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Affect Variability at Work: Examining Pulse and Spin in a Stressor-Strain Framework

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Affect Variability at Work: Examining Pulse and Spin in a Stressor-Strain Framework

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University of Connecticut, 2015

Research on emotions has been influenced by societal changes and developments, and scholars have recognized that the integration of both cognition and affect in predicting employees' attitudes and behaviors is a vital next step in organizational research efforts. Despite the growing interest in the dynamic nature of affectivity at work, most studies have examined either cross-sectional or mean levels of affective states, overlooking the variability from a multidimensional perspective. This dissertation examines a novel approach to conceptualizing and measuring affect variability. In particular, how affect pulse (i.e., the variability of affect intensity) and affect spin (i.e., the variability of qualitatively different affective states) may play a role in important organizational outcomes. In utilizing a quantitative, daily diary dataset on employees, both inter-and intra-individual variability was measured within a multilevel framework. More specifically, this dissertation examined antecedents and outcomes of pulse and spin, along with the role pulse and spin have within a stressor-strain framework. Results indicate that affect spin was low in this sample, making significant effects difficult to detect. On the other hand, affect pulse was high in this sample and tended toward positive and activated states. Significant direct effects to, and from, affect pulse were found with workplace stress, appreciation/recognition, and employee performance. Findings suggest that affect pulse may be a reactive phenomenon that occurs at work and has beneficial outcomes for employees and organizations. Future research, limitations, and organizational implications are then discussed.

Affect Variability at Work: Examining Pulse and Spin in a Stressor-Strain Framework

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Affect Variability at Work: Examining Pulse and Spin in a Stressor-Strain Framework

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Researchers have previously discussed the need of eliminating emotion and subjectivity from psychological research, focusing instead on objective indicators or controlling for emotion in statistical models. Yet recently, the role of affect in the workplace has recaptured the attention of researchers, and affect is now the *subject* of study. Whether self-aware or not, individuals are continuously feeling, and these emotional states have a critical role with influencing attitudes and behavior. The influence of affect on virtually all aspects of cognition and behavior has been examined in studies both within and beyond the organizational literature.

Despite the growing interest in workplace affectivity, most studies examined either cross-sectional or mean-levels of affective states. Though cross-sectional research contributed to the interest and advancement of affectivity, limitations such as recall error and recency effects are problematic, especially in regards to emotionality (Spector & Ozgun, 2010). In addressing such concerns, recent discoveries of affectivity have redirected focus on daily levels of affect, in particular, the *variability* of affect (Beal & Chandour, 2010; Beal, Trougakos, Weiss & Dalal, 2013; Eid & Diener, 1999; Gable & Nezlek, 1998; Kuppens, Mechelen, Nezlek, Dossche & Timmermans, 2007). Yet, much of the research focusing on within-individual affect variability has conceptualized variability as uni-dimensional in nature, measured by the standard deviation of positive and negative affect. More advanced conceptualizations of affect examine the variability as a two-dimensional state, measured within a cartesian coordinate system. Within this system, an affective state can be categorized by pleasure-displeasure and activation-deactivation dimensions (Kuppens, et al., 2007). An affective state is then defined as "consciously accessible as a simple nonreflexive feeling that is an integral blend of valence

(along the pleasure-displeasure dimension) and arousal (along the activation-deactivation dimension) values" (Russell, 2003, p. 147).

Further, each dimension in this circumplex is bipolar and independent. In particular, high positive affect represents positive, activated states such as enthusiastic or excited, whereas low positive affect represents positive deactivated states such as calm or sleepy. At the same time, high negative affect is characterized as negative, activated states such as stressed or hostile, whereas indicators of low negative affect describe negative, deactivated states such as calm or relaxed (Russell, 1980; Watson & Tellegan, 1985).

Scholars have recently developed other methods to measure affective variability within this two-dimensional space. Kuppens et al. (2007) defined an individual's core affective trajectory over time across the coordinate system by the length (pulse) and angle (spin) of the vectors for each affective state. These vectors are characterized as the distance between the mid-point of a grid to the affective state on that grid. More specifically, *pulse* refers to the intensity of affect variability and is measured by the standard deviation across time of each *length of a vector* on the coordinate system. It measures the amount of variability an individual has between more intense and less intense affective experiences. For instance, a high level of pulse would be characterized as an individual who has widely varying *intensities* in their everyday emotions, even if only varying between high intense positive states or low intense positive states.

Further, *spin* refers to the variability in the quality of affectivity. For instance, individuals with a high level of spin would have highly varying affective experiences, in other words, switching from positive to negative valenced emotions. Therefore, spin measures how an individual experiences different directions on the core affective circumplex across time. One would measure spin by measuring the *angles of a vector* for each affective state. With this

conceptualization, individuals' trajectories in a core affective space represent how a person's feelings change across time measured by the length and angle of each vector. This fairly new conceptualization and measurement demonstrates unique methods of capturing affect variability within a two-dimensional space. Further, though pulse and spin are measured at the within-individual (i.e., daily) level, they are both conceptualized and modeled as person-level (between-individual) constructs. See Figure 1 for graphical depictions of pulse and spin.

Despite recent developments in studying affect variability, very little has been done to examine pulse and spin within an organizational context (for exceptions, see Beal & Ghandour, 2011; Beal, Trougakos, Weiss & Dalal, 2013). This dissertation focuses on pulse and spin in an organizational context and the role affect has on employees' attitudes and behaviors. Therefore, the main purpose is to examine intra-individual variability of organizational antecedents and outcomes and how their relationship is affected by pulse and spin. In utilizing a quantitative, daily diary methodology, both inter-and intra-individual variability (i.e., between-and within-individual constructs) within a multilevel framework will be examined. Though not explicitly examining day-to-day emotionality, this study will utilize a cross-sectional daily diary method for looking at daily relationships over a two-week span. This dissertation expands on current findings by examining a more precise and sophisticated measurement technique of pulse and spin. Given the dynamic nature of stress and well-being, adapting a systems based measurement approach would help scholars understand the nature of core affective fluctuations and how such fluctuations may affect employees' health and well-being. Therefore, I will incorporate the use of angles and vectors on an affective circumplex and apply this to employees within an organizational context.

Moreover, I will be discussing affect variability within two different theoretical frameworks: event-based and trait-based. The event-based perspective posits that affective states are reactions to workplace events, thus largely influenced by the context. The trait-based perspective, on the other hand, focuses on how affect variability is conceptualized as a stable "trait," and thus may change the relationship among other constructs. Given the lack of previous research on affect pulse and spin, examining different theoretical frameworks will help further our understanding of these constructs.

Within this dissertation, I will examine previous empirical and theoretical research related to affect in the workplace, as well as the *variability* of affect with regards to pulse and spin. Taking an event-based perspective, my first set of hypotheses aim to answer a few important questions regarding pulse and spin within a workplace context; "Which characteristics of workplace events tend to influence pulse and spin over time, and how does pulse and spin directly affect workplace behavioral outcomes?" I will also investigate affect variability with a trait-based perspective, examining how affect variability may change the relationship between daily stressors and daily workplace outcomes. Specifically, "how do pulse and spin act as a person-level characteristic that moderates the effects of within-individual stressor-strain relationships?"

Affect in the Workplace

The focus of this dissertation is on the role of affect in the workplace. Recent research has acknowledged the importance of studying affect at work and its effect on organizational attitudes and behaviors. More specifically, affect can occur within a variety of situations. Overall, affect can be conceptualized as an umbrella term that encompasses a wide range of moods, emotions and dispositions. Affect refers to an overall state of evaluative feelings (Eby,

Maher, & Butts, 2009). Encompassing both state- and trait-like qualities, affect can range from quick reactions to workplace events to long-term, stable individual dispositions. For instance, trait-based affect refers to systematic, individual differences such as emotional self-regulation or reactivity tendencies. Many dispositions fall into this category, such as personality traits (i.e., neuroticism or extraversion), temperaments (i.e., positive or negative affect), or emotional intelligence. State-based affect, on the other hand, can be conceptualized as immediate reactions to an individual's environment. Affect can also depict general, affectively oriented judgments that describe how one feels about objects, events, or life experiences, such as satisfaction with one's work or life (Eby, Maher, & Butts, 2009).

Interest in workplace affectivity has increased over the past few decades. Researchers have discovered that affect has been associated with memory, attitudes and persuasion, decision-making, and interpersonal relationships (Bradley, Mogg, & Williams, 1995; Cacioppo & Gardner, 1999; Forgas, 1995). Additionally, given rising health care costs, research at the intersection of emotions and cancer progression (Andersen et al., 1998), infectious illness (Cohen & Rodriguez, 1995) and cardiovascular disease (Carney, Rich, & Jaffe, 1995) has gained increasing attention. Specifically within an organizational framework, the study of affect at work has spiked (Brief & Weiss, 2002). Stressful workplace events, leadership, workgroup characteristics, affective tone, and justice perceptions have been previously examined as antecedents to mood and emotion at work (Brief & Weiss, 2002; Collins, Lawrence, Troth & Jordan, 2013; George 1990, 2002; George & Brief, 1992; Weiss & Cropanzano, 1996).

Theoretically, one of the most well-known developments in regards to workplace affect is Affective Events Theory (AET; Weiss & Cropanzano, 1996). AET posits that affect- and cognitive-driven behaviors and attitudes stem from affective reactions to workplace events.

Empirical evidence further supports the relationship between affective states and organizational constructs, such as performance evaluations, self-rated performance, creativity, organizational citizenship behaviors, and withdraw behaviors (Amabile, Barsade, Mueller & Staw, 2005; Brief & Weiss, 2002; George & Jones, 1996; Isen & Baron, 1991; Judge & Ferris, 1993; Staw & Barsade, 1993). Longitudinal studies have also examined mood cycles and cyclical patters of affect at work over time. Weiss and colleagues (1999) found that affective reactions influence job satisfaction, which underscores the importance of examining discrete affective states over time. The authors also found that there were individual differences in the extent to which participants had cycles of variation in mood states, or systematically differed in their variation in mood. Clearly, organizational researchers have made progress on the study of workplace affectivity, but much has yet to be explored.

Indeed, the role of negative affect (NA) in the organizational stress literature has been well studied. Negative affectivity is defined as a stable trait that reflects the tendency to experience negative emotion and distress across situations, even in the absence of objective stressors (Watson & Clark, 1984). Debate exists in the literature, suggesting that the relationship between workplace stressors and strain is due to both constructs being highly correlated with negative affectivity (Watson & Pennebaker, 1989). Research has found that trait level negative affectivity is positively related to stressors and negative events at work (Burke, Brief, & George, 1993; Grandey, Tam & Brauburger, 2002). Consequently, scholars have argued that NA should be controlled in relation to job stress because it inflates the relationships between self-reports of the stressor-strain relationship (Brief, Burke, George, Robinson, & Webster, 1988). Others, on the other hand, have indicated controlling for NA partials out important variance and leaves an unrealistic depiction of the stressor-strain relationship, deeming NA as a substantive construct

and not purely biasing (Spector, Zapf, Chen, & Frese, 2000). Interestingly, some have suggested a contingency approach to studying organizational stress and negative affectivity. Instead of controlling for NA in all aspects of the stressor-strain relationship, taking a contingency approach may better match the nomological net in which NA dwells (Barsky, Thorsen, Warren, & Kaplan, 2004).

Recently, scholars have moved away from the NA-stressor debate, instead focusing on identifying specific events that occur at work that influence negative and positive feelings. This line of research has revealed that the most critical events that elicit negative emotional states at work are manager mistreatment, time pressure, and administration demands (Brief & Weiss, 2002). Because most efforts have focused on negative affectivity, few studies examine positive events and affect. Even so, some research has found that positive organizational attitudes and behaviors tend to influence more positive affect and emotions. For instance, prosocial behavior has been found to be related to employees' positive affect at bedtime, indicating that helping others at work has delayed impact on positive emotions at home (Sonnentag & Binnewies, 2013).

Occupational outcomes have been linked to both positive and negative affect. Specifically, negative affectivity is related to mistreatment and aggressive experiences (Fox & Spector, 1999), turnover intentions, (George & Jones, 1996) and absenteeism (Pelled & Xin, 1999) for employees. Negative emotions are associated with ruminating at work, work and family conflict, and poor leadership perceptions (Curci, Lanciano, Soleti, & Rime, 2013; Johnson, Husky, Grondin, Mazure, Doron & Swendsen, 2008). Although not examined quite as frequently, researchers have also discussed how experiencing positive affect influences more positive workplace outcomes. Brose, Lovden, and Schmiedek (2013) found that an individual's

performance was enhanced on days when his/her positive affect was increased. Additionally, high positive affect was associated with increased levels of creativity on a daily basis (Amabile et al., 2005) and greater social support (Staw et al., 1994). Diener, Sandvik, and Pavot conclude that experiencing frequent positive emotions lead to increases in well-being (1991).

