Predictors of burnout and vigor among clinical and counseling psychology doctoral students

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PREDICTORS OF BURNOUT AND VIGOR AMONG CLINICAL AND COUNSELING PSYCHOLOGY DOCTORAL STUDENTS

by

Brett A. Swords

A Dissertation Submitted to the
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Abstract

Work-related burnout, although connected to many negative outcomes (Kahill, 1988), has not been thoroughly studied in the graduate student population. The goal of the present study was to examine burnout and vigor among clinical and counseling psychology doctoral students. Based on conservation of resources theory (Hobfoll & Freedy, 1993; Hobfoll & Shirom, 2001), five variables were selected as predictors of burnout and vigor: two types of general work-related stress (i.e., pressure and threat; Stanton et al., 2001), the supervisory working alliance, financial strain, and conflict with others in the workplace. Seven hypotheses were tested about the expected relation between burnout and vigor, the ability of the predictor variables to explain at least 19% of the variance in burnout and vigor, and the direction of the relations between the predictor variables, burnout, and vigor. Additionally, the degree of burnout and vigor among clinical and counseling psychology doctoral students was investigated for descriptive purposes.

The majority of the sample of 203 clinical and counseling psychology doctoral students described experiencing burnout (74.9%) and vigor (76.8%) at some point during their time as doctoral students, and normative comparison tests indicated more reported burnout and less reported vigor than a comparison sample (Shirom, 2008a, 2008b). The negative correlation between burnout and vigor was large ($r = -.71, p < .001$) suggesting that although the variables are distinct, they may not be relatively independent as previously theorized (Shirom, 2003a).

A multivariate multiple regression was used to assess the relation of the predictor variables to self-reported burnout and vigor. The predictors explained 22% of the
variance in the multivariate construct of burnout and vigor. Follow-up analyses indicated that controlling for the effects of each of the other predictor variables, self-reported supervisory working alliance and work-related threat were significant predictors of burnout and vigor. The supervisory working alliance was inversely related to burnout and directly related to vigor, whereas threat was directly related to burnout and inversely related to vigor. Results are discussed for their theoretical and practical implications, limitations, and suggested future research.
Chapter I
Introduction

Work-related burnout has been connected to a plethora of negative physical and psychological outcomes (Kahill, 1988). Described as an affective response to work-related stress characterized by the depletion of physical, emotional, and cognitive energies (Shirom, 1989, 2003b), burnout has been associated with symptoms of depression, poor physical health, cardiovascular disease, musculoskeletal disorders, anxiety, sleep disturbances, memory impairment, neck pain, back pain, gastro-intestinal problems, headaches, anxiety, nervousness, and decreased involvement with friends and family (Belcastro & Hayes, 1984; Honkonen et al., 2006; Jackson & Maslach, 1982; Peterson et al., 2008; Zhong et al., 2009). At the organizational level, burnout has been found to be inversely related to job satisfaction, organizational commitment, and job performance, and positively related to turnover intent and absenteeism (Lambert, Hogan, & Altheimer, 2010; Leiter & Maslach, 2009; Singh, Goolsby, & Rhoads, 1994; Wright & Cropanzano, 1998).

In the mental health field, burnout is harmful to more than the individual worker or the organization; burnout may have a negative effect on a service provider’s work with clients (Maslach, 1982; Maslach, Schaufeli, & Leiter, 2001; McCarthy & Frieze, 1999). In order to deal with the emotional demands of work in the human services field, mental health workers may distance themselves emotionally and cognitively from their clients, develop a cynical attitude, become detached from their work, and view their clients as objects rather than as unique individuals (Maslach, 1982; Maslach et al., 2001). Such distancing and depersonalization could result in a client not receiving adequate care,
which violates one of the primary principles of the American Psychological Association’s (2002) ethics code: Do no harm.

Burnout is typically viewed as a direct result of an accumulation of work-related stressors (Halbesleben & Buckley, 2004; Shirom, 1989, 2003b), such as the occurrence of stressful events, high workload, role conflict, and too many demands (Lee & Ashforth, 1996; Maslach et al., 2001). Work-related stress is not limited to individuals who are gainfully employed, as previous research has found that graduate students in various disciplines reported high levels of psychological distress and are vulnerable to physical and emotional illness (Tobin & Carson, 1994; Valdez, 1982). Additionally, Dyrbye et al. (2008) found that approximately 50% of medical students experience burnout during medical school, with 10% experiencing suicidal ideation.

Due to the unique stressors inherent in clinical and counseling psychology doctoral programs, clinical and counseling psychology doctoral students may be at more risk for burnout than students in other disciplines. Supporting this assertion, Cushway (1992) found that 59% of clinical psychology trainees reported experiencing psychological distress. In addition to the typical stressors that many graduate students are likely to experience, clinical and counseling psychology doctoral students must complete clinical work, which can cause chronic stress and burnout (Maslach, 1981; Rupert & Morgan, 2005). Therefore, because of the stress involved in playing multiple roles (i.e., a graduate student and a clinician), clinical and counseling psychology doctoral students may be especially likely to develop burnout.

Although little research has directly investigated the costs of student burnout, its consequences appear to be similar to the consequences of other work-related burnout
(Moneta, 2011). For example, among undergraduate university students, burnout has been found to predict cynicism and reduced efficacy, which in turn predicted the intention to leave one’s academic program (Moneta, 2011). Moreover, among medical students, burnout has been associated with serious thoughts of dropping out of medical school, reduced empathy, unprofessional conduct, and less altruistic professional values (Dyrbye, Massie, et al., 2010; Dyrbye, Thomas et al., 2010; Thomas et al., 2007).

Burnout among clinical and counseling psychology doctoral students remains virtually unexplored, however. In the only known study that has examined burnout among this population, Clark, Murdock, and Koetting (2009) found that global stress, advisor support, and sense of community predicted burnout among counseling psychology doctoral students. However, their study had several theoretical and methodological limitations: (a) proper attention was not paid to Type I and Type II error rates (cf. Shadish, Cook, & Campbell, 2002), (b) the study used untested, modified versions of other measures, calling into question the construct validity of the measures (Anastasi & Urbina, 1997), and (c) despite the fact that burnout is typically seen as a response to work-related stress (Halbesleben & Buckley, 2004), the measure of stress used by Clark et al. tapped global stress (i.e., stress in various areas of life). Most salient, Clark et al. did not incorporate adequate theorizing, which research on burnout, in general, has been criticized for failing to include (Shirom, 2003b).

The primary purpose of the present study was to establish a theory-based framework to understand and predict burnout and a related construct (i.e., vigor) among clinical and counseling psychology doctoral students. Whereas burnout is defined as a negative affective experience in response to the work environment, vigor has been
described as a positive affective experience related to the work environment (Shirom, 2003a, 2006). In addition to the lack of literature examining the negative experience of burnout among clinical and counseling psychology graduate students, little is known about these students’ positive experiences; this deficiency is noteworthy due to the increased focus in the field on strengths and positive psychology (Seligman & Csikszentmihalyi, 2000; Seligman, Steen, Park, & Peterson, 2005).

In order to improve on previous research on burnout that has lacked adequate theorizing (Shirom, 2003b), conservation of resources theory (COR; Hobfoll, 1989, 1998), discussed below, served as a theoretical framework for the study. Originally a model of stress (Hobfoll 1989, 1998), COR theory has been subsequently applied to burnout (Hobfoll & Shirom, 2001; Shirom, 2003b) and vigor (Shirom, 2003a, 2006). In the present study, COR theory guided the selection of several predictors of burnout and vigor, including two types of general work-related stress, pressure and threat (Stanton, Balzer, Smith, Parra, & Ironson, 2001); two specific work-related stressors, financial strain and relationship conflict; and the supervisory working alliance (Bordin, 1983). By developing a theoretical understanding of the factors that predict burnout and vigor in this population, knowledge of how to limit burnout and increase vigor can be advanced.

**Conservation of Resources (COR) Theory**

**Burnout.** Conservation of resources theory (Hobfoll, 1989, 1998) postulates that individuals are constantly striving to obtain, protect, and maintain resources that they value, and that stress is produced by loss of resources or lack of gain of resources, whether real or perceived. When an individual’s intrinsic energetic resources are depleted due to demands or circumstances at the workplace, burnout is said to occur.
(Hobfoll & Shirom, 2001). Shirom (2003b) defined burnout as “an affective reaction to ongoing stress whose core content is the gradual depletion over time of individuals’ intrinsic energetic resources, including the expression of emotional exhaustion, physical fatigue, and cognitive weariness” (p. 245). Shirom (2003a) speculated that burnout is a component of the behavioral inhibition system, which deters behavior that may lead to danger or pain; in the face of the loss of resources, an individual withdraws from the threat in order to prevent additional resource loss. Conversely, an accumulation of particular types of resources can lead to the positive experience of vigor (Shirom, 2003a).

**Vigor.** Vigor, defined as “a positive affective response to one’s ongoing interactions with significant elements in one’s job and work environment that comprises the interconnected feelings of physical strength, emotional energy, and cognitive liveliness” (Shirom, 2006, p. 90), can also be understood through COR theory (Shirom, 2003a, 2006). Just as burnout can occur when workplace conditions deplete a worker’s energetic resources, vigor is likely to be experienced when the work environment promotes resource gain (Shirom, 2006). Vigor has been linked to several important outcomes, such as better health, decreased risk of mortality and diabetes, and higher job satisfaction (Shirom, 2006; Shirom, Toker, Berliner, Shapira, & Melamed, 2008; Shirom, Toker, Jacobson, & Balicer, 2010). Therefore, just as reducing burnout may help to prevent negative outcomes among clinical and counseling psychology doctoral students, increasing vigor may promote positive outcomes.

If burnout and vigor represent two extremes of a single construct, then vigor may be a repetitive and unnecessary construct. However, Shirom (2003a, 2006) theorized that burnout and vigor are most likely distinct and may occur simultaneously. Unlike burnout,
vigor is said to be a component of the behavioral facilitation system, which encourages behavior that leads to pleasure or reward; vigor encourages a person to respond energetically to situations where rewards and resources are likely to be gained (Shirom, 2003a). Therefore, although vigor and burnout have many opposing characteristics, the two affective experiences are theorized to be relatively independent (Shirom, 2003a). Shirom’s conceptualization has not been thoroughly tested, however, and preliminary data have provided mixed results on the validity of his theory (Deihl, 2009; Demerouti, Mostert, & Bakker, 2010). Based on Shirom’s (2003a, 2006) formulation, in the present study, burnout and vigor were expected to have a small to moderate inverse relationship.

**Work-Related Pressure and Threat**

Understood from the perspective of COR theory, workplace stressors and demands threaten or deplete a worker’s energetic resources over time, ultimately resulting in burnout (Hobfoll & Freedy, 1993; Hobfoll & Shirom, 2001). Correspondingly, previous meta-analytic studies have found a direct relationship between work demands (e.g., pressure, overload) and burnout and an inverse relationship between work demands and work engagement (Crawford, LePine, & Rich, 2010; Lee & Ashforth, 1996; Nahrgang, Morgeson, & Hofman, 2011). Although workplace stressors have been found to predict burnout in the world of work (Jackson, Turner, & Brief, 1987; Leiter, 1991), they remain virtually unstudied among graduate students.

Preliminary evidence suggests that similar to individuals who are gainfully employed, graduate students can encounter stressful work environments. In a qualitative study, the graduate school environment was identified as a major source of stress (Offstein, Larson, McNeill, & Mwale, 2004). Other studies support the assertion that
graduate students are subjected to large amounts of stress (Tobin & Carson, 1994). Demonstrating that clinical and counseling psychology students, in particular, may be under an especially high degree of work-related stress, Cushway (1992) found that 75% of clinical psychology trainees were moderately or very stressed due to their clinical training. Therefore, considering that a stressful work environment has been linked to burnout (Jackson et al., 1987; Leiter, 1991) and that graduate work can be a significant source of stress (Cushway, 1992; Offstein et al., 2004; Tobin & Caron, 1994), stress related to graduate work may also predict burnout.

