009). Burnout has shown relationships with stressors such as workload, control, and social support (Melamed, Armon, Shirom, & Shapira, 2011) and with health-related outcomes such as insomnia (Armon, Shirom, Shapira, & Melamed, 2008), development of Type 2 diabetes (Melamed et al.

2006b), and development of musculoskeletal pain (Armon et al., 2010). The participants were asked to rate the extent to which they had certain experiences during the past month on a scale of 1 (never or almost never) to 5 (always or almost always). Sample items include “I feel physically drained,” and “I feel like I’m not thinking clearly.” In this study, coefficient alpha was .92, .91, .94, .92, and .95 at Wave 1, Wave 2, Wave 3, Wave 4, and Wave 5.

Physical and mental health.

Physical health and mental health were assessed at Waves 1 through 5 by the 12-item Short-Form Health Survey (SF-12; Ware, Kosinski, & Keller, 1996; Ware, Kosinski, Turner-Bowker, & Gandek, 2002). The measure included six items about physical health and six items about mental health. All of these items were rated on a scale of 1 (poor) to 5 (excellent), 1 (yes, limited a lot) to 3 (no, not limited at all), or 1 (all the time) to 5 (none of the time) depending on the item. Self-rated health is a simple measure with validity evidence as an indicator of health status (McGee, Liao, Cao, & Cooper, 1999). Physical health and mental health were assessed at Waves 1 through 5. In this study, coefficient alpha was .67, .76, .82, .87, and .86 for mental health and .70, .77, .77, .76, and .68 for physical health at Wave 1, Wave 2, Wave 3, Wave 4, and Wave 5.

Physical health items asked participants to rate their overall health and physical health functioning. An example item was “How often have you accomplished less than you would like with your work or other regular daily activities as a result of your physical health?” The mental health scale included items to assess general mental health, mental health functioning, and social-emotional functioning. An example item was “How often have you accomplished less than you would like with your work or other regular daily activities as a result of emotional problems (such as feeling depressed or anxious)?” One item which asked about energy levels

was removed due to a high degree of content overlap with burnout. Test-retest correlations over a two-week period were .89 for the physical health scale and .76 for the mental health scale. Both the physical health scale and the mental health scale have adequately discriminated between groups known to differ or to change in terms of health status (Ware, Kosinski, & Keller, 1996).

Occupational satisfaction.

Three items modified from Cammann, Fishman, Jenkins, and Klesh (1983) were used to assess occupational satisfaction. The measure has good internal consistency reliability ($\alpha = .93$) and has shown moderate to strong correlations ($r = .39-.61$) with variables such as perceived organizational support, supervisor support, procedural and distributive justice, and organizational commitment (Saks, 2006). The participants were asked to rate the extent to which they agreed with these items on a 1 (strongly disagree) to 5 (strongly agree) scale. Items were modified to refer to the nursing profession specifically. An example item was, “All in all, I am satisfied with my choice of the nursing profession.” Items were reverse scored as appropriate so that higher scores indicated higher levels of occupational satisfaction. Occupational satisfaction was assessed at Waves 3 through 5. Coefficient alpha was .88, .82, and .89 at Wave 3, Wave 4, and Wave 5.

Occupational commitment.

Meyer, Allen, and Smith’s (1993) three dimensions of occupational commitment were used in the current study. Participants were asked to rate the extent of their agreement with the items by using a scale ranging from 1 (strongly disagree) to 5 (strongly agree). Each of the three scales consisted of six items, and items were reverse coded as appropriate so that higher scores indicated higher levels of each type of commitment. An example affective commitment item was, “I do not identify with the nursing profession” (reverse coded). An example continuance

commitment item was, “Changing professions now would be difficult for me to do.” Finally, an example normative commitment item was, “I feel a responsibility to the nursing profession to continue in it.” Occupational commitment was assessed at Waves 3 through 5.

Confirmatory factor analyses have indicated that the three dimensions of occupational commitment are distinct from one another and distinct from three components of organizational commitment. Meyer et al. (1993) found appropriate internal consistency reliability was observed for all three dimensions: affective commitment ($\alpha = .85-.87$), continuance commitment ($\alpha = .79-.83$), and normative commitment ($\alpha = .73-.77$). All three forms of commitment were negatively correlated with intentions to leave the nursing profession. Both affective and normative commitments were negatively associated with voluntary absence (Meyer, Allen, & Smith, 1993). In this study, coefficient alpha was .85, .81, and .88 for affective commitment; .77, .84, and .85 for continuance commitment; and .78, .81, and .81 for normative commitment at Wave 3, Wave 4, and Wave 5.

Turnover intentions.

Turnover intentions consisted of three items which were adapted from Lum, Kervin, Clark, Reid, and Sirola (1998). The items were originally written in the form of questions. These items were modified to be statements in order to achieve consistency with other survey items. Participants were asked to rate the extent to which they agreed with the items by using a 1 (strongly disagree) to 5 (strongly agree) scale. An example item was, “Taking everything into consideration, it is likely that I will make a serious effort to find a new job within the next year.” Turnover intentions were negatively correlated with job satisfaction, pay satisfaction, and organizational commitment (Lum et al., 1989). Turnover intentions were assessed at Waves 4 and 5. Coefficient alpha was .78 at Wave 4 and .78 at Wave 5.

Recovery experiences.

The four-item psychological detachment scale was used from the recovery experience questionnaire (Sonnentag & Fritz, 2007). The psychological detachment scale has good internal consistency ($\alpha = .83-.89$; Sonnentag & Fritz, 2007; Fritz, Yankelevich, Zarubin, & Barger, 2010; Sonnentag, Binnewies, & Mojza, 2010). Sonnentag and Fritz (2007) demonstrated that job stressors such as time pressure, role ambiguity, and situational constraints are negatively related to psychological detachment. They were also able to show discriminant validity via low correlations with social support and coping, suggesting that there is limited overlap with these variables. Furthermore, Sonnentag and Fritz found preliminary evidence that psychological detachment has an impact on well-being as indicated by negative correlations with health complaints, emotional exhaustion, and depressive symptoms.

In the current study, participants were asked to respond to four items using a scale from 1 (strongly disagree) to 5 (strongly agree). This measure was included at Wave 1, Wave 2, Wave 4, and Wave 5. Because of concern for the participants' time, recovery experiences were not assessed at Wave 3 due to the necessity of measuring other variables which were included as part of the larger longitudinal study. In this study, coefficient alpha was .83, .83, .78, and .80 at Wave 1, Wave 2, Wave 4, and Wave 5.

Personality.

Each of the four personality traits (conscientiousness, neuroticism, agreeableness, and extraversion) was measured by four items from the mini-IPIP scales (Donnellan, Oswald, Baird, & Lucas, 2005). The mini-IPIP is a 20-item short version of the Five Factor Model measure (Goldberg, 1999) from the 50 item International Personality Item Pool (IPIP) with content coverage very similar to the IPIP-FFM ($r = .92, .93, .88, .95$ for conscientiousness, neuroticism,

agreeableness, and extraversion, respectively). Short-term retest correlations over a three week time period were high: $r = .75, .80, .62,$ and $.87$ for conscientiousness, neuroticism, agreeableness, and extraversion, respectively. Longer-term retest correlations over a six to nine month time period were also high: $r = .77, .82, .68,$ and $.86$ for conscientiousness, neuroticism, agreeableness, and extraversion, respectively (Donnellan et al., 2006).

Donnellan et al. found that the mini-IPIP demonstrated reasonable convergent validity with the IPIP-NEO (Johnson, 2000; $r = .63, .73, .52, .70,$ for conscientiousness, neuroticism, agreeableness, and extraversion, respectively), the Ten-Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003; $r = .63, .73, .33, .75,$ for conscientiousness, neuroticism, agreeableness, and extraversion, respectively), and the Big Five Inventory (BFI; John & Srivastava, 1999; $r = .66, .80, .49, .81,$ for conscientiousness, neuroticism, agreeableness, and extraversion, respectively). The mini-IPIP also demonstrated criterion-related validity for predicting self-esteem ($r = .26, -.60, .24, .35,$ for conscientiousness, neuroticism, agreeableness, and extraversion, respectively), behavioral approach ($r = .04, -.03, .24, .50,$ for conscientiousness, neuroticism, agreeableness, and extraversion, respectively), and behavioral inhibition ($r = -.07, .42, .26, -.13,$ for conscientiousness, neuroticism, agreeableness, and extraversion, respectively). As expected, the strongest relationships with the criterion scores were found for neuroticism and extraversion.

In the current study, participants were asked to respond using a scale from 1 (strongly disagree) to 5 (strongly agree). Items were reverse scored as needed such that a higher score indicates a higher level of each trait. Personality traits were measured at Wave 1. Coefficient alpha was $.83, .71, .68,$ and $.62$ for extraversion, conscientiousness, neuroticism, and agreeableness in this study.

Procedure

The nursing students were asked to complete the Wave 1 survey approximately one month following the start of their first semester in the program. This point in time was selected because it was early enough to serve as a baseline for the students and would also ensure that the students had enough experience in the program so that survey items about the program would be relevant. During the administration of Wave 1, the students were told about the overall project, read and signed a consent form, and completed a contact information sheet. To ensure the confidentiality of the students' identities, the students created a unique code for their surveys. This unique code was used for all subsequent surveys. Only members of the research team have access to the names and unique codes. Participants did not receive compensation for completing the surveys. However, depending on the time of data collection, food was occasionally provided during collection of Waves 1 and 2 survey data.

Wave 2 took place during the second or third semester of their nursing program, which was five to eleven months after Wave 1 depending on the specific group of students. This time point was selected to coincide with the students' medical-surgical clinical rotation, which faculty described as being the most challenging for students. Additionally, this was a halfway point during their nursing training. While the number of months from Wave 1 differed across students, the students were all at the same milestone in the program. Wave 3 was completed toward the end of their fifth and final semester of the program and occurred 18 to 23 months after the Wave 1 survey. Variation in time lags between measurement occasions occurred because students progressed through the program at different rates.

For Waves 4 and 5, students were invited via e-mail to complete the survey in an online format. Wave 4 took place about seven to eight months after graduation. Following graduation,

the nursing students must pass their board examinations before starting a job. This process takes about three months. Thus, at the time of the Wave 4 survey, the participants were newly employed nurses who had been working for about three to six months. This time point was chosen to be early in their experience in the workplace. The Wave 5 survey took place about six months after Wave 4. Thus, it had been a little over a year since graduation and the participants had been working for about nine months or a year. Table 1 presents a timeline of each data collection and Table 2 presents the means and standard deviations of the time lags between data collections.

Statistical Analysis

The first phase of data analysis consisted of examining descriptive statistics and correlations among variables. The second phase consisted of hypothesis testing using latent growth models. Finally, in the third phase, autoregressive models were specified to test additional hypotheses and provide clarity on the direction of effects between burnout and the hypothesized outcomes variables (i.e., health and job attitudes). Descriptive analyses were conducted using SPSS version 20. Latent growth models and autoregressive models were specified using MPlus 6.0.

Analysis of longitudinal data involves assumptions about the conditions under which data is missing. Thus, an important step is to determine whether data is missing in a systematic way. Given the attrition observed in this study, a series of MANOVAs was used to assess whether responding to one of the survey waves was related to either demographic variables or any variables of interest from a previous survey wave. For example, are the people who were more satisfied with the occupation the individuals who are responding on a future survey? These analyses indicated that responding or not responding is not related to one's level on any of the

variables of interest or any demographic variables. Therefore, data analysis proceeded under the assumption of data missing at random.

Latent growth models.

A latent growth model is an analytical method that allows for examining inter-individual variability in intra-individual change over time (Bollen & Curran, 2006). In other words, a latent growth model can help describe how people differ in how they change over time. A growth model is often described as a two-level model. The Level 1 model can be thought of as the within-person model that captures intra-individual change in the variables of interest over time, while the Level 2 model can be considered the between-person model that captures inter-individual differences in change over time (Byrne, 2012).

The basic latent growth model consists of a latent intercept (sometimes referred to as the initial status because it can capture where individuals start) and a latent slope which captures change in the variable of interest over time. From here, it is possible to add a third latent variable, a quadratic factor, in order to capture any nonlinear change where there is a curve in the growth trajectory (Byrne, 2012; Bollen & Curran, 2006). Growth trajectories for individuals could be flat (i.e., no change), increasing, or decreasing and may do so in a linear or nonlinear form. Identifying the optimal form of the growth trajectory is a critical first step in latent growth modeling which is accomplished by examining the model fit and parameter estimates of models with different growth functions (Curran, Obeidat, & Losardo, 2010). It is important to determine the most appropriate functional form (e.g., a linear or quadratic model) to describe the change in a variable over time. This is often referred to as an unconditional latent growth model, because there are no predictors of the latent growth factors. The model becomes conditional when the latent intercept or slope is regressed on predictors (Bollen & Curran, 2006).

Furthermore, latent growth models provide estimates of means and variances for both the intercept and the slope, and all of these estimates are of interest for interpreting the model. For example, the mean slope might be positive and statistically significant, indicating that, on average, individuals are increasing on the variable of interest over time. If the variance estimate is also statistically significant, then this means there is variance from the average slope, where some individuals are increasing at a faster or slower rate than others, while others might not be increasing at all. Significant variance in the intercept indicates that individuals vary in values of the outcome variable where time is set at zero. If Time 1 is set at zero, then intercept variance indicates individuals vary in terms of where they start.

The term univariate can be used for a latent growth model which includes multiple repeated measures of a single variable. Although there are multiple measures of this variable, the term univariate is used because a single variable is being considered in the growth model. In contrast, a multivariate latent growth model refers to multiple repeated measures of two or more variables (Bollen & Curran, 2006). For multivariate growth models, the two repeated variables have separate latent intercepts and slopes and are related to each other via covariances between the intercepts and slopes. Examining these covariances can provide insight into how the change in one variable is related to change in another variable over time.

Autoregressive models.

Autoregressive model analyses were also conducted as a supplement to the latent growth model analyses. These models use the previous value of a variable to predict the current value in order to assess the effect of the variable on itself at a subsequent time point. The term autoregressive refers to a variable being regressed on its previous value (Bollen & Curran, 2004). For example, Wave 1 burnout predicts Wave 2 burnout, and Wave 2 burnout predicts Wave 3

burnout. These effects can be included for each variable and each time point. This model can be extended to include two variables, each with multiple measurements, and then the models can include crosslagged components in addition to autoregressive components. The crosslagged effect is the prediction of the second variable from the previous measure of the first variable (Bollen & Curran, 2004). For example, physical health at Wave 2 is predicted by burnout at Wave 1, and physical health at Wave 3 is predicted by burnout at Wave 2. Competing models can be specified and model fit compared in order to obtain additional information about the direction in which these effects are occurring.

Typically, a series of model comparisons involving four models is conducted (for examples, see de Lange et al., 2004; de Jonge et al., 2001). The first model includes autoregressive effects only. For example, prior burnout leads to future burnout and prior physical health leads to future physical health, but the two variables do not influence each other. The next two models would retain the autoregressive effects and add crosslagged effects from one variable to the other. In keeping with the example, one model would contain crosslagged effects from burnout to subsequent physical health and the other model would contain crosslagged effects from physical health to subsequent burnout. One model might be considered the hypothesized “normal” or expected causal model where burnout leads to health and the other might be considered the reverse causal model where health leads to burnout. Both of these models can be compared to the model with autoregressive effects only. A significant improvement in model fit would indicate that the crosslagged effects are necessary. Finally, a reciprocal model can be specified which includes crosslagged effects from each variable to the other variable (e.g., burnout to physical health and physical health to burnout). This model would indicate that both variables are influencing each other over time in a reciprocal fashion. Model fit can be compared

in order to determine whether this model offers a significant improvement over the autoregressive model and each of the crosslagged models. The series of autoregressive analyses were used to provide insight into the direction of relationships between variables.