It is clear that much work has been done in regards to positive and negative affect as an outcome and predictor of organizational outcomes. Interestingly, recent work has acknowledged that employees do not simply experience either positive or negative emotions at work; rather, employees experience a dynamic interplay between the two. Therefore, instead of examining positive and negative affect as bipolar constructs, researchers have suggested that one can experience both types of emotions at a given time. Examining this relationship at a within-individual level, Ilies and Judge (2002) found that intra-individual variability in mood was associated with intra-individual variability in job satisfaction. This suggests that employees can experience both positive and negative emotions at work, affecting the extent to which they vary from being satisfied to dissatisfied with their job. This dynamic co-variation cannot be assessed with retrospective designs. Within a typical workday, employees can range from experiencing excitement to anxiety to happiness, and thus attitudinal outcomes, such as job satisfaction, are affected. The authors discussed that the relationship between mood and job satisfaction, across time, can show different patterns for different individuals according to stable personality factors.

Affect Variability

In addition to mean levels of affect, the variability of affect may also be important to examine for organizational research. Yet, certain methodologies may limit the capability to do so. Though cross-sectional surveys (i.e., single response surveys) are highly practical when studying organizations, this methodology cannot accurately capture the variability of affect. For

instance, many cross-sectional surveys ask participants to recall a specific situation in which s/he felt a specific mood or to recall a mood across a large span of time (i.e., 3 months or 6 months). Not only is it difficult for a participant to accurately recall their specific mood, but individuals may also have difficulty remembering if they experienced a broad range of moods across both positive and negative dimensions. Further, research has found that employees reporting on emotions use qualitatively different sources of knowledge retrieval (i.e., semantic or episodic) depending on whether the self-reports were referencing short versus long time frames (Robinson & Clore, 2002).

For a more precise measurement of affect variability, and specifically the variability around the affective circumplex, researchers have called for capturing affectivity at the daily level with experience sampling methodology (ESM), or daily diary studies. This technique involves asking participants to report their experiences daily and has the capabilities of addressing shortcomings of cross-sectional designs. Thus, a major benefit to daily diary methodology involves the ability to reduce recall error and recency effects, giving a much clearer picture of emotions and reducing limitations associated with current measurement techniques (Spector & Ozgun, 2010). Importantly, daily diary designs allow researchers to more accurately assess the variability in affect due to shorter distance between assessments.

Kuppens and colleagues (2007) have adapted a method to measure the variability of affect, called *core affective trajectory*. Simply put, the core affective trajectory is the manner in which an individual moves around the affective circumplex. This new methodology was adapted from Moskowitz and Suroff (2004), who examined a circumplex in relation to interpersonal behavior variability. Kuppens and colleagues were able to examine a two-dimensional affective space through intra-individual, daily diary techniques. One can measure how an individual

differs between more or less pleasant states and more or less activated states at a daily level. From this, affect pulse and affect spin can be calculated.

Much research conducted on the variability of affect through daily diary methodology is outside of the organizational domain. Generally, researchers have agreed that fluctuations in affective states are essential to study for individual health and well-being (Beal & Ghandour, 2011), and mean or aggregate states might not be the most accurate depiction. Interestingly, researchers suggest that affect variability can be conceptualized as a stable individual difference variable (Kuppens et al., 2007). Some individuals may fluctuate more with their daily affect than others. For instance, highly fluctuating individuals may be regarded as "moody" whereas low fluctuating individuals may be regarded as more emotionally stable (Kuppens et al, 2007; Larsen, 1987). Although most individuals' affect tends to fluctuate to some extent (Beal et al., 2010), the degree and stability of this variability between people has been of recent interest. For example, in a study by Kuppens and colleagues (2007), the authors collected data on an individual's affective state once a day for two consecutive weeks. The variability in affect for pulse and spin related to different personality traits and person-level characteristics such as self-esteem, agreeableness, neuroticism, and depression. Indeed, Eid and Diener (1999) found that affect variability is distinct from other personality traits and should be considered as a personality variable, even if measured at the within-individual level.

Likewise, *extreme* high and low fluctuations in mood have also been related to stable personality disorders and maladaptive personality at work. Research suggests that individuals with major depressive disorders experience very low levels of within-individual mood variability, whereas individuals with personality disorder experience extreme high levels of within-individual mood variability (Cowdry, Gardner, O'Leary, Leibenluft & Rubinow, 1991).

In fact, new developments in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5, 2013) has led to discussions about multidisciplinary work between clinical and organizational psychologists. The DSM-5 discusses new measurements and models conceptualizing psychological disorders that can be applied to the selection and assessment of individuals at work, centering on identifying extremes outside of the "normal range" of variability as maladaptive traits. Some evidence suggests that lower levels of maladaptive traits, such as negative affectivity, may become disruptive to work and life if found out of normal "range."

Event-based and Trait-based Perspectives of Affect Variability

This leads researchers to a new conceptualization and measurement technique of affect variability. Given the nuanced methodology of pulse and spin, it is critical to examine these constructs within different contexts and theoretical frameworks. As previously mentioned, this dissertation will examine two perspectives of affect variability: event-based and trait-based. According to Affective Events Theory (Weiss & Cropanzano, 1996), events occur at work and employees often emotionally react in response to these events. Thus, this theory focuses on events as proximal predictions of affective reactions. These emotional reactions have direct influence on attitudes and behaviors of employees. Even further, AET posits that affective reactions are dynamic and the multidimensional structure of affect is vital to understand the psychological experience. Given this theoretical support, affect variability (i.e., pulse and spin) may be viewed within an event-based perspective. What types of events elicit emotional variability? Do negative *and* positive events elicit variability in affectivity? Thus, examining affect variability as a reactive phenomenon focuses on the importance of contextual events from a daily perspective.

Interestingly, in addition to an event-based perspective, empirical support has been found for affect variability to be measured and conceptualized as a person-level characteristic (Eaton & Funder, 2001; Kuppens et al., 2007; Larsen, 1987). For instance, the intensity of affect variability may be a stable individual difference; the strength of intensity individuals' experience for positive emotions may be similar to the strength that individuals' experience for negative emotions. Further, these affective intensities may generalize to different valenced situations, such that individuals react similarly regardless of whether those events evoked positive or negative emotions. Some research suggests situational events do not predict the intensity in affect variability per se; instead, individuals have a general tendency to experience increased variability more strongly than others (Larsen & Diener, 1987). Thus, affect variability may be more stable over time, affecting specific relationships that occur at work. In other words, examining spin and pulse as a person-level moderator answers critical questions that have not yet been addressed in previous organizational research efforts. Does spin or pulse act as a "stable," Level-2 construct? Does the stressor-strain relationship differ for different levels of spin or pulse? If so, how can organizations promote or intervene with regards to individuals with high levels of affect spin or pulse? Examining how much an individual varies in affectivity can reflect stable individual differences of interest to both researchers and practitioners.

Event-based Perspective: Antecedents of Pulse and Spin

The first section of this dissertation will study pulse and spin within an event-based perspective, examining event-based antecedents and workplace outcome of pulse and spin. Tett and Burnett (2003) discussed how specific personality traits are activated in response to trait-relevant situational cues. The more relevant the situation, the more likely the specific trait will be activated. Moreover, a personality trait may lead to workplace behaviors depending on relevant

events (organizational, social, or task-related) that occur at work. With regards to emotional responses in particular, theoretical research suggests certain events may directly elicit more or less activation of affect variability. Morris (1989) suggested mild negative *and* positive events elicit fluctuating affect in individuals over time. Fundamental to AET is that affect is dynamic in nature and can fluctuate over time in response to events. Specifically, work events lead to affective reactions, which subsequently lead to work-related attitudes and behavior. Although previous research has shown that affect can also fluctuate based on characteristics exogenous to the workplace (i.e., recurring cycles related to day of week or time of day), the focus of this section will be on workplace events that influence fluctuating affectivity within individuals (Brief & Weiss, 2002). Further, I will be examining both negative and positive workplace events. It is important to note that negative workplace events are conceptualized as workplace stressors, and positive workplace events are conceptualized as appreciation and recognition at work. Because of the dynamic nature of events, affect variation is critical to capture because it shapes the employee's judgment-and affect-driven behavior or attitudes.

Weiss and Cropanzano (1996) assert that many, but not all, events have some sort of affective significance and generate emotional changes within individuals. Previous research has suggested that negative affective reactions stem from negative, stressful workplace events (Brief & Weiss, 2002). Most research conducted on negative events and affective reactions, however, is done cross-sectionally. Scholars have examined this relationship using mean levels of negative events and affect by taking a snapshot of employees' experiences and overlooking the effects of daily events on daily emotion. Indeed, recent research has shown that stressful work events such as multiple role demands, time pressure, dealing with administration and supervision, and daily hassles resulted in negative moods on a *daily basis* above mean level scores (Williams & Alliger,

1991; Zohar, 1999). Not only do affective experiences fluctuate, but they are predictable to a great extent (Weiss & Cropanzano, 1996). Thus, this line of research can be extended to examine negative events affecting the *variability* of affect as well, such that increases in negative events are likely to increase the variability in affect.

Within an occupational health framework, experiencing negative events may affect an employee's emotional reaction on the job. Occupational stressors can be conceptualized as a variety of different experiences, such as task demands, interpersonal mistreatment from supervisors or co-workers, or contextual variables such as noise or heat level. This dissertation will examine general perceptions of workplace stressors.

General Work Stress. Global, or general, stress measures situations in one's life that are *appraised* as stressful (Cohen, Kamarck, & Mermelstein, 1983). Examining stressors by whether one appraises events as stressful takes more of a subjective point of view. Indeed, researchers have examined the daily effects of stressors on subsequent mood for quite some time. For instance, Bolger, DeLongis, Kessler, and Schilling (1989) asked participants once a day for 6 weeks to report on their daily stress and negative mood. They found that daily stressors explain around 20% of the variation in the participant's mood, indicating that stressors occur at the daily level and the variance in daily mood can be explained by the occurrence of daily stress. Other studies have examined hourly stress and mood, and found that that high stress and disruptiveness is associated with greater mood change (Marco, Neal, Schwartz, Shiffman, & Stone, 1999). More recently, Fuller et al. (2003) conducted a study that measured daily workplace stressors once a workday for four academic semesters, and found that daily stressful events are negatively associated with job satisfaction and positively associated with perceived strain.

Clearly, stressors can lead to affective reactions on a daily basis. Yet, why would individuals *fluctuate* in affect instead of only feel steady states of negative affect from job stress? The concept of *homeostasis* and *allostasis* has been explored in the realm of occupational stress and may explain why individuals can experience more or less intense affective states (i.e., pulse) in response to workplace stressors. Homeostasis refers to the body being motivated to maintain steady states (Cannon, 1932). This phenomenon is the foundation for individuals' affective reactions to external stimuli. The concept stretches back to the "fight or flight" response to stress. When an individual experiences stress, their sympathetic nervous system is triggered, allowing the individual to respond to the stressor by either "fighting" or "running away." When the stressor stops, the individual's nervous system returns to normal. More recently, researchers have discussed that individuals have a wide range of reactions, are more adaptive, and reactions can be in response to anticipation of situations as well. Termed *allostasis* (Sterling & Eyer, 1988), this process describes emotional and physical reactions to stressors and is referred to as stability through change instead of returning to a specific "normal set point." Therefore, sometimes these "set points" can increase or decrease in response to chronic, external events pushing them beyond their range. Though somewhat different, both homeostasis and allostasis refer to a feedback process in which individuals first experience a stressful event (or anticipate an event) and emotionally or physically react; when the stressful experience is over, the central nervous system works to returns individuals to normal emotional and physical states.

Thus, natural fluctuations of reactions occur in response to stressful experiences. This process can help explain why individuals experience an increase in pulse after experiencing stressors. Conceptually speaking, pulse is defined as the variation in the intensity of affective states. In relation to homeostasis, these individuals experience an increase in the intensity of

negative affective states after a stressful event, and once the event is over, the central nervous system works to return these individuals back to less intense states. Thus, people who have a high level of pulse will have more fluctuation in intense negative affective states after negative events than individuals with a low level of pulse.

Appreciation and Recognition. Further, the variation in intensity does not have to solely occur after a negative event such as job stress. The fluctuation in affective intensity can also occur after more positive workplace events. Research has shown that mild positive events can elicit positive affective reactions in individuals (Morris, 1989). The frequency of positive experiences can be related to an individual's well-being (Diener, Sandvik, & Pavot, 1991). Therefore, people who experience frequent positive events may also experience frequent positive outcomes. Some positive events that may elicit positive affective reactions are whether the individual was appreciated or recognized at work. George (1998) discussed how an employee's affect at work can be affected by promoting a sense of achievement and providing rewards and recognition for the employee. The extent to which an individual receives recognition from coworkers or supervisors for their behaviors or feels appreciated at work can have positive outcomes on a person's affect. For instance, within the motivation literature, employee recognition has also been shown to be highly associated with employee health and well-being, organizational change, learning, productivity, and job satisfaction, with lack of recognition being a large risk factor for workplace stress (Evans, 2001; Griego, Geroy & Wright, 2000; Lippit, 1997). Further, when employees and teams feel appreciated and supported by their peers or management, they are more likely to have increased levels of organization commitment and greater levels of well-being (Fagley & Adler, 2012). The growing need of employee recognition

and appreciation is shown in previous research and can be conceptualized as a positive event that occurs within the workday.