The present study examined the relations between work-related stress, burnout, and vigor among clinical and counseling psychology doctoral students. As opposed to focusing solely on stress related to particular aspects of clinical and counseling psychology students’ graduate training (e.g., clinical work), stress pertaining to individuals’ overall experiences as doctoral students were taken into account. Clinical and counseling psychology students may encounter stress in multiple roles, including their roles as clinicians, students in classes, graduate assistants, and researchers, and focusing too closely on any one role would result in a failure to capture all of the work-related stress to which students may be subjected.

Although Stanton et al. (2001) did not proffer definitions, the authors suggested that general work-related stress is best measured by two interrelated but distinct facets: pressure and threat. Compared to threat, pressure reflects a less serious level of work stress. Pressure is closely related to time pressure and represents more typical job stress. A work environment high in pressure may be described as demanding and hectic (Stanton et al., 2001). Threat, on the other hand, represents a more serious level of work stress. A
working environment high in threat has a negative and threatening quality and may be described as overwhelming and nerve-wracking (Stanton et al., 2001). Supporting the assertion that threat represents a more serious type of job stress than pressure, several studies have found a stronger association between threat and turnover intention than between pressure and turnover intention (DeSouza, 2010; Stanton et al., 2001). Both facets have been connected to burnout among the gainfully employed (Bahner & Berkel, 2007).

In order to best capture general work-related stress associated with doctoral work, both pressure and threat were measured separately in the present study, as recommended by Stanton et al. (2001). Pressure and threat were expected to have a positive relation with burnout and a negative relation with vigor.

**Financial Strain**

In addition to the general work-related stressors of pressure and threat, financial strain was selected as a predictor variable based on COR theory (Hobfoll & Freedy, 1993). In the COR model (Hobfoll, 1989), money is considered to be an energetic resource that aids in the acquisition of other resources. Therefore, people who are experiencing financial difficulty should be more likely to experience burnout due to a greater strain on their resources, whereas individuals with greater financial resources should experience greater vigor. Supporting this assertion, financial strain has been directly related to symptoms of depression and burnout, and financial strain has also been inversely related to psychological well-being (Creed & Macintyre, 2001; Soares, Grossi, & Sundin, 2007; Vinokar, Price, & Caplan, 1996).
Clinical and counseling psychology doctoral students may be especially likely to encounter financial strain. Clinical psychology doctoral students have identified their financial situation as a major stressor (Nelson, Dell’Oliver, Koch, & Buckler, 2001), and graduates of clinical and counseling psychology doctoral programs report debt more frequently than those in most other psychology subfields, with 79% and 77% reporting being in debt upon graduation, respectively (Wicherski, Michalski, & Kohout, 2009). Levels of debt are also high, with clinical psychology graduates reporting an average debt of $84,725, and counseling psychology graduates reporting an average debt of $54,172 (Wicherski et al., 2009). In the present study, financial strain was expected to be directly related to burnout and inversely related to vigor.

**Supervisory Working Alliance**

COR theory states that interpersonal relationships, in the form of social support, serve as a resource by aiding in the gathering and maintenance of other resources (Hobfoll, 1989). According to previous research, workers’ relationships with their supervisors are of particular importance, as two meta-analytic studies have found an inverse relation between supervisory support and burnout (Halbesleben, 2006; Lee & Ashforth, 1996). In the mental health field, clinical supervision takes on an especially high level of importance. Unlike in many fields where supervisors serve only as administrators, supervisors in the mental health field help their supervisees understand their emotions regarding clinical work while playing a gate-keeping role to the profession (Bernard & Goodyear, 2014; Cherniss, 1980).

The supervisory relationship in clinical supervision is frequently viewed through the lens of the supervisory working alliance. Similar to the therapeutic working alliance
(Bordin, 1979), the supervisory working alliance consists of agreements on the goals and on the tasks of supervision along with an emotional bond between the supervisor and supervisee (Bordin, 1983). A previous study reported a direct relationship between the supervisory working alliance and vigor among residential frontline staff, as well as an inverse relationship between the supervisory working alliance and burnout (Deihl, 2009). Therefore, a stronger supervisory working alliance seems to be associated with more vigor and less burnout.

For clinical and counseling psychology graduate students, a poor supervisory alliance is especially problematic. In one study, clinical psychology trainees rated poor supervision as the number one source of stress during their clinical training (Cushway, 1992); this result is not surprising, considering that the supervisory alliance is particularly influential for counselors in training. At the beginning phase of counselor development, students depend heavily on supervisors for support and encouragement (Rønnestad & Skovolt, 2003). At the advanced student phase, supervision can also have a great impact, as students feel the pressure to perform at a higher level. Positive supervision experiences can be powerful, and negative experiences can be even more influential (Ellis et al., in press; Rønnestad & Skovolt, 2003).

Therefore, regardless of their particular level of development, the supervisory alliance may be especially likely to contribute to the accumulation of resources (vigor) or to the loss of resources (burnout) for clinical and counseling psychology doctoral students. Consistent with a previous study of residential frontline staff (Deihl, 2009), in the present study, the supervisory working alliance was expected to have a positive relation with vigor and a negative relation with burnout.
Relationship Conflict

According to COR theory, interpersonal relationships may be a beneficial source of support, but interpersonal relationships can also diminish individuals’ resources (Hobfoll, 1989). For example, competition over limited resources can result in social conflict, which can lead to stress (Hobfoll, 1998). Interpersonal stress in the workplace, then, can potentially lead to burnout (Shirom, 2003b). Although not specifically linked to burnout, interpersonal conflict has been correlated with negative outcomes such as symptoms of depression and the presence of negative emotions (Bruk-Lee, 2006).

In the present study, a particular type of interpersonal stress in the work environment, relationship conflict, was investigated (Jehn, 1995). Relationship conflict occurs when there are interpersonal incompatibilities between group members (Jehn, 1995). Coinciding with the conceptualization of burnout as a reaction to the work environment (Halbesleben & Buckley, 2004; Shirom, 1989, 2003b), relationship conflict is specific to relationships in work-related settings. It typically involves incongruous personalities or dispositions and may include tension, animosity, and annoyance (Jehn, 1995, 1997). In order to capture the entirety of their experiences, doctoral student participants in the present study were asked to consider all relationships connected to their graduate work (e.g., staff and co-workers at assistantship or practicum sites, peers, classmates, faculty members). Relationship conflict was expected to have a positive relation with burnout and an inverse relation with vigor.

Summary and Hypotheses

Like gainfully employed individuals, graduate students are susceptible to burnout (Dyrbye et al., 2008; Tobin & Carson, 1994). However, despite the plethora of
psychological and physiological problems that have been associated with burnout (see Kahill, 1988), little is known about burnout among clinical and counseling psychology doctoral students. Likewise, little is known about these students’ experiences of vigor.

In the present study, conservation of resources theory (COR; Hobfoll, 1989, 1998) provided a framework for investigating burnout (Hobfoll & Freedy, 1993; Hobfoll & Shirom, 2001) and vigor (Shirom, 2003a, 2006) among clinical and counseling psychology doctoral students. Shirom’s (2003a) conceptualization of burnout and vigor as related but distinct constructs that are relatively independent from one another has not previously been tested among a mental health graduate student sample. Among the clinical and counseling psychology doctoral student sample in the present study, burnout and vigor were expected to have a small to moderate correlation, with no more than 25% shared variance. Twenty-five percent of the variance was chosen as a cutoff point due to this value representing a large effect size for a bivariate correlation (Cohen, 1992).

Specifically, the following hypothesis was tested:

*Hypothesis 1.* Burnout and vigor were expected to have a small to moderate inverse relation among graduate students in clinical and counseling psychology, with \(-.50 < r < 0\), which represents neither a strong nor a positive relation.

Additionally, COR theory (Hobfoll, 1989, 1998), as applied to the training of clinical and counseling psychology students, guided the selection of five variables to predict burnout and vigor: the supervisory working alliance, pressure, threat, financial strain, and relationship conflict. Due to the shared theoretical underpinnings of burnout and vigor (Hobfoll & Shirom, 2001; Shirom 2003a), these two variables were treated as a
multivariate construct in the present study. Based on the results of previous studies (Clark et al., 2009), as a set, the predictor variables were expected to predict a relatively large proportion of variance in the multivariate combination of burnout and vigor. Although a small effect may still be statistically significant, the amount of variance explained is not of practical relevance. Nineteen percent (19%) of the variance was chosen as a cutoff point because this value represents a large adjusted effect size (i.e., 75th percentile) in counseling psychology research (Haase, Ellis, & Ladany, 1989).

Specifically, the following hypothesis was tested:

**Hypothesis 2.** The combination of predictor variables (i.e., self-reported program pressure, program threat, relationship conflict, supervisory working alliance, and financial strain) were expected to predict a significant and substantive amount of variance ($\hat{\rho}^2 \geq .19$) in the linear multivariate composite of burnout and vigor.

Additionally, each predictor variable was expected to make a unique contribution to the prediction of the multivariate combination of burnout and vigor. That is, each variable was expected to add incremental predictive value beyond that which can be predicted from the combination of the other four variables. For any variable that was a statistically significant unique predictor of the multivariate construct of burnout and vigor, follow-up analyses were planned to examine closely the relations among the predictor variable and each criterion variable (Haase & Ellis, 1987). Based on COR theory and previous research, the relation between each predictor variable and criterion variable was expected to be in the direction specified in the following hypotheses:
Hypothesis 3a. Controlling for the other predictor variables, pressure was expected to be a statistically significant unique predictor of the multivariate construct of burnout and vigor. Specifically, controlling for the other predictor and criterion variables, pressure was expected to be positively related to burnout and inversely related to vigor.

Hypothesis 3b. Controlling for the other predictor variables, threat was expected to be a statistically significant unique predictor of the multivariate construct of burnout and vigor. Specifically, controlling for the other predictor and criterion variables, threat was expected to be positively related to burnout and inversely related to vigor.

Hypothesis 3c. Controlling for the other predictor variables, the supervisory working alliance was expected to be a statistically significant unique predictor of the multivariate construct of burnout and vigor. Specifically, controlling for the other predictor and criterion variables, the supervisory working alliance was expected to be inversely related to burnout and positively related to vigor.

Hypothesis 3d. Controlling for the other predictor variables, financial strain was expected to be a statistically significant unique predictor of the multivariate construct of burnout and vigor. Specifically, controlling for the other predictor and criterion variables, financial strain was expected to be positively related to burnout and inversely related to vigor.

Hypothesis 3e. Controlling for the other predictor variables, relationship conflict was expected to be a statistically significant unique predictor of the
multivariate construct of burnout and vigor. Specifically, controlling for
the other predictor and criterion variables, relationship conflict was
expected to be positively related to burnout and inversely related to vigor.
Chapter II

Method

Participants

Power analysis. An a priori power analysis was conducted to determine the sample size needed to achieve sufficient statistical power. An average effect size regarding burnout among the clinical and counseling psychology doctoral student population was not available. In the only known study investigating burnout among this population (Clark et al., 2009), an adjusted $R^2$ of .39 was reported for the regression model, which included six predictors. However, this effect size is quite large and was only obtained in a single study. Additionally, an effect size regarding the predictors on vigor is unknown.

Therefore, in order to be conservative, a medium effect size ($R^2 = .13$) was chosen for the power analysis (Cohen, Cohen, West, & Aiken, 2003). G*Power (Faul, Erdfelder, Lang, & Buchner, 2007), a computer program, was used to perform the a priori power analysis. According to this program, in order to achieve statistical power of .80, with $\alpha = .003$ (estimated alpha level after modified Bonferroni correction; Holland & Copenhaver, 1988), a sample size of at least 153 participants was needed.

Inclusion and exclusion criteria. Students enrolled in a clinical or counseling psychology doctoral program (i.e., Ph.D., Psy.D., Ed.D.) in the United States were eligible to participate in the present study. Students in master’s programs were excluded in order to increase the homogeneity of participants and decrease extraneous variance (Shadish et al., 2002). Moreover, students were required to be engaged in clinical work in order to qualify as a participant. Clinical work was defined as mental health-related
activity performed with a client (e.g., group therapy, individual therapy, assessment). Additionally, due to the fact that the present study examined the supervisory working alliance, students were required to be receiving individual clinical supervision; individuals who were not receiving supervision or who were receiving group supervision only were excluded. In order to obtain a diverse sample, no other inclusion or exclusion criteria were used.