The current study.

The latent growth model section of the analysis proceeded according to the following steps. First, plots of each variable were examined over the time period of measurement (i.e., either three, four, or five waves of data collection depending on the variable). Both the average change over time and random samples of individuals' plots over time were examined to try to understand how individuals were changing on the variables of interest. Second, unconditional latent growth models were specified for each variable in order to assess the model fit of different growth trajectory forms. Since some variables were measured in four or five waves, it would be possible to estimate a nonlinear trajectory, so it was important to consider whether a nonlinear function was necessary in order to best capture the change in a variable. The result of the unconditional growth model process was the determination of an optimal trajectory form for each of the following variables: burnout, physical health, mental health, occupational satisfaction, affective commitment, continuance commitment, normative commitment, and psychological detachment.

Then, after the optimal form of the growth trajectory was determined for each individual variable, multivariate latent growth models were specified which included the growth trajectory for two variables (see Figure 3). The multivariate growth models were fitted for burnout with each of the following: physical health, mental health, occupational satisfaction, affective commitment, continuance commitment, normative commitment, and psychological detachment. In each multivariate model, the two variables (e.g., burnout and physical health) are related to

each other via the covariances between the latent intercepts and slopes, and these covariance estimates provided an indication of how these variables were related over time.

Then, for hypotheses involving turnover intentions and personality variables, regressions involving the latent intercept and slope were included. Specifically, the final measure of turnover intentions was regressed on the intercept and slope of burnout. The regression coefficients would indicate whether burnout over time has an influence on later turnover intentions. Finally, the intercept and slope of burnout were regressed on the personality variables of conscientiousness, neuroticism, agreeableness, and extraversion. Examining these regression coefficients would be used to assess whether personality had an influence on burnout over time.

Next, a series of autoregressive analyses was conducted for burnout with each variable: physical health, mental health, occupational satisfaction, affective commitment, continuance commitment, normative commitment, turnover intentions, and psychological detachment. In each set of analyses, four models could be estimated: (1) autoregressive, (2) causal, (3) reverse causal, and (4) reciprocal. It should be noted that the terms “causal” and “reverse causal” are simply used to describe the expected relationships between variables. The autoregressive model would include effects from burnout predicting itself over time as well as the second variable predicting itself over time. Then, the second model would include the autoregressive effects as well as crosslagged effects from burnout to the subsequent measure of second variable (e.g., physical health). The third model would include autoregressive effects and *reversed* crosslagged effects (e.g., from physical health to burnout). Finally, the fourth model would include autoregressive effects as well as both sets of crosslagged effects.

The model fit of both the causal model and the reverse causal model was compared to the autoregressive model. If the model fit of the causal model is better than the autoregressive, this

would provide support for causal effects. Similarly, for the reverse causal model, superior fit compared to the autoregressive model would provide evidence of reverse causal effects. Additionally, the statistical significance of all of the autoregressive and crosslagged effects was examined. If there is evidence of both causal and reverse causal effects, then the reciprocal model could be estimated and compared with the other three models in order to determine if the reciprocal model is the best model.

RESULTS

Results of descriptive analyses will be presented first followed by the results of latent growth model analyses and autoregressive model analyses. Means, standard deviations, ranges, and Cronbach's alphas are presented in Table 3. Correlations among all variables are presented in Table 4. Distributions appeared relatively normal for most variables with a couple of exceptions. Physical health was somewhat skewed with most people reporting good physical health, which would be expected in a relatively young sample of individuals. Mental health demonstrated a more normal distribution compared to physical health, but there was still some evidence of skew with more individuals toward the high end of the mental health scale. Additionally, more people reported high levels of affective commitment to the occupation and satisfaction with the occupation. For this reason, the maximum likelihood robust (MLR) estimator was used in all analyses conducted in Mplus, because this estimator provides a chi-square test statistic that is robust to non-normality (Muthén & Muthén, 2010).

Additionally, the *tscores* option in Mplus was used due to the fact that participants had individually varying times of observation. Rather than including factor loading parameters in the model which represent the same measurement point for all individuals, the *tscores* option allows the times of measurement to be used as data in the model. However, the use of this option does not allow for some of the model fit indices which are typically considered. Instead, the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC) were used to evaluate fit of the latent growth models such that smaller values of AIC and BIC indicated a better fitting model.

Univariate latent growth models

Burnout.

An examination of a sample of individual plots of burnout as well as the means of burnout across the five waves of the study (see means of burnout on Table 3) suggested that burnout might follow a nonlinear trajectory where, on average, burnout decreases until Wave 3 and then begins to increase through Wave 5; however, this potential trend must be evaluated statistically. First, an unconditional linear growth model was specified for burnout. Results indicated that the mean slope was negative, indicating a decrease in burnout over time on average (see linear model on Table 5). Furthermore, there was significant variance in the intercept and nearly statistically significant variance in the slope. Therefore, people varied in burnout levels at the beginning of the study. Furthermore, while the average slope was negative, there was variance around this average such that some individuals are decreasing at a faster or slower rate than others.

Next, an unconditional quadratic growth model was specified for burnout in order to determine if the addition of a quadratic effect improves the fit of the model. A decrease in both AIC and BIC was observed compared to the linear model. Additionally, the mean quadratic effect was significant. Taken together, these findings confirmed that a linear model does not sufficiently capture the change in burnout across the five waves and the quadratic model is better. However, including a quadratic effect makes interpretation difficult, given that the quadratic slope factor is somewhat confounded with the linear slope factor. An alternative to the quadratic model is piecewise growth modeling where two separate linear slopes are estimated (Bollen & Curran, 2006). In this case, the piecewise model allowed for separate linear trajectories for Waves 1 to 3 and then Waves 3 to 5. The piecewise approach is appropriate in

this case given the average pattern of change observed in the data, where there is an average decrease until Wave 3 and then an increase. Additionally, Wave 3 is a meaningful transition point for the participants because it is the time when they were transitioning into the workforce. The piecewise model for burnout resulted in a lower AIC and BIC than either the linear or quadratic models, indicating a better fit to the data (see Table 5). The mean for slope 1 was negative while the mean for slope 2 was positive. This confirmed that, on average, burnout decreased until Wave 3 and then began to increase through Wave 5. The linear, quadratic, and piecewise latent growth models of burnout are illustrated in Figure 2.

Hypothesis 1 stated that there would be significant variance in the initial status of burnout. Results from the unconditional model of burnout support this hypothesis. Hypothesis 2 stated that there would be significant variance in the slope of burnout. As indicated in Table 5, this hypothesis was not supported. However, the slope variance values approached the traditional level of statistical significance, so there was reason to believe that the slope of burnout might demonstrate relationships with the intercept or slope of other variables in the multivariate models. The piecewise model of burnout was retained for hypothesis testing with subsequent multivariate and conditional models since this model provided the best fit to the data.

Physical and mental health.

An examination of the individual growth plots and the average change across waves suggests that physical health may decline slightly over the course of the study. The unconditional linear model of physical health did, in fact, show a significant decline indicated by a negative mean slope (see Table 6). When a quadratic effect was added to the model, both the AIC and BIC increased slightly. This indicated that the model fit became worse with the addition of the quadratic effect. Given that a piecewise model provided the best fit for burnout, it was important

to also consider whether a piecewise model was useful for understanding the health variables as well. For physical health, the piecewise model provided a better fit than the linear model as judged by the AIC and BIC. Breaking the slopes into Wave 1 to 3 and Wave 3 to 5 revealed that there was a slight decline in physical health during Wave 1 to 3 as evidenced by the negative but nonsignificant mean slope. Examining the mean slope from Wave 3 to 5 revealed that this was when the greater decline in physical health occurred, because this value is negative and statistically significant. The piecewise model will be retained for physical health in the multivariate model which will investigate relationships with burnout.

Individual and group average plots for mental health showed that mental health may have improved slightly over time and then may have displayed a slight decrease in later waves of the study. A linear model, quadratic model, and piecewise model were again compared for mental health. Results of the unconditional linear model of mental health indicated an overall increase in mental health across the five waves of the study as judged by the positive and significant mean slope. The quadratic model demonstrated a significant mean quadratic effect although the fit indices offered mixed results. The AIC decreased slightly but the BIC increased slightly (see Table 7). However, the BIC tends to favor more parsimonious models, so that may explain the discrepancy. Given the pattern observed in the data, a piecewise model was also considered. The piecewise model provided the best fit as judged by the AIC and BIC. The results showed that mental health increases, on average, from Wave 1 to Wave 3 and then begins to decrease from Wave 3 to Wave 5 as judged by the mean slopes. The piecewise model of mental health was retained for subsequent multivariate models with burnout.

Job attitudes.

The job attitudes of occupational satisfaction and occupational commitment were assessed during the final three waves of the study. With only three time points of data collection, the only unconditional model that can be used for these variables is a linear model, because a quadratic model is not identified without additional information (Bollen & Curran, 2006). It was still important to determine what the slope looked like and whether there was variance in that rate of change. An unconditional linear model of occupational satisfaction displayed an average decreasing trajectory over time as indicated by the negative mean slope (see Table 8). The mean slope of affective commitment to the occupation was also negative in the unconditional model. In contrast, the average rate of change for continuance commitment to the occupation was positive across Wave 3 to 5. Finally, the mean slope for normative commitment to the occupation was negative, although it was not statistically significant and the variance in that slope was not significant either (see Table 8). Turnover intentions were collected at Wave 4 and Wave 5 only, so a latent growth model was not applicable for this variable.

Psychological detachment.

A final unconditional latent growth model was specified for psychological detachment, which was measured at four waves of the study. Similar to burnout and health, it was possible to consider nonlinear as well as linear change. The results of the unconditional linear model showed a mean increase over time as indicated by the positive slope and significant slope variance (see Table 9). The quadratic model provided a slightly worse fit to the data than the linear model as indicated by the AIC and BIC. Thus, for hypothesis testing concerning the relationship of detachment and burnout, the linear detachment model was retained.

Multivariate latent growth models

Burnout and health.

For this set of analyses, latent growth models for burnout and a second variable of interest (e.g., physical health) were analyzed together, and covariances between intercepts and slopes were examined to understand how the variables are related over time. For each variable, the functional form which provided the best fit from the series of univariate latent growth models was retained and carried over into the multivariate models. For example, it was determined that the piecewise model of burnout was the best model, and therefore, a piecewise model of burnout was used in the multivariate analyses.

Hypotheses 3 and 4 concerned the relationships between the intercept and slopes of burnout with the intercepts and slopes of mental and physical health. First, a multivariate latent growth model was specified which included piecewise models for both burnout and physical health. Covariances of growth parameters were examined in order to test the hypotheses. Initial burnout was negatively associated with initial physical health (see Table 10). The intercept of burnout was negatively associated with the slope of physical health at Wave 1-3 but not Wave 3-5, providing partial support for hypothesis 3a. This indicated that a higher initial level of burnout was associated with a steeper decline in physical health at Wave 1-3. Initial levels of physical health were not associated with the slope of burnout at either Wave 1-3 or Wave 3-5. Furthermore, the slopes of burnout were not associated with the slopes of physical health, so hypothesis 3b was not supported. These results suggest that initial burnout may have an influence on subsequent physical health, but there was no evidence that the slopes of burnout and physical health were related.

To test the hypotheses concerning mental health and burnout, a multivariate latent growth model was specified with piecewise models for both variables. Initial burnout was negatively associated with initial mental health, indicating that higher levels of burnout at Wave 1 are related to lower levels of mental health at Wave 1 (see Table 11). The intercept of burnout was positively associated with the slope of mental health at Wave 1-3 but not at Wave 3-5. This indicated that higher initial burnout was related to a steeper rate of increase in Wave 1-3 mental health and indicated that hypothesis 4a was not supported. The intercept of mental health was positively associated with both Wave 1-3 burnout and Wave 3-5 burnout. Thus, higher initial mental health was related to less of a decrease in Wave 1-3 burnout (i.e., the rate of decline was less steep) and a steeper rate of increase in Wave 3-5 burnout. The slope of mental health at Wave 1-3 was negatively related to the slope of burnout at Wave 1-3, indicating that a steeper rate of decline in burnout was associated with a steeper rate of increase in mental health. The slope of mental health at Wave 3-5 was negatively related to the slope of burnout at Wave 3-5, indicating a similar pattern that a steeper rate of increase in burnout is associated with a steeper rate of decline in mental health and supporting hypothesis 4b. Therefore, hypothesis 4 was mostly supported and it appears that burnout and mental health are related over time.

Burnout and job attitudes.

Next, multivariate models were specified for burnout and each of the job attitudes in order to test hypotheses concerning the relationships between intercepts and slopes of burnout with the various job attitudes in this study. Since each of the job attitude variables was initially measured at Wave 3, the intercepts of burnout and all job attitude variables were set at Wave 3 for this series of analyses. First, hypothesis 5 was tested using a piecewise model of burnout (Wave 1-5) and a linear model of occupational satisfaction (Wave 3-5). The slope of

occupational satisfaction was not related to the intercept of burnout which did not support hypothesis 5a. However, results indicated that a steeper increase in burnout at Wave 3-5 was associated with a steeper decline in occupational satisfaction (see Table 12). These results provided some support for hypothesis 5b.

Next, a multivariate model was specified which included the piecewise model for burnout and the linear model for affective occupational commitment. Findings were similar to what was observed with occupational satisfaction. The intercept and Wave 1-3 slope of burnout were not related to the slope of affective commitment, so hypothesis 6a was not supported (see Table 13), but there was a significant negative relationship between the slope of Wave 3-5 burnout and the slope of affective commitment. Thus, a steeper increase in burnout during Wave 3-5 was associated with a steeper decline in affective commitment, providing some support for hypothesis 6b. In contrast to the results with occupational satisfaction and affective commitment, there were no significant relationships found between continuance commitment and burnout as well as normative commitment and burnout, so these hypotheses were not supported (see Tables 14 and 15). Finally, a model with the slope of burnout predicting turnover intentions was assessed, and results indicated that turnover intentions was not predicted by the intercept or either slope of the piecewise burnout model (see Table 16). Therefore, there was no support for hypothesis 7. Overall, results of the analyses of burnout and job attitudes demonstrated some significant relationships between burnout with occupational satisfaction and affective commitment, but there were no significant relationships found for burnout with continuance commitment, normative commitment, or turnover intentions.

Burnout, psychological detachment, and personality.

The next series of analyses considered whether the slope of burnout could be predicted by personality traits and psychological detachment during time away from work. First, the relationship between burnout and psychological detachment was investigated. In this analysis, the intercepts of both burnout and psychological detachment were set at Wave 1 because both variables were first measured at Wave 1. Results indicated there was not a significant association between the slopes of burnout with either the initial level of psychological detachment or change in psychological detachment (see Table 17). Thus, hypothesis 8a and 8b were not supported.