Therefore, experiencing positive workplace events such as appreciation and recognition might increase an individual's fluctuation in the intensity of *positive* affect as well. Pulse can be defined as varying in affective intensities that are *both* positive and negative. In other words, employees can "pulse" in the positive quadrant of the circumplex, as well as the negative quadrant. For similar reasons regarding the homeostasis discussion above, individuals may experience positive events and emotionally react with high intense, positive affect. Once the event is over, homeostasis works to return the individual back to less intense, normal emotional states. Even though homeostasis has not been discussed in reference to positive events as much as it has with negative stressors, I do believe similar reactions can occur within the individual.

Hypothesis 1: Negative events will be positively related to pulse.

Hypothesis 2: Positive events will be positively related to pulse.

Would stressful events, or appreciation/recognition, also be related to spin? It is important to note that pulse and spin can be mutually exclusive, such that the individual can experience separate aspects of the emotional experience. Therefore, one can experience a high level of pulse without experiencing a high level of spin. Conceptually, spin is defined as the variation between the quality of affect, in other words, switching from positive to negative valenced emotions. For an individual to have a high level of spin, emotional states must involve *both* positive affect and negative affect. Thus, an individual will most likely experience both positive events and job stress. In other words, if individuals experience positive events and job stress *separately*, their levels of pulse (either in the positive or negative quadrant) will increase. Yet, if individuals experience both positive events and job stress *interchangeably*, then it is likely

their levels of spin will increase. In other words, experiencing a positive event one moment and a negative event the next may lead to high levels in spin.

Interestingly, given the dynamic nature of organizations, it is unlikely that positive and negative events occur in isolation. Instead, employees experience an interplay between both types of events. Thus, an important question to ask is: does experiencing an interplay of both positive events and job stress together elicit distinctive affective reactions than experiencing negative and positive events separately? Gross, Semmer, Meier, Kalin, Nicola, and Tschan (2011) found that positive events were negatively associated with after-work fatigue on days when individuals also experienced negative events, indicating a protective mechanism of positive events. Experiencing positive events may improve recovery from negative events, increasing self-regulation and decreasing fatigue (Fredrickson, Mancuso, Branigan, & Tugade, 2000).

To date, no empirical studies consider how experiencing events, both positive events and job stress, affect the *variability in affect*, particularly in terms of pulse and spin. The additive effects of experiencing both positive events and job stress at work is unclear in terms of organizational outcomes. For instance, one of the most robust concepts spanning a wide range of psychological disciplines posits that negative events are more influential than positive events, having more physiological, behavioral, affective, and cognitive activity than neutral or positive events (Taylor, 1991). Therefore, it may be extraneous whether individuals experience frequent positive events if they are also experiencing frequent negative events because they are more likely to recall the negative events; the strength of remembering positive events can diminish in the presence of experiencing negative events.

At a daily level, though, individuals experience positive events that have a real impact on their affective states. Clearly, it may not be enough to examine negative events only, and may

not be enough to examine mean levels of affect only. Because individuals are experiencing both positive and negative work events, individuals are likely to experience both positive and negative emotional states. Experiencing both positive and negative events may indeed influence individuals' affective states. The combination may be related to a high level of spin, rather than influencing only the intensity of either positive or negative affect. For instance, a moment when individuals experience negative events, they may react with hostility. Yet when they then experience a positive event such as appreciation, they may experience positively valenced affect such as happiness. Opposing workplace events (i.e., positive vs. negative) may be related to large fluctuations between positive and negative valenced affect. That is, positive and negative events on spin are independent and additive. Positive and negative events contribute their own unique variance and simultaneously relate to increased levels in spin. Thus, experiencing both types of events have direct, simultaneous effects on the variation in spin (see Figure 2).

Hypothesis 3: The additive effects of experiencing both positive and negative events will be related to a high level in spin.

Direct Effects of Affect Pulse and Spin

In addition to workplace events influencing pulse and spin, it is also important to examine organizational outcomes as a result of experiencing fluctuating states. Therefore, I posit that affect variability will have *direct* effects on behavioral outcomes such as organizational deviance and employee performance.

Deviance. Work withdrawal behaviors, such as organizational deviance, are related to a variety of negative outcomes for organizations (Mulki, Jaramillo, & Locander, 2006). Thus, exploring antecedents to counterproductive work behaviors is of interest to researchers and practitioners. Organizational deviance is defined as negative behavior that violates organizational

norms and threatens the well-being of the organization, its members, or both (Robinson & Bennett, 1995). Empirical and theoretical support exists for the relationship between affect and deviance. Fox and Spector (1999) found that negative emotions (such as anger) were associated with counterproductive behaviors, and Lee and Allen (2002) found that hostility had the strongest correlation with workplace deviance. Theoretically, AET suggests that affective reactions directly lead to affective-driven behaviors. Given deviance encompasses both affective and cognitive components, affective reactions at work may increase and employee's deviant behavior (Lee & Allen, 2002). Not all counterproductive behavior is a well-thought out procedure, such that deviant behavior may stem from emotional reactions instead of cognitive processes. Anderson and Pearson (1999) found that experiencing negative emotions, such as anger, leads to increased levels of organizational deviance. Many times, these "hot emotions" may override individuals' self-regulatory processes, deeming it more difficult to inhibit negative behaviors at work.

The above mentioned studies all examined mean levels of affect in influencing employee deviance and very few studies have examined this relationship at daily level. For instance, Judge, Scott, and Illies (2006) examined state negative affect (i.e., hostility) and workplace deviance at the daily level. The authors found a strong, significant positive relationship between both constructs. More specifically, research has found that affect spin is related to negative personality traits such as neuroticism and pessimism (Kuppens et al., 2007), and the sole act of varying, regardless of experiences, may be related to negative personality traits. The authors discuss that poor psychological adjustment is characteristic to strong negative emotional reactivity and affect variability. More positive personality traits, such as agreeableness and optimism, were also found to be *negatively* related to spin. As such, more neurotic, pessimistic,

and less agreeable individuals are in general more likely to exhibit deviant behavior on the job, indicating that spin may be related to an increase in deviance.

Pulse, on the other hand, is inconsistent with such relationships. Because pulse is discussed as being unrelated to poor psychological adjustment and negative emotional reactivity, and was empirically found to be unrelated to and inconsistently related to negative traits such as neuroticism and pessimism, pulse may not affect an employee's deviant behavior (See Figure 3). Conceptually speaking, individuals with a high level of pulse could possibly only vary in the positive quadrant, thus deviant behavior might not be strongly related to pulse. Therefore:

Hypothesis 4: Affect spin will be positively related to deviant workplace behaviors.

Performance. To examine the relationship between affect and job performance, the distinction should be made between behaviors driven by job requirements and behaviors driven by emotional states. A relevant question posed by Weiss and Cropanzano (1996) is, "How are the behaviors in the emotional domain related to the behaviors in the job domain?" (pp. 55). The authors discuss how emotions can either interfere with, be compatible with, or be unrelated to behaviors in the job domain, arguing that emotional reactions can, and usually do, interfere with behaviors in the job domain (i.e., AET; Weiss & Cropanzano, 1996; COR; Hobfoll, 1989).

With spin and pulse in particular, it is hypothesized that both will be strongly related to lower levels of employee performance. Interestingly, lower levels of performance can be due to experiencing both negative *and* positive affect. Ample research has discussed decrements in performance from NA, due to the continued negative disruption of the appraisal and coping process while at work (Lazarus, 1991; Weiss & Cropanzano, 1996). There are some mixed findings in regards to PA and performance. Overall, negative affectivity is thought to have more pronounced deficits in performance than positive affectivity, given NA signals more problematic

situations than PA does. Nonetheless, some research has conveyed that PA *also* requires the management of emotions that are likely incompatible with performance demands (i.e., getting overly excited), where resources will be reduced and redirected away from task performance (Weiss & Cropanzano, 1996). When people have a high level of spin, they are experiencing both positive and negative valenced affective states. Further, when people have a high level of pulse, they are varying in their intensities of either positive or negative valenced states. Therefore, performance can be negatively affected for individuals who (1) have bursts of extreme positive affect or bursts of extreme negative affect (i.e., pulse) or (2) experience a wide variety of emotions regardless of the level of intensity (i.e., spin).

Therefore, experiencing both positive and negative valenced emotions (i.e., spin) as well as fluctuating intensities of PA and/or NA (i.e., pulse) may negatively relate to performance (see Figure 3).

Hypothesis 5: Affect pulse will be negatively related an employee's performance.

Hypothesis 6: Affect spin will be negatively related to an employee's performance.

Trait-Based Perspective: The Role of Pulse and Spin in a Stressor-Strain Framework

In addition to studying antecedents and consequences to pulse and spin, a major gap in the literature involves examining pulse and spin as a moderator between negative events and daily outcomes (i.e., trait-based perspective). To the author's knowledge, two studies have investigated pulse and spin in an organizational context, Beal and Chandour (2011) and Beal, Trougakos, Weiss and Dalal (2013). Beal and Chandour (2011) collected daily data from employees once a day for 21 days. The authors found that individuals with high levels of affect spin are more reactive to events (even while controlling for neuroticism or NA), concluding that individuals with high levels of affect spin might be more emotionally reactive to situations at

work. In a study by Beal, Trougakos, Weiss and Dalal (2013), data were collected by restaurant servers four times a day for 10 shifts. The authors found that individuals who are have more affect spin are more reactive to events, experience more strain as a result from surface acting, and have greater depletion from regulating emotions. Further, they found that high affect spin acted as a moderator, exacerbating the effects of emotional regulation to short-term fatigue.

Further, pervious empirical studies within an occupational health framework commonly have examined organizational factors (i.e., negative events) impacting an employee's well-being (i.e., strains). Scholars soon recognized that stable individual differences may help explain the relationship between contextual stressors and employee strain, with much of the research focusing on the role of NA. Researchers using daily designs and within-subject approaches have found strong support for the exacerbation model when examining NA within a stressor-strain relationships (Barsky et al., 2004). Although, this moderation effect is not always found within cross-sectional designs, and it is recommended to use more sophisticated designs such as daily diary methodology to examine moderating effects of affect in the stressor-strain relationship.

Therefore, this section will explore how *daily* job stress affects *daily* attitudes (i.e., job satisfaction and emotional exhaustion) and consequently *daily* behaviors (i.e., job performance and organizational deviance). Similarly, I aim to examine daily cross-sectional levels of constructs instead of specific day-to-day variations. In other words, I will not be modeling time or day specifically; instead, I will be examining overall averages at the daily level. Constructs explored at the daily level will be conceptualized at Level 1. Given previous support for the stability of fluctuating variables as a person-level characteristic, affect pulse and spin will be discussed as a person-level construct (i.e., Level 2), moderating the relationship between daily negative events and daily proximal attitudes. Therefore, I aim to extend on previous stressor-

strain findings by (1) examining such relationships at the within-individual level of analysis and (2) including pulse and spin as Level 2 moderators to the stressor-strain model.

Job Stressors Influencing Exhaustion and Satisfaction at the Daily Level

Recently, scholars have been interested in the influence of daily, minor stressors rather than major stressful events (i.e., the passing of a loved one). This interest has stemmed from empirical support for daily stressors having a large effect on psychological health and well-being of individuals (Bolger, DeLongis, Kessler & Schilling, 1989). Daily workplace stressors can be defined as minor events that occur out of everyday living (Almeida, 2005), which can include physical job demands or interpersonal mistreatment. In light of this interest, researchers have been utilizing daily diary techniques to more accurately capture daily stressors, while reducing recall error (Stone, Shiffman, & DeVries, 1999). This is especially important when examining stress because stress levels are thought not only to change throughout the week, but also throughout the day. Thus, due to the fluctuating nature of stressors at work, the stressor-outcome relationships will be examined at the within-individual level of analysis (See Figure 4 for full conceptual model).

Emotional-exhaustion. There is a considerable body of research examining job stress as antecedents of emotional exhaustion within the occupational stress literature. Maslach, Schaufeli, and Leiter (2001) defined burnout as a, "psychological syndrome in response to chronic interpersonal stressors on the job" (p. 399). This dissertation will focus on one aspect of burnout: emotional exhaustion. There has been both state and trait qualities examined with emotional exhaustion, ultimately viewing this construct as a work-related state, such that exhaustion can vary and gradually change over time (Hultell, Melin & Gustavsson 2013). Even though studies have found burnout to be stable over time (Brouwers & Tomic, 2000; Schaufeli & Enzmann,

1998), Hultell and colleagues (2013) discuss how the stability of this construct may be a consequence of measurement and method of analysis. Many burnout inventories do not provide a time reference for the employee and are not assessed at the daily level, restricting researchers of fully examining the construct's properties. Interestingly, researchers define emotional exhaustion as resulting from stressful *daily* hassles (Zohar, 1997). Considering the fluctuating effects of physical exhaustion at a daily level, (Akerstedt, Axelsson, Lekander, Orsini, & Kecklund, 2014), it may also reasonable to examine emotional exhaustion as an outcome of workplace stress at the daily level.

Hypothesis 7: On days when employees experience job stress, they will also experience high levels in emotional exhaustion.