**Participant characteristics.** Participants were 203 clinical or counseling psychology doctoral students ranging in age from 23 to 58 ($M = 28.69, SD = 5.71, Mdn = 27.0$). The sample was 76.4% Caucasian, 7.9% Hispanic/Latino/Latina, 4.9% Asian or Pacific Islander, 4.9% Biracial or Multiracial, 3.4% African American, 2.0% Middle Eastern, and 0.5% Native American. The majority of the participants were women (86.7%) and held a master’s degree (74.4%). Participants ranged from first year to eighth year in their doctoral programs ($M = 3.60, SD = 1.44, Mdn = 3.0$). The most common field of study was clinical psychology (71.8%), followed by counseling psychology (28.2%). Participants were fairly evenly split between currently being enrolled in Ph.D. programs (53.2%) and Psy.D. programs (46.8%). More specifically, clinical psychology Psy.D. students represented the largest portion of the sample (46%), followed by counseling psychology Ph.D. students (27.7%) and clinical psychology Ph.D. students (25.7%). See Table 1 for more detailed information.

Regarding their dissertations, the majority of participants were pre-proposal (53.2%). Over one quarter of participants (25.1%) reported having a job that was not directly connected to their graduate work; of this group, participants reported working from 2 to 80 hours per week ($M = 16.35, SD = 14.50, Mdn = 10.0$) at their jobs not
directly related to their graduate work. The percentage of Psy.D. students (32.6%) who reported having a job was higher than the percentage of Ph.D. (18.5%) students. Participants reported, on average, having completed 4.17 years of clinical work ($SD = 3.94, Mdn = 3.0$) and between 1 and 3500 hours ($M = 693.60, SD = 707.57, Mdn = 500.0$) of supervised clinical work (i.e., intervention and assessment hours) in their respective doctoral programs.

Participants reported spending between zero and 95 hours per week on activities related to graduate work ($M = 50.34, SD = 17.90, Mdn = 50.0$). The number of hours spent in a clinical setting per week, on average, ranged from 5 to 60 ($M = 24.87, SD = 12.21, Mdn = 20.0$), with an average of 11.21 direct client contact hours per week ($SD = 6.09, Mdn = 10.0$). In addition to individual supervision, the majority of participants (80.3%) were also receiving group supervision. Table 1 provides more detailed demographic information.
Table 1

*Sample Demographic Characteristics (N=203)*

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Table 1, continued

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Table 1, continued

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*Includes students from programs in which a dissertation is not required.

**Design**

The proposed study used a one-group *ex post facto* design. Five predictor variables were hypothesized to predict burnout and vigor (outcome variables). Burnout and vigor were measured using the Shirom-Melamed Burnout Measure (Shirom, 2005a) and the Shirom-Melamed Vigor Measure (Shirom, 2005b), respectively. The five predictor variables included the supervisory working alliance, as measured by the Working Alliance Inventory – Trainee Version (Bahrick, 1990), two types of work-related stress (i.e., pressure and threat), as measured by the Stress in General scale
(Stanton et al., 2001), financial strain, as measured by an untitled four-item scale (Creed & Macintyre, 2001; Ullah, 1990), and relationship conflict, as measured by the Relationship Conflict subscale of Jehn’s (1995) Intragroup Conflict Scale.

**Measures**

**Shirom-Melamed Burnout Measure.** Self-reported burnout was measured using the Shirom-Melamed Burnout Measure (SMBM; Shirom, 2005a). The SMBM was selected because unlike many other measures of burnout, the theoretical underpinnings of the measure are explicit. That is, the SMBM is based on Hobfoll’s conservation of resources theory (1989, 1998). The 14-item SMBM assesses the diminution of one’s energies (Shirom, 2003b) and consists of three subscales, each representing the loss of a different type of energy: Physical Fatigue (6 items), Cognitive Weariness (5 items), and Emotional Exhaustion (3 items). Items are rated on a Likert-type scale, ranging from 1 (never or almost never) to 7 (always or almost always). The measure instructs participants to rate each item according to feelings at work over the past 30 days.

In order to ensure that the items are answered with doctoral work in mind, the following instructions were added to the scale: “For the purposes of this study, all activities and environments related to being a doctoral student should be considered your ‘work.’ Likewise, your clients should be considered ‘customers.’” The rest of the scale, including item wording, was unchanged. Examples of items include “I feel tired” (Physical Fatigue), “I am not thinking clearly” (Cognitive Weariness), and “I feel I am not capable of investing emotionally in co-workers and customers” (Emotional Exhaustion). Recommended scoring procedures involve computing mean scores for the
total scale and each subscale; thus, scores range from 1 to 7. Because hypotheses were not made regarding the subscales, only the total scale score was used in the present study.

Strong psychometric properties have been reported for SMBM scores. Among workers in diverse settings, Cronbach’s alpha coefficients of .91 to .94 were found for full scale scores (Armon, Shirom, Shapira, & Melamed, 2008; Deihl, 2009; Melamed, Shirom, Toker, & Shapira, 2006). Evidence of validity has included relations between scores on the SMBM and a number of physiological variables, including risk factors for cardiovascular disease and insomnia (Armon et al., 2008; Shirom 2003b; Shirom, Westman, Shamai, & Carel, 1997). In addition, correlations of .74 and .79 have been found between SMBM scores and scores on the Maslach Burnout Inventory-General Survey (MBI-GS; Maslach, Jackson, & Leiter, 1996; Shirom & Melamed, 2006). In the present study, a coefficient alpha = .93 was found for the full scale SMBM. See Table 2 for means and standard deviations for the study variables.

A series of t tests, referred to as norm comparison tests in the present study, were used to compare scores on the measures in the present study to normative or comparison data. For the measures used to assess burnout and vigor, normative data were available (Shirom, 2008a, 2008b). For the remaining measures, comparison samples from previous studies were used. For the norm comparison t tests, the family-wise alpha was set at .05, and a modified Bonferroni correction procedure was used to reduce Type 1 error rate inflation due to multiple statistical tests (Holland & Copenhaver, 1988).
Table 2

*Descriptive and Reliability Data for Study Variables (N=203)*

<table>
<thead>
<tr>
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<th>M</th>
<th>SD</th>
<th>Comparison M</th>
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<td>2.05</td>
<td>.93</td>
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<td>3.19*</td>
<td>1.13</td>
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<tr>
<td>Women</td>
<td>3.41*</td>
<td>0.97</td>
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<td>Vigor</td>
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<td>Women</td>
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<td>33.98</td>
<td>196.93</td>
<td>.97</td>
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<tr>
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<td>4.71</td>
<td>13.9</td>
<td>.71</td>
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<tr>
<td>Threat</td>
<td>11.59*</td>
<td>7.32</td>
<td>9.24</td>
<td>.81</td>
</tr>
<tr>
<td>Relationship Conflict</td>
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<td>3.10</td>
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<td>.92</td>
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<tr>
<td>Financial Strain</td>
<td>11.42*</td>
<td>3.92</td>
<td>12.45</td>
<td>.84</td>
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</table>

**For comparison group *t* test, *p* < .001.

Norms for the SMBM (burnout) are separated by gender; therefore, two *t* tests were conducted. The normative sample included 6,714 males and 3,952 females (Shirom, 2008a, 2008b). Among men, the present sample scored significantly and substantially higher (*M* = 3.19, *SD* = 1.13) than did the norm group (*M* = 2.05) on the SMBM, *t*(25) = 5.19, *p* < .001, *̂p*² = .50 (*̂p*² is the shrunken effect size; see Haase et al., 1989). Among women, the present sample also scored significantly and substantially...
higher \((M = 3.41, SD = 0.97)\) than the norm group \((M = 2.33)\) on the SMBM, \(t(175) = 14.77, p < .001, \hat{\rho}^2 = .55\).

**Shirom-Melamed Vigor Measure.** Vigor was measured using the Shirom-Melamed Vigor Measure (SMVM; Shirom, 2005b). Like the SMBM, the SMVM was chosen due to the measure’s explicit theoretical underpinnings, as the SMVM is also based on COR theory (Hobfoll, 1989, 1998). The SMVM is a 12-item self-report measure designed to assess for the presence of three types of affective states experienced at the workplace, which together form the construct of vigor (Shirom, 2003a). These affective states, each of which comprises a subscale of the SMVM, are Physical Strength (5 items), Emotional Energy (3 items), and Cognitive Liveliness or vividness (4 items) (Shirom, 2003a, 2005b). For each item, respondents are asked to rate feelings experienced at work over the past 30 days on a Likert-type scale, ranging from 1 (never or almost never) to 7 (always or almost always).

In order to ensure that the items were answered with doctoral work in mind, the following instructions were added to the scale: “For the purposes of this study, all activities and environments related to being a doctoral student should be considered your ‘work.’ Likewise, your clients should be considered ‘customers.’” The rest of the scale, including item wording, was unchanged. Specific items include, “I feel energetic” (Physical Strength), “I feel able to be creative” (Cognitive Liveliness), and “I feel I am capable of investing emotionally in coworkers and customers” (Emotional Energy). Subscale and total scale scores, obtained by averaging item scores within each scale, can range from 1 to 7. For the present study, only total scale scores were used, as hypotheses were not made regarding the subscale constructs.
Although the SMVM is relatively new and is continuing to be researched, reliability and validity evidence of SMVM scores has been reported. A coefficient alpha of .92 was reported in two samples (Deihl, 2009; Shirom et al., 2008). Regarding evidence of validity, an exploratory factor analysis identified three factors, which corresponded to the hypothesized three subscales (Shirom, 2003a). Additionally, a content analysis of interviews with employees regarding their experience of vigor supported the expected three-factor structure (Shraga & Shirom, 2009). In the present study, alpha = .90 was found for the full scale SMVM. Among men, the sample in the present study scored significantly and substantially lower ($M = 4.75$, $SD = 0.99$) than the norm group ($M = 5.58$; Shirom, 2008b) on the SMVM, $t(25) = -4.27, p < .001, \hat{\rho}^2 = .40$. Among women, the sample in the present study also scored significantly and substantially lower ($M = 4.91$, $SD = 0.76$) than the norm group ($M = 5.46$; Shirom, 2008a) on the SMVM, $t(175) = -9.6, p < .001, \hat{\rho}^2 = .34$.

**Working Alliance Inventory – Trainee Version.** The Working Alliance Inventory – Trainee Version (WAI-T; Bahrick, 1990) was used in the present study to measure the supervisory working alliance. The WAI-T is a 36-item, self-report measure that assesses supervisees’ perceptions of the supervisory working alliance. The WAI-T was derived from Horvath and Greenberg’s (1989) Working Alliance Inventory (WAI), a measure of the alliance between client and therapist. For the WAI-T, terms regarding the therapeutic alliance were altered to relate to the supervisory alliance (Bahrick, 1990). Specific examples of WAI-T items include, “I disagree with [my supervisor] about what I ought to get out of supervision,” “I feel that [my supervisor] appreciates me,” and “I am frustrated by the things we are doing in supervision.”
Corresponding to Bordin’s (1983) model of the alliance between supervisor and supervisee, the WAI-T is comprised of three 12-item subscales: agreement on Goals, agreement on Tasks, and Emotional Bond. On the WAI-T, supervisees respond to each item on a 7-point Likert-type scale, ranging from never (1) to always (7). A total scale score is calculated by summing item ratings after reverse scoring specific items; the total score can range from 36 to 252. Higher scores on the scale represent a more positive supervisory working alliance.

Although scores can be computed at the subscale level, previous research has found that the three subscales of the WAI-T are not conceptually discrete (Ellis, Russin, & Deihl, 2003). That is, correlations among the subscales were .80 or greater (p < .0001). Additionally, results of a confirmatory factor analysis showed that the three factors (Goals, Tasks, and Bond) were highly intercorrelated, rs > .86, ps < .0001, whereas the Tasks and Goals factors correlated perfectly (r = 1.00). Based on these analyses, Ellis et al. (2003) concluded that the WAI-T is best viewed as a unidimensional construct. For this reason, only the WAI-T full-scale score was used in the present study.