The final set of analyses concerned burnout's relationship with the personality traits of conscientiousness, neuroticism, agreeableness, and extraversion. Hypotheses 9-12 were tested in a model which regressed the intercept and slopes of burnout on the personality variables. The centering point was varied in order to understand the influence of personality traits on burnout at different time points (see Muthén & Muthén, 2000). According to the results of this analysis, the change in burnout is not predicted by personality (see Table 18), but some personality traits predicted the initial level of burnout and provided partial support for these hypotheses. When the intercept was set at Waves 1, 2, or 3, conscientiousness was negatively associated with the intercept while neuroticism was positively associated with the intercept. Agreeableness was negatively associated with the intercept when it was set at Wave 1. Extraversion was not related to the intercept of burnout. Thus, higher burnout in the early waves of the study is predicted by higher levels of neuroticism as well as lower levels of conscientiousness and agreeableness.

Autoregressive models

Burnout and health.

Results of the latent growth analysis suggested that there may be relationships between where individuals start initially, how their burnout levels change, and changes in health and job attitudes. In order to provide some additional information regarding the direction of those effects, autoregressive models were also analyzed. First, autoregressive model results are presented for burnout and mental health. The first model included only autoregressive effects (e.g., Wave 2 burnout regressed on Wave 1 burnout, Wave 2 mental health regressed on Wave 1 mental health). Next, the causal model, which included cross-lagged effects from burnout to mental health (e.g., Wave 2 mental health regressed on Wave 1 burnout) in addition to the autoregressive effects, was analyzed. Results indicated that the causal model provided a better fit to the data than the model with autoregressive effects only (see Table 19). This difference was significant, $\Delta\chi^2(4) = 11.15, p < .05$, providing evidence that the paths from burnout to mental health are necessary. Specifically, the cross-lagged effects from Wave 1 burnout to Wave 2 mental health and from Wave 2 burnout to Wave 3 mental health were significant while the effects from Wave 3 burnout to Wave 4 mental health Wave 4 burnout to Wave 5 mental health were not significant. Therefore, there was some support for hypothesis 4c.

Next, the reverse causal model, which included cross-lagged effects from mental health to burnout, was analyzed. This model was also compared to the autoregressive model and it was found that the reverse causal model provided a better fit to the data than the model with autoregressive effects only, $\Delta\chi^2(4) = 12.85, p < .05$. The effect of Wave 3 mental health on Wave 4 burnout was the only significant cross-lagged effect. Then, a model with both sets of cross-lagged effects (i.e., burnout to mental health and mental health to burnout), the reciprocal

model, was compared with the other models. The reciprocal model provided a significantly better fit to the data than the autoregressive model, $\Delta\chi^2(8) = 22.95, p < .05$. The reciprocal model also provided a better fit as compared to the causal model, $\Delta\chi^2(4) = 11.83, p < .05$ as well as the reverse causal model, $\Delta\chi^2(4) = 10.34, p < .05$. Therefore, this series of analyses provided evidence that the reciprocal model is the best model for describing the relationship between burnout and mental health, because both variables influence each other over time.

Next, the same set of analyses was conducted for burnout with physical health. First, the model with autoregressive effects only was analyzed. Next, cross-lagged effects from burnout to physical health were added in order to assess the causal model. Results of the scaled chi-square difference test indicated that the causal model provided a better fit than the autoregressive model, $\Delta\chi^2(4) = 18.83, p < .05$ (see Table 20). In terms of specific cross-lagged effects, burnout at Wave 2 was a significant predictor of physical health at Wave 3 and burnout at Wave 3 was a significant predictor of physical health at Wave 4. These results provided support for hypothesis 3c. Then, the reverse model was analyzed with cross-lagged effects from physical health to burnout replacing the cross-lagged effects from the normal causal model. This model did not provide a better fit than the autoregressive model, $\Delta\chi^2(4) = 7.57, p > .05$. Based on this result, it was not necessary to evaluate a reciprocal model. The evidence suggests that the causal model, where burnout predicts physical health, is the best model to describe the data. These results provide evidence that burnout leads to diminished physical health over time.

Burnout and job attitudes.

A series of autoregressive models were also assessed for burnout and occupational satisfaction at Waves 3, 4, and 5. Similar to above, a model with only autoregressive effects was analyzed first. Then, the causal model which added cross-lagged paths from burnout to

occupational satisfaction was analyzed. Again, model fit was compared using scaled chi-square difference tests, and the causal model provided a significantly better fit than the autoregressive model, $\Delta\chi^2(2) = 7.17, p < .05$ (see Table 21). The path from Wave 3 burnout to Wave 4 occupational satisfaction was statistically significant, providing support for hypothesis 5c. Next, the reverse causal model with paths from occupational satisfaction to burnout was assessed. Neither of the cross-lagged paths was statistically significant, although the path from Wave 3 occupational satisfaction to Wave 4 burnout approached significance. A chi-square difference test indicated that the reverse causal model did not provide a better fit as compared to the autoregressive model, $\Delta\chi^2(2) = 3.42, p > .05$. Due to this finding, it was not necessary to evaluate a reciprocal model. The results provided some evidence that burnout leads to lower occupational satisfaction, and the causal model can be considered the better model to describe this data.

Next, autoregressive models were analyzed for burnout with each of the three forms of occupational commitment. First, relationships between burnout and affective commitment were considered. Results indicated that the autoregressive model provided a very good fit to the data $\chi^2(9) = 14.95, p > .05$ (see Table 22). Neither the causal model nor reverse causal model could provide a significantly better fit than the autoregressive model, and hypothesis 6c was not supported. Therefore, it appears that future burnout can be predicted by past burnout, and future affective commitment can be predicted by past affective commitment. These variables do not influence each other over time.

For burnout and continuance commitment, a model with autoregressive effects only was specified first. Next, a model with causal effects from burnout to continuance commitment was analyzed. While this model provided a slight improvement in fit, the difference in model fit was

not statistically significant, $\Delta\chi^2(2) = 1.97, p > .05$ (see Table 23). Neither of the cross-lagged effects was significant, indicating hypothesis 6f was not supported. The reverse causal model provided a better fit to the data than the autoregressive or causal model, although the difference in model fit compared to the autoregressive model was not statistically significant, $\Delta\chi^2(2) = 5.26, p > .05$. An examination of the cross-lagged effects showed that continuance commitment at Wave 3 predicted burnout at Wave 4. The evidence of the one significant cross-lagged effect indicated that, if there are any causal effects, it is more likely that the effects are from continuance commitment to burnout rather than the other way around. However, the most parsimonious and best fitting model seems to be the autoregressive model.

Finally, autoregressive models were analyzed for burnout and normative commitment to the occupation. A comparison of model fit between the causal and autoregressive models indicated that the causal model provided a better fit to the data, $\Delta\chi^2(2) = 7.64, p < .05$ (see Table 24). Furthermore, the cross-lagged effect from burnout at Wave 4 to normative commitment at Wave 5 was significant. In contrast, the reverse causal model did not provide an improvement in fit over the autoregressive model, $\Delta\chi^2(2) = 0.70, p > .05$. Therefore, it was not necessary to analyze the reciprocal model. These results determined that the best fitting and most parsimonious model was the causal model, providing evidence that burnout predicts normative commitment to the occupation.

The final set of autoregressive models explored the relationship between psychological detachment and burnout over time. First, the model with autoregressive effects only was assessed followed by the causal model which included cross-lagged effects from psychological detachment to burnout. The causal model provided a better fit, but the difference between these two models was not quite statistically significant, $\Delta\chi^2(3) = 6.44, p > .05$ (see Table 25).

However, the cross-lagged effect from Wave 1 detachment to Wave 2 burnout was significant, providing some support for hypothesis 8c. Next, the reverse causal model with cross-lagged effects from burnout to psychological detachment was analyzed and compared to the autoregressive model. The difference between these models was not significant, $\Delta\chi^2(3) = 6.60, p > .05$, and none of the cross-lagged effects were significant. Again, it was not necessary to test a reciprocal model. Neither the causal nor the reverse causal model could offer a significant improvement in fit over the autoregressive model; however, the significant cross-lagged effect from detachment to burnout provided some evidence that psychological detachment may lead to burnout rather than burnout leading to psychological detachment.

DISCUSSION

There were three main goals of this study. The first was to investigate whether burnout changes over time, what the change function looks like, and if there are differences in where individuals start and how they change over time. The second was to analyze whether changes in burnout can predict changes in outcomes of mental and physical health, occupational satisfaction, occupational commitment (affective, continuance, and normative), and turnover intentions. Finally, the third goal was to consider whether the changes in burnout can be predicted by recovery experiences (psychological detachment) and personality characteristics (conscientiousness, neuroticism, agreeableness, and extraversion).

Overall, this study has provided useful information about how burnout changes over time, which is important for our understanding of burnout and our theories about how burnout develops. This study has also provided information about how burnout relates to other variables over time. A key finding was that the change in burnout levels has effects on one's health and satisfaction with the occupation. Furthermore, this study found that personality traits are related to initial burnout levels, and psychological detachment during time away from work may have an influence on subsequent burnout. These results will be discussed along with theoretical and practical implications, future research opportunities, as well as strengths and limitations of the study.

Burnout over time

First, results of this study provided evidence that individuals vary in their initial levels of burnout, which illustrates that there are some individuals experiencing high levels of burnout even at a very early point in their careers. Latent growth models revealed significant variation in the intercept of burnout regardless of the centering point, with a substantial number of

participants experiencing what would be considered high levels of burnout before beginning their careers. This finding challenges existing implicit theory about burnout. Specifically, researchers have tended to believe that employees begin a job with low levels of burnout (e.g., Bakker, Schaufeli, Sixma, Bosveld, & van Dierendonck, 2000; Golembiewski, 1999; Ashforth & Lee, 1997). The idea that individuals should begin a career with low burnout is a logical belief to hold. If someone has not yet begun a job or career, how could they have any sort of burnout from it? However, in a career where the educational training has components which closely resemble the job, such as the practical training for nurses, then perhaps it makes sense that some individuals would experience higher levels of burnout before even starting their employment.

While it is possible that burnout at work and burnout at school are different generally speaking, the issue is less of a concern for this particular population. The school environment for these nursing students is highly similar to the actual work environment as compared to traditional undergraduate studies. Specifically, clinical work is a significant part of nursing school and the study participants were engaging in actual nursing work during their time as students. Furthermore, this study aimed to capture the relevant variables of personality, health, and occupational attitudes prior to the individuals beginning full-time employment as nurses.

In this study, a substantial proportion of participants reported high levels of burnout before they finished their nursing program. At Wave 1, 35 percent of respondents scored above the midpoint of the burnout scale, indicating that they experienced the cognitive, affective, and physical energy resource drain associated with burnout more frequently than just “sometimes.” While there was a mean decline in burnout between Wave 1 and Wave 3, one in four of the Wave 3 respondents scored above the midpoint of the burnout scale. This finding is consistent with some previous studies (Laschinger et al., 2010; Goddard et al., 2006; Dahlin et al., 2010)

and illustrated that nursing burnout was a relevant experience for these individuals even before they started their careers.

Furthermore, individuals followed different trajectories in terms of how their level of burnout changed over time, a finding which can help extend the burnout literature. The majority of burnout studies have consisted of cross-sectional or two-wave designs, which were not able to provide a picture of how burnout develops or what the trend looks like. Therefore, the literature has not seen much discussion around what the change trajectory of burnout should look like. In contrast, this study followed newcomers to a career over multiple measurements to better understand the average trajectory and variation in how burnout develops (Ashforth & Lee, 1997; Schaufeli & Enzmann, 1998). This could help spark further discussion and may provide clarification to our ideas of how burnout manifests itself early in one's career.

Latent growth models revealed that, on average, the group's burnout level tended to decline from Wave 1 to Wave 3. There was variation around this mean, but a reduction in burnout was the general trend observed. This was an interesting finding that was not anticipated. Perhaps the students' introduction to nursing was met with a reality shock regarding the work required of them, and this accounts for the higher levels of burnout observed at Wave 1. Then, the students were, on average, able to adjust to the demands and their experiences of burnout began to decline throughout the nursing program. Of course, the variation around the mean slope indicated that not everyone followed the general trend. Some individuals had more or less of a decline, and some had stability over time or even an increase. Students bring different expectations with them into the nursing program and different past experiences in school and work settings. It is possible that the students with well-intentioned but idealistic expectations of the nursing program are met with a harsh reality that the work may be more demanding than

anticipated. In contrast, someone with more realistic expectations might be better prepared mentally. Thus, the students are in the same environment, but they perceive it differently. However, Wave 3 served as a transition point in this study. At the end of their nursing program, the students are doing mostly clinical work in an internship, and the environment is very much like the one they would encounter on the job. Latent growth model results showed that from Wave 3 to 5 participants' burnout levels increased on average. This is a trend that was generally expected based on our implicit understanding that burnout levels tend to increase over time, at least in a transitional period such as organizational entry. Again, there was some variation around this mean increase whereby some individuals are increasing in their burnout levels at a faster or slower rate than others, and others may not be increasing at all. In summary, this study has provided valuable information which suggests that individuals vary in their initial levels of burnout as well as how their burnout levels change over time.

Burnout and Outcomes

Investigating the trajectory of burnout was the first main goal of this study. The second goal was to consider how changes in burnout relate to changes in health and job attitudes over time. To do this, both latent growth models and autoregressive models were used to assess the relationship between burnout and physical health, mental health, occupational satisfaction, occupational commitment (affective, continuance, and normative), and turnover. Utilizing these two analytic methods together provided different lenses for examining the relationship between burnout and related variables over time.

First, this study provided evidence that burnout leads to declines in physical health. This is an area where the latent growth model and autoregressive model results converged. The latent growth analysis showed that higher initial burnout predicted a greater decline in physical health

during the nursing program whereas initial physical health did not influence the slope of burnout. Physical health displayed an overall decline throughout the five waves of the study, although the piecewise model indicated that the significant average decline was during Wave 3 to 5 when the nurses graduated and began their full-time employment. These latent growth model results suggested that burnout is influencing physical health rather than physical health influencing burnout. To provide further information regarding the direction of this relationship, autoregressive models were also analyzed. The autoregressive analysis showed that the causal model with cross-lagged effects from burnout to physical health was the best model when considering model fit, significance of cross-lagged effects, and parsimony. Overall, the results provide support for the belief that burnout leads to physical health declines, consistent with arguments seen in the literature (e.g., Ahola et al., 2010; Melamed et al., 2006).

For mental health and burnout, latent growth models demonstrated that higher initial burnout predicted a faster rate of increase in mental health during the nursing program (Wave 1 to 3). Also, higher initial mental health predicted less of a decline in burnout during the nursing program and a steeper rate of increase during nursing employment (Wave 3 to 5). These results seemed a bit counterintuitive. Potentially, this may be explained by the strong negative relationship between burnout and mental health at Wave 1. If an individual has relatively high burnout at Wave 1, then he or she was likely to have relatively low mental health compared to someone with lower burnout and better mental health. Thus, those individuals with low mental health to start with had more room for their mental health to improve. Similarly, someone with relatively high mental health at Wave 1 was likely to have relatively low burnout, so there is less room for this person to experience a decline in burnout; however, this person would also have

more room to experience a steeper increase in burnout during employment compared to someone whose burnout was already higher at an early time point.