Job satisfaction. Previous research has linked work stress to levels of job satisfaction, either directly or indirectly. Work stressors, such as role ambiguity and role conflict, directly decrease employee's satisfaction (Beehr & Newman, 1978). Stressful stimuli at work can induce strain, such as job withdraw and dissatisfaction with one's current state. More recently, scholars have discussed that to better understand occupational stress, it is necessary to examine complex relationships over time by implementing longitudinal and daily examinations designs (Fuller, Staton, Fisher, Spitzmuller, Russell, & Smith, 2003). Theoretical and empirical support exists for daily fluctuations in satisfaction over time (Weiss & Cropanzano, 1996), thus examining the relationship between daily job stressors and daily job satisfaction is of great interest. Therefore:

Hypothesis 8: On days when employees experience job stress, they will also experience low levels in job satisfaction.

Effects of Exhaustion and Satisfaction on Daily Behavior

Previous studies have linked emotional exhaustion to deficits in an employee's performance and increases in deviant behavior. Given emotional exhaustion is a state of emotional fatigue resulting from stressful daily hassles, daily fluctuations of exhaustion may occur where some days employees may feel more exhausted than other days. This fluctuation of exhaustion may have counterproductive outcomes for employees. According to Conservation of Resources Theory (COR; Hobfoll, 1989), individuals are motivated to retain resources, and emotional exhaustion is likely to occur when employees experience or anticipate a loss of resources. Maladaptive outcomes can occur from resource loss, such as counterproductive behaviors and diminished performance (Lee & Ashforth, 1996, Wright & Cropanzano, 1998).

One domain of counterproductive behaviors is organizational deviance, which may include both production and interpersonal deviance (Spector, Fox, Penney, Bruursema, Goh, & Kessler, 2006). Organizational deviance is defined as voluntary behavior of employees that violates organizational norms and threatens the well-being of the organization and/or employees (Robinson & Bennett, 1995). Interestingly, both deviance and performance have been studied at the within-individual level. Judge, Scott and Ilies (2006) found that about half of the variation of deviant behavior was within-individual, indicating that deviant behavior may be a dynamic construct. In relation to job performance, theoretical (AET; Weiss & Cropanzano, 1996) and empirical findings support daily fluctuations in performance over time. Therefore, emotional exhaustion may increase deviant behavior and decrease performance outcomes of individuals at the daily level.

Hypothesis 9: On days when employees experience emotional exhaustion, employees will also experience a low level of job performance.

Hypothesis 10: On days when employees experience emotional exhaustion, employees

will also experience a high level of deviance.

Daily job satisfaction may also be related to daily job performance. The notion that a

satisfied worker is a productive worker has been one of the most widely studied relationships in

industrial-organizational psychology (Judge, Thoresen, Bono & Patton, 2001). In light of this

relationship, several different models have been proposed. The oldest, most common depiction

of the relationship indicates a direct effect from satisfaction to performance, yet mixed results

have been found. Even though a logical explanation would indicate that attitudes (favorable job

satisfaction) should be consistent with behaviors (high job performance), research has found this

is not always the case (Judge, Thoresen, Bono & Patton, 2001).

Explanations of inconsistent findings may be attributable to the methodology and

sampling time frame used. In a fairly recent review on the relationship between job satisfaction

and job performance, Judge and colleagues (2001) examined seven possible models in a

quantitative and qualitative meta-analysis. The authors found that the mean true correlation

between job satisfaction and performance was .30, indicating moderate strength. Fazio, Powell,

and Williams (1986) discussed that the degree of accessibility of attitudes affects the relationship

between job satisfaction and an individual's behavior, such as performance. For instance, the

attitude-behavior link is stronger for individuals whose attitudes are fresh in their mind and

easily accessed. Thus, "accessible" satisfaction attitudes might be related to behaviors that are

more consistent with their attitude, explaining the relationship between job satisfaction and

increased levels of job performance. Therefore, studying this relationship within a daily

framework addresses some limitations to cross-sectional design, examining the job satisfaction-

performance relationship in a more accurate manner.

Further, there is both theoretical and empirical work examining the link between job satisfaction and employee deviance. The relationship between job satisfaction and deviant behavior is empirically robust at the between-individual level of analysis (Hulin, 1991), indicating the more satisfied with one's job, the less likely one would perform deviant behaviors toward co-workers or the organization. On the other hand, equity theory states that dissatisfied employees may engage in deviant behavior to restore justice or control over one's job (Bennett & Robinson, 2003, Judge, Scott, & Ilies, 2006). These behaviors can be directed toward a particular person (i.e., peer or supervisor) or directed toward the organization in general. Indeed, Judge, Scott, and Ilies (2006) found that job satisfaction was negatively related to workplace deviance within-individuals. Because general job satisfaction is more holistic and not targeted toward a specific person, general job satisfaction may be related to organizational deviance.

Hypothesis 11: On days when employees experience job satisfaction, employees will also experience a high level of job performance.

Hypothesis 12: On days when employees experience job satisfaction, employees will also experience a low level of organizational deviance.

Moderating Role of Affect Variability

As previously discussed, the variability of affectivity can be further conceptualized as a stable trait in addition to an event-based phenomenon. For instance, some researchers found affect variability is uniquely predictive of constructs above and beyond other personality traits, where some individuals on average may fluctuate more than others across time (Kuppens et al., 2007). Affect has been conceptualized as a consequence to situational events (Weiss & Cropanzano, 1996) or as a moderator that may change the relationship between negative events and organizational outcomes (Beal, Trougakos, Weiss, & Dalal, 2013). Given the nuanced nature

of affect pulse and spin, alternative hypotheses will be proposed. Accordingly, this model will examine how person-level (Level 2) affect variability (i.e., pulse and spin) may alter the daily-level (Level-1) relationship between stressors and fluctuations in exhaustion and satisfaction. (See Figure 4 for full conceptual model.)

Accentuating hypothesis for exhaustion. Both spin and pulse may play a role in moderating the relationship between stressors and emotional exhaustion, such that high levels of fluctuation may strengthen the positive relationship. Individuals high in affect variability, regardless of the type of variability, may be more emotionally reactive to events that occur at work given they experience more varied affective states (Beal & Ghandour, 2011). High levels of reactivity may require individuals to extend more effort and energy on a daily basis. Expanding one's energy, especially on a repetitive basis, may deplete an individual's resources, leaving less energy to cope with negative events and consequently experiencing more negative outcomes. Individuals who do not have highly fluctuating states may be exerting less energy, and it is this stability that acts as a protective mechanism from experiencing emotional exhaustion from daily negative events.

This hypothesized relationship can be explained by Conservation of Resources theory (COR; Hobfoll, 1989). According to COR, an individual's resources are conceptualized as personal characteristics, conditions, energy, or objects that an individual values and is motivated to obtain and retain them (Ganster, 2012; Hobfoll, 1989). When these resources (i.e., daily energy) are depleted or in anticipation of depletion, individuals experience stress, fatigue, or burnout. Another aspect of the person that can be conceptualized as a resource is an individual's self-control or self-regulation. According to Muraven, Tice and Baumeister, an individual's self-regulation acts as a limited resource that becomes depleted over time (1998). Moreover, this

resource can be related to negative outcomes such as stress or fatigue. This may also be true for both spin and pulse, mainly because the frequency of experiencing both PA and NA and the intensity of feeling affective states may have strong effects for the negative events to emotional exhaustion relationship. In other words, it is not solely the feeling of emotional states per se, but rather the *act of fluctuating* between either difference valenced (i.e., a high level of spin) or intense (i.e., a high level of pulse) states that depletes an individual's resources.

This lack of homeostatsis, which defines both high levels of fluctuations in spin and pulse, may leave individuals with less personal resources to cope with daily negative events. Thus, daily negative events may be more strongly related to exhaustion. In other words, these individuals may experience more fatigue resulting from workplace negative events than individuals who do not fluctuate with their affective states, regardless if they are fluctuating between different valenced states or different degree of states.

> Hypothesis 13(a,b): Spin (H13a) and pulse (H13b) will moderate the relationship
> between same day negative events and same day emotional exhaustion, such that
> individuals with a high level of affect spin and pulse will show a stronger positive
> relationship between negative events and emotional exhaustion than individuals with a
> low level of affect spin and pulse.

Buffering hypothesis for exhaustion. On the other hand, there is also support for high levels of affect variability weakening the relationship between negative events and emotional exhaustion. For instance, there are both positive and negative effects to feeling and expressing, as well as controlling or suppressing, one's emotions (Consedine, Magai, & Bonanno, 2002; Ekman & Davidson, 1993; Izard, 1990)**.** According to Bonanno, Papa, O'Neill, Westphal and Coifman (2004), effortful acts of emotional regulation, specifically individuals able to both

express and suppress their emotions, resulted in *less* distress and exhaustion from negative

events. Individuals with high variability in their affective states may be more able to regulate and

cope, even though they are feeling a wider variety and intensity of emotion. Consequently,

individuals may become "used to" feeling both a wide variety of emotional states and/or

differing levels of intensities of emotional states. Habituation, or desensitization, can be

conceptualized as the reduction in cognitive, emotional, physiological, and behavioral responses

to stimuli (Funk, 2005). Though sometimes maladaptive, humans are not capable of prolonged

arousal, habituation can be a normal process that protects individuals from negative stimuli. This

process can either be intentional, such as changing the emotional schema (i.e., mental image) of

an anxiety-provoking image, or unintentional in nature. Regardless of intent, because these

individuals are more used to emotional states than others, they have additional resources to

utilize in the face of negative events and experiencing daily negative events may not be as

damaging to these individuals. In other words, frequently experiencing anxiety one moment and

happiness the next might act as a buffer to experiencing negative consequences from negative

events. Likewise, frequently experiencing intense negative emotions and less intense negative

emotions may also act as that buffer, due to habituating coping mechanisms developed over time

within the individual.

Researchers have discussed that exposure to negative events and experiencing a wide

range of situations can result in a habituating response, leading to a "tougher" individual and

decrease in release of adrenal hormones (Grissom, Iyer, Vining, & Bhatnagar, 2007). Thus, even

though individuals are experiencing more "ups and downs" and increased intensity of feelings,

these emotions do not affect their emotional resources or well-being as much as individuals with

infrequent variability. Indeed, Beal and colleagues (2013) found that high levels of affect spin

weakened the relationship between stressors and immediate fatigue. Yet the authors only focused their study on spin, thus, the same may be true for high levels of affect pulse. These individuals may overall be more resilient and hardy due to habituation tendencies, and may be more flexible due to having past experiences with a wide range and degree of emotions. This "hardiness" may actually act as a protective mechanism. Thus:

> Hypothesis 13(c,d): Spin (H13c) and pulse (H13d) will moderate the relationship between same day negative events and same day emotional exhaustion, such that individuals with a high level of affect spin and pulse will show a weaker positive relationship between negative events and emotional exhaustion than individuals with a low level of affect pulse and spin.

Affect spin moderating stress to satisfaction relationship. Further, spin may moderate the relationship between negative events and job satisfaction. Previous research indicates that affect variability is negatively related to agreeableness, extraversion, and self-esteem, and positively related to neuroticism, and depression (Kuppens et al., 2007), suggesting the more variability in affect, the more negative perceptions one will have of their job. Because individuals with highly fluctuating affect may hold more negative perceptions of one's job, and because job satisfaction has been conceptualized as an evaluative judgment of one's job (Brief & Weiss, 2002), these individuals may experience stronger negative effects of negative events on job satisfaction. These individuals may not only perceive negative events as more damaging, but also experience increased negative outcomes from such negative events .

With respect to pulse and spin specifically, Kuppens and colleagues (2007) indicate that affect spin is more consistently, positively related to neuroticism, depression, and lower self-esteem than is pulse. The authors also found that individuals with a high level of spin hold more

negative evaluations and expectations about the future. Further, Beal and Ghandour (2011) found that individuals with high levels of affect spin in particular *exacerbated* their reactions to negative events. Once experiencing the negative event, individuals with high levels of spin may evaluate their job satisfaction more negatively. Further, individuals with high levels of spin may have less healthy psychological adjustment and well-being due to the relationship with negative psychological indicators (Kuppens et al., 2007). Thus, spin may moderate the relationship between negative events and job satisfaction, such that a high level of spin may strengthen the negative relationship between daily negative events and job satisfaction.

Interestingly, Kuppens and colleagues (2007) found inconsistent relationships between pulse and negative traits, such as neuroticism or depression, in some of their studies. This is relevant to job satisfaction because negative traits, such as neuroticism, are related to negative perceptions of one's job and more negative evaluations to experiencing negative events. Therefore, high levels of pulse may not exacerbate evaluative reactions to experiencing negative events. Although steady levels of either NA or PA (mean or standard deviation measures) may result in a high level of negative evaluative states, the relationship between the variation in the *intensity* between activated and/or less activated states with evaluations has not been consistently supported.

Given previous research indicating that high levels of spin increase negative views of situations and exacerbate reactivity to negative events, spin may exacerbate the negative relationship between negative events and job satisfaction. Individuals who have high levels of spin may not only *react* more negatively to job stress, but also perceive events as more negative. Therefore, these individuals may have low levels of job satisfaction from experiencing negative

events. Thus, the relationship between negative events and job satisfaction may be stronger for individuals with a high level of affect spin.