The WAI-T was chosen to measure the supervisory working alliance in the present study due to the availability of psychometric data. Coefficient alphas of .97 and .98 have been reported for the full scale score (Deihl, 2009; Walker, Ladany, & Pate-Carolan, 2007). Evidence for the validity of WAI-T scores was demonstrated by a positive relationship with supervisees’ satisfaction (Ladany, Ellis, & Friedlander, 1999) and a negative relationship with supervisees’ ambiguity and role conflict (Ladany & Friedlander, 1995).
In the present study, a coefficient alpha of .97 was found for the full scale WAI-T. Additionally, a norm comparison t test was used to compare mean scores on the WAI-T in the present study to data compiled by Lehrman-Waterman and Ladany (2001). Lehrman-Waterman and Ladany’s sample included 274 counseling trainees, the majority of whom were enrolled in clinical or counseling psychology doctoral programs. The sample in the present study \((M = 193.26, SD = 33.98)\) did not differ from the comparison group \((M = 196.93)\) on the WAI-T, \(t(202) = -1.54, p = .12, \hat{\rho}^2 = .01\).

**Financial strain.** Financial strain was assessed in the present study by an untitled four-item scale that has been frequently used in literature on unemployment (Creed & Macintyre, 2001; Ullah, 1990). The four items are, “Do you have serious financial worries?”, “Are you often not able to do the things you like to do because of shortages of money?”, “Are you often not able to do the things you need to do because of shortages of money?”, and “Are you often not able to manage on the money you have?” Respondents rate each item on a Likert-type scale with reference to the past four weeks. Ullah (1990) used a four-point Likert-type scale, ranging from never to very often, whereas Creed and Macintyre (2001) used a five-point Likert-type scale, ranging from 1 (never) to 5 (all the time). The format of Creed and Macintyre was used in the present study because the five-point Likert-type scale allows for greater variability, and a higher coefficient alpha was reported for this version of the scale. A total score is calculated by summing the ratings on each item. Total scores range from 4 to 20, with higher scores indicating greater financial strain.

This measure of financial strain was chosen for two reasons. First, unlike other measures of financial strain, the items are relevant to graduate students, and second,
adequate psychometric properties have been demonstrated among scale scores. Cronbach’s alphas of .77 and .91 have been reported (Creed & Macintyre, 2001; Ullah, 1990). Evidence for the validity of scale scores was provided by a positive correlation with psychological distress \( r = .61 \) and a negative correlation with self-reported income \( r = -.24 \) (Creed & Macintyre, 2001; Ullah, 1990).

In the present study, a coefficient alpha of .84 was found. Additionally, a norm comparison \( t \) test was used to compare mean scores on the measure of financial strain in the present study to data reported by Creed and Macintyre (2001). Creed and Macintyre’s sample included 248 unemployed men and women in Australia. The sample in the present study \( (M = 11.42, SD = 3.92) \) scored significantly lower than the comparison group \( (M = 12.45, SD = 4.38) \) on the measure of financial strain, \( t(202) = 3.74, p < .001, \hat{\beta}^2 = .06. \)

**Stress in General Scale.** Two types of general work-related stress, pressure and threat, associated with graduate school were assessed in the present study using the Stress in General scale (SIG; Stanton et al., 2001). The SIG was chosen to measure work-related stress due to the measure’s broad applicability. Unlike other measures of work stress that attempt to identify specific work-related stressors, the SIG was developed as a measure of general work stress that is applicable to individuals in a wide range of professions (Stanton et al., 2001).

The 15-item, self-report measure consists of two subscales: Pressure (SIG-I; 7 items) and Threat (SIG-II; 8 items). The Pressure subscale closely relates to time pressure and contains descriptors such as “hectic” and “pressured.” The Threat subscale indicates a negative and threatening quality to the work environment and suggests a more
serious level of stress; this subscale includes descriptors like “overwhelming” and “nerve-wracking” (Stanton et al., 2001). The 15 items are presented as words and phrases, and respondents are instructed to indicate whether each item describes their job.

Possible responses to each item include “Yes,” “No,” and “?” (cannot decide). In calculating total scores for each subscale, “No” responses are assigned a value of 0, “?” responses are assigned a value of 1.5, and “Yes” responses are assigned a value of 3. After reverse scoring a few items, the values are summed to create total scores for each subscale. Therefore, scores on the Pressure subscale can range from 0 to 21, and scores on the Threat subscale can range from 0 to 24, with higher scores indicating greater levels of stress. Although some researchers combined the two subscales and computed a total scale score, Stanton et al. (2001) advised against this combination because exploratory and confirmatory factor analyses indicated that a two-factor solution best fit the data. Therefore, in the present study, Pressure and Threat scores were examined separately.

In order to help ensure that participants complete the items with their doctoral work in mind, the following instructions were added to the scale in the present study: “For the purposes of this study, consider any and all work related to being a doctoral student as your ‘job.’ In other words, your ‘job’ is being a doctoral student.” All other aspects of the scale were unchanged.

In addition to the above-mentioned factor analyses, there is additional evidence for the reliability and validity of SIG scores. For the Pressure subscale, Cronbach’s alphas of .79 to .88 have been reported, whereas for the Threat subscale, coefficient alphas have ranged from .73 to .82 (Bahner & Berkel, 2007; DeSouza, 2011; Stanton et al., 2001). Additionally, each subscale score has been found to correlate negatively with
job satisfaction and correlate positively with role ambiguity, role conflict, tension, and turnover intention (DeSouza, 2011; Tran, Johnson, Fernandez, & Jones, 2010). In one study (Bahner & Berkel, 2007), scores on each subscale predicted components of burnout on the Maslach Burnout Inventory-General Survey (Maslach et al., 1996). In the present study, coefficient alphas of .71 (Pressure) and .81 (Threat) were found.

Norm comparison t tests were used to compare mean scores on the Pressure and Threat subscales in the present study to a large data sample collected during the development of the Stress in General scale (Stanton et al., 2001). Stanton et al.’s sample was comprised of 4,322 employees of a large aerospace company. The sample was described as 73% men, and most participants ranged in age from 25 to 29 years. The present sample scored significantly higher ($M = 16.69$, $SD = 4.71$) than the comparison group ($M = 13.9$) on the Pressure subscale, $t(202) = 8.44, p < .001, \hat{\beta}^2 = .26$. The sample in the present study also scored higher ($M = 11.59$, $SD = 7.32$) than the comparison group ($M = 9.24$) on the Threat subscale, $t(202) = 4.57, p < .001, \hat{\beta}^2 = .09$.

Intragroup Conflict Scale. A subscale of Bruk-Lee’s (2006) version of Jehn’s (1995) Intragroup Conflict Scale was used to assess interpersonal conflict in the workplace. Jehn’s scale is comprised of two subscales: Relationship Conflict and Task Conflict. Relationship Conflict, the subscale used in the present study, refers to interpersonal incompatibilities between members of a group (Jehn, 1995). The Task Conflict subscale was not used in the present study, as the relation between task conflict and outcome can be complex; in some situations, task conflict can result in positive outcomes, whereas in other situations, task conflict can result in negative outcomes (Jehn, 1995). Therefore, task conflict was not hypothesized to contribute to burnout.
Use of Jehn’s (1995) measure is widespread, and slightly different versions of the measure have been used (Pearson, Ensley, & Amason, 2002). Bruk-Lee (2006) made minor changes to some of the wording of the items on the original scale so that the items would be more applicable to different work settings (e.g., changing “How much tension is there among members in your work unit?” to “How much tension is there among people at your work?”). The subscale is comprised of four items, and items are rated on a Likert-type scale ranging from 1 (none) to 5 (a very great deal). Item ratings are summed to compute a total score for the subscale. Scores range from 4 to 20, with higher scores indicating greater conflict. An example of a Relationship Conflict subscale item is, “How much friction is there in your workplace?”

In order to ensure that participants complete items with their doctoral work in mind, the following instructions were added to the scale in the present study: “For the purposes of this study, being a doctoral student should be considered your ‘job.’ Likewise, any environment related to your doctoral work (e.g., practicum/internship site, assistantship site, and academic environment) should be considered your ‘work’ or ‘workplace.’” All other aspects of the scale were unchanged.

Adequate psychometric evidence has been found for scores on the Relationship Conflict subscale of Jehn’s (1995) Intragroup Conflict Scale, and this is the primary reason the subscale was chosen to measure workplace conflict in the present study. A coefficient alpha of .92 was found among two samples (Bruk-Lee, 2006; Jehn, 1995). Evidence of validity for the subscale scores has been demonstrated by negative correlations with intent to remain in the group ($r = -.23$), satisfaction with the group ($r = - .54$), and liking of the group ($r = -.22$; Jehn, 1995), as well as positive correlations with
depression symptoms \((r = .24)\), turnover intention \((r = .49)\), and presence of negative emotions \((r = .51;\) Bruk-Lee, 2006).

In the present study, a coefficient alpha of .92 was found. Additionally, a norm comparison \(t\) test was used to compare mean scores on the Relationship Conflict subscale in the present study to a sample collected by Bruk-Lee (2006), with 228 to 258 employees from a variety of occupations. The sample was described as being mostly white collar with an average age of 37.1 years. The sample in the present study \((M = 10.19, SD = 3.10)\) did not differ significantly from the comparison group’s mean score of 10.4, \(SD = 3.4\), on the Relationship Conflict subscale, \(t(202) = -0.97, p = .66\), \(\hat{\rho}^2 = 0.0\).

**Demographic questionnaire.** Participants were asked to complete a demographic questionnaire (see Appendix A). The questionnaire contained items regarding participants’ gender, race/ethnicity, age, current degree, and year in doctoral program. Additionally, the demographic questionnaire contained a number of items regarding participants’ experiences in their doctoral programs (e.g., status in program, average number of clients seen per week, an estimate of the average number of hours spent per week on work related to the doctoral program). Finally, participants were provided definitions of burnout and vigor based on the definitions of these constructs in the literature (Shirom, 2003b, 2006), and participants were then asked to indicate whether they had experienced burnout or vigor in their doctoral programs.

**Procedure**

A convenience sample of doctoral students in clinical and counseling psychology programs within the United States was obtained. Participants were recruited for the present web-based study through listservs, personal contacts, and directors of clinical
training. The study was described as examining the “the experiences of clinical and counseling psychology doctoral students, including the effects of various stressors.” A snowball sampling technique was employed. That is, a brief statement in the study invitation requested that participants send the invitation to the study to anyone who may be eligible.

The study invitation and cover letter (see Appendix B) briefly described the study. Additionally, the invitation explained that participants may register to be chosen at random to receive one of two $50 VISA gift cards. The invitation provided a link to the web-based survey on psychdata.com. When participants visited the study web-site, an explanation of the study was provided, along with an informed consent letter (see Appendix C). Participants were then able to click a link to indicate consent to participate, and a brief set of directions were provided (see Appendix D).

In order to reduce the likelihood of order effects, all measures except for the demographic questionnaire were presented in a counterbalanced manner; participants were randomly assigned to one of four random orderings of the measures. Upon the completion of these measures, participants filled out the demographic questionnaire.

Participants had the option of providing an e-mail address to register to win one of two $50 VISA gift-card prizes. The e-mail addresses were not connected to survey data, and they were maintained in a confidential file.
Chapter III

Results

Missing Data

Two hundred forty-eight (248) individuals initiated participation in the study. Several procedures were used to handle cases with missing data. First, any participant with more than two missing values on any given measure, more than 10% of values missing on any given measure, or more than 5% of values missing across all measures was excluded from the preliminary and major data analyses. Thirty participants were excluded using these criteria, resulting in 218 participants providing analyzable data.

Patterns of responses for an additional 15 participants indicated that inclusion criteria for the study were not met (i.e., participants were not completing clinical work or were not receiving individual supervision). These participants were removed from the data analyses, leaving a final sample of 203.