Another important result from the latent growth analysis was that a steeper decline in burnout during the nursing program was associated with a steeper increase in mental health during the nursing program. Plus, a steeper increase in burnout during nursing employment was associated with a steeper decline in mental health during nursing employment. Thus, there appeared to be a strong relationship between these two variables and how they were changing over time. The latent growth model results suggested that burnout and mental health were influencing each other, and autoregressive models were analyzed to provide further clarity regarding the direction of this relationship. The reciprocal model provided the best fit to the data and suggested that there is evidence for both causal (i.e., burnout to mental health) and reverse causal effects (i.e., mental health to burnout). Overall, results suggested that burnout and mental health have an influence on each other over time, thereby extending on previous research (e.g., Demerouti et al., 2010; Ahola & Hakanen, 2007) and providing additional clarity to the issue of direction of effects between burnout and mental health. There is some precedence for reciprocal causality in stress research. For example, de Lange, Taris, Kompier, Houtman, and Bongers (2004) found evidence for reciprocal relationships in their four-wave study of work characteristics and mental health. In their 1996 review of longitudinal stressor-strain studies, Zapf, Dormann, and Frese reported that half of the studies that tested for reverse relationships found some evidence for them.

Results for the relationship between burnout and job attitudes were mixed. For occupational satisfaction, latent growth model results showed that a steeper increase in burnout is associated with a steeper decline in occupational satisfaction. Therefore, these variables appeared

to be related over time, and autoregressive model analyses could provide additional information about the direction of this relationship. According to this analysis, the causal model where burnout predicts future occupational satisfaction was the best model considering overall model fit, cross-lagged effects, and parsimony. Therefore, these results supported and expanded upon previous research on burnout and job satisfaction (e.g., Alarcon, 2011; Lee & Ashforth, 1996).

There was limited evidence that burnout affects subsequent levels of commitment. First, latent growth models indicated that a steeper increase in burnout was associated with a steeper decline in affective commitment. However, autoregressive models indicated that the model with only autoregressive effects provided a good fit to the data such that model fit could not be improved with cross-lagged parameters. Therefore, while these two variables appear to be related, there was no evidence that either one is influencing the other over time. Next, latent growth models indicated there was no relationship between change in continuance commitment and change in burnout. Additionally, autoregressive models provided evidence that the best model was the model with autoregressive effects only between continuance commitment and burnout. Finally, while latent growth analysis found there was no significant relationship between change in normative commitment and change in burnout, autoregressive analyses indicated that a causal model where burnout influences normative commitment was the best and most parsimonious model. Taken together, the evidence suggested that burnout is related to affective commitment over time, not highly related to continuance commitment, and may influence future normative commitment. Additionally, any potential longitudinal relationship between burnout and turnover intentions could not be identified in this study.

Burnout and Predictors

While many burnout studies have focused on job-task-related stressors, the third goal of this study was to consider whether personality and recovery activities could predict burnout and changes in burnout over time. In addressing this goal, the results provided insight into what might explain differences in initial burnout. These initial burnout levels were associated with the students' personality, specifically conscientiousness, neuroticism, and agreeableness. This finding builds upon previous literature (Alarcon et al., 2009; Zellars et al., 2000). Students with higher levels of neuroticism and lower levels of conscientiousness and agreeableness tended to experience higher levels of initial burnout. When centering at different time points, the effects of conscientiousness and neuroticism held up through Wave 3. While personality traits of conscientiousness, neuroticism, and agreeableness were associated with initial burnout levels, these traits did not predict the change in burnout (i.e., slope) over time.

The latent growth models did not indicate a relationship between initial status or change in psychological detachment and burnout. The autoregressive models indicated that the model with autoregressive effects only provided the best fit to the data. However, there was a significant cross-lagged effect from detachment to burnout. Specifically, higher levels of psychological detachment during time away from work predicted lower levels of burnout at a subsequent time point, building on previous recovery studies (Fritz et al., 2010; Sonnentag & Fritz, 2007). These results suggested that personality and recovery experiences do play a role in the development of burnout over time, although these roles were not as extensive as hypothesized.

Implications for Theory

This research has implications for Conservation of Resources theory as well as general theory about the nature of burnout and its development. The findings from this study have upheld some of the key tenets of COR but have challenged other aspects of this theory (Hobfoll, 1989). COR proposes causal, reverse causal, and reciprocal relationships in the stress process. In Hobfoll's view, experiencing long-term stress leads to poor physical and mental health as a result of a sequence of resource losses over time. Specifically, the experience of burnout is manifested mainly in terms of a loss of energy resources over time which then leads to long-term strains (Hobfoll & Shirom, 2001). This is the typical causal stress model, and this aspect of COR theory was supported by the finding that burnout has an effect physical health over time.

Hobfoll's theory also proposed reverse causal and reciprocal stress processes. Findings from this study which align with COR are that an increase of burnout had negative consequences for mental health, and, in turn, declining mental health resulted in higher burnout. Reverse causal effects from mental health to subsequent burnout were found, and autoregressive model results indicated that the reciprocal model provided the best fit. This result provided support for the COR proposition of a downward spiral or unfolding process of energy resource drain and its outcomes.

Other findings provide a challenge to COR. For example, if there was evidence for the reverse causal stress process with mental health predicting burnout, then why was there not support for physical health predicting burnout? It is unclear why there were different results for physical and mental health. Perhaps it takes longer than the three-year time period this study covered for the effects of physical health declines to impact burnout levels. It should also be

noted that this was a relatively young and healthy sample as compared to the broader working population.

The finding that personality traits predicted initial burnout levels has upheld the COR assertion that individuals with greater resource pools (e.g., higher levels of conscientiousness, emotional stability) will be less likely to experience high levels of physical, cognitive, or emotional energy drain as indicated by burnout. Individuals high in conscientiousness and emotional stability (i.e., low in neuroticism) experienced lower levels of burnout throughout the first three waves of the study. This result supports the COR theory proposition that individuals with higher levels of these dispositional resources (e.g., conscientiousness) will be less vulnerable to the loss of energy resources over time (i.e., burnout). However, it was expected, based on COR theory, that personality traits would also predict the change in burnout over time, and these hypotheses were not supported.

Furthermore, there was some evidence that being able to psychologically detach during time away from work has beneficial effects on subsequent burnout as judged by a significant crosslagged effect in the autoregressive analysis, specifically that greater psychological detachment during off-work time predicts less burnout. The finding provides some support for another premise of COR theory and related recovery research, which is that if individuals are able to rebuild energy resources during their time away from work by engaging in appropriate recovery activities (e.g., psychological detachment), then the likelihood of negative effects such as burnout will be reduced. Additional support needs to be established, and one possibility is conducting a study that utilizes shorter time lags between measurement occasions. It should be noted that the effect of psychological detachment on burnout was not as robust as has been observed in the recovery literature. Perhaps the beneficial effects of psychological detachment

are found for outcomes measured closer in time. Many recovery studies have measured outcomes on a daily basis or weekly basis. Perhaps the time lag used in this study was not optimal for assessing the impact of recovery activities, and instead a shorter time lag should be used to assess the impact of psychological detachment during time away from work.

Beyond the scope of COR theory, this research contributes to our longitudinal theorizing and understanding of burnout. While we have worked to develop an understanding of burnout (i.e., job stressors lead to burnout and burnout leads to poor job attitudes), most of this theorizing has been cross-sectional and has not really treated burnout as a process that develops over time. There has been little longitudinal theorizing about burnout which informs us of when burnout develops, how long it takes to develop high levels of burnout, what the trajectory looks like, etc. This study adds to the burnout literature by describing the changes in burnout over time as well as the interindividual variance in how burnout changes.

Implications for Practice

On average, burnout declined during nursing school which indicated that the typical student was able to adjust to the nursing program. It may be that the students found the work to be overwhelming initially, and they needed some time to adapt to the environment. However, average burnout began to increase once they entered the job. It might be that the social support resources they built up during school (e.g., from fellow students or faculty) were not maintained when they moved into a professional setting. They may have developed a supportive network of peers while in the nursing program that was no longer surrounding them in their jobs. Perhaps the supportive nursing faculty members from school were replaced by supervisors who could not provide enough support for new nurses.

Results of this study imply that it is important to monitor burnout in new employees. Early intervention is necessary given the high levels of burnout observed in this study of nurses who were in the early stages of their careers. It might be possible for organizations to diagnose problems before they become more severe, such as serious health issues or dissatisfaction with the organization or profession. If such concerns are identified, then the organization or the individuals experiencing burnout may have options for intervening. Therefore, it seems particularly important to identify the type of interventions that can reduce burnout, especially since some recent intervention studies have struggled to demonstrate positive effects on participants' burnout (Bragard, Etienne, Merckaert, Libert, & Razavi, 2010; Andersen, Borritz, Christensen, & Diderichsen, 2010).

Interventions which aim to reduce or avoid burnout may take place at the organizational level or the individual level. Organizational level interventions for newcomers typically focus on removing stressors where possible. For example, improvements can be made to the process for new employee socialization or "onboarding" (e.g., Innstrand, Espnes, & Mykletun, 2004). Such an approach is believed to ease the transition for new employees by reducing ambiguity and uncertainty. Organizational socialization tactics have positive effects on newcomer role clarity, social acceptance, and self-efficacy, which lead to positive job attitudes (Bauer, Bodner, Erdogan, Truxillo, & Tucker, 2007). In a profession which seems prone to early career burnout, appropriate onboarding and support for newcomers seems especially critical.

Realistic job previews (RJPs) have been discussed as a method for preventing early turnover (Hom, 2010). Wanous (1992) argued that idealistic expectations held by newcomers cause problems because often the job does not hold up to such expectations. The underlying idea of RJPs is that exposing prospective job candidates to both the positive and negative aspects of

the job can help reduce idealistic expectations. Therefore, RJPs can help by bringing expectations better in line with reality, and newcomers will experience less shock and disillusionment. Experts have advised giving these RJPs before newcomers have joined the organization in order to provide the job seekers with information so they can make a good decision about whether the job is really a good fit for them. In this way, some prospective job holders self-select out of a job which is a poor fit for them and one that they would be likely to quit anyway (Hom, 2010; Wanous, 1992).

Other burnout interventions that are relevant for newcomers may take place more at the individual level. This study's finding of the general increase in burnout during employment suggests that stress management will be particularly important. Nursing can be a mentally, emotionally, and physically demanding job, and it is not possible to remove all of the stressors that nurses must face. Recent meta-analyses have documented the effectiveness of stress management interventions (Richardson & Rothstein, 2008). These beneficial effects were particularly strong for cognitive-behavioral interventions, which involve identifying and using more functional and adaptive thoughts and behaviors, and relaxation training, which focuses on reducing tension in the body. Other effective stress management interventions identified in this meta-analysis included a few studies which emphasized enhancing individuals' personal resources or job-related skills, and these studies produced large effect sizes. Furthermore, relaxation has been rated as one of the most practical stress management interventions while physical fitness has been rated as one of the most effective techniques for stress management (Bellarosa & Chen, 1997). Such individual interventions seem particularly important for individuals who are less prepared to handle the stressors of nursing work. The effects of personality on initial burnout observed in this study suggest that some individuals may be prone

to higher burnout. These individuals who are less conscientious and less emotionally stable could benefit from adopting appropriate stress management techniques or perhaps pursuing a specialty area of nursing that could provide a less stressful environment (e.g., primary care versus critical care).

In this study, there was a small but significant effect for psychological detachment on subsequent burnout, and one explanation for the increase in burnout at Wave 3-5 could have been a lack of appropriate recovery experiences during their time away from work. The recovery literature has discussed the importance of psychological detachment during time away from work in order to get a break from the demands of one's job. According to recovery researchers, this mental break is a vital part of the daily recovery process, without which proper recovery will not occur and one will return to the job the next day still in a state of resource drain. Nurses and nursing students may need to be educated on the importance of proper recovery activities. It is important that they are not only physically away from work but mentally away from work as well.

While recovery research has consistently demonstrated positive effects of psychological detachment during off-work time (Fritz et al., 2010; Sonnentag & Fritz, 2007; Etzion et al., 1998), Sonnentag (2011) has argued that sometimes detachment can be difficult for employees. In her (2011) review, Sonnentag discussed that psychological detachment has been negatively related to job stressors, particularly quantitative job demands such as time pressure, in several studies. It appears that when employees need psychological detachment the most, they are less likely to detach during time away from work. One intervention study focused on recovery training and resulted in an increase in recovery experiences, recovery-related self-efficacy, and sleep quality. Unfortunately, there were no effects on emotional exhaustion, but perhaps the

short-term study did not allow enough time for this effect to occur (Hahn, Binnewies, Sonnentag, & Mojza, 2011). It will be important for further recovery intervention studies to be conducted in order to help employees experience the benefits that come from proper recovery.

Findings from recent studies and suggestions for burnout prevention and intervention lend further support for the recommendations provided by Freudenberger (1974). These early observations and recommendations have maintained their value for organizations that are concerned with avoiding burnout in their workforce. Freudenberger advised organizations to: (a) help people select themselves out by providing a training program before they enter the job; (b) learn to recognize the difference between a realistically dedicated and committed person and an unrealistic person; (c) rotate people through job functions that are known to be frustrating; (d) limit work hours and insist that people take time off; (e) ensure the group feels like a team and that team members share experiences with each other; (f) and, encourage physical exercise as a way to manage stress. Forty years later, the wisdom from Freudenberger's clinical experiences still holds great value for organizations.

Future Research

The current study focused on the development of burnout in a sample of newcomers to an occupation and observed a decline in burnout during nursing school but an increase in burnout once the participants entered the professional world. This is a major transitional period where change in burnout levels would be expected. It would be important for future research to build on this finding by examining the change in burnout across different periods of transition or stability in order to understand the bigger picture of burnout's trajectory. This study captured nurses into their first year of employment and burnout was increasing during this time, but it seems reasonable to believe that a positive trajectory would not be maintained. Perhaps within another

year or two, burnout levels would either level off or even begin to decline, for example, if adjustment was to occur. It would be interesting to follow groups who are undergoing different types of transitions compared to individuals who are not in a transition period in their occupation. For example, employees who are progressing into leadership roles might experience increases in burnout similar to newcomers while employees who are in stable roles might see a flat trajectory indicating a lack of change in burnout levels. Such research could help inform time periods when employees may be particularly susceptible to developing burnout.

Future studies should continue to examine the development of burnout over time as well as relationships between burnout and related variables over time in additional populations. It will be important to determine if the pattern of change in burnout that was observed in this study could be replicated in another sample. Future research should collect multiple measurements of burnout among students in other nursing schools to get a better idea of whether this is a consistent pattern. While this study focused on the students while in nursing school and their transition to the workforce, a future study could focus more time on the first couple years of employment with a larger sample of nurses, especially since fewer responses were received from participants at Waves 4 and 5 in the current study. It would still be important to capture these nurses' experiences very early in their jobs in order to have a baseline for their burnout, job attitudes, health, etc.

One of the key findings from this study was that burnout has a negative impact on both mental and physical health, adding to a body of literature suggesting that burnout has adverse consequences for one's health and strengthening the claim by including tests of reverse causal effects. Future research could delve into the biological changes that individuals experience as their burnout levels increase. Melamed and colleagues (2006) reviewed several potential

mechanisms linking burnout with poor health, including the metabolic system, dysregulation of the hypothalamic-pituitary-adrenal axis plus sympathetic nervous system activation, sleep disturbance, systemic inflammation, impaired immune system, and poor health behaviors. Their review rests on the widely-held view that when environmental demands or stressors exceed an individual's adaptive capacity, then psychological and biological changes occur in the individual. The Melamed et al. (2006) analysis concluded that burnout poses a cardiovascular disease risk similar to commonly recognized risk factors, such as smoking and BMI. This study adds to this literature because, as noted by Melamed et al. (2006), there may be a difference in the role burnout plays in the development versus progression of CVD. This study provided evidence linking burnout to health in a sample of young and relatively healthy individuals. While this study collected self-reported health by means of a survey, it would be interesting for future studies to collect biological health indicators in addition to self-reported health. A limitation of the Melamed (2006) review is that many of the studies used a measure of vital exhaustion rather than a measure of burnout. The authors make a well-reasoned argument that the measure is equivalent to exhaustion, but it would strengthen their findings to show some similar physical health effects for the Shirom-Melamed Burnout Measure.