> Hypothesis 14: Spin will moderate the relationship between same day negative events and same day job satisfaction, such that a high level of spin show a stronger the negative relationship between negative events and job satisfaction than a low level of spin.

Method

Participants

Participants consisted of 97 healthcare employees who worked in correctional facilities in a state in the Northeast United States. All participants were volunteers for this study. Eighty-two percent of employees were female, 62% Caucasian, 77% were between the ages of 34-60 years, and 45% held a graduate or professional degree. In this sample, 43% of employees indicated they were in the medical/dental discipline, 35% in mental health, 16% in clerical and 4.8% other (e.g., Information Technology). About 60% of employees worked on average 10 days over a two-week period, with 85% on first shift and 15% on second shift.

Because employees in this sample worked in a healthcare setting, the typical workweek varied from person to person. Given the dynamic nature of healthcare, working over the weekend, or working non-consecutive days, is a typical occurrence. For this dissertation, it was assumed employees were working five days per week (even if over the weekend). Thus over a two-week time span there were ten possible days one could work. Surveys to assess organizational constructs were given to employees via email during work. On average, participants took the survey 7.2 times over the two-week time span. Survey responses were not included on days when participants indicated they were not working, even if that day was over the typical workweek (i.e., a Tuesday). Participation in the study was completely voluntary.

Procedure

Data collection was administered separately for first and second shift (both of which were used for this study) in three main phases. In the first phase, an email was sent to all 801 employees in the organization informing them of the study and providing them with a link to the screening survey. Participants were screened based on access to a computer twice a day and being present at work for the two weeks of data collection. The second phase of the project started about a week after the screening survey was administered. In the second phase, participants who were successfully screened were sent an email with information concerning the informed consent, baseline survey, creating an identification number (to track responses over time), and the survey link. The baseline survey was used to measure demographic variables (i.e., sex) and other non time- varying constructs (i.e., organizational climate). For this dissertation, the baseline survey items were used to examine personality traits (i.e., Big 5) to assess trait-like measures. Participants received $10 for participation in the baseline survey.

A week after the baseline survey was completed the third phase of the project began. For this phase, participants were asked to take a survey twice a day for two consecutive weeks, totaling to 14 days. All surveys were created online and the link was sent to participants through their email account. Participants were asked to take the survey before their work shift in the morning and after their work shift in the evening on workdays. On days when participants did not work, they were asked to take the survey before the start of their day and at the end of their day. This time scheme was administered to keep participants on the same schedule throughout the study, regardless whether they worked that particular day. For the purpose of this study, only the end-of-work-shift daily diary data were used. Participants received $3 each time they completed either of the daily surveys.

Measures

All measures used in this study were based on previously validated scales and slightly

adapted to appropriately fit a daily diary methodology. Unless otherwise specified, the response

scale to each measure ranged from 1 *(not at all)* to 5 *(extremely).* All items are listed in the

Appendix A. For the outcome variables (i.e., performance and deviance), supervisor perceptions

were only examined at the aggregate level; only daily self-rated performance and daily self-rated

deviance were examined for the moderated-mediations.

Perceived Stress. The four item perceived stress scale was adapted from Cohen,

Kamarck, and Mermelstein (1983) to measure situations in the workplace that were stressful. A

sample item includes, "Today at work, I felt unable to control the important things in my

workday."

Appreciation and Recognition. Positive workplace events, such as appreciation and

recognition, were created for this study. Items include, "Today at work, I felt appreciated" and

"Today at work, I felt recognized."

Emotional Exhaustion. Emotional exhaustion was measured from the Maslach Burnout

Inventory (MBI; Maslach, Jackson, & Leiter, 1996). There were 2 items in total. Items included,

"Today, I felt emotionally drained from work" and "Today, I felt used up at the end of the

workday."

Self-Reported Job Performance. The four item self-reported job performance scale was

adapted by Farh et al. (1991). Items were phrased as performance viewed by their supervisor, as

suggested by Schoorman and Mayer (2008). Items include, "Today, my clinical supervisor

would rate my (interactions with other team members as, interaction with patients as, completion

of work tasks as, and overall work performance as)…" Response scale was recorded as 1 (*poor*)
to 5 (*excellent*).

  Deviance. The 5 item organizational deviance scale was adapted from Robinson and
Bennett (1995). A sample item includes, "Today I…Took an additional or longer break than is
acceptable."

  Supervisor Perceptions of Performance. The 4 item scale assessed supervisor
perceptions of an employee's performance and was adapted from Farh et al., (1991). A sample
item includes, "In the past two weeks, this employee's (quality of work was, quality of
interactions with coworkers was, quality of interactions with patients was, overall work
performance was)…" The response scale ranged from 1 *(poor)* to 5 *(excellent).*

  Supervisor Perceptions of Deviance. The 5 item scale assessed supervisor's perception
of an employee's deviant behavior adapted from Robinson and Bennet (1995). A sample item is,
"In the past two weeks, how often has the employee engaged in any of the following
behavior…taking excessive breaks." The response scale ranged from 1*(never)* to 5 *(daily).*

  Job Satisfaction. Job satisfaction was measured by 2 items adapted from Cammann,
Fichman, Jenkins, and Klesh (1983). A sample item includes, "Today, I was satisfied with my
job."

  Affect Pulse and Spin. Daily affect was measured by the 10 item scale Positive and
Negative Affect Schedule-Brief (PANAS; Thompson, 2007). A sample item is, "Today I
feel…hostile." Additionally, one item was used to represent a negative deactivated state that was
not included in the original PANAS scale. This item is, "Today at work, I was…irritable."

  Calculating Pulse and Spin. In calculating pulse and spin, Kuppens and colleagues
explored two different methods. Their first study asked participants to mark how they felt on a 9

x 9 two-dimensional *Affect Grid,* with unpleasant/pleasant feelings on the horizontal line and

arousal/sleepiness on the vertical line. In Study 2, the authors asked participants how they felt

with survey responses to a list of adjectives of daily affect scores, and used corresponding

equations to calculate valence and activation. The authors found that across both studies, affect

variability was similarly related to a majority of constructs. Therefore, the authors concluded that

both methods indicated sound ways to measure affect variability. For this dissertation, the

method from Study 2 was used, which is described below.

To compute pulse and spin, a valence and activation score for each person was

calculated. To calculate valence and activation, items were averaged to compute daily positive-

activated (pa), negative-activated (na), and negative-deactivated (nd) scores for each person.

Positive-activated items include inspired, determined, alert, attentive, and active; negative-

activated items include hostile, nervous, ashamed, and afraid; negative-deactivated items include

upset and irritated. From there, valence was calculated as (pa) - (na + nd) and activation was

calculated as (pa + na) – (nd). For affectivity, due to the daily design, a limited amount of

affective states were assessed. It is important to note that positive-deactivation (PD) emotions

were not assessed and, hence, overall PD was not calculated. Although a limited number of

emotions were used to represent affect pulse and spin, these indicators may be sufficient

considering previous studies have similar limitations (Beal et al., 2010). Items were chosen to

represent each dimension based on Watson and Tellegen's (1985) reanalyzed markers for high

and low activation for positive and negative affective states. Each state was closely matched to

the affective states discussed in their article in Table 2.

Next, pulse and spin were computed for each person. Pulse, which is the intensity of the

variability of affective states, is conceptualized by the within-person standard distance between

the mid-point of the grid to the affect state on the grid. This distance creates a vector. Conceptually, the length of each vector was calculated per person and averaged into one pulse indicator for that person. This represents the amount of variation in the fluctuation among more intense and less intense states. Variation among the vector lengths represents an individual who has a high level of pulse. The equation below represents the calculation of pulse:

$$\sqrt{valence^2 + activation^2}$$

Spin is the variability of responses on the grid measured by the *angle* of each vector. Conceptually, each within-person state creates a vector, with the angle of each vector relative to the x-axis line. Therefore, widely different angles represent someone who spins more throughout the coordinate system. To compute spin, the vectors (valence, activation) were transformed to a unit vector:

$$\left(\frac{valence}{\sqrt{valence^2 + activation^2}}, \frac{activation}{\sqrt{valence^2 + activation^2}} \right)$$

Next, *R,* which is the mean vector of all affective states of one individual, was calculated by the sum of the vector:

$$\left(\sum \frac{valence}{\sqrt{valence^2 + activation^2}}, \sum \frac{activation}{\sqrt{valence^2 + activation^2}} \right)$$

To standardize the data, *R* must be divided by the number of observations:

$$\frac{\sqrt{\left(\sum \frac{valence}{\sqrt{valence^2 + activation^2}} \right)^2 + \left(\sum \frac{activation}{\sqrt{valence^2 + activation^2}} \right)^2}}{n}$$

Finally, by squaring the log-transformation of the equation as shown below, the final

Spin value is calculate for each individual:

$$\sqrt{-2\ln\left(\frac{R}{n}\right)}$$

The centering technique used for this dissertation is discussed by both Kuppens and

Moskowitz. This approach uses the absolute scale midpoints, or grand-mean centering. With

grand-mean centering, one is able to compute between-individual (i.e., person-level) differences.

Because both pulse and spin are person-level constructs (i.e., one value per person), this

approach makes the most sense statistically and conceptually.

Results

Multilevel confirmatory factor analysis (MCFA) was conducted for all multilevel

constructs with three or more items (Guilford, 1952), namely, perceived stress, self-rated

performance, and self-rated deviance. Further, MCFA was conducted for affectivity to examine

whether items loaded properly within positive-activated, negative-deactivated, and negative-

activated dimensions. MCFA determines whether each construct exists at the within- and

between-individual level of analysis. MCFA is necessary because items were adapted for

analysis at the daily level and thus examining only between-level reliability would not be

appropriate. All MCFA analyses were run with Mplus (Muthén & Muthén, 2010). SRMR-within

and CFI were examined to determine model fit. CFI, or the Comparative Fix Index, compares the

fit of the target model to the fit of a null or independent model, or the difference between the

observed and predicted covariance matrix. SRMR-within, or the Standardized Root Mean Square

Residual, is an absolute measure of fit, comparing the observed correlation to the standard

correlation for within-individual constructs. Although cutoff scores for multilevel analysis have not been established, good model fit is suggested to have CFI values greater than .95 and SRMR-within values less than or equal to .08 (Hu & Bentler, 1999).

All MCFA items for stress and performance loaded appropriately on their respective factors for each construct. Item loadings for performance ranged from .69-.87 and item loadings for stress ranged from .45-.61. Fit indices for performance (CFI = .93, SRMR-within = .08) and job stress (CFI = .80, SRMR-within = .06) demonstrated overall adequate model fit. Item loadings and model fit for deviance did not show as strong of reliability. Deviance item loadings were weaker, ranging from .11-.57, and model fit was not adequate. With regards to positive and negative affectivity, model fit was good (CFI = .87, SRMR-within = .06). Positive-activation item loadings ranged from .32-.78; negative-activated ranged from .40-.81; negative-deactivated were .74 and .68. It is noteworthy to mention that the item "inspired" under the positive-activated dimension loaded somewhat weaker than the other item loadings (.32), yet given this loading was still significant at the within-individual level ($p<.00$), had a high ICC value (ICC = .68), and has previous theoretical support for being categorized as a positive-activated item (Watson & Tellegan, 1985), it was retained for all further analysis. Further, aggregated alpha levels were examined for Level 2 organizational constructs, such as positive affect ($\alpha= .90$), negative affect ($\alpha= .88$), appreciation/recognition ($\alpha= .97$), job stress ($\alpha= .73$), and job performance ($\alpha= .96$). All organizational constructs demonstrated adequate to good internal reliability.

Item- and construct-level ICCs were also examined prior to data analysis. Essentially, ICCs determine the appropriateness of examining items/constructs within a multilevel framework by assessing the amount of variability between items/constructs and the amount of non-independence within items/constructs (Dedrick & Greenbaum, 2010). Cutoff values for

ICCs for MCFA have been reported as ICCs greater than .10 (Dyer, Hanges, & Hall, 2005). Item-level ICC values for performance ranged from .61-.69, stress ranged from .20-.45, and affectivity ranged from .18-.66, all indicating support for multi-level analysis. Deviance item-level ICCs were much lower, with two items having a less than .10 value. Construct-level ICCs were assessed for stress (ICC = .43), exhaustion (ICC = .54), job satisfaction (ICC = .69), appreciation/recognition (ICC = .55), and performance (ICC = .73), indicating support for multi-level analysis. See Table 1 for all item loadings and ICC values.

Descriptive Statistics and Exploratory Analyses. Because pulse and spin are fairly new concepts in emotion research, and have not been assessed much within an organizational setting, it is important to examine descriptive statistics and explore potential relationships. Therefore, the first portion of the results section is comprised of descriptive mean, standard deviation, and correlational analyses of pulse and spin with organizational constructs, providing a preliminary framework in which individuals may fluctuate within an organizational setting. Doing so will give a more thorough understanding of the characteristics of affect variability before examining more complex relationships.