Of the 203 cases, 165 (81.3%) did not have any missing values, 31 (15.3%) had one missing value, and seven (3.4%) had two missing values. For the 38 cases missing one to two values, missing values were imputed using deductive/logical imputation. The investigator and an experienced methodologist examined each item and derived the item most similar to that item on the same scale (and if applicable, same subscale). A participant’s score on the most similar item was then used to replace the missing value.

Preliminary Analyses

Tests of assumptions. A series of preliminary analyses were conducted to test for violations of the assumptions required for the major statistical analyses. The assumptions of normality, linearity, and homoscedasticity of errors were examined.
Additionally, the data were screened for outliers, as well as the presence of multicollinearity among the predictor variables.

**Outliers.** The data were examined for both univariate and multivariate outliers. At the univariate level, several potential outliers were identified by examining $z$ scores: one case on SMVM total ($z = -3.70$), two cases on WAI-T total ($z = -3.22; z = -3.93$), one case on SIG-I total ($z = -3.49$), and one case on Relationship Conflict subscale total ($z = 3.21$). These cases were examined for contamination. A review of the data for these participants did not reveal any inconsistencies. All five participants completed all measures, reported complex answers in the demographics section, and did not have any values outside of the valid range. Considering that there was no evidence to indicate that these participants did not provide valid data and that a few outliers are expected in large data sets (Tabachnick & Fidell, 2007), the univariate outliers were retained.

The data were screened for multivariate outliers by examining leverage, discrepancy, and influence values. Due to the fact that the cutoff criterion of $2k/n$ for leverage values typically results in the identification of too many cases in large samples, the more stringent cutoff of $3k/n$ was used to examine the centered leverage values (Cohen et al., 2003). Four cases surpassed the criterion (0.074), with values of .081, .088, .091, and .105; these cases were examined for data contamination. None of the centered leverage values appeared to be unusually high relative to the other values, and no evidence of data contamination was present. As a measure of discrepancy, studentized deleted residual values were examined to determine if any surpassed the criterion of $|3.0|$ (Cohen et al., 2003). One case surpassed the criterion of $|3.0|$, with a
value of 3.30. Responses for this case were analyzed, and all data for the case appeared valid.

Cook’s distance values were calculated for each of the two criterion variables as a measure of influence. In the literature, various critical cutoff criteria have been suggested for Cook’s distance, including values greater than 1.0, $4/n-k-1$, or the critical value of the $F$ distribution at $\alpha = .50$ (Cohen et al., 2003; Fox, 1991). For the present study, $4/n-k-1$ was calculated to be 0.02, and the critical value of the $F$ distribution at $\alpha = .50$ was calculated to be 0.89. Twenty-three (23) cases surpassed the cutoff criterion of 0.02 on at least one of the Cook’s distance values, with values ranging from 0.02 to 0.10. Responses for these cases were analyzed, and all data for the cases appeared valid. No cases surpassed the alternative cutoff criteria of 0.89 or 1.0. To examine the influence of outliers on regression coefficients, DFBETAS were calculated, with a cutoff criterion of $|1.0|$ (Cohen et al., 2003). No DFBETAS exceeded the cutoff of the absolute value of 1.0.

Two cases surpassed the criteria on multiple indices of multivariate outliers. One case surpassed the criterion for leverage (0.074) and the more conservative criterion for Cook’s distance (0.02), and one other case surpassed the Cook’s distance criterion (0.02) and the studentized deleted residual criterion ($|3.0|$). A review of the data for these participants did not reveal any inconsistencies. No other cases surpassed the criterion on more than one index. Therefore, no cases were removed from the analysis.

**Normality.** Univariate normality was assessed by examining expected normal probability plots, histograms, as well as skewness and kurtosis values for each variable in the study. Examination of the plots and histograms indicated that each variable was
approximately normally distributed. A few variables appeared to have a mild to moderate negative skew. However, no skewness values exceeded the absolute value of two.

Additionally, multivariate normality was assessed by examining plots of standardized residuals, including normal probability plots, scatterplots of the standardized residuals vs. standardized predicted values, and histograms with an imposed normal curve. If the residuals appear to be normally distributed, screening individual variables is unnecessary (Tabachnick & Fidell, 2007). Based on these graphs, the residuals appeared to be normally distributed. Therefore, there appeared to be no violations of the assumption of normality.

**Linearity and homoscedasticity.** The assumptions of linearity and homoscedasticity were assessed by examining scatterplots of the standardized residuals vs. standardized predicted values. The distribution of the residual values indicated no violations of either assumption. Additionally, bivariate scatterplots were examined between all possible combinations of variables. Examination of the bivariate scatterplots did not indicate any clear departure from linearity.

**Multicollinearity.** In order to assess for multicollinearity, a correlation matrix of the five predictor variables was examined for correlations of .70 or greater. Correlations of .90 or above, in particular, may be indicative of serious multicollinearity (Cohen et al., 2003; Tabachnick & Fidell, 2007). No correlations between the predictor variables surpassed these values, as the highest correlation was .59 (i.e., between Pressure and Threat).
Additionally, Tolerance values were examined. A cutoff criterion of .50 was used, with any value less than .50 indicating that further exploration would have been necessary. A Tolerance value of less than .10, in particular, may indicate a serious problem with multicollinearity (Cohen et al., 2003). Tolerance values were acceptable and ranged from .59 to .92.

The variance inflation factor (VIF) was also examined for each predictor variable. Although a VIF > 10 is often interpreted as indicative of problematic multicollinearity, there is no firm rule of thumb threshold value for the VIF, and some authors have suggested that this guideline is too high (Cohen et al., 2003). For the present study, a more rigorous cutoff value of 2.0 was chosen (i.e., variance inflated by a factor of two). In the present study, the VIFs ranged from 1.08 to 1.70. Therefore, there was no evidence of multicollinearity.

**Counterbalancing.** In order to assess for mean differences on the measures due to the four different orders in which the measures were presented, a one-way multivariate analysis of variance (MANOVA) was conducted. Pillai’s multivariate test of significance indicated no order effect, $V = .15, F(21, 585) = 1.45, p = .087, \eta^2_p = .05, 95\% \text{ CI} [.00, .05], \hat{\rho}^2 = .02$.

Additionally, univariate analyses were conducted to further examine for measure order effects. Five of the seven one-way ANOVAs were non-significant; burnout (SMBM) scores $F(3, 199) = 2.17, p = .09, \eta^2 = .03, 95\% \text{ CI} [.00, .08], \hat{\rho}^2 = .02$, supervisory working alliance (WAI-T) scores $F(3, 199) = 0.40, p = .75, \eta^2 = .01, 95\% \text{ CI} [.00, .03], \hat{\rho}^2 = .00$, SIG-I (Pressure) scores $F(3, 199) = 2.14, p = .10, \eta^2 = .03, 95\% \text{ CI} [.00, .08], \hat{\rho}^2 = .02$, SIG-II (Threat) scores, $F(3, 199) = 1.62, p = .19, \eta^2 = .02, 95\% \text{ CI}$. 

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[.00, .07], $\hat{\rho}^2 = .01$, and financial strain scores $F(3, 199) = 0.69, p = .56, \eta^2 = .01$, 95% CI [.00, .04], $\hat{\rho}^2 = .00$. Two univariate ANOVAs were significant; Vigor (SMVM) scores $F(3, 199) = 4.12, p = .007, \eta^2 = .06$, 95% CI [.00, .12], $\hat{\rho}^2 = .04$, and Relationship Conflict scores $F(3, 199) = 3.04, p = .03, \eta^2 = .04$, 95% CI [.00, .10], $\hat{\rho}^2 = .03$.

Based on the non-significant multivariate effect, the five non-significant univariate analyses, and the relatively small effect sizes associated with the two significant univariate effects, any measure order effects appeared to be nominal. As a precaution, an alternative model was tested, with measure order effects included as a predictor variable in all of the proceeding major analyses. No differences in statistical significance for any of the major variables were observed between the model that included order effects and the model that did not include order effects. Therefore, it was concluded that there were no significant order effects.

**Descriptive Statistics**

For descriptive purposes, means, standard deviations, and Cronbach’s alpha coefficients for the variables in the present study can be found in Table 2. Additionally, a matrix of bivariate correlations among the study variables is located in Table 3.

Norm comparison $t$ tests were used to compare scores on the measures in the present study to normative or comparison groups, and these results are presented in Chapter II. In order to collect additional data about clinical and counseling psychology doctoral students’ experiences of burnout and vigor, participants were provided definitions of burnout and vigor and were asked to indicate (i.e., yes/no response option) whether they had experienced burnout or vigor while in their doctoral programs.
Table 3

Bivariate Correlations of Study Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>SMBM</th>
<th>SMVM</th>
<th>WAI-T</th>
<th>SIG-I</th>
<th>SIG-II</th>
<th>RC</th>
<th>FS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMBM</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMVM</td>
<td>-.71*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WAI-T</td>
<td>-.33*</td>
<td>.40*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIG-I</td>
<td>.43*</td>
<td>-.38*</td>
<td>-.13</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIG-II</td>
<td>.56*</td>
<td>-.50*</td>
<td>-.24*</td>
<td>.59*</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RC</td>
<td>.38*</td>
<td>-.31*</td>
<td>-.21*</td>
<td>.32*</td>
<td>.36*</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>FS</td>
<td>.23*</td>
<td>-.16</td>
<td>-.13</td>
<td>.10</td>
<td>.22*</td>
<td>.22*</td>
<td>--</td>
</tr>
</tbody>
</table>

Note. N = 203. SMBM = Burnout; SMVM = Vigor; WAI-T = Supervisory Working Alliance; SIG-I = Pressure; SIG-II = Threat; RC = Relationship Conflict; FS = Financial Strain. *p < .01 (modified Bonferroni procedure was used to adjust for multiple statistical tests; Holland & Copenhaver, 1988).
In response to the self-report items, 74.9% of participants indicated that they had experienced burnout at some point in their careers as doctoral students, with 25.1% of participants indicating that they had not experienced burnout. Regarding vigor, 76.8% of participants indicated that they had experienced vigor, with 22.2% of participants indicating that they had not experienced vigor.

**Major Analyses**

For all of the following statistical analyses, the family-wise alpha was set at .05, and a modified Bonferroni correction procedure was used to reduce Type 1 error rate inflation (Holland & Copenhaver, 1988).

**Test of Hypothesis 1.** Hypothesis 1 predicted that burnout and vigor would have a small to moderate inverse relation for graduate students in clinical and counseling psychology, with $-.50 < r < 0$, but neither a strong nor a positive relation. The bivariate correlation between the two variables was found to be $r = -.71$, 95% CI [-0.77, -0.64], $p < .001$, $\hat{\beta}^2 = .50$. The strong inverse relation indicated that treating burnout and vigor as a multivariate construct was appropriate (Tabachnick & Fidell, 2007). However, due to the large size of the correlation, Hypothesis 1 was not supported.

Other than the present study, only one other known study has examined the relation between burnout and vigor (Deihl, 2009). In order to determine whether the correlation between burnout and vigor among the sample in the present study differed from Deihl’s sample of residential frontline workers, a Fisher’s $z$ test was conducted post hoc to compare the two correlations (Cohen et al., 2003). The correlation between burnout and vigor in the present study ($N = 203$, $r = -.71$) was hypothesized to be significantly higher than the correlation between burnout and vigor ($N = 238$, $r = -.65$) in
Deihl’s study. Results indicated that the two correlations were not significantly different, $z = 1.16, p = .25, \hat{\rho}^2 = 0.0$. Therefore, the post-hoc hypothesis was not supported.

**Test of Hypothesis 2.** Hypothesis 2 stated that the combination of predictor variables (i.e., program pressure, program threat, relationship conflict, supervisory working alliance, and financial strain) would predict a significant and substantive amount of variance ($\hat{\rho}^2 \geq .19$) in the linear multivariate composite of burnout and vigor. Pillai’s multivariate test of significance indicated a significant relationship between the set of predictor variables and the multivariate composite of burnout and vigor, $V = .46, F(10, 394) = 11.88, p < .001, \eta^2_v = .23, 95\% CI [.15, .28], \hat{\rho}^2 = .22$. With an adjusted multivariate effect size of .22, the amount of variance explained (22%) exceeded the hypothesized amount (19%). Therefore, Hypothesis 2 was supported.