In contrast to the results of burnout and health, the relationships between burnout and job attitudes, occupational commitment in particular, did not appear to be causally related over time. Future research should explore variables which might be influencing both burnout and affective commitment. While studies have consistently found a negative correlation between burnout and affective commitment (Hu et al., 2011; Demerouti et al., 2010; Leiter & Maslach, 1988) and the latent growth analysis indicated a relationship between slopes, there did not appear to be crosslagged effects between these variables in the autoregressive analysis. Therefore, it appears

that these variables are correlated but are not causally related. Perhaps burnout and affective commitment are both influenced by a third variable, and changes in both burnout and affective commitment occur in response to this other variable. For example, both variables might be influenced by the availability of social support at work. If an employee is lacking in social support then he or she will be more prone to experience the drain of energy resources which constitutes burnout as well as a reduced emotional connection to and identification with the organization.

There are few studies that have investigated the relationship between burnout and continuance or normative commitment. There was a significant crosslagged effect for normative commitment predicting subsequent burnout, and this model provided the best fit. However, there was limited evidence that burnout and continuance commitment influence each other over time. There was a significant crosslagged effect indicating that higher continuance commitment predicted higher burnout levels at a subsequent time point, but the model with these crosslagged effects did not offer a significant improvement in fit over the autoregressive effects only model. Although the three-component model of commitment has been widely accepted, some researchers have suggested that there are really two components to continuance commitment. High sacrifice commitment captures the perceived sacrifice associated with leaving, while low alternatives commitment emphasizes a lack of other options for employment (Bentein et al., 2005). High sacrifice commitment means that one has a great deal invested, and often this has some positive influences on one's work. In contrast, low alternatives commitment is more representative of an individual who wants to leave but feels that he or she is unable to do so. While these two components are related to each other, they have shown differential relationships with other variables such as customer service behavior (Vandenberghe, Bentein, Michon,

Chebat, Tremblay, & Fils, 2007). It would be interesting for a future study to examine the relationship between burnout with high sacrifice and low alternatives commitment.

Furthermore, it may be useful for future research to consider various types of commitment in combination with each other as well as investigate the relationship between commitment and burnout. Recently, some commitment researchers have argued that it is important to consider commitment in terms of these combinations or profiles, and this approach may be relevant for understanding commitment and burnout. For example, one might hypothesize that high continuance commitment only has negative effects on other outcomes such as turnover intentions when in the presence of low affective and normative commitment. Sinclair, Tucker, Cullen, and Wright (2005) looked at profiles of affective commitment (AC) and continuance commitment (CC) and found that they could distinguish four different clusters of employees in their energy industry sample. These groups were: “devoted” employees who were strong in both AC and CC, “allied” employees who were moderate in both AC and CC, “complacent” employees who were moderate in AC and low in CC, and “free agents” who were low in AC and moderate in CC. In a second sample, they found that this classification had implications for performance ratings, organizational citizenship behavior, and antisocial behavior.

In another study, Wasti (2005) used the three types of organizational commitment to look at various commitment profiles and how they corresponded to organizational outcomes. Wasti identified six clusters: highly committed (high on all three scales), non-committed (low on all three scales), neutral (slightly low to moderate on all three), affective dominant (slightly low normative and continuance but high affective), continuance dominant (average affective and normative but high continuance), and affective-normative dominant (high affective and

normative but low continuance). Furthermore, Wasti found that the groups differed on important organizational outcomes. Non-committed employees had higher turnover intentions and work withdrawal and lower altruism. The highly committed, affective dominant, and affective-normative dominant groups tended to show more positive work behaviors. These employees had lower levels of work withdrawal, greater altruism, and lower turnover intentions. Furthermore, affective dominant and affective-normative dominant had lower job stress compared to continuance dominant, and affective-normative dominant had lower job stress than the non-committed group.

It would be interesting to see if such profile differences could be observed in a sample of early-career nurses and if the profile differences have any associations with burnout. It would also be informative to know what these profiles look like over time in terms of how people move in and out of certain profiles and how that relates to burnout. It is unlikely that an individual's standing on different types of commitment at any one point is the critical factor for predicting later turnover. The greater issue seems to be looking at how their commitment levels are changing, and perhaps how the different types of commitment are changing in combination with each other. Analysis of commitment and burnout profiles over time may have some promising directions for future research to help us understand the relationship between commitment and burnout.

Another possibility is that burnout does not affect commitment to the occupation and it is more likely to impact commitment to the organization, team, or current job role. It would be interesting for future research to consider the effects of burnout on different targets for commitment, including the organization, team, or nursing specialty area. It is possible that early-career nurses experiencing burnout would not attribute this negative experience to the occupation

itself. Instead, they may be more likely to attribute their burnout to other sources, such as an organization that has not conducted appropriate staffing procedures, a difficult supervisor, or a specialty area of nursing that is inherently more stressful (e.g., emergency department). It may take longer for burnout to actually impact one's commitment to the occupation itself.

This study provided evidence that personality traits play a role in the development of burnout. Conscientiousness, neuroticism, and agreeableness predicted where individuals started in terms of their burnout. While these traits predicted burnout levels at Waves 1-3, they did not predict the change in burnout over time. Perhaps other situational variables had a greater impact on burnout during the later waves of the study and future studies could take a closer look at the interaction between stressors such as job demands and traits such as conscientiousness and neuroticism. Another avenue for future research is to examine how personality influences the choice of nursing specialty areas and how this choice affects levels of burnout over time.

It would also be interesting for future research to consider additional personality predictors of burnout over time. Some recent research has found that motivational traits may have an impact on burnout. One study found that approach-related dimensions of goal orientation were negatively associated with burnout while avoidance-related dimensions were positively related to burnout (Naidoo, DeCriscio, Bily, Manipella, Ryan, & Youdim, 2012). Another recent study found that high levels of burnout led to loss of job resources at a subsequent time point but only for individuals who were low in intrinsic motivation. Additionally, high levels of burnout led to more job demands at a subsequent time point for individuals whose external regulation was high (ten Brummelhuis, ter Hoeven, Bakker, & Peper, 2011). Future research should continue to investigate the role of personality traits on burnout over time.

Strengths and Limitations

As with all research, this study had both strengths and limitations. A major strength of this study was the five-wave longitudinal design, because it was possible to capture individual change in burnout at multiple points over a three-year time period and it allowed for a better test of the direction of relationships between burnout and outcomes (i.e., health and job attitudes). These variables have been studied together previously, but cross-sectional designs have made appropriate testing of the direction of effects difficult. The evidence here provided a stronger argument that burnout leads to declines in health rather than the alternative hypothesis that poor health leads to increases in burnout.

Another strength of this study was that it incorporated both organizational outcomes along with individual outcomes. By measuring both job attitudes and health, it was possible to look at the effect of burnout on outcomes which are of concern to individuals as well as both the individual and the organization. Furthermore, the study incorporated individual factors such as personality as predictors of burnout over time. Research has established that some of the common job stressors will predict burnout, but there has been relatively less research focusing on personality traits and this study was able to contribute to our knowledge in this area.

A final strength of this study is that it builds on a quickly growing literature on recovery experiences. Although it will be important for future studies to confirm the finding, there was some evidence that psychological detachment during time away from work leads to lower burnout. This result was consistent with the recovery literature which has asserted that getting a mental break from one's work during time away from work is critical for rebuilding lost resources. Thus, this study contributes to the burgeoning literature on the value of proper

recovery experiences during time away from work, ensuring that employees are getting not only a physical break but a mental break as well.

It is also important to acknowledge the limitations of this study. First, there was substantial attrition during Waves 4 and 5 of the study. The first three waves of surveys were collected in person while the students were at the university, while the final two surveys were administered over the internet without the formal time set aside for completing the survey. Response rates during the first three waves of the study were good, but for the Wave 4 and 5 surveys the response rates were only 30 to 40 percent. This response rate for is comparable to meta-analyses of response rates from web-based surveys (Shih & Fan, 2008; Cook, Heath, & Thompson, 2000). Analyses revealed that there was no systematic bias in terms of the survey variables of interest. Therefore, it is possible that non-response was due to participants simply overlooked the emails or not wanting to spend the time completing the survey. However, the lower response rates reduced the sample size at these later waves which could have limited statistical power to detect effects.

Another limitation is that the sample used in this study consisted of nursing students enrolled at one university in the state of Colorado. These participants were mostly Caucasian females. About two thirds of the individuals were traditional nursing students who were about 20 years old while one third were second-degree nursing students, some of whom were older. This group was obtained largely out of convenience and may not be characteristic of all nursing programs and nursing students. Thus, the results should not be generalized to the entire population of nursing students and early-career nurses. It will be important for future studies to conduct this type of longitudinal investigation with a broader geographic sample to ensure that it is representative of the general nursing student population.

A third potential limitation of this study is that there was less known about the participants' environments after Wave 3, and there was no control over what are potentially relevant organizational factors, such as the organizational culture or climate. When students graduated from their nursing program, they entered any number of organizations and departments within those organizations according to their preferences and ability to find jobs. While they were all in the same nursing program for school, their employment environments could have been considerably different. In this study, the aim was to follow up with the individuals who began the study and obtain information about their experiences directly from them, but this decision meant that there is less information available about their organizations. This design did not allow for additional input from other members of the organization. For example, any supervisor ratings of employee performance were not obtained during Wave 4 or 5, and research has indicated a relationship between burnout and poorer performance (Taris, 2006; Bakker, Demerouti, & Verbeke, 2004). Further exploration of the relationship between change in burnout over time and job performance ratings would be another potential avenue for future research.

Conclusions

This study has provided valuable information about how burnout changes over time and its relationship with other variables over time. Some participants reported high levels of burnout even at a very early point in their careers. While burnout levels tended to decrease during time in nursing school, these burnout levels tended to increase when the participants began their nursing careers. Burnout was predictive of declines in physical and mental health as well as satisfaction with the occupation. Personality was related to initial burnout levels and proper recovery experiences during time away from work had a small but significant impact on burnout. Future

longitudinal studies should continue to investigate the relationship between burnout, health, job attitudes, and related variables over time.

Burnout remains a significant concern for the nursing profession. The ultimate goal for researchers and practitioners in this area should be to reduce the amount of burnout experienced by nurses so that they can thrive in their work roles. Building on our understanding of how burnout develops and changes over time is an important step in this process. Future research should continue to investigate burnout and in order to obtain a better understanding of its development and identify ways in which burnout may be reduced or prevented.

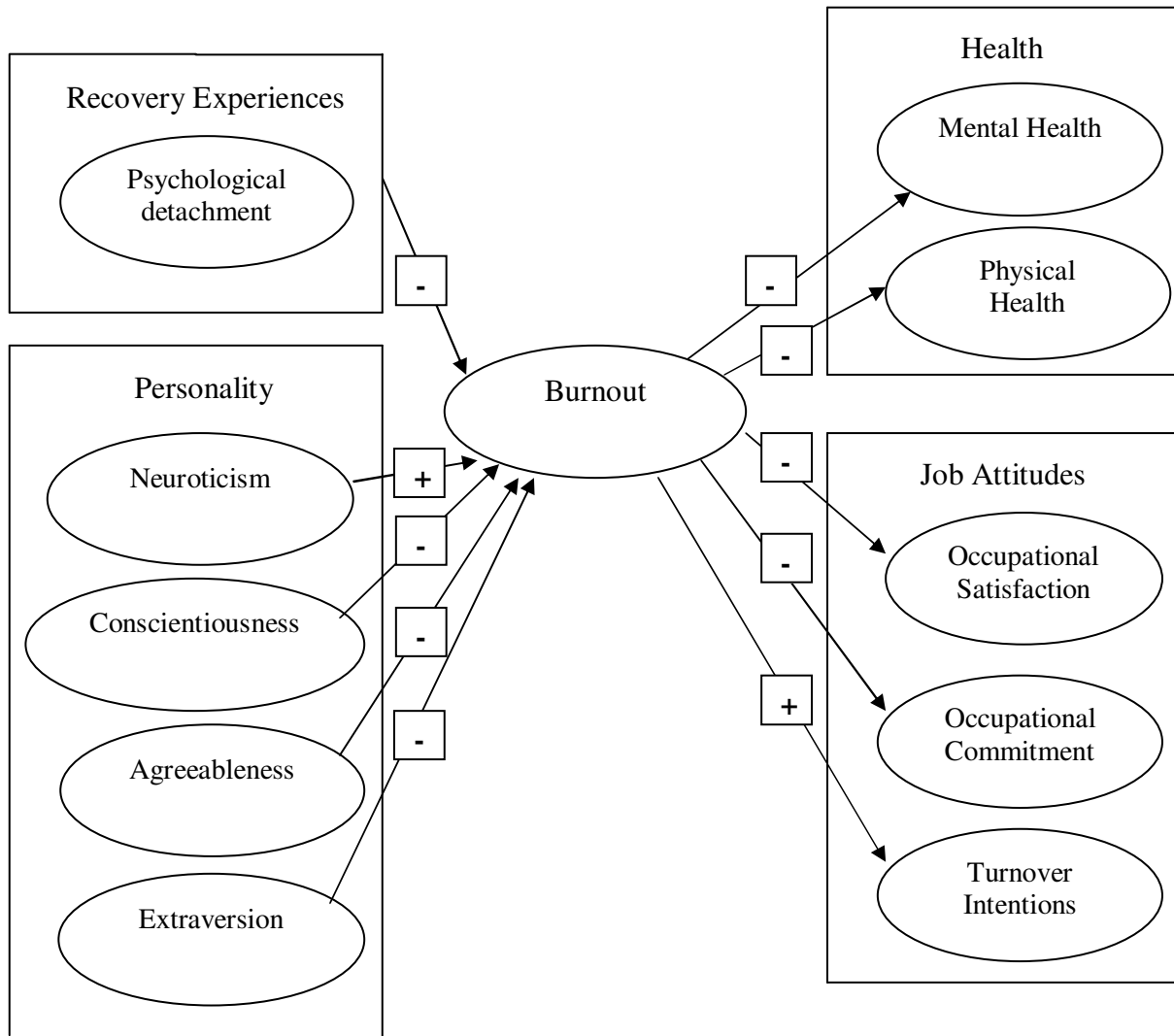
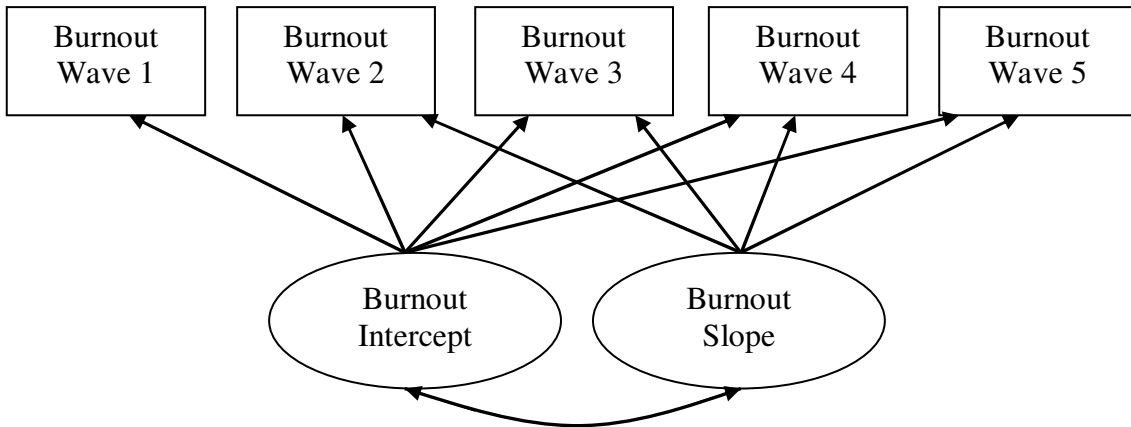
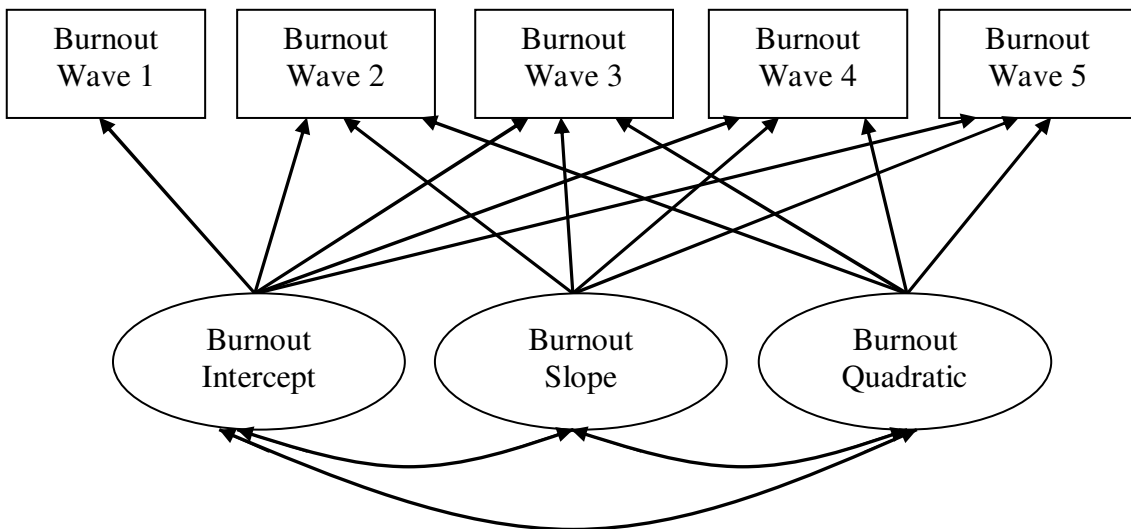