In addition to basic descriptive statistics, exploratory analyses were conducted with relation to the Big 5 personality traits (i.e., openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism) as compared to Kuppens et al.'s (2007) findings. Exploring these relationships is relevant for two main reasons. For one, Kuppens et al. (2007) explored these relationships with undergraduate samples, where the mean age for both studies was approximately 22 years old, and having a job was not a requirement. The sample used in the current study was of working adults, more specifically, within a correctional healthcare setting. The correlations among core affect variability and personality traits may differ depending on the

nature of the sample, especially when exploring the difference between working adults and undergraduate students. Thus, to examine generalizability of pulse and spin to a workplace setting, it is crucial to explore relationships within an organizational context.

Second, Kuppens et al. (2007) explored two different methods of calculating affect pulse and spin. As previously discussed, Study 1 used the *Affect Grid,* while Study 2 calculated "unit vectors" from affective dimensions that created valence and activation values. Given most previous research has calculated unit vectors when examining pulse and spin, this dissertation will also replicate the method used in Study 2 (Beal et al., 2011, 2013; Kuppens et al., 2007) to explore the variability of affectivity.

All descriptive and exploratory analyses were conducted in SPSS and Mplus. For the purposes of descriptive statistics, because pulse and spin are at the Level 2 unit of analysis all other constructs were also aggregated across the two-week time span. In other words, mean levels refer to average levels across the study period. Further, the program Mplus was used primarily for being robust to missing data. Although missing data were assumed to be Missing at Random (MAR) with the statistical assumptions of the analyses, it is difficult to determine the exact characteristics of missing data in daily diary studies.

Overall, employees had higher mean levels of positive-activated states (M = 3.50) than negative-activated (M =1.23) and negative-deactivated (M = 1.49) states. Mean valence and activation were strongly, positively related to each other (r = .75, p< .01). When exploring the *variability* of valence and activation, both constructs also positively related to each other (r = .54, p< .01), Further, mean levels of PA and NA in this dissertation were not significantly related to each other. Interestingly, though, variability of PA and NA were moderately, positively correlated with each other (r = .36, p< .00) and positively correlated to the variability in valence

and activation. Further, the relationship between valence and activation with PA and NA related constructs are not analyzed because each construct uses the same data manipulated in different ways (Kuppens et al., 2007).

In terms of pulse and spin, the mean ($M = 1.4$) and standard deviation ($SD = .29$) of spin are quite small, indicating that there might not be enough variation in spin with this particular sample to accurately assess relationships. Interestingly though, the mean for spin in this study was similar to the mean found for spin in Kuppens' and colleagues research. In fact, on average, individuals in this study experienced more variation in the quality of affect than individuals in Kuppens' et al. study (2007). Yet when comparing mean scores of spin to research that examined working adult populations in particular, scores from this dissertation are found to be quite lower. For instance, Beal and colleagues found mean scores of 1.80 and 1.71 for spin (2011 & 2013, respectfully). With regards to the standard deviation of spin, all other research examining core affect variability (Beal et al., 2011, 2013; Kuppens et al., 2007) found higher values than results from this dissertation. Thus, employees in this dissertation did not vary as much as working populations in previous research.

In contrast, the mean ($M = 3.5$) and standard deviation ($SD = .81$) of pulse indicate that individuals in this sample experienced more variation in affect intensity than affect quality. Unfortunately, not much research has previously examined pulse, instead mostly focusing on characteristics of affect spin. To the author's knowledge, the only other study examining affect pulse is Kuppens et al. (2007), which the mean and standard deviation of pulse are much lower than found in this dissertation. For instance, in Study 1 Kuppens and colleagues (2007) found a mean of 1.10 with a standard deviation of .21, and in Study 2 the mean was 1.86 with a standard deviation of .56. For this current working adult sample, employees had higher levels of mean

affect intensity variability, and on average varied from that mean more than undergraduate student samples.

Further, mean valence and activation were moderately to strongly related to pulse ($r = .31$ & .82, respectively), yet not significantly related to spin ($r = -.13$ & -.09, respectively). These findings are unlike Kuppens' et al. (2007) study, where a significant negative correlation was found between spin and mean valence ($r = -.71$, $p<.001$). Similar previous research findings, results from this dissertation indicate that pulse was not significantly related to the variability of activation ($r = -.02$, *n.s.*) and the variability of valence and activation were unrelated to spin (Kuppens et al., 2007). Additionally, similar to Kuppens and colleagues (2007), pulse was significantly, positively related to mean levels of PA ($r = .77$, $p< .01$) but not NA. Pulse was not found to be related to the variability of valence ($r = -.16$, *n.s.*). Although previous research has found a significant negative relationship between PA and spin and a significant positive relationship between NA and spin, in this dissertation both PA and NA were indeed unrelated to spin.

Further, echoing findings from Kuppens et al. (2007), pulse and spin are also unrelated to each other. With respect to other core affect variability measures, pulse was strongly, positively related to activated states ($r = .82$, $p< 01$), in particular, positively activated states ($r = .76$, $p< .01$) when compared to valence ($r = .31$, $p< .01$), negative activated ($r = .23$, $p< .05$), or negative deactivated states ($r = -.07$, *n.s.*). See Table 2 for correlations among core affective states.

This next section reports on correlational analyses for pulse and spin with organizational constructs (i.e., appreciation/recognition, performance, job satisfaction, emotional exhaustion, and job stress). Little research has previously examined pulse or spin with organizational constructs. For instance, Beal et al. (2013) found significant, positive inter-individual

correlations between affect spin with *strain* ($r = .50$, $p<.05$) and *fatigue* ($r = .39$, $p<.05$), but to the author's knowledge, this study is the first to examine similar organizational outcomes. Unfortunately, unlike previous research, spin was not significantly correlated with any of the organizational constructs used in this study. Pulse, on the other hand, was moderately, positively related to appreciation/recognition ($r = .20$, $p< .01$), performance ($r = .21$, $p< .01$), and job satisfaction ($r = .41$, $p< .01$), and moderately, negatively related to stress ($r = -.32$, $p< .01$). Interestingly, pulse was not significantly correlated with emotional exhaustion ($r = -.07$, *n.s.*). See Table 3 for correlations among core affect variability and organizational constructs.

This next section will explore the relationships between mean levels of core affective variability and the Big Five Personality traits (i.e., extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience). As previously mentioned, exploring the Big 5 personality traits with core affect variability will help expand research by Kuppens et al. (2007) to a working adult sample. Further, given the novelty of this topic, exploring the relationships between affect variability and personality traits may help further our understanding of the underlying characteristics of pulse and spin. Interestingly, results indicated significant correlated relationships between extraversion and positive affect, activation, and pulse ($r = .34$, $.33$, and $.43$, respectively) only. In Study 2, Kuppens et al. (2007) found pulse to be significantly, positively related to extraversion ($r = .21$, $p<.05$), yet did not find this relationship in Study 1 ($r = -.04$, *n.s.*). Unfortunately, while Kuppens et al. (2007) found significant correlations among spin and neuroticism, agreeableness, and conscientiousness in Study 2, all correlations among spin and the Big 5 personality traits in the current dissertation were non-significant. See Table 4 for correlations, means and standard deviations of personality traits with pulse/spin.

Hypothesized Models. The following section will proceed with the hypothesized models. To address Hypotheses 1-3 in Figure 2, regression analyses in Mplus (Muthen & Muthen, 2010) were conducted. Because pulse and spin were calculated as a person-level construct, each person received one value of pulse and one value of spin. For Hypotheses 1-3, all other within-individual scores were computed to the person-level (i.e., Level 2 unit of analysis) through mean aggregation. Aggregation was chosen for this type of analysis because treating outcomes as Level 1 (i.e., cross-level direct effect) would statistically treat all variables as between-level constructs, disregarding within-group variance, regardless if conceptualized as a Level-1 construct (Preacher et al., 2010).

Support was not found for Hypothesis 1. Although job stress did significantly relate to levels in pulse, this relationship was negative, opposite of the direction hypothesized (β = -.32, p< .000). Consistent with Hypothesis 2, appreciation/recognition significantly, positively related to pulse (β = .26, p< .004). In other words, negative events are associated with low levels of the variability in affect intensity, while positive events are associated with high levels of the variability in affect intensity.

To understand how both negative and positive events (i.e., job stress and appreciation/recognition) were associated with the variation in affect simultaneously, Hypothesis 3 proposed an additive effect of events on spin. To test for the additive effects, I evaluated a main/direct effects only model. In other words, the additive effects model did not include an interaction term between negative and positive events on affect spin. Each event contributes its own unique variance on spin, exerting influence directly and simultaneously. Thus, regression analyses in Mplus examined a main effect of negative events on affect spin and a main effect on positive events on affect spin. Results do not support Hypothesis 3; the additive effects for both

stressful events (β = .06, *n.s.*) and appreciation/recognition (β = -.10, *n.s.*) were both non-significant. See Table 5 for results from Hypotheses 1-3.

To understand potential outcomes of affect variability (i.e., Figure 3), Hypotheses 4-6 examine direct effects. Similar to Hypotheses 1-3, each outcome variable is aggregated and assessed at Level-2, and all regression analyses were conducted in Mplus. Because deviance had poor reliability, the proposed relationship from spin to deviant workplace behaviors was not tested, not supporting Hypothesis 4. For Hypothesis 5, the proposed *negative* relationship from affect pulse to performance instead resulted in a *positive*, significant relationship (β = .41, *p<* .017), thus was not supported. Hypothesis 6 was also not supported, as affect spin did not significantly relate to an employee's performance levels (β = .10, *n.s.*).

Further, supervisor ratings for performance and deviance acted as an additional source of information for Hypotheses 4-6. The sample was selected based on managers who have complete supervisor ratings of employees participating in the daily diary study. Unfortunately, given the low number of supervisors who both responded to the survey *and* indicated the employee they were conducting the rating for, there were only a total of 24 supervisors who were available for analysis. Non-significant results were found for the relationship between affect pulse to supervisor perceptions of employee performance (β = -.09, *n.s.*) and affect spin to supervisor perceptions of employee performance (β = -.25, *n.s.*), failing to support results from any additional ratings for Hypotheses 4-6. See Table 6 for effects from both supervisor and employee performance outcomes with pulse/spin.

To address Hypotheses 7-14 (see Figure 4), a multilevel mediation and multilevel moderated mediation analysis was conducted in Mplus to account for lower-level non-independence. The mediation model was tested such that the indirect effect analyses were at the

within-individual level (i.e., Level-1) and the moderators of pulse and spin were at the person-level of analysis (i.e., Level-2). As previously stated, although data were collected over the span of two weeks, data were examined as a daily cross-sectional analysis. Thus, composite scores for each construct were computed over the two-week time span and modeled at the within-individual level of analysis.

Prior to examining moderators, a multilevel mediation was conducted to examine Level-1 relationships only. Level-2 predictors were controlled, such that indirect effects represent Level-1 change only. Group- (or person-) mean centering was applied for all constructs at Level-1. In other words, group mean centering removes all between-level variance, rendering it strictly a within-level model. This centering technique is appropriate to examine daily diary data because it focuses on the average of each person's score. Therefore, group-mean centering represents whether individuals feel more or less stressed that what they on average feel, representing daily comparisons of that *person* over time.

Hypotheses 7 and 8 were supported; on days when employees experienced job stress, they also experienced high levels in emotional exhaustion ($\beta = .47$, $p < .00$) and low levels in job satisfaction ($\beta = -.30$, $p < .00$) at the within-individual level. Further, on days when employees experienced high levels in emotional exhaustion, employees also experienced low levels in job performance ($\beta = -.14$, $p < .00$), supporting Hypothesis 9. Results also indicated that days when employees had high level of satisfaction with their job, they also experienced high levels in job performance ($\beta = .19$, $p < .00$). Thus, Hypothesis 11 is also supported. As previously stated, results from the multilevel CFA indicated that organizational deviance did not have reliable estimates. Thus, the proposed relationship between job satisfaction and emotional exhaustion on employee deviance (Hypotheses 10 and 12) was not supported.

Further, when examining total indirect effects within a multilevel framework, it is suggested to conduct Bayes Credibility Intervals. The total indirect effect of job stress to performance through exhaustion ($ab = -.06$, $p<.01$) and satisfaction ($ab = -.05$, $p<.01$) were significant. Because indirect effects are often nonnormally distributed, a Bayes CI was performed to examine the 5th and 95th percentile values (Bauer et al., 2006). As these intervals did not include zero for exhaustion (-.10, -.03) and satisfaction (-.08, -.02), the data support the role of exhaustion and satisfaction as a within-individual mediator between job stress and job performance. See Table 7 for within-individual mediational effects for Hypotheses 7-12.

To examine for moderating effects of pulse and spin (Hypotheses 13 and 14), indirect relationships were examined as a function of low and high levels of affect pulse and spin. Specifically, slopes were estimated for path A (i.e., job stress to both exhaustion and job satisfaction, separately) of the indirect effects. Consistent with previous discussions, all indirect effects are examined at the within-individual level with pulse and spin moderating at the person-level. Each multilevel moderated mediation was tested separately for each mediator and moderator. Moreover, as opposed to group-mean centering for Level-1 constructs, pulse and spin are grand-mean centered. This centering approach indicates whether individuals are, on average, more varied in their affect than other individuals are. Thus, it compares the individual to other individuals, as opposed to comparing the individual to themselves (i.e., group-mean centering).