**Tests of Hypotheses 3a through 3e.** Hypotheses 3a through 3e predicted that controlling for the other predictor variables, program pressure, program threat, the supervisory working alliance, financial strain, and relationship conflict would each be a statistically significant predictor of the multivariate construct of burnout and vigor. To assess the importance of each predictor variable to the model while controlling for the other predictor variables, a multiple multivariate regression procedure was implemented through the SPSS MANOVA command. The linear composite (i.e., canonical variate) of burnout and vigor scores served as the criterion variable, with the five predictor variables entered simultaneously in the regression equation.

A summary of the results of the multiple multivariate regression analysis can be found in Table 4. Results indicated that WAI-T scores, $V = .10, F(2,196) = 11.32, p < .001, \eta^2_v = .10, 95\% CI [.03, .18], \hat{\rho}^2 = .09$, and Threat scores, $V = .13, F(2,196) = 14.83,$
$p < .001$, $\eta^2_v = .13$, 95% CI [.05, .22], $\hat{\rho}^2 = .12$, were significant unique predictors of the multivariate composite of SMBM scores and SMVM scores, controlling for the effects of the other predictor variables. However, controlling for the effects the other variables, three of the predictor variables were not significant unique predictors of the linear composite of SMBM scores and SMVM scores: Pressure scores, $V = .02$, $F(2,196) = 2.03$, $p = .14$, $\eta^2_v = .02$, 95% CI [.00, .07], $\hat{\rho}^2 = .01$, Financial Strain scores, $V = .01$, $F(2,196) = 1.22$, $p = .30$, $\eta^2_v = .01$, 95% CI [.00, .05], $\hat{\rho}^2 = .00$, and Relationship Conflict scores, $V = .03$, $F(2,196) = 2.74$, $p = .07$, $\eta^2_v = .03$, 95% CI [.00, .08], $\hat{\rho}^2 = .02$.

Table 4

Summary of Multivariate Regression Analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pillai’s $V$</th>
<th>Multivariate</th>
<th>$\hat{\rho}^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threat</td>
<td>.13</td>
<td>14.83**</td>
<td>.12</td>
</tr>
<tr>
<td>Supervisory Working Alliance</td>
<td>.10</td>
<td>11.32**</td>
<td>.10</td>
</tr>
<tr>
<td>Relationship Conflict</td>
<td>.03</td>
<td>2.74</td>
<td>.02</td>
</tr>
<tr>
<td>Pressure</td>
<td>.02</td>
<td>2.03</td>
<td>.01</td>
</tr>
<tr>
<td>Financial Strain</td>
<td>.01</td>
<td>1.22</td>
<td>.00</td>
</tr>
</tbody>
</table>

Note. $N = 203$. $\hat{\rho}^2$ is the shrunken multivariate eta squared.

**$p \leq .001$**
Follow-up procedures for each significant multivariate effect were performed to assess the contribution of each of the two criterion variables, burnout and vigor. These follow-up analyses included the concurrent examination of univariate $F$ tests and standardized discriminant function coefficients (Haase & Ellis, 1987). Whereas univariate $F$ tests examine associations between an independent variable and each dependent variable separately (i.e., ignore the correlation of the dependent variables), the standardized discriminant function coefficients (i.e., SDFCs) denote the unique contribution of one dependent variable controlling for the other dependent variables (Haase & Ellis, 1987). For the four univariate $F$ tests, a modified Bonferroni correction procedure was employed to help prevent Type 1 error rate inflation (Holland & Copenhaver, 1988).

For the predictor variable of threat, univariate $F$ tests were significant for burnout scores, $F(1,197) = 25.93, p < .001, \eta^2_p = .12$, 95% CI [.05, .20], $\hat{\rho}^2 = .11$, $SDFC = .69$, and vigor scores, $F(1,197) = 19.93, p < .001, \eta^2_p = .09$, 95% CI [.03, .17], $\hat{\rho}^2 = .09$, $SDFC = -.43$. Taken together, these results can be interpreted to mean that controlling for the other predictor variables, threat was a significant predictor of both burnout and vigor, and threat was able to predict each criterion variable approximately equally well.

For the predictor variable of the supervisory working alliance, univariate $F$ tests were significant for SMBM scores, $F(1, 197) = 10.72, p = .001, \eta^2_p = .05$, 95% CI [.01, .10], $\hat{\rho}^2 = .05$, $SDFC = -.20$, and SMVM scores, $F(1, 197) = 22.11, p < .001, \eta^2_p = .10$, 95% CI [.03, .18], $\hat{\rho}^2 = .10$, $SDFC = .87$. Therefore, controlling for the other predictor variables, the supervisory working alliance was a significant predictor of both burnout and vigor but was more important to explaining vigor than burnout.
In summary, threat and the supervisory working alliance each predicted unique variance in the multivariate construct of burnout and vigor. The follow-up analyses (i.e., SDFCs) indicated that controlling for the other predictor and criterion variables, threat was directly related to burnout and inversely related to vigor, whereas the supervisory working alliance was directly related to vigor and inversely related to burnout. Therefore, Hypotheses 3b and 3c were supported.

Results showed that pressure, financial strain, and relationship conflict were not unique predictors of the multivariate construct of burnout and vigor. Thus, Hypotheses 3a, 3d, and 3e were not supported.
Chapter IV

Discussion

Overview of the Present Study

The purpose of the present study was to investigate a theoretical framework of burnout and vigor among clinical and counseling psychology doctoral students. First, the occurrence of burnout and vigor among this population was explored, and the relation between burnout and vigor was examined. Additionally, a predictive model of burnout and vigor among clinical and counseling psychology doctoral students was tested. In order to put the findings in perspective, the strengths and limitations of the present study need to be considered before interpreting the results.

Limitations

Although the present study may offer an important contribution to the literature, there were several limitations to the research design and findings. Most salient, because the study used a one group ex post facto design and measured all variables simultaneously, causality cannot be inferred. In previous research, burnout has been found to predict new cases of insomnia, whereas insomnia was found to also predict new cases of burnout (Armon et al., 2008). Similar reciprocal relationships could have occurred between the variables of interest in the present study. Overall, the relationships between the predictor variables and outcome variables were likely not fully captured by the study design.

The selection of measures represents another set of limitations. First, all measures in the present study relied on participant self-report, and consequentially, a mono-method bias could have occurred (Shadish et al., 2002). Secondly, the psychometric properties of
many of the measures used in the present study have not been investigated among clinical and counseling psychology doctoral students. In order to address this problem, an attempt was made to choose measures that were designed to be applicable to a wide variety of settings (e.g., The Stress in General Scale; Stanton et al., 2001).

Additionally, to examine the internal consistency of the measures in the present study, Cronbach’s alpha coefficients were calculated. In the present study, the Pressure subscale of the SIG produced an alpha coefficient of .71, whereas coefficient alpha for the subscale in other studies has ranged from .79 to .88 (Bahner & Berkel, 2007; DeSouza, 2011; Stanton et al., 2001). Though a coefficient alpha of .71 is generally acceptable, it may represent a poorer fit for the Pressure subscale among clinical and counseling psychology doctoral students than among individuals who are gainfully employed. Due to the high level of stress found among students in the present study, a ceiling effect may have occurred on the Pressure subscale. Such a restriction of range may have had the effect of decreasing the internal consistency of the scale (Fife, Mendoza, & Terry, 2012).

Regarding the sample, the statistical conclusion and external validity of the present study could be limited (Shadish et al., 2002). Because the participants were self-selected, the sample is likely not representative of the population of clinical and counseling psychology doctoral students in the United States. Although the recruitment letter did not specifically mention burnout or vigor, the letter described the study as examining the effects of stressors on clinical and counseling psychology doctoral students (see Appendix B). Therefore, individuals who were feeling more stressed may have been more likely to participate in the study, as the topic of study would have been
personally relevant. Moreover, sample bias may have occurred due an unknown response rate. Because participants were recruited via e-mail and electronic means, the number of individuals who read the study description and declined to participate was unknown.

Additionally, 45 participants were dropped from the analyses. Due to the fact that the majority of excluded participants provided little analyzable data, it was unclear whether these participants differed from the participants that met inclusion criteria. Similarly, 38 of the retained cases had one to two missing values across all measures, with missing values imputed using deductive/logical imputation. Omission of particular items may have been due to random error, but a more systematic explanation is also possible (e.g., participants declining to answer items that made them feel uncomfortable).

Moreover, differences in types of doctoral programs were not examined in the present study and should be considered when interpreting the results. When considering field of study (e.g., clinical or counseling psychology) and type of doctoral degree (e.g., Ph.D. or Psy.D.), the sample was comprised of nearly twice as many clinical psychology Psy.D. students (46%) than students in any other category (see Table 1). There are differences between Ph.D. and Psy.D. programs in amount of financial aid received, internship match rate, and average length of training (Norcross, Ellis, & Sayette, 2010). Due to lower internship match rates and less financial aid received (Norcross et al., 2010), Psy.D. students could experience more school-related stress than Ph.D. students. Conversely, due to a greater amount of time spent in graduate school and additional research requirements such as completing a dissertation, Ph.D. students could also experience greater stress than Psy.D. students. Therefore, the occurrence of burnout and vigor may differ between students in various types of doctoral programs, and care must
be taken when generalizing the results of the present study to any particular population of doctoral students in applied psychology.

**Strengths**

In addition to the limitations, the present study also had several strengths that should be considered when interpreting the results. Although previous studies on burnout have been criticized for inadequate use of theory, conservation of resources theory (Hobfoll, 1989, 1998; Hobfoll & Shirom, 2001; Shirom, 2003a) was a central component of the reasoned argument (Tracey & Glidden-Tracey, 1999) and guided all aspects of the present study. Methodological strengths included controlling studywise Type I and Type II error (e.g., a priori power analysis, using a modified Bonferroni correction procedure), the use of falsifiable hypotheses, thoroughly testing the assumptions of the statistical analyses, examining the data for outliers, testing for multicollinearity, effective counterbalancing of measures, statistically controlling for the shared variance among the predictor and criterion variables, testing for the presence of measure order effects, the use of norm comparison tests, and reporting effect sizes in addition to statistical significance (Haase et al., 1989).

Moreover, the occurrence of burnout and vigor among clinical and counseling psychology doctoral students was explored using a two-pronged approach: comparison of participants’ mean scores on the SMBM and SMVM to normative samples, and participants’ self-reports of their experiences of burnout and vigor. Additionally, a diverse sample of clinical and counseling psychology doctoral students was obtained, thereby increasing the generalizability of the results. The sample was comprised of a relatively equal number of Ph.D. and Psy.D. students, and the sample represented
diversity in terms of racial background (i.e., 23.6% non-Caucasian), year in program, age (i.e., ranged from 23 to 58 years-old), and number of hours of supervised clinical experience.

**Major Results**

**Descriptive results.**

**Occurrence of burnout and vigor.** Although both burnout and vigor were reported to be common experiences by participants in the present study, norm comparison tests indicated that relative to a normative sample (Shirom, 2008a, 2008b), participants scored substantially higher on burnout ($M = 3.37; \hat{\rho}^2 = .50$ for men; $\hat{\rho}^2 = .55$ for women) and markedly lower on vigor ($M = 4.89; \hat{\rho}^2 = .40$ for men; $\hat{\rho}^2 = .34$ for women). Compared to the average effect size found in counseling psychology research (Haase et al., 1989), these effect sizes are large. Since burnout and vigor are viewed as reactions to circumstances at the workplace (Shirom, 2003b, 2006), these results imply that the working environments of the clinical and counseling psychology doctoral student sample differed from the working environments of the normative sample.