Figure 1: Proposed Conceptual Model of Burnout

a) Linear latent growth model of burnout



b) Quadratic latent growth model of burnout



c) Piecewise latent growth model of burnout

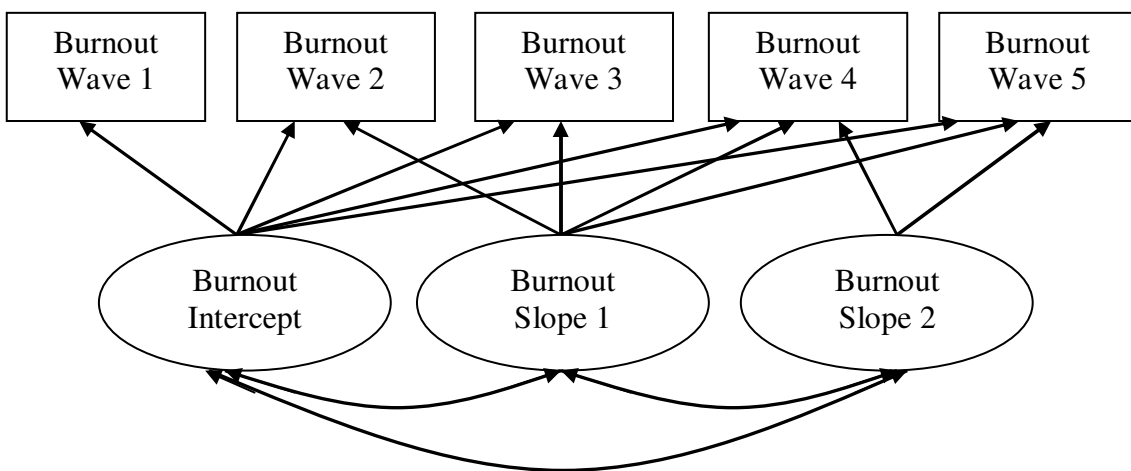


Figure 2: Unconditional univariate models of burnout

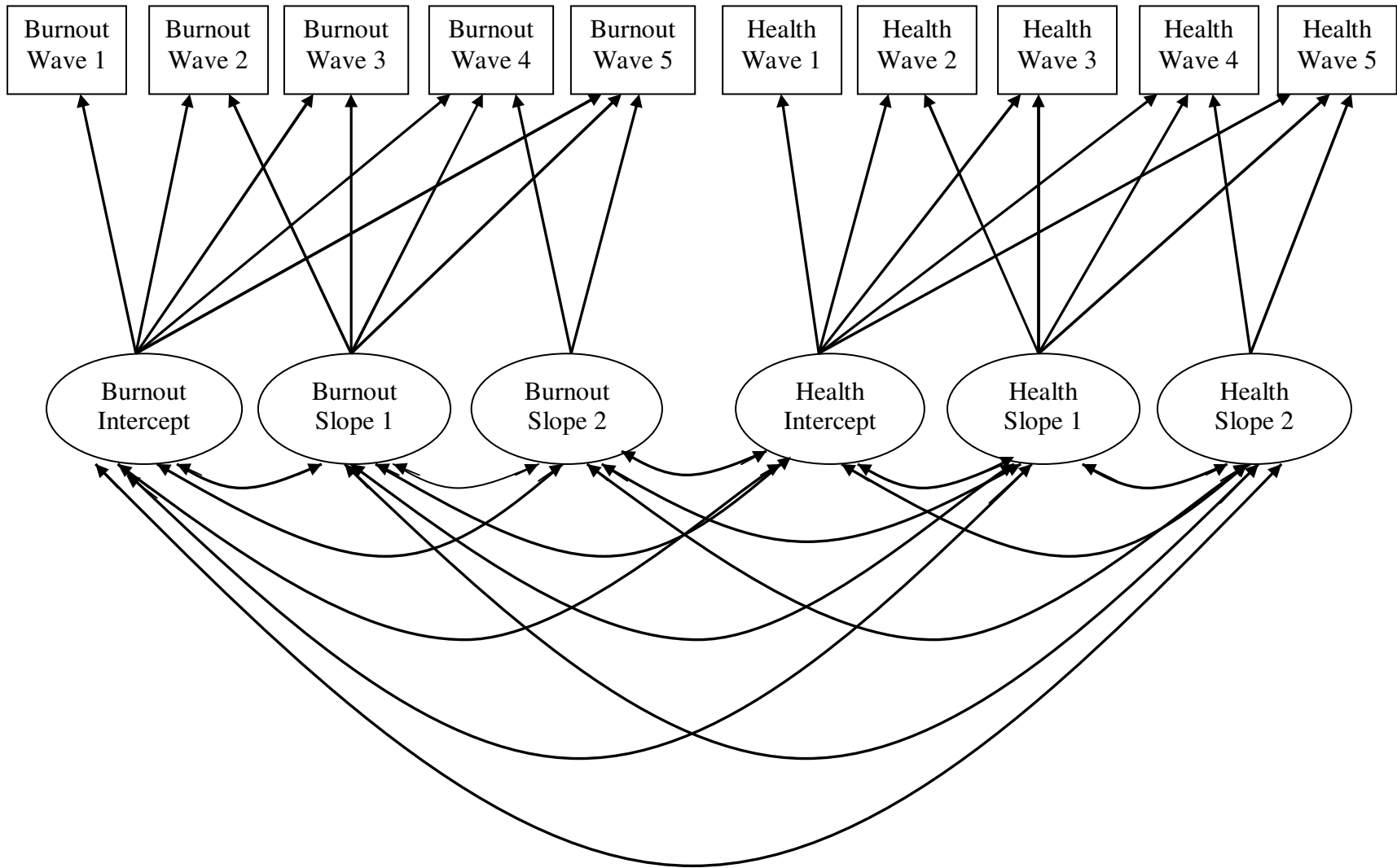


Figure 3: Multivariate growth model of burnout and health

Table 1

Timeline of Data Collection

	2007	2008	2009	2010	2011	2012
January						
February				C1 W5 SD	C2 W5 SD	
March				C1 W4 TF	C2 W4 TS	C3 W5 SD; C3 W4 TF
April				C3 W2 TF		
May		C1 W2 SD, TS, TF	C2 W2 TF; C1 W3 TS	C2 W3 TS	C3 W3 TS	
June	C1 W1 SD, TS	C2 W1 SD, TS	C3 W1 SD, TS		C2 W5 TS	
July				C1 W5 TS		C3 W5 TS
August			C1 W3 TF; C1 W4 SD	C2 W3 TF; C2 W4 SD	C2 W5 TF; C3 W3 TF; C3 W4 SD	
September	C1 W1 TF	C2 W1 TF	C3 W1 TF	C1 W5 TF		C3 W5 TF
October						
November		C2 W2 SD, TS	C3 W2 SD, TS			
December		C1 W3 SD	C2 W3 SD; C1 W4 TS	C3 W3 SD; C2 W4 TS	C3 W4 TS	

Note. C1=Cohort 1. C2=Cohort 2. C3=Cohort 3. W1=Wave 1. W2=Wave 2. W3=Wave 3. W4=Wave 4. W5=Wave 5. SD=second degree student group. TS=traditional student group that started the program in the summer. TF=traditional student group that started the program in the fall.

Table 2

Means and standard deviations of time lags in months

Time Lag	Mean	SD	Range
Wave 1 to Wave 2	7.22	2.27	5-11
Wave 1 to Wave 3	21.42	2.33	18-23
Wave 1 to Wave 4	29.49	2.95	25-32
Wave 1 to Wave 5	35.44	2.52	32-38

Table 3

Means, standard deviations, ranges, and Cronbach's alphas for all study variables

	N	Mean	SD	Observed Range	Possible Range	Cronbach's alpha
Wave 1						
Burnout	180	39.73	9.26	16-66	14-70	.92
Mental health	279	19.11	3.17	8-25	5-25	.67
Physical health	279	23.46	2.19	12-26	6-30	.70
Extraversion	180	12.70	3.38	5-20	4-20	.83
Agreeableness	180	16.53	1.87	12-20	4-20	.62
Conscientiousness	180	14.99	2.59	8-20	4-20	.71
Neuroticism	180	11.23	2.77	6-19	4-20	.68
Detachment	179	9.82	3.44	4-18	4-20	.83
Wave 2						
Burnout	164	36.72	8.95	18-70	14-70	.91
Mental health	253	19.97	2.77	10-24	5-25	.76
Physical health	253	23.42	2.42	11-26	6-30	.77
Detachment	165	10.68	3.63	4-20	4-20	.83
Wave 3						
Burnout	280	31.80	9.69	14-65	14-70	.94
Mental health	281	20.04	3.04	7-25	5-25	.82
Physical health	281	23.27	2.50	14-26	6-30	.77
Affective commitment	281	26.97	3.03	14-30	6-30	.85
Continuance commitment	280	20.51	4.59	6-30	6-30	.77
Normative commitment	281	19.03	4.34	6-29	6-30	.78
Occupation satisfaction	281	13.54	1.77	6-15	3-15	.88
Wave 4						
Burnout	104	33.30	9.08	18-69	14-70	.92
Mental health	104	18.99	3.49	7-24	5-25	.87
Physical health	103	23.00	2.69	12-26	6-30	.76
Affective commitment	93	25.86	3.77	12-30	6-30	.81
Continuance commitment	93	21.97	4.72	6-30	6-30	.84
Normative commitment	93	18.68	4.86	6-30	6-30	.81
Occupation satisfaction	105	12.82	2.33	4-15	3-15	.82
Turnover intentions	91	6.87	3.75	3-15	3-15	.78
Detachment	91	12.41	3.03	6-20	4-20	.78
Wave 5						
Burnout	91	35.02	9.97	16-58	14-70	.95
Mental health	89	19.94	3.49	7-24	5-25	.86
Physical health	89	22.99	2.39	15-26	6-30	.68
Affective commitment	93	25.57	3.72	14-30	6-30	.88
Continuance commitment	93	22.01	4.57	8-30	6-30	.85
Normative commitment	93	18.58	4.80	6-30	6-30	.81
Occupation satisfaction	91	12.87	2.13	6-15	3-15	.89
Turnover intentions	91	7.63	3.64	3-15	3-15	.78
Detachment	89	12.31	3.23	4-19	4-20	.80

Table 4

Correlations among study variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Wave 1																			
1. Burnout																			
2. MH	-.57*																		
3. PH	-.15*	.25*																	
4. E	-.21*	.16*	.04																
5. A	-.22*	.12	.12	.25*															
6. C	-.20*	.09	.04	-.03	.12														
7. N	.44*	-.58*	-.15*	-.31*	-.14	-.12													
8. PD	-.07	.15*	.01	.02	-.05	-.10	-.18*												
Wave 2																			
9. Burnout	.57*	-.37*	-.18*	-.24*	-.18*	-.24*	.31*	-.19*											
10. MH	-.42*	.51*	.19*	.17*	.19*	.19*	-.45*	.27*	-.65*										
11. PH	-.15	.22*	.64*	.03	.13	-.01	-.22*	.12	-.24*	.23*									
12. PD	-.09	.07	.03	-.01	-.02	.08	-.18*	.55*	-.23*	.25*	.16*								
Wave 3																			
13. Burnout	.46*	-.29*	-.15*	-.16*	-.06	-.17*	.25*	-.12	.60*	-.38*	-.21*	-.16							
14. MH	-.29*	.44*	.24*	.17*	.08	.15	-.36*	.12	-.43*	.46*	.28*	.22*	-.53*						
15. PH	-.29*	.15*	.40*	-.01	-.02	-.01	-.09	-.00	-.30*	.17*	.41*	.09	-.31*	.37*					
16. AC	-.24*	.05	-.07	.12	.23*	.07	-.08	-.04	-.15	.10	.01	-.09	-.19*	.22*	.06				
17. CC	.25*	-.10	-.01	-.15	.05	-.11	.19*	-.08	.19*	-.04	.11	-.03	.12*	-.09	-.10	.03			
18. NC	-.01	.08	.04	-.03	.18*	.14	.12	-.03	.01	-.01	.06	.02	.03	.05	-.04	.30*	.39*		
19. OS	-.22*	.08	-.08	.20*	.08	-.03	-.10	.03	-.08	.12	-.01	.03	-.18*	.22*	.07	.78*	.00	.21*	
Wave 4																			
20. Burnout	.43*	.30*	.10	-.35*	-.08	-.29*	.50*	-.13	.42*	-.25*	-.19	-.35*	.59*	-.41*	-.07	-.21*	.25*	.05	
21. MH	-.42*	.40*	-.01	.34*	.20*	.52*	-.51*	.02	-.49*	.40*	.21	.22	-.41*	.59*	.04	.30*	-.15	.12	
22. PH	-.27*	.16*	.26*	.41*	.09	.31*	-.29*	.03	-.60*	.25*	.34*	.34*	-.36*	.39*	.50*	.07	-.17	-.01	
23. AC	-.16	.11	-.07	.24*	.11	.38*	-.35*	-.16	-.16	.17	.28*	.14	-.15	.31*	-.09	.61*	.01	.31*	
24. CC	.26	-.04	-.20	-.15	.12	-.12	.08	-.10	.28*	-.14	-.13	.03	.13	-.17	-.17	.03	.40*	.20	
25. NC	.07	-.09	-.34*	-.09	.14	.04	.07	-.17	.22	-.27*	-.27*	-.04	.00	-.03	-.15	.20	.21*	.63*	
26. OS	-.32*	.14	-.07	.28*	.05	.30*	-.41*	-.11	-.28*	.09	.27*	.19	-.21*	.22*	-.04	.63*	-.08	.15	
27. TI	.18	-.20	-.12	-.01	-.02	-.16	.14	.09	.06	-.12	-.06	.11	.13	-.24*	-.04	-.27*	.09	-.15	
28. PD	-.22	.18	.01	.20	-.25	-.00	-.20	.41*	-.37*	.31*	-.07	.29*	-.22*	.23*	-.03	.03	-.10	.02	
Wave 5																			
29. Burnout	.39*	-.18	.07	-.20	-.04	-.19	.22	-.15	.47*	-.22	-.05	-.07	.49*	-.20	-.04	-.07	.02	-.05	