For Hypothesis 13a-d (i.e., the accentuating and buffering hypotheses), results indicated non-significant moderating effects of spin ($\beta = .73$, *n.s.*) and pulse ($\beta = .17$, *n.s.*) on the relationship between same day stressors and emotional exhaustion, respectfully. Because results were non-significant, neither accentuating nor buffering hypotheses were supported. Further, non-significant effects were found for Hypothesis 14; the moderating effect of spin on the job

stressors to job satisfaction relationship (β = .73, *n.s.*) was not supported. See Table 8 for results from the multilevel moderation analysis.

Supplemental Analyses

Although the purpose of this dissertation is to examine pulse and spin within a stressor-strain framework, it is possible that other existing events may play a role with affect variability. Given the dynamic characteristics of workplace events, positive interactions at work can also be examined with regards to Figure 4. For instance, whether one is appreciated and/or recognized at work may influence other workplace attitudinal and behavioral reactions, and interact with the variability of affectivity. It is possible that further insights might be gained by additionally exploring positive events. To assess this possibility, I reexamined the multilevel mediation and moderated-mediation models including the additional variable of appreciation/recognition. The mediation model was tested such that the indirect effect analyses were at the within-individual level (i.e., Level-1) and the moderators of pulse and spin were at the person-level of analysis (i.e., Level-2).

Thus, a multilevel mediation was conducted to examine Level-1 relationships only, while controlling for Level-2 predictors. Thus, indirect effects represented Level-1 change only. Similar to hypothesized relationships, group-mean centering was applied for all constructs at Level-1, representing whether individuals feel more or less appreciated or recognized when compared to how they feel on average, representing daily comparisons of that *person* over time. Although not hypothesized, it is possible that positive workplace events are associated with high levels of job satisfaction and low levels of emotional exhaustion at a daily level. Results indicated that, on days when employees were appreciated/recognized, they also experienced a decrease in emotional exhaustion (β = -.27, *p*< .00) and an increase in job satisfaction (β = .35,

p< .00). Results also indicated that, on days when employees were exhausted, employees also experienced deficits in job performance (β = -.15, *p*< .00). Further, on days when employees were satisfied with their job, they also experienced an increase in job performance (β = .20, *p*< .00).

The variability of affectivity may moderate the relationships between positive events on job satisfaction and emotional exhaustion. In other words, the indirect relationships were examined as a function of low and high levels of pulse and spin for path A (i.e., appreciation/recognition to both exhaustion and satisfaction separately). Similar to hypothesized relationships, all indirect effects are examined at the within-individual level with pulse and spin moderating at the person-level, with grand-mean centering applied for pulse and spin. Results indicated a non-significant moderating effect of spin (β = .18, *n.s.*) and pulse (β = -.17, *n.s.*) on the relationship between same day appreciation/recognition and emotional exhaustion. Further, non-significant effects were found for the moderating effect of spin on job satisfaction (β = .13, *n.s.*).

Discussion

Recent calls have been made for researchers to explore daily phenomenon within an organizational setting to better understand human behavior at work (Bauer, 2011). Accordingly, this dissertation took a novel approach on capturing affect variability through dynamic, multidimensional methods applied to a daily stressor-strain framework. Results indicated that for this specific sample, pulse tended to be related with positive, activated traits and individuals did not show variation in spin over the two-week time span. In other words, this sample varied from more intense to less intense affect, but not necessarily with regards to varied emotional states. Given these findings of affect pulse, negative events were associated with low levels of

variability in affect intensity, and experiencing more positive events were associated with high levels of pulse. Further, although the relationship between pulse and performance was not supported, the unexpected positive finding may be of interest to organizations. In other words, core affect variability may not always indicate poor psychological adjustment; instead, the specific characteristics of affect variability may play a role in determining aspects of psychological adjustment. Before concluding this, much more research needs to be done to determine whether the act of varying indicates poor adjustment, or rather the manner in which the employee is varying. If employees are primarily varying from more to less intense *positive* states, than the variability of affect may not be as damaging to employee well-being or organizational outcomes. Future research should examine variability that includes both positive and negative states, or primarily negative states, to determine if this could be indicative of poor psychological adjustment.

Within this discussion, results from the multilevel-confirmatory factor analyses will be examined, along with reasoning as to why deviance had poor item reliability. Results from the descriptive analyses regarding core affect variability will then be interpreted, comparing findings to research from Kuppens et al. (2007) and Beal et al. (2011; 2013). Next, relationships between core affect variability with organizational constructs and the Big 5 personality traits will be examined, followed by a discussion of the hypothesized relationships. It is important to note that, for this discussion, the population to which these results may generalize with is defined as healthcare workers. Much more research needs to be done examining pulse and spin with different samples and organizational contexts.

Multilevel-Confirmatory Factor Analysis

Factor analyses of job stress and performance both indicated adequate to good model fit and significant item loadings. Previously, some researchers who have evaluated performance and stress at the within-individual level have relied on person-level reliabilities despite that relationships at the lower level of analysis should not be assumed similar to higher levels of analysis; using person-level factor structures for individual-level methods might yield inaccurate results (Zyphur, Kaplan, & Christian, 2008). Although the job stress literature has previously been criticized for primarily cross-sectional designs, recent research has shifted toward the use of daily analyses or examining stress over long periods of time (Fuller et al., 2003). Moreover, researchers have indicated that employees' performance levels are not stable attributes, but also vary within-individuals (Brose, Lovden, & Schmiedek, 2013). Results from this dissertation support the notion that job stress and performance can be accurately assessed over time, complementing pervious cross-sectional findings. Overall, there is sufficient reliability at the within-individual level of analysis for both constructs, indicating that attitudes and judgments vary at a daily level. Further, high ICCs indicated that 43% of the variability in stress and 73% of the variability in performance occurred at the within-individual level of analysis. Thus, although some variability lies at the between level of analysis, variability at the within-individual level should not be disregarded. Therefore, measuring trait variability by capturing such characteristics through daily diary designs, instead of solely tailoring the items or item stems to represent trait-like qualities, might help reduce error (Watson et al., 1988).

Further, this study supports research on the dimensionality of positive activation, negative activation, and negative deactivation at the within-individual level, answering previous calls for examining affect within a multidimensional framework. Separate factors emerged for each dimension with significant variability for within-individual analysis. These findings

indicate that each dimension is relatively independent at the daily level High ICCs for both the

item and construct level also indicate a large amount of intra-individual variability,

demonstrating daily fluctuations over time. Instead of examining affectivity as purely positive or

negative, these markers of activation and deactivation should be taken into consideration in

future research. Examining mean levels of positive affectivity without taking into consideration

activation may lead to less accurate interpretations. For instance, concluding employees have

"high levels of PA" may mean those employees have high levels of calmness and relaxation,

high levels of excitement and energy, or both. Without examining the activation dimension in

addition to valenced states (i.e., positive or negative affect), it is possible results may be less

accurate.

Analyses for organizational deviance, on the other hand, resulted low ICCs and unreliable

factor loadings. Conceptually, these results indicate that employees do not have enough daily

variation in deviant behaviors to warrant multi-level analyses. There are a few reasons for why

this might occur. One reason is simply that there is a low base rate of deviant behaviors due to

organizational policies or cultural perceptions at work. Although research has shown that deviant

behaviors do occur at work (Martinico, Gundlach, & Douglas, 2002), it might be more likely to

occur over a longer period of time. Thus, surveys that ask employees to report their deviant

behavior over the past three months might garner greater variability than surveys asking

employees to report their deviant behavior over the past few hours. To correct for limitations

such as low base rates, it was possible to aggregate daily reports of deviance to obtain one (level-

2) value per employee. Yet for multilevel meditational designs that model either top-down (2-1-

1; 2-2-1) or bottom-up (1-1-2; 1-2-2) effects, the mediation effect is functioning strictly at the

between-level of analysis (Preacher, Zyphur, & Zhang, 2010). Thus, aggregating organizational

deviance as an outcome variable (i.e., 1-1-2 model) statistically rids all within-group variance and disregards theoretical meaning of lower level variables. In other words, aggregating deviance to the person level would subsequently lead to the predictor and mediator (i.e., stress and exhaustion/satisfaction) also being examined at the person level. Consequently, the meditational model would not have been assessed at the hypothesized level. Therefore, it was decided to exclude organizational deviance from all analyses.

Another reason for low within-individual variability of the organizational deviance items may be the nature of the items. Specifically, the type of deviance assessed was directed toward the organization. For instance, employees were asked if they "took longer breaks than acceptable" or "talked with co-workers instead of working." Given the high demands of healthcare workers, employees may actually not have the time, or desire, to decrease the amount of effort they put into their job. Much of the research that explored daily variation in deviant behaviors has examined interpersonal deviance, such as counterproductive behaviors directed toward other co-workers or supervisors (Yang and Diefendorff, 2009). Thus, future research should examine how the target of deviant behavior may affect within and between levels of variation. Third, employees may believe reporting deviant behavior to be "risky" because of potential identification. Although steps were taken to communicate confidentiality to survey respondents, employees may still have been hesitant to report true levels of deviant behavior in this study.

Core Affect Variability

Descriptive analyses indicate that on average, a person's core affect was pleasant and active (i.e., high levels of positive activation) when compared to negative activated or deactivated states. In fact, the positive relationship between valence and activation indicates

individuals whose average affective experience was more pleasant also tended to have average experiences that were more activated. These findings support previous research on the average affect of individuals cross-nationally (Diener & Diener, 1996). Many explanations exist that support why individuals are subjectively more pleasant than unpleasant. For instance, most people have positive cognitive tendencies towards themselves and their situations. Given the relatedness of cognition and emotion, happiness in one domain may bleed into another domain. Further, individuals' set point or baseline measure may be more positive (as compared to neutral or negative) due the importance of early developmental approach tendencies, human sociability, creativity, and survival behaviors (Diener & Diener, 1996), all of which rely on PA.

Further, there has been considerable debate regarding whether positive and negative affect are independent or bipolar, with the consensus view leaning toward the independence of positive and negative (or positive activated and negative activated) states (Barrett et al., 1999). The non-significant relationship between PA and NA in this study supports previous empirical research on the independence of such states. Conceptually, two independent states indicate that employees are capable of feeling both positive and negative (or pleasant and unpleasant) affective states simultaneously. Various workplace situations may facilitate feeling a wide variety of emotions at the same time. For instance, one can imagine presenting work to your manager or going up for a promotion may elicit both excitement (pleasant states) as well as anxiety (unpleasant states). This strengthens previous theoretical reasoning for independence of affective states and furthers our understanding of the complex dimensionality of affect within an organizational setting.

Moreover, mostly positive correlations between the *variability* of core affective states (i.e., the variability in valence, activation, positive affect, and negative affect) indicate that as one

person varies in one domain, they also tend to vary in another. In other words, individuals seem to encompass a wide range of variation in affective experiences. Even though people are overall mostly pleasant and emotionally activated, employees also demonstrate variation in their affective states. This result was also found in Kuppens et al. (2007) study, where positive, significant correlations existed among the variability of core affective states. The main difference though was that Kuppens et al. (2007) also found high correlations among variability measures and *spin*, alluding to the existence of a dispositional affect variability construct (Kuppens et al., 2007). For instance, Kuppens and colleagues indicated that individuals in their study fluctuated in large shifts, encompassing the entire core affective space (2007). Yet for this current working population, although employees felt similar fluctuations among pleasant and activated states, they did *not* feel fluctuations among qualitatively different feelings or varied affect intensity of feelings. In other words, employees move around the affective circumplex in smaller shifts than previous research indicates.

In terms of pulse and spin in particular, individuals did not vary much between widely different qualities of feelings throughout the two weeks (i.e., low levels of spin), even though they varied between more and less intense feelings (i.e., high levels of pulse). With respect to spin, the lack of variability must be evaluated in the context of the measure used and sample characteristics in this study. The PANAS scale used was comprised of mostly activated states, failing to encompass the full affective circumplex. Because spin is conceptualized as moving around the entire circumplex, excluding the deactivated states may have contributed to a decrease in the variability in which one may vary.[1] Moreover, because this study used an employee sample, suppressing a wide range of emotions may be the norm. Thus, instead of feeling qualitatively different emotions throughout the day, this sample may instead be used to

suppressing emotions due to potential cultural norms. For instance, future research could ask

participants to indicate what emotions they have suppressed at a daily level, given suppressed

emotions might be a major driver to employee stress and decreased well-being (Additional

discussion on these topics appears in Limitations below).

Results from this dissertation examine the nature of affect variability for this sample and

the subsequent relationships between core affective states and organizational constructs. Because

employees varied more in a positive-activated manner, this dissertation was able to explore an

understudied topic within organizational stress literature; the variability of positive states.