The sample of students in the present study also seemed to be experiencing a much higher level of work-related (i.e., school-related) pressure ($M = 16.69; \hat{\rho}^2 = .26$) and a moderately higher level of threat ($M = 11.59; \hat{\rho}^2 = .09$) than the comparison sample (Stanton et al., 2001). As previously noted, since the internal consistency of the Pressure subscale was questionable in the present study, caution is warranted when interpreting the Pressure subscale scores. However, a high level of threat, which is viewed as a more serious type of work-related stress than pressure (Stanton et al., 2001), may help to explain the accompanying high scores on burnout. Burnout is seen as resulting from an
accumulation of work-related stress (Halbesleben & Buckley, 2004; Shirom, 1989, 2003b), and as discussed below, threat was a significant predictor of burnout and vigor in the present study.

The relatively high levels of work-related stress and burnout among clinical and counseling psychology doctoral students, as well as the low levels of vigor, suggest that context is important. The comparative samples for burnout, vigor, threat, and pressure used in the present study were comprised of a large number of gainfully employed individuals from various occupations (Shirom, 2008a, 2008b; Stanton et al., 2001). Coinciding with previous research that has found psychology graduate students to be under a high level of stress (Cushway, 1992; Goplerud, 1980), the results of the present study suggested that clinical and counseling psychology doctoral programs are likely to be more stressful than the average job. Doctoral students in psychology face a multitude of stressors; potential sources of stress include coursework, dissertation work, poor supervision, practicum placement, internship applications, work with clients, and lack of time availability (Cushway, 1992; Nelson et al., 2001).

Relatedly, the results of the present study also suggest that clinical and counseling psychology doctoral students may be more likely to experience higher burnout and lower vigor than the average gainfully employed individual, thus putting them more at risk for physical, psychological, and emotional issues (Jackson & Maslach, 1982; Kahill, 1988). Without high levels of vigor to facilitate the ability to cope with work-related stress (Shirom, 2003a), clinical and counseling psychology doctoral students may be more susceptible to burnout-related issues such as stomach ulcers, cardiovascular disease, depression, anxiety, and sleep problems (Belcastro & Hayes, 1984; Honkonen et al.,
2006; Peterson et al., 2008). Additionally, burnout could cause clinical and counseling psychology doctoral students to consider leaving their academic program, which is the case among undergraduate and medical students (Dyrbye, Thomas, et al., 2010; Moneta, 2011). Perhaps even more concerning, as has been found among other populations, burnout may lead to reduced empathy and a higher likelihood of unprofessional conduct (Dyrbye, Massie, et al., 2010; Thomas et al., 2007), thereby increasing the likelihood of client harm. These links warrant further investigation.

**Relation between burnout and vigor.** Shirom (2003a, 2006) argued that burnout and vigor are conceptually distinct, relatively independent of one another, and able to occur simultaneously. In the context of training doctoral level clinical and counseling psychologists, burnout and vigor were found to be strongly and inversely related, \( r = -0.71, p < .001, \hat{\rho}^2 = .50 \). This correlation was found to be statistically equivalent to the correlation between burnout and vigor found among a sample of residential frontline staff \( (r = -0.65, \hat{\rho}^2 = .42; \text{Deihl, 2009}) \). Thus, among these two populations (i.e., clinical and counseling psychology doctoral students, residential frontline staff), burnout and vigor were found to share a substantial amount of variance, contrary to Shirom’s (2003a, 2006) theorizing.

A number of potential explanations exist for the relatively large correlation between burnout and vigor. First, Shirom’s (2003a, 2006) view of the two constructs as discrete and relatively independent may not be accurate when applying COR theory to clinical and counseling psychology doctoral students and residential frontline workers. Such an interpretation must be made with caution, as the present study and Deihl’s (2009) study are the only two known studies that have examined the relation between
burnout and vigor. Nonetheless, in both of these cases, the correlations between burnout and vigor were significantly higher than would be expected if the two constructs were as discrete as theorized by Shirom (2003a, 2006). Thus, the available data suggests that the two constructs are probably not best described as conceptually distinct and relatively independent, at least not when applied to individuals in the mental health field.

An alternative explanation is that burnout and vigor are highly associated under specific situations, in specific contexts, or in specific populations. For example, Shirom (2006) hypothesized that under high levels of stress, burnout and vigor may function less independently. Considering the relatively high levels of stress found among residential frontline workers and clinical and counseling psychology doctoral students, burnout and vigor may be more independent among populations with lower stress levels. Further research will be needed to clarify the exact nature of the relationship between burnout and vigor.

**Predicting burnout and vigor.** A major finding of the present study was the identification of two constructs that uniquely predict burnout and vigor among clinical and counseling psychology doctoral students: a type of work-related stress (i.e., threat) and the quality of the supervisory working alliance. These results coincide with COR theory (Hobfoll & Freedy, 1993; Hobfoll & Shirom, 2001). According to COR theory, burnout is a direct reaction to work-related stress (Shirom, 2003b), and the intensity of threat as a work-related stressor may lead to the loss of resources, thereby resulting in burnout. Thus, according to the present results, an environment with a threatening and overwhelming level of stress appears to be associated with greater burnout and less vigor among clinical and counseling psychology doctoral students.
Viewed through the lens of COR theory (Hobfoll & Freedy, 1993; Hobfoll & Shirom, 2001), a positive supervisory working alliance might be interpreted as a source of social support. Previous research has found an inverse relation between social support and burnout (Halbesleben, 2006; Lambert, Altheimer, & Hogan, 2010; Yildirim, 2008). Among counseling psychology doctoral students, social support variables (i.e., advisor support and psychological sense of community) were also found to be inversely related to burnout (Clark et al., 2009). The supervisory working alliance, in particular, has been shown to be an important construct connected to several outcomes among trainees, including greater satisfaction with supervision and less role conflict (Ladany et al., 1999; Ladany & Friedlander, 1995).

Research examining the relation between clinical supervision in the mental health field and burnout has been limited, although some studies have found an inverse relationship between effective supervision and burnout (Edwards et al., 2006), thus indicating that burnout may be more likely to occur when a trainee is lacking positive supervisory experiences. Additionally, among residential frontline staff, a stronger supervisory working alliance has been associated with less burnout and more vigor (Deihl, 2009). In the present study, the size of the unique effect of the supervisory working alliance on the multivariate combination of burnout and vigor is notable ($\hat{\rho}^2 = .10$).

These results provide further evidence for the magnitude of the importance of the supervisory alliance and coincide with the argument that both positive and negative experiences in supervision can have an immense impact (Ellis et al., in press; Rønnestad & Skovolt, 2003). Although burnout is viewed as a direct response to work-related stress
(Halbesleben & Buckley, 2004; Shirom 2003b), in the present study, the supervisory working alliance explained nearly as much unique variance in the multivariate combination of burnout and vigor as a measure of intense work-related stress (i.e., threat). The results also indicate that the supervisory working alliance was more strongly associated with vigor than with burnout, suggesting that the supervisory working alliance was related to clinical and counseling psychology doctoral students’ experience of having a surplus of physical, emotional, and cognitive energies. Considering that mental health supervisees have been found to spend less than an average of two hours per week in clinical supervision (Ellis et al., in press), the association between the supervisory working alliance and participants’ experience of burnout and vigor is remarkable.

Although financial strain, work-related pressure, and relationship conflict were components of the multivariate model that predicted 22% of the combined variance in burnout and vigor, none of these variables were significant unique predictors of burnout and vigor. However, pressure and relationship conflict each had statistically significant zero-order bivariate correlations with burnout and vigor that were in the medium to large range (see Table 3); thus, when ignoring the intercorrelations between predictor variables, pressure and relationship conflict were at least moderately associated with burnout and vigor. One possible explanation for this pattern of results is that although pressure and relationship conflict were related to burnout and vigor, when the intensity of threat as a work-related stressor was taken into consideration, neither pressure nor relationship conflict provided incremental predictive value. Thus, providing support for the assertion that threat represents a more serious and overwhelming level of work-
related stress than pressure (Stanton et al., 2001), in the present study, threat was more important than pressure in predicting burnout and vigor.

For financial strain, both the bivariate correlations and results of the multivariate regression analysis suggest that the variable was not strongly associated with burnout or vigor. Although financial strain could certainly lead to a higher level of stress overall, the impact of financial strain may be more likely to be experienced at home rather than at work (e.g., when trying to pay bills). Burnout, however, is viewed as a response to job demands (Hobfoll & Freedy, 1993; Shirom, 2003b). Accordingly, the SMBM and SMVM ask participants to complete the measure based on how they are feeling at work (Shirom 2008a, 2008b). Therefore, there may not have been a strong relation between financial strain and feelings of burnout or vigor in the workplace for clinical and counseling psychology doctoral students due to the constructs assessing experiences that take place within different contexts.

By identifying predictors of burnout and vigor, the results of the present study help to indicate where efforts to mitigate burnout may be targeted. Although cause and effect was not established, facilitating a positive supervisory working alliance and reducing general school-related stress (i.e., threat) may be helpful in increasing vigor and decreasing burnout among clinical and counseling psychology doctoral students. Available literature provides several guidelines for promoting a positive supervisory working alliance, including supervisor adherence to ethical guidelines, providing empathy and support, and avoiding dismissing the thoughts or feelings of a supervisee (Ellis, 2010; Gray, Ladany, Walker, & Ancis, 2001; Ladany, Lehrman-Waterman, Molinaro, & Wolgast, 1999). Improving the supervisory working alliance may also have
the indirect effect of reducing stress, as in one study (Cushway, 1992), poor supervision was the most frequently listed stressor by clinical psychology trainees.

**Research Implications and Future Directions**

The results of the present study have several implications for future research. First, future researchers could continue to evaluate the relation between burnout and vigor and help to determine the validity of Shirom’s hypothesis (2003, 2006) that burnout and vigor can occur simultaneously in some contexts. Second, future researchers may wish to explore further the reliability and validity of the SMBM (Shirom, 2005a), the SMVM (Shirom, 2005b), the SIG Stanton et al., 2001), and the Relationship Conflict subscale (Jehn, 1995) among clinical and counseling psychology doctoral students, as these measures are typically used with employed individuals. For example, a confirmatory factor analysis may be conducted to determine whether the factor structures of the measures are similar to the original populations.

Additionally, despite the substantial portion of variance explained in burnout and vigor by the model in the present study, a great deal of variance (78%) in the criterion variables remains unexplained. Future research could focus on identifying other variables that might further explain unique variance in burnout and vigor. For example, previous research has found relations between burnout and lack of control over work activities, time spent on administrative or paperwork tasks, and lack of feedback (Maslach et al., 2001; Paris & Hoge, 2010; Rupert & Morgan, 2005). Moreover, in addition to examining antecedents of burnout and vigor, future researchers may also examine the consequences of burnout among clinical and counseling psychology doctoral
students, especially in terms of student and client welfare. Likewise, research may explore the positive benefits of vigor among this population.

Finally, estimating the prevalence of burnout and vigor among clinical and counseling psychology doctoral students would be worth replicating in a new sample. Though the present study attempted to assess the occurrence of burnout and vigor among this population by asking open-ended questions and using norm comparison tests, the sample self-selected and may not be representative of the population of clinical and counseling psychology doctoral students. Therefore, future research may obtain a large sample representative of the population and assess the prevalence of burnout and vigor.

**Conclusion**

Compared with individuals in other settings, the clinical and counseling psychology doctoral student sample in the present study was found to experience more burnout and less vigor. The results of the study must be tempered by the limitations of the study and the fact that the findings have not been replicated among clinical and counseling psychology doctoral students. Nonetheless, due to the numerous dangers associated with burnout (Dyrbye, 2008; Kahill, 1988; Maslach, 1982; Melamed et al., 2006), the high level of burnout and low level of vigor reported by the sample suggest that clinical and counseling psychology doctoral students’ experiences of burnout and vigor should be closely monitored and regularly assessed by doctoral programs. Should high levels of burnout or low levels of vigor be detected, interventions may be put into place to decrease or increase these experiences, respectively.