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
30. MH	-.36*	.43*	-.08	.15	.14	.15	-.41*	.12	-.40*	.31*	.07	.12	-.35*	.41*	.12	.03	.01	.12
31. PH	-.22	.20	.35*	.19	.06	.01	-.21	.20	-.41*	.37*	.58*	.26	-.37*	.28*	.54*	.06	-.07	.05
32. AC	-.30*	.04	.05	.31*	.21	.21	-.24	-.30*	-.34*	.09	.11	.01	-.15	.20	-.03	.46*	.04	.30*
33. CC	.33*	-.10	-.06	-.12	.05	-.02	.28*	-.06	.31*	-.10	-.03	-.05	.18	-.09	-.08	.10	.48*	.21*
34. NC	-.18	.06	.08	.02	.05	.16	-.07	-.29*	.02	-.08	.03	-.02	-.10	.16	.05	.40*	.13	.65*
35. OS	-.27*	.03	-.04	.35*	.07	.13	-.29*	-.17	-.41*	.23*	.16	-.02	-.22*	.11	-.11	.37*	.09	.14
36. TI	.09	-.11	.10	-.08	-.19	-.03	.14	.15	.01	.03	.15	.20	.07	-.03	.19	-.07	-.08	-.15
37. PD	-.40*	.34*	-.10	.37*	.06	.18	-.27*	.29*	-.22	.16	.01	.27	-.16	.22*	-.09	-.02	.02	.14
	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Wave 4																		
20. Burnout	-.21*																	
21. MH	.17	-.68*																
22. PH	.03	-.33*	.44*															
23. AC	.49*	-.31*	.38*	-.00														
24. CC	.04	.10	-.10	-.15	.04													
25. NC	.23*	.06	.02	-.11	.24*	.39*												
26. OS	.48*	-.40*	.46*	.17	.82*	-.03	.16											
27. TI	-.07	.34*	-.46*	-.22*	-.31*	-.12	-.12	-.44*										
28. PD	.23*	.02	.05	.04	.02	-.03	.08	.11	-.09									
Wave 5																		
29. Burnout	.04	.47*	-.30*	-.25*	-.13	.17	.08	-.30*	.29*	-.16								
30. MH	-.07	-.34*	.49*	.29*	.25	-.10	-.07	.37*	-.34*	.10	-.64*							
31. PH	-.07	-.39*	.32*	.62*	-.03	-.12	-.13	.01	-.14	-.10	-.25*	.24*						
32. AC	.39*	-.21	.25	.11	.64*	.11	.28*	.71*	-.42*	.14	-.42*	.32*	-.05					
33. CC	.04	.26*	-.08	.01	.04	.67*	.29*	-.05	-.28*	-.00	.20	-.11	-.07	-.09				
34. NC	.46*	-.14	.12	.07	.39*	.32*	.78*	.30*	-.35*	.14	-.14	.04	.05	.38*	.24*			
35. OS	.33*	-.16	.16	.15	.54*	.04	.12	.64*	-.36*	.24	-.48*	.37*	-.03	.86*	-.04	.18		
36. TI	.03	.27*	-.33*	-.15	-.33*	-.12	-.21	-.40*	.58*	.04	.37*	-.37*	.05	-.54*	.01	-.17	-.51*	
37. PD	.03	-.05	.12	.03	.26	-.22	.10	.35*	-.18	.59*	-.32*	.40*	.03	.26*	-.14	.03	.29*	-.19

Note. MH=Mental health. PH=Physical health. E=Extraversion. A=Agreeableness. C=Conscientiousness. N=Neuroticism. PD=Psychological detachment. AC=Affective commitment. CC=Continuance commitment. NC=Normative commitment. OS=Occupational satisfaction. TI=Turnover intentions. * indicates significant at $p < .05$.

Table 5

Latent growth model results for burnout

Model	AIC	BIC	Mean-i	Var-i	Mean-s	Mean-s1	Var-s	Var-s1	Mean-q	Mean-s2	Var-q	Var-s2
Linear	5863.44	5900.71	38.58*	51.95*	-2.23*		2.43 ⁺					
Quadratic	5813.83	5866.00	40.20*	47.05*	-6.91*		26.24		1.49*		1.91	
Piecewise	5734.42	5775.20	39.39*	46.43*		-3.51*		3.39		1.93*		n/a ^a

Note. i=Intercept factor. s=Slope factor in linear and quadratic models. s1=Slope 1 in piecewise model. q=Quadratic factor. s2=Slope 2 in piecewise model. Unstandardized parameter estimates presented. * indicates significant at $p < .05$. ⁺ indicates $p = .052$. ^a indicates where slope 2 variance was set to zero.

Table 6

Latent growth model results for physical health

Model	AIC	BIC	Mean-i	Var-i	Mean-s	Mean-s1	Var- s	Var-s1	Mean-q	Mean-s2	Var-q	Var-s2
Linear	4356.90	4394.77	23.48*	3.52*	-0.16*		.33*					
Quadratic	4357.68	4410.70	23.44*	4.33*	.02		1.64		-.05		.08	
Piecewise	4298.66	4351.46	23.42*	3.91*		-.08		.45		-.37*		.66

Note. i=Intercept factor. s=Slope factor in linear and quadratic models. s1=Slope 1 in piecewise model. q=Quadratic factor. s2=Slope 2 in piecewise model. Unstandardized parameter estimates presented. * indicates significant at $p < .05$.

Table 7

Latent growth model results for mental health

Model	AIC	BIC	Mean-i	Var-i	Mean-s	Mean-s1	Var-s	Var-s1	Mean-q	Mean-s2	Var-q	Var-s2
Linear	4948.20	4986.07	19.45*	4.66*	.17*		.07					
Quadratic	4941.16	4994.18	19.19*	5.91*	.93*		2.26		-.25*		.13	
Piecewise	4878.80	4931.60	19.36*	4.91*		.33*		.13		-.32		.62

Note. i=Intercept factor. s=Slope factor in linear and quadratic models. s1=Slope 1 in piecewise model. q=Quadratic factor. s2=Slope 2 in piecewise model. Unstandardized parameter estimates presented. * indicates significant at $p < .05$.

Table 8

Latent growth model results for occupational satisfaction and occupational commitment

Model	AIC	BIC	Mean-i	Var-i	Mean-s	Var- s
Occupational satisfaction	1943.65	1972.93	13.52*	2.47*	-.53*	2.34*
Affective commitment	2377.99	2407.23	26.93*	8.25*	-1.11*	3.79
Continuance commitment	2702.49	2731.74	20.63*	8.33*	.93*	3.13
Normative commitment	2631.47	2660.72	19.00*	10.14*	-.39	.62

Note. i=Intercept factor. s=Slope factor. Unstandardized parameter estimates presented.

* indicates significant at $p < .05$.

Table 9

Latent growth model results for psychological detachment

Model	AIC	BIC	Mean-i	Var-i	Mean-s	Var- s	Mean-q	Var-q
Linear	2693.45	2725.03	9.98*	7.67*	.69*	.61*		
Quadratic	2697.59	2743.22	9.85*	8.42*	1.48*	2.95	-.28*	.13

Note. i=Intercept factor. s=Slope factor in linear model. q=Quadratic factor. Unstandardized parameter estimates presented. * indicates significant at $p < .05$.

Table 10

Multivariate latent growth model results for burnout and physical health

	Mean	Var	I-B	S-B1	S-B2	I-P	S-P1	AIC	BIC
I-B	39.57*	46.59*						9970.01	10109.43
S-B1	-3.58*	4.99	-0.08						
S-B2	1.64*	16.87*	-19.05*	-1.05					
I-P	23.43*	3.88*	-3.40*	0.19	2.35				
S-P1	-0.08	0.61*	-1.90*	0.00	1.28	-0.77			
S-P2	-0.29	1.02*	-0.42	-0.99	-1.30	0.60	-0.16		

Note. Var=Variance. I-B=Intercept of burnout. S-B1=Slope of burnout Wave 1-3. S-B2=Slope of burnout Wave 3-5. I-P=Intercept of physical health. S-P1=Slope of physical health Wave 1-3. S-P2=Slope of physical health Wave 3-5. Unstandardized parameter estimates presented.

* indicates significant at $p < .05$.

Table 11

Multivariate latent growth model results with for burnout and mental health

	Mean	Var	I-B	S-B1	S-B2	I-M	S-M1	AIC	BIC
I-B	39.15*	50.02*						10410.88	10550.31
S-B1	-3.37*	9.29*	-3.54						
S-B2	1.80*	25.99*	-13.64*	-5.40					
I-M	19.33*	5.53*	-14.06*	1.99*	3.53*				
S-M1	0.33*	0.69*	2.02*	-2.37*	1.33	-0.71*			
S-M2	-0.14	2.99*	-0.90	1.90	-7.59*	0.29	-0.63*		

Note. Var=Variance. I-B=Intercept of burnout. S-B1=Slope of burnout Wave 1-3. S-B2=Slope of burnout Wave 3-5. I-M=Intercept of mental health. S-M1=Slope of mental health Wave 1-3.

S-M2=Slope of mental health Wave 3-5. Unstandardized parameter estimates presented.

* indicates significant at $p < .05$.

Table 12

Multivariate latent growth model results for burnout and occupational satisfaction

	Mean	Var	I-B	S-B1	S-B2	I-OS	AIC	BIC
I-B	32.02*	74.13*					7719.17	7823.62
S-B1	-3.55*	7.60*	14.36*					
S-B2	1.94*	20.00*	-23.22*	-3.92				
I-OS	13.50*	2.23*	-3.48*	-0.14	1.42			
S-OS	-0.54*	1.97*	-1.26	0.37	-3.21*	-0.67		

Note. Var=Variance. I-B=Intercept of burnout. S-B1=Slope of burnout Wave 1-3. S-B2=Slope of burnout Wave 3-5. I-OS=Intercept of occupational satisfaction. S-OS=Slope of occupational satisfaction. Unstandardized parameter estimates presented. * indicates significant at $p<.05$.

Table 13

Multivariate latent growth model results for burnout and affective commitment

	Mean	Var	I-B	S-B1	S-B2	I-AC	AIC	BIC
I-B	32.00*	73.47*					8162.26	8266.71
S-B1	-3.57*	7.46*	14.06*					
S-B2	2.02*	17.65*	-23.00*	-3.80				
I-AC	26.92*	8.54*	-5.95*	0.26	1.13			
S-AC	-1.11*	4.60*	0.00	0.40	-4.79*	-1.99		

Note. Var=Variance. I-B=Intercept of burnout. S-B1=Slope of burnout Wave 1-3. S-B2=Slope of burnout Wave 3-5. I-AC=Intercept of affective commitment. S-AC=Slope of affective commitment. Unstandardized parameter estimates presented. * indicates significant at $p < .05$.

Table 14

Multivariate latent growth model results for burnout and continuance commitment

	Mean	Var	I-B	S-B1	S-B2	I-CC	AIC	BIC
I-B	31.98*	71.50*					8507.63	8612.07
S-B1	-3.57*	6.98*	13.27*					
S-B2	1.93*	10.95*	-21.00*	-2.86				
I-CC	20.66*	7.98*	5.05	1.65	0.35			
S-CC	0.94*	2.71	0.86	-0.34	0.27	1.62		

Note. Var=Variance. I-B=Intercept of burnout. S-B1=Slope of burnout Wave 1-3. S-B2=Slope of burnout Wave 3-5. I-CC=Intercept of continuance commitment. S-CC=Slope of continuance commitment. Unstandardized parameter estimates presented. * indicates significant at $p<.05$.

Table 15

Multivariate latent growth model results for burnout and normative commitment

	Mean	Var	I-B	S-B1	S-B2	I-NC	AIC	BIC
I-B	31.99*	73.33*					8447.18	8551.63
S-B1	-3.56*	7.21	13.82*					
S-B2	1.93*	13.93	-22.65*	-3.54				
I-NC	19.00*	11.39*	1.23	0.48	0.44			
S-NC	-0.33	2.68	-2.91	-1.72	-1.23	1.17		

Note. Var=Variance. I-B=Intercept of burnout. S-B1=Slope of burnout Wave 1-3. S-B2=Slope of burnout Wave 3-5. I-NC=Intercept of normative commitment. S-NC=Slope of normative commitment. Unstandardized parameter estimates presented. * indicates significant at $p<.05$.

Table 16

Multivariate latent growth model results for burnout and turnover intentions

	Turnover Regressed on	Mean	Var	I-B	S-B1	AIC	BIC
I-B	0.38	39.42*	45.96*			6206.78	6277.22
S-B1	0.37	-3.52*	5.33	-0.32			
S-B2	0.95	1.77*	15.15	-17.44	-1.38		

Note. Var=Variance. I-B=Intercept of burnout. S-B1=Slope of burnout Wave 1-3. S-B2=Slope of burnout Wave 3-5. Unstandardized parameter estimates presented. * indicates significant at $p<.05$.

Table 17

Multivariate latent growth model results for burnout and psychological detachment

	Mean	Var	I-B	S-B1	S-B2	I-PD	AIC	BIC
I-B	39.40*	45.61*					8376.94	8484.45
S-B1	-3.51*	5.99*	-0.72					
S-B2	1.77*	15.76*	-17.63*	-1.49				
I-PD	9.92*	7.50*	-4.60*	0.43	2.24			
S-PD	0.71*	0.60*	-0.89	0.39	-1.06	-1.16*		

Note. Var=Variance. I-B=Intercept of burnout. S-B1=Slope of burnout Wave 1-3. S-B2=Slope of burnout Wave 3-5. I-PD=Intercept of psychological detachment. S-PD=Slope of psychological detachment. Unstandardized parameter estimates presented. * indicates significant at $p<.05$.

Table 18

Conditional latent growth model results for burnout and personality

	I-B	S-B1	S-B2	AIC	BIC
Centered at Time 1	regressed on	regressed on	regressed on		
Conscientiousness	-0.51*	-0.04	0.03	4129.63	4212.35
Neuroticism	1.08*	-0.19	-0.04		
Agreeableness	-0.68*	0.33	0.16		
Extraversion	-0.18	-0.05	-0.04		
<hr/>					
Centered at Time 2					
Conscientiousness	-0.53*	-0.04	0.02		
Neuroticism	0.99*	-0.21	-0.04		
Agreeableness	-0.50	0.33	0.17		
Extraversion	-0.22	-0.04	-0.04		
<hr/>					
Centered at Time 3					
Conscientiousness	-0.63*	-0.05	0.05		
Neuroticism	0.69*	-0.22	0.05		
Agreeableness	-0.02	0.32	0.12		
Extraversion	0.32	-0.06	-0.03		
<hr/>					
Centered at Time 4					
Conscientiousness	-0.51	-0.08	0.06		
Neuroticism	0.57	-0.24	-0.05		
Agreeableness	0.19	0.32	0.41		
Extraversion	-0.37	-0.05	-0.14		
<hr/>					
Centered at Time 5					
Conscientiousness	-0.44	-0.07	0.11		
Neuroticism	0.49	-0.22	-0.20		
Agreeableness	0.12	0.31	0.12		
Extraversion	-0.31	-0.05	0.01		

Note. Var=Variance. I-B=Intercept of burnout. S-B1=Slope of burnout Wave 1-3. S-B2=Slope of burnout Wave 3-5. Unstandardized parameter estimates presented. * indicates significant at $p<.05$.

Table 19

Autoregressive model results for burnout and mental health

Models	χ^2	df	CFI	RMSEA
1. Autoregressive	199.04	35	.68	.17
2. Causal (B→M)	188.88	31	.70	.17
3. Reverse Causal (M→B)	185.45	31	.70	.17
4. Reciprocal (B→M & M→B)	177.06	27	.71	.18
Model Comparisons	$\Delta\chi^2$			
1. vs. 2.	11.15*			
1. vs. 3.	12.85*			
1. vs. 4.	22.95*			
2. vs. 4.	11.83*			
3. vs. 4.	10.34*			
Parameter Estimates	Autoregressive	Causal	Reverse Causal	Reciprocal
B Wave 1→B Wave 2	.56*	.56*	.52*	.51*
B Wave 2→B Wave 3	.63*	.63*	.56*	.60*
B Wave 3→B Wave 4	.66*	.66*	.54*	.47*
B Wave 4→B Wave 5	.54*	.61*	.54*	.82*
M Wave 1→M Wave 2	.59*	.51*	.59*	.46*
M Wave 2→M Wave 3	.61*	.50*	.61*	.49*
M Wave 3→M Wave 4	.71*	.66*	.72*	.83*
M Wave 4→M Wave 5	.42*	.36*	.41*	.29*
B Wave 1→M Wave 2		-.14*		-.14*
B Wave 2→M Wave 3		-.20*		-.20*
B Wave 3→M Wave 4		-.11		-.09
B Wave 4→M Wave 5		-.16		-.18
M Wave 1→B Wave 2			-.08	-.08
M Wave 2→B Wave 3			-.13	-.11
M Wave 3→B Wave 4			-.34*	-.32*
M Wave 4→B Wave 5			.06	.12

Note. B=Burnout. M=Mental health. Standardized parameter estimates presented.

* indicates significant at $p < .05$.

Table 20

Autoregressive model results for burnout and physical health

Models	χ^2	df	CFI	RMSEA
1. Autoregressive	103.11	35	.80	.11
2. Causal (B→P)	82.45	31	.85	.10
3. Reverse Causal (P→B)	96.06	31	.81	.11
Model Comparisons	$\Delta\chi^2$			
1. vs. 2.	18.83*			
1. vs. 3.	7.57			

Parameter Estimates	Autoregressive	Causal	Reverse Causal
B Wave 1→B Wave 2	.56*	.56*	.55*
B Wave 2→B Wave 3	.63*	.63*	.61*
B Wave 3→B Wave 4	.65*	.65*	.68*
B Wave 4→B Wave 5	.60*	.61*	.64*
P Wave 1→P Wave 2	.65*	.64*	.65*
P Wave 2→P Wave 3	.33*	.26*	.34*
P Wave 3→P Wave 4	.54*	.40*	.54*
P Wave 4→P Wave 5	.70*	.69*	.70*
B Wave 1→P Wave 2		-.06	
B Wave 2→P Wave 3		-.27*	
B Wave 3→P Wave 4		-0.39*	
B Wave 4→P Wave 5		.01	
P Wave 1→B Wave 2			-.08
P Wave 2→B Wave 3			-.09
P Wave 3→B Wave 4			.24*
P Wave 4→B Wave 5			.07

Note. B=Burnout. P=Physical health. Standardized parameter estimates presented.

* indicates significant at $p<.05$. + indicates $p=.06$.

Table 21

Autoregressive model results for burnout and occupational satisfaction

Models	χ^2	df	CFI	RMSEA
1. Autoregressive	25.18	9	.87	.12
2. Causal (B→S)	18.46	7	.91	.11
3. Reverse Causal (S→B)	22.02	7	.88	.13
Model Comparisons	$\Delta\chi^2$			
1. vs. 2.	7.17*			
1. vs. 3.	3.42			

Parameter Estimates	Autoregressive	Causal	Reverse Causal
B Wave 3→B Wave 4	.62*	.63*	.61*
B Wave 4→B Wave 5	.49*	.51*	.47*
S Wave 3→S Wave 4	.49*	.47*	.49*
S Wave 4→S Wave 5	.57*	.58*	.60*
B Wave 3→S Wave 4		-.22*	
B Wave 4→S Wave 5		-.01	
S Wave 3→B Wave 4			-.15 ⁺
S Wave 4→B Wave 5			-.08

Note. B=Burnout. S=Occupational satisfaction. Standardized parameter estimates presented. * indicates significant at $p<.05$. ⁺ indicates $p<.10$.

Table 22

Autoregressive model results for burnout and affective commitment

Models	χ^2	df	CFI	RMSEA
1. Autoregressive	14.95	9	.96	.07
2. Causal (B→AC)	14.60	7	.91	.09
3. Reverse Causal (AC→B)	12.50	7	.96	.08
Model Comparisons	$\Delta\chi^2$			
1. vs. 2.	0.65			
1. vs. 3.	2.60			

Parameter Estimates	Autoregressive	Causal	Reverse Causal
B Wave 3→B Wave 4	.63*	.63*	.62*
B Wave 4→B Wave 5	.48*	.51*	.49*
AC Wave 3→AC Wave 4	.61*	.61*	.62*
AC Wave 4→AC Wave 5	.59*	.58*	.57*
B Wave 3→AC Wave 4		-.04	
B Wave 4→AC Wave 5		-.06	
AC Wave 3→B Wave 4			-.13
AC Wave 4→B Wave 5			.07

Note. B=Burnout. AC=Affective commitment. Standardized parameter estimates presented.
* indicates significant at $p<.05$.

Table 23

Autoregressive model results for burnout and continuance commitment

Models	χ^2	df	CFI	RMSEA
1. Autoregressive	23.39	9	.88	.11
2. Causal (B→CC)	21.11	7	.88	.13
3. Reverse Causal (CC→B)	18.13	7	.91	.11
Model Comparisons	$\Delta\chi^2$			
1. vs. 2.	1.97			
1. vs. 3.	5.26			

Parameter Estimates	Autoregressive	Causal	Reverse Causal
B Wave 3→B Wave 4	.63*	.62*	.61*
B Wave 4→B Wave 5	.49*	.50*	.48*
CC Wave 3→CC Wave 4	.43*	.43*	.42*
CC Wave 4→CC Wave 5	.67*	.66*	.67*
B Wave 3→CC Wave 4		-.00	
B Wave 4→CC Wave 5		.12	
CC Wave 3→B Wave 4			.15*
CC Wave 4→B Wave 5			.08

Note. B=Burnout. CC=Continuance commitment. Standardized parameter estimates presented.
* indicates significant at $p<.05$.

Table 24

Autoregressive model results for burnout and normative commitment

Models	χ^2	df	CFI	RMSEA
1. Autoregressive	24.13	9	.91	.11
2. Causal (B→NC)	16.65	7	.94	.10
3. Reverse Causal (NC→B)	22.55	7	.91	.13
Model Comparisons	$\Delta\chi^2$			
1. vs. 2.	7.64*			
1. vs. 3.	0.70			

Parameter Estimates	Autoregressive	Causal	Reverse Causal
B Wave 3→B Wave 4	.63*	.63*	.63*
B Wave 4→B Wave 5	.47*	.50*	.47*
NC Wave 3→NC Wave 4	.63*	.63*	.63*
NC Wave 4→NC Wave 5	.77*	.78*	.77*
B Wave 3→NC Wave 4		.04	
B Wave 4→NC Wave 5		-.20*	
NC Wave 3→B Wave 4			.04
NC Wave 4→B Wave 5			.05

Note. B=Burnout. NC=Normative commitment. Standardized parameter estimates presented.
* indicates significant at $p<.05$.

Table 25

Autoregressive model results for burnout and psychological detachment

Models	χ^2	df	CFI	RMSEA
1. Autoregressive	55.55	27	.89	.08
2. Causal (PD→B)	49.10	24	.90	.08
3. Reverse Causal (B→PD)	49.02	24	.90	.08
Model Comparisons	$\Delta\chi^2$			
1. vs. 2.	6.44			
1. vs. 3.	6.60			

Parameter Estimates	Autoregressive	Causal	Reverse Causal
B Wave 1→B Wave 2	.56*	.56*	.56*
B Wave 2→B Wave 3	.64*	.64*	.64*
B Wave 3→B Wave 4	.66*	.66*	.66*
B Wave 4→B Wave 5	.57*	.57*	.61*
PD Wave 1→PD Wave 2	.57*	.57*	.57*
PD Wave 2→PD Wave 4	.39*	.39*	.33*
PD Wave 4→PD Wave 5	.59*	.62*	.56*
PD Wave 1→B Wave 2		-.16*	
PD Wave 2→B Wave 4		.02	
PD Wave 4→B Wave 5		-.15	
B Wave 1→PD Wave 2			-.06
B Wave 3→PD Wave 4			-.20 ⁺
B Wave 4→PD Wave 5			-.14

Note. B=Burnout. PD=Psychological detachment. Standardized parameter estimates presented.
* indicates significant at $p<.05$. ⁺ indicates $p<.10$.

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APPENDIX

SURVEY ITEMS

Burnout:

(1=never or almost never to 5=always or almost always)

I feel tired.

I have no energy for going to work in the morning.

I feel physically drained.

I feel fed up.

I feel like my “batteries” are “dead.”

I feel burned out.

My thinking process is slow.

I have difficulty concentrating.

I feel like I’m not thinking clearly.

I feel like I’m not focused in my thinking.

I have difficulty thinking about complex things.

I feel I am unable to be sensitive to the needs of others at work/school.

I feel I am not capable of investing emotionally in people at work/school.

I feel I am not capable of being sympathetic to people at work/school.

Physical health:

In general, how would you rate your overall health? 1 = Excellent, 2 = Very Good, 3 = Good, 4 = Fair, 5 = Poor (R)

Does your current health status now limit you in moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf? 1 = Yes, limited a lot, 2 = Yes, limited a little, 3 = No, not limited at all

Does your current health status limit you in climbing several flights of stairs? 1 = Yes, limited a lot, 2 = Yes, limited a little, 3 = No, not limited at all

During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)? 1 = Not at all, 2 = To a little extent, 3 = To some extent, 4 = To a moderate extent, 5 = To a large extent (R)

How often have you accomplished less than you would like with your work or other regular daily activities as a result of your physical health? 1 = None of the time, 2 = A little of the time, 3 = Some of the time, 4 = Most of the time, 5 = All of the time (R)

How often have you been limited in the kind of work you do or other activities as a result of your physical health status? 1 = None of the time, 2 = A little of the time, 3 = Some of the time, 4 = Most of the time, 5 = All of the time (R)

Mental health:

How often have you accomplished less than you would like with your work or other regular daily activities as a result of emotional problems (such as feeling depressed or anxious)? 1 = None of the time, 2 = A little of the time, 3 = Some of the time, 4 = Most of the time, 5 = All of the time (R)

How often have you done work or activities less carefully than usual as a result of any emotional problems (such as feeling depressed or anxious)? 1 = None of the time, 2 = A little of the time, 3 = Some of the time, 4 = Most of the time, 5 = All of the time (R)

How much of the time during the past 4 weeks have you felt calm and peaceful? 1 = None of the time, 2 = A little of the time, 3 = Some of the time, 4 = Most of the time, 5 = All of the time

How much of the time during the past 4 weeks have you felt downhearted and depressed? 1 = None of the time, 2 = A little of the time, 3 = Some of the time, 4 = Most of the time, 5 = All of the time (R)

How much of the time has your physical health or emotional problems interfered with your social activities (like visiting friends, relatives, etc.)? 1 = None of the time, 2 = A little of the time, 3 = Some of the time, 4 = Most of the time, 5 = All of the time (R)

Occupational satisfaction:

(1=strongly disagree to 5=strongly agree)

In general, I don't like my choice of the nursing profession. (R)

All in all, I am satisfied with my choice of the nursing profession.

In general, I like working in the nursing profession.

Affective commitment:

(1=strongly disagree to 5=strongly agree)

Nursing is important to my self-image.

I regret having entered the nursing profession. (R)

I am proud to be in the nursing profession.

I dislike being a nurse. (R)

I do not identify with the nursing profession. (R)

I am enthusiastic about nursing.

Continuance commitment:

(1=strongly disagree to 5=strongly agree)

I have put too much into the nursing profession to consider changing now.

Changing professions now would be difficult for me to do.

Too much of my life would be disrupted if I were to change my profession.

It would be costly for me to change my profession now.

There are no pressures to keep me from changing professions. (R)

Changing professions now would require considerable personal sacrifice.

Normative commitment:

(1=strongly disagree to 5=strongly agree)

I believe people who have been trained in a profession have a responsibility to stay in that profession for a reasonable period of time.

I do not feel any obligation to remain in the nursing profession. (R)

I feel a responsibility to the nursing profession to continue in it.

Even if it were to my advantage, I do not feel that it would be right to leave nursing now.

I would feel guilty if I left nursing.

I am in nursing because of a sense of loyalty to it.

Turnover intentions:

(1=strongly disagree to 5=strongly agree)

In the last few months I have thought seriously about looking for a nursing job at another hospital.

In the last few months I have thought seriously about looking for a non-nursing job.

Taking everything into consideration, it is likely that I will make a serious effort to find a new job within the next year.

Psychological Detachment:

(1=strongly disagree to 5=strongly agree)

I forget about work.

I don't think about work at all.

I distance myself from work.

I get a break from the demands of work.

Extraversion

(1=strongly disagree to 5=strongly agree)

I am the life of the party.

I don't talk a lot. (R)

I talk to a lot of different people at parties.

I keep in the background. (R)

Agreeableness:

(1=strongly disagree to 5=strongly agree)

I sympathize with others' feelings.

I am not interested in other people's problems. (R)

I feel others' emotions.

I am not really interested in others. (R)

Conscientiousness:

(1=strongly disagree to 5=strongly agree)

I get chores done right away.

I often forget to put things back in their proper place. (R)

I like order.

I make a mess of things. (R)

Neuroticism:

(1=strongly disagree to 5=strongly agree)

I have frequent mood swings.

I am relaxed most of the time. (R)

I get upset easily.

I seldom feel blue. (R)