Further research is needed to evaluate how to more effectively reduce burnout and promote vigor among clinical and counseling psychology doctoral students, but the
results of the present study provide some indication of how to begin working toward this end. Specifically, the results of the present study provide preliminary support for the importance of promoting an environment that bolsters a positive supervisory alliance and limits serious, intense work-related stress. Although some stress is inevitable for graduate students, the present study suggests that an environment with an overwhelming and threatening level of stress (i.e., work-related threat) is most problematic. Future research may explore the stressors that clinical and counseling psychology doctoral students find most threatening, but according to previous research, common sources of stress reported by psychology trainees were poor supervision, dissertation work, and difficulty meeting deadlines (Cushway, 1992; Nelson et al., 2001).

Therefore, faculty members may attempt to identify and address any factors that are contributing to an overwhelming level of stress for students, while supervisors may focus on establishing a supervisory working alliance with agreement on tasks, agreement on goals, and establishment of an emotional bond. If faculty and supervisors can facilitate decreased burnout and increased vigor for clinical and counseling psychology doctoral students, multiple parties are likely to benefit, including the students themselves, their programs, and their clients.
References


Appendix A
Demographic Questionnaire

Please Answer the Following Questions.

1. What is your gender? _____ Male _____ Female _____ Other
   (Please specify): ____________________

2. What is your age?

3. What is your ethnicity? _____ African-American _____ Asian or Pacific Islander
   _____ Native American _____ Caucasian _____
   Hispanic/Latino/Latina _____ Middle Eastern _____ Other (please specify):

4. Current type of program: _____ Counseling Psychology _____ Clinical Psychology
   _____ Other (Please specify): __________________________

5. Type of doctoral degree you will earn from your current program: _____ Ph.D.
   _____ Psy.D. _____ Ed.D. _____ Other (please specify):

6. Do you have a Masters’ degree? _____ No _____ Yes

7. If you have a Master's degree, what is the field/discipline in which you hold the degree?

8. What is your year in your current program? ___1st year ___2nd year ___3rd year
   ___4th year ___5th year ___ Other (please specify): __________

9. How many practicums have you completed in your doctoral program?
10. What is the status of your doctoral dissertation? _____ Pre-proposal
    _____Proposed and/or Collecting Data   _____ Data Collected and/or
    Preparing for Final Defense   _____ Defended/Finished   _____ N/A
    _____ Other (please specify): _____

11. Approximately how many years have you been doing clinical work?

12. Approximately how many hours of supervised clinical work (i.e., intervention and
    assessment hours) have you completed in your doctoral program?

13. What is your current enrollment status? _____ Full-time student   _____ Part-
    time student   _____ Other (Please specify):________________________

14. What is your status in your doctoral program? _____ Pre-Internship
    _____Currently completing pre-doctoral internship   _____ Completed
    internship but need to finish dissertation   _____ Other (Please
    specify):________________________

15. How many hours per week, on average, do you spend working on activities related to
    graduate school (e.g., classes, writing papers, practicum, assistantship,
    dissertation, etc.)?

How many hours per week, on average, do you spend working on activities related to
graduate school in each of the following areas?

1. _____ Classes/Classwork
2. _____ Practicum/Externship
3. _____ Research (Not Including Dissertation)
4. _____ Dissertation
5. _____ Assistantship
6. ______ Internship

22. How many hours per week, on average, do you spend working on activities related to graduate school that were not covered in the categories listed above? Please include the activity and the number of hours per week, on average, spent on the activity. If all activities are covered by the categories above, you may leave this field blank.

23. In addition to any assistantships or fellowships that may be part of your graduate work, do you currently hold any other jobs? (i.e., do you have an outside job that is not directly connected to your graduate work?) ______ No ______ Yes

24. If you answered no to the previous question, you may skip this item. If you answered yes to the previous question, how many hours per week are you working in a job outside of your program? Please do not include hours that you have already listed above in other categories (e.g., assistantship).

25. What type of clinical work are you currently performing? (check all that apply):
   ______ Individual Therapy  ______ Group Therapy  ______ Assessment
   ______ Not currently completing clinical work  ______ Other (Please specify):

26. On average, how many hours per week do you spend in a clinical setting (e.g., practicum, internship, etc.)?

27. How many clients do you see per week, on average?

28. On average, how many hours per week do you spend interacting with clients (i.e., direct client contact hours)?
29. What type of clinical supervision are you currently receiving? Please check all that apply. ____ Individual Supervision ____ Group Supervision ____ Not currently receiving supervision ____ Other (Please specify): ______________________

30. After graduation, do you intend to work PRIMARILY as a researcher or a clinician? ____ Researcher _____ Clinician _____ Other (Please Specify): ______________________

Please read the following definition of burnout and then answer the corresponding questions: “An affective reaction to ongoing stress whose core content is the gradual depletion over time of individuals’ intrinsic energetic resources, including the expression of emotional exhaustion, physical fatigue, and cognitive weariness.”

31. Do you believe you have experienced burnout while in your doctoral program? _____ No _____ Yes

32. If you answered "no" to question #31, you may leave this field blank. If you answered yes, what factors contributed to experiencing burnout (i.e., what do you perceive were the causes of the burnout)?

33. If you answered "no" to question #31, you may leave this field blank. If you answered yes, what has suffered the most as a result of feeling burned out?

Please read the following definition of vigor and then answer the corresponding questions: “A positive affective response to one’s ongoing interactions with significant elements in one’s job and work environment that comprises the
interconnected feelings of physical strength, emotional energy, and cognitive liveliness.”

34. Do you believe you have experienced vigor while in your doctoral program?
   _____No   _____Yes

35. If you answered "no" to question #34, you may leave this field blank. If you answered yes, what factors contributed to experiencing vigor (i.e., what do you perceive were the causes of the vigor)?

36. If you answered "no" to question #34, you may leave this field blank. If you answered yes, what were the greatest benefits of feeling full of vigor?

37. Is there anything else you would like to add? This is a "free space" to leave comments.
Dear Clinical or Counseling Psychology Student:

Although clinical and counseling psychology doctoral students can be subject to large amounts of stress, the effects of stress on this population remain largely unstudied. Therefore, I am contacting you to request your participation in my dissertation study; the purpose of the study is to learn more about the experiences of clinical and counseling psychology doctoral students, including the effects of various stressors. By participating, you are contributing to learning more about how to improve the experiences of clinical and counseling psychology doctoral students.

As a thank you, at the conclusion of the study, you will be given the opportunity to enter a drawing for one of two $50 VISA gift cards. Participation in the study will involve the completion of an online survey, which is estimated to take 15-20 minutes to complete. In order to participate, you must a) be at least 18 years of age, b) currently enrolled in a clinical or counseling psychology doctoral program, c) currently completing clinical work (i.e., mental health-related activity performed in the presence of a client), and d) currently receiving individual clinical supervision. To learn more and/or to participate, please click on link below:

https://www.psychdata.com/s.asp?SID=149193

To obtain as many participants as possible, I would greatly appreciate if you would forward this study invitation to any eligible friends or colleagues. Should you have any questions regarding the study, please do not hesitate to contact me (bswords@albany.edu) or my research faculty chairperson, Dr. Michael Ellis (mvellis@albany.edu).

Thank you for your time and effort.

Sincerely,

Brett Swords, Doctoral Candidate
Department of Counseling Psychology
University at Albany, State University of New York
Albany, NY 12222
bswords@albany.edu
Appendix C

Informed Consent

My name is Brett Swords, and I am a doctoral student in the Counseling Psychology program at the University at Albany, State University of New York. I am inviting you to participate in my dissertation study, with the purpose of learning more about the experiences of clinical and counseling psychology doctoral students, including the effect of various stressors on this population. By examining the impact of such stressors, we can learn more about how to prevent negative outcomes while promoting positive outcomes.

Thank you for your interest in my study. As a fellow doctoral student, I realize that your time is limited. Although you may not receive a direct benefit from your participation, others may ultimately benefit from the knowledge obtained from this research. By participating, you are contributing to learning more about how to improve the experiences of clinical and counseling psychology doctoral students. Participation in the study will involve the completion of an online survey. An estimated completion time of 15-20 minutes is expected. At the end of the survey, you will have the opportunity to register to win one of two $50 VISA gift cards in a random drawing.

As a participant in this research, you should read and understand the following statements:

- In order to participate in this research, you must a) be at least 18 years of age, b) currently enrolled in a clinical or counseling psychology doctoral program, c) currently completing clinical work, and d) currently receiving individual clinical supervision. If you do not meet all of these criteria, please withdraw from participation at this time.
- Your participation in this research is VOLUNTARY. You may decide to leave the study at any time without penalty or loss of benefits to which you may otherwise have been entitled. I will retain and analyze the information you have provided up until the point you have left the study unless you request that your data be excluded from any analysis and/or destroyed.
- All participant responses will be completely ANONYMOUS. In order to assure anonymity, please do not put your name (or any other identifying information) anywhere on the web survey.
  - Because this research is ANONYMOUS, you will not be identified in any presentation or publication of this research. All information you provide will be combined with the data from other respondents and reported as grouped data.
  - This project has been approved by the University at Albany Institutional Review Board. Approval of this project only signifies that the procedures adequately protect the rights and welfare of the participants. Please note that absolute confidentiality cannot be guaranteed due to the limited
protections of Internet access. Please be sure to close your browser when finished so no one will be able to see what you have been doing.

- All information obtained in this study is strictly confidential unless disclosure is required by law. In addition, the Institutional Review Board, the sponsor of the study, and University or government officials responsible for monitoring this study may inspect these records.
- To register to win one of two $50 VISA gift card prizes, you will be given the opportunity to enter your e-mail address at the conclusion of the study. Participation in the drawing is entirely optional. The random drawing will be conducted at the conclusion of the data collection, and if you are a winner, you will be contacted via the e-mail address you provided. The contact information you provide will be kept separate from the research data and will never be linked to your responses to the research materials. Your email address will be stored in a secure database until the drawing. Additionally, after the prize drawing is complete, your contact information will be permanently deleted.

- You have a right to be informed of all potential risks associated with your participation in this research. There is no more than minimal risk associated with participation in this survey. Possible psychological risks are likely to be small and unlikely to occur. You may at any time discontinue participation.
- If you wish to keep a copy of this consent form, please print or save a copy for your records.
- By clicking the button below and completing the survey, you acknowledge that you have read the above information about the study. Continuing indicates your consent to participate in the study.

If at any time you have any questions regarding the research study or your participation, you may contact the principal investigator, Brett Swords, B.S. (bswords@albany.edu) or his faculty advisor, Michael Ellis, Ph.D. (mvellis@albany.edu).

If you have any questions concerning your rights as a research participant that have not been answered by the investigator or if you wish to report any concerns about the study, you may contact the University at Albany’s Office of Regulatory Research Compliance at (518) 442-9050, 800-365-9139, or orrc@albany.edu.

I cannot thank you enough for your participation. Best of luck in your studies and future careers.

Sincerely,

Brett Swords, Doctoral Candidate
Department of Counseling Psychology
University at Albany, State University of New York
Albany, NY 12222
bswords@albany.edu
To provide your consent to participate and complete the survey, please click the link below.
Appendix D

Directions

Please read carefully through the following directions. It is essential that you understand these directions before continuing:

On the following pages, you will be asked to complete several measures with a variety of questions. Many of the measures will ask you to complete items regarding work- or job-related experiences. When completing these items, please consider your whole experience as a doctoral student. In other words, for the purposes of this study, your “job” or “work” is being a doctoral student and includes all activities related to being a doctoral student. For example, time spent on clinical work, assistantships, classes, homework, research, and any other activities related to being a doctoral student should be considered a part of your “work” or your “job”. Likewise, your “workplace” is comprised of any environment related to your doctoral work (e.g., practicum/internship site, assistantship site, and academic environment), and your “co-workers” or “people at the workplace” include peers and any other individuals with whom you work as a part of your doctoral work (e.g., staff and co-workers at assistantship or practicum sites, classmates, faculty members).

Additionally, please ensure that the following apply to you before continuing:

1. I am at least 18 years of age
2. I am currently enrolled in a clinical or counseling psychology doctoral program
3. I am currently completing clinical work
4. I am currently receiving individual clinical supervision.

If you have read and understood the preceding directions, and if you meet the above criteria, please click the button below to begin the study.