Interestingly, the variability of emotion might not always indicate poor employee and

organizational outcomes. Because pulse was conceptualized as mutually exclusive from spin,

individuals may be varying in either positive *or* negative states. Spin on the other hand

encompasses *all* quadrants of the circumplex, suggesting that employees always feel positive and

negative states (regardless of the intensity of those states). Thus, employees who have high levels

of spin have less predictable affective states, which might be better categorized as a poor

psychological characteristic of an individual. Indeed, Kuppens et al. (2007) concluded that

individuals who are more poorly adjusted (i.e., more neurotic, lower self-esteem, more negative

expectations about future interactions) were more likely to *spin,* though not necessarily pulse.

Whereas spin may be consistently related to poor psychological adjustment, pulse may instead

depend on whether individuals are varying in more positive or negative states. Instead of

clumping the two affective experiences together as negative traits, researchers should take into

consideration individual and contextual influences on pulse.

Relationships with Organizational Constructs and Personality Traits

Unfortunately, spin did not significantly correlate with any of the organizational constructs used in this study. Given this sample was mostly characterized by positive-activated states, along with a lack of negative-deactivated measures, this study does not provide a basis for much spin variability.

With respect to pulse, results indicated positive correlations with appreciation/recognition, performance and job satisfaction, with a negative correlation to job stress. To the author's knowledge, this is the first study that examines *pulse* with regards to relevant workplace variables with a working adult sample. These exploratory results support the notion that affect variability in intensity can co-vary with favorable workplace experiences and attitudinal outcomes that may be of interest to employers. For instance, previous theoretical research has suggested that emotions are more likely to produce job incompatible (rather than job compatible) behaviors. Thus, decrements in performance are more likely to occur in response to an emotional reaction, given fewer resources are available for the task at hand (Weiss & Cropanzano, 1996). As shown in this study, affect variability may not always be associated with negative workplace constructs, suggesting a fruitful area for future research.

Further, exploratory findings indicated that extraversion was positively correlated with pulse. Interestingly, Kuppens et al. (2007) found several associations between core affect variability constructs and indicators of *positive* adjustment (characterized by extraversion). Although significant relationship between pulse and extraversion was found in Kuppens' Study 2, a non-significant relationship was found in Study 1. Because these findings were inconsistent, the author suggested that it is too early to draw conclusions from these results. In this dissertation, results replicate Study 2, such that core affective states and the variability of core affective states are positively related to mean levels of extraversion. Previous research has

indicated extraversion having a strong association with positive affective states (Costa & McCrae, 1980; Rusting & Larsen, 1997; Watson & Clark, 1984). Indeed, Eysenck and Eysenck's (1985) theoretical model of personality dimensions and affectivity posits that extraverts tend to show variation between positive affectivity and neutrality (not necessarily negative affectivity). Thus, this study may expand on this theory by showing the relationship between extraversion and multiple dimensions of positive affectivity. The more individuals are extroverted, the more they tend to vary in intensity, especially with positively activated traits.

Feeling positive affective states at work, whether feelings vary or not, may have huge implications on employee outcomes. Lyubomirsky, King and Diener (2005) review evidence suggesting that positive affect engenders success over multiple domain of life (i.e., marriage, work performance, health, etc.). Indeed, positively valenced moods promote individual motivation to achieve goals and build on existing resources (Elliot & Thrash, 2002). Theoretical models of positive affect (e.g., Fredrickson & Losada, 2005) suggest that positive affect is an adaptive mechanism that helps humans thrive and face future challenges. In fact, positive affectivity has become the staple of individual well-being (Lyubomirsky, King and Diener; 2005). Interestingly, previous research has discussed the frequency, not intensity, of positive affect that leads to happiness and well-being (Diener, Sandvik, & Pavot, 1991), and that the frequency is both necessary *and* sufficient for individual well-being. Yet this research has only examined stable, high mean levels of positive affect intensity, not *fluctuating* levels of intensity (i.e., pulse). Could the relationship between frequency of positive affect and individual well-being also depend on fluctuating levels of positive affect intensity? In other words, could the frequency of positive affect be necessary, but not sufficient, for the happiness and well-being of individuals?

Antecedents and Outcomes of Pulse and Spin

Unfortunately, there was a lack of support for all hypotheses containing spin for similar reasoning as previously proposed. Yet overall, confirmatory results echoed trends in descriptive and exploratory findings. The relationship between stress and pulse was in the opposite direction hypothesized, thus Hypothesis 1 was not supported. A few reasons may explain this unexpected finding. For instance, stress may be more likely to increase the variability of negative states rather than the variability of positive states. Given this sample, and consequently pulse, is characterized by more positive-activated states, it makes sense that stress negatively predicts pulse. For instance, stress in this sample is positively related to the variability of both negative activated and negative deactivated states; the more stress one would experience, the more one would vary in states such as hostility or nervousness. But because pulse is strongly related to positive activated states in this study, employees are less likely to have high levels of pulse when experiencing stress. Stress not only affects our cognitive ability, energy levels, and attitudinal perspectives at work, but also our *variation* in affective states.

Hypothesis 2 indicates that the more appreciation and recognition one feels at work, the more varied affect intensity they will feel. Yet what is of particular interest is that positive events at work elicit the *variation* of the affect intensity that employees feel, not solely steady states of positive affect. Similar to homeostasis/allostasis, this study suggests that situations occurring at work lead to *variation* in the manner which employees emotionally react, instead of eliciting steady levels of intense positive activated states. These findings suggest that not only mean levels of affect are a result of workplace events, but instead more dynamic relationships are at play. Further examining how positive workplace events can elicit the variation in affective reactions could be an interesting avenue for future research. For instance, mangers should be

motivated to make sure their employees feel appreciated and recognized at work, as it greatly influences variation in employees' daily affective states.

Overall, both positive and negative events can determine the way an individual varies in their emotional intensities. Although research that has found that negative events have more physiological, affective, and cognitive influence on individuals than positive events (Taylor, 1991), many of those studies have been examined with uni-dimensional constructs or cross-sectional methods. Thus, not only can negative events have powerful influences on the variation of human emotions, but this study suggests that positive events also directly affect affective reactions. Overall, research on positive events in the Occupational Health literature has been rare, with much greater emphasis on stressors and negative workplace events. This study helps further knowledge on the specific positive workplace events that may have an influence on an employee's affective fluctuation. Overall, this dissertation suggests it might be fruitful to examine workplace events and the variability of affect intensity within the organizational stress literature.

Unfortunately, non-significant results were found for the additive effects of positive and negative events on affect spin. What is interesting about this finding is that employees' variation in affective states remains relatively stable, regardless of specific workplace events they encountered. Non-significant findings may be due to the limitations on measuring spin in this study (see previous discussions). Although the additive effects of experiencing both positive and negative events may theoretically result in experiencing variation among positive and negative valenced emotions, a lack of variation in the sample responses as well as measurement technique could have contributed to the non-significant effect.

The relationship between pulse and performance was in the opposite direction hypothesized; thus, Hypothesis 5 was not supported. This unexpected positive relationship should be further examined with different samples and methodologies. Previous research has discussed the multitude of benefits from experiencing positive affectivity at work, such as greater creativity, social support, and overall well-being (Amabile et al., 2005; Staw et al., 1994). Although somewhat debated, recent research suggests that an individual's performance is enhanced on days when his/her positive affect was high (Brose, Lovden, & Schmiedek, 2013). Further, Weiss and Cropanzano (1996) discuss that many events have affective significance and generate emotional changes within individuals. With respect to AET, the *variability* of affect *intensity* was found to fluctuate over time in response to specific events. Future research should examine if this variability can be predictable to an extent and increase behavioral reactions. Rather than emotional reactions interfering with behaviors in the job domain, future research should examine whether positive affect has beneficial effects on performance, and whether these relationships may instead depend on the nature of the emotion.

Mediated and Moderated Relationships

Significant within-individual relationships among stressor-strain constructs highlight the importance of examining organizational constructs at the daily level. Indeed, cross-sectional relationships among stress with job satisfaction and emotional exhaustion have been well established within the Occupational Health literature (Fuller et al., 2003; LePine, LePine, Jackson, 2004), yet examining these relationships at different levels of analysis gives a more holistic view and helps further our understanding of the stressor-strain relationship. Results of the current study indicate that, even at a daily level, workplace stressors can negatively influence employees' job satisfaction and emotional exhaustion levels. In other words, subjective, acute

stressors play a role on employee well-being. Further, exhaustion and satisfaction, at the daily level, is associated with employees' levels of performance for that day. Thus, daily stress is indirectly associated with daily performance through employee satisfaction and exhaustion levels.

Interestingly, the significant relationships between job satisfaction and performance further support the notion that relationships among psychological constructs may change depending on the methodological approach. For instance, one possible reason for the lack of between-level support between satisfaction and job performance may depend on the timeframe used, and consequently the accessibility of employees' attitudes. Indeed, in an integrated model of job satisfaction and job performance, Judge et al. (2001) discussed several possible explanations of previously reported inconsistent findings, including cognitive accessibility, levels of analysis, and aggregation techniques. The attitude-behavior link may indeed be stronger for employees whose attitudes and behaviors are more readily accessed, such as implementing a daily diary approach by examining current attitudes of employees. Interestingly, even at a daily level, perceptions of workplace stressors have large effects on employees' attitude and energy levels, and thus negatively affect their daily job performance. Clearly, this is highly problematic for long-term organizational success.

The unexpected low variance of spin may have underminded my ability to detect a moderated relationship between stressors and emotional exhaustion or job satisfaction. The non-significant moderating effects of affect pulse can also help further our understanding of the variability of affect. Because pulse is more strongly characterized as positive activated traits with this sample, the relationship between stress and exhaustion would not be exacerbated because positive traits may have more of an energizing effect. For instance, if pulse were characterized

by affect intensity with regards to negative affect, individuals may extend more effort and energy on a daily basis for coping with such intensities, thus depleting individual resources to cope with daily stressors. Because pulse is strongly characterized as positively valenced states, pulse instead may be energizing for individuals and thus would not exacerbate the stressor to exhaustion relationship. But surprisingly, pulse did not *buffer* the relationship from stressors to emotional exhaustion either. Experiencing more varied emotions, in terms of intensity, may not give employees additional resources to cope in the face of stressors. Further, the changing intensity of affect may instead be more of a reactive phenomenon, mostly varying with regards to the occurrence of organizational events (i.e., Hypothesis 1 & 2) with respect to the stressor-strain relationship. Research has examined affect intensity - mostly considering both positive and negative valenced intensities (Larsen & Diener, 1987); little research, however, has been conducted on the intensity of affect in one domain or the other.

Results from this dissertation suggest that affect pulse may be characterized more as an event-based construct as compared to the trait-based perspective. Given significant direct effects from positive and negative events to variability in affective intensities, and non-significant effects of pulse as a Level-2 moderator, findings suggest that the intensity of affect may be a reactive phenomenon. In other words, the intensity of affect pulse varies in response to specific workplace events that occur daily. This supports theoretical arguments from AET (Weiss & Cropanzano, 1996). Even so, it is important to note that the stability of pulse was not directly tested, thus affect pulse may also represent trait-like qualities over time. Future research should directly examine the stability of fluctuating variables in regards to the trait-based approach to further our understanding of such constructs.

Further, although I hesitate to draw conclusions from the supplemental analyses given no a priori hypothesis generation, the results did uncover several relationships that are worth future examination. First, positive workplace events, such as appreciation and recognition, may affect subsequent attitudes and behaviors. Being appreciated and recognized at work may lead to a high level of job satisfaction and a low level of emotional exhaustion at a daily level. These supplemental analyses indicate that it might be fruitful for managers to demonstrate appreciation and recognition to their employees more frequently to increase individual well-being and subsequently productivity. Again, due to low variance of spin, non-significant results were found for moderating effects. Yet, what is interesting is that pulse also did not moderate the relationship between positive workplace events and emotional exhaustion. This may further suggest pulse being examined as an event-based phenomena. Much more research needs to be conducted before conclusions can be made.

Limitations

No study is without limitations. There are several areas where the measures in this study might be improved. Because employees were asked to take a survey twice a day during working hours (including non-work days), this type of data collection can be taxing on individuals. Measures needed to be brief, thus full scales for many of the constructs were scaled down. For instance, the PANAS scale that was used did not incorporate positive-deactivated items (i.e., calm, relaxed), which was a limitation to the calculation of spin. Because spin is both conceptualized and calculated as individuals who vary among qualitatively different affects (i.e., individuals literally "spin" around the circumplex), limiting affective states and subsequently affective quadrants would limit variability in spin. In other words, because affective quadrants were limited in scope, employees were not able to report that they were calm or relaxed, thus

were only able to "spin" among three affective quadrants. Consequently, the calculated variability of affect spin was limited methodologically. Moreover, the items that were used to calculate spin may not be as conducive to the work environment. One could argue that, at work, feeling hostile and afraid might occur less frequently than feeling calm and relaxed. Not only was there a potentially significant affective quadrant missing, but the affective states that were representing the quadrants might not occur frequently within this type of work environment.

Methodologically, there are strengths to assessing within-individual processes, which can help examine immediate relationships at work instead of more abstract accounts of overall experiences. This type of analysis helps reduce biases and error that may occur at the interindividual level. Despite these advances, causal directionality still cannot be fully determined for a variety of reasons. All constructs were measured each survey opportunity, complicating the support for causal inference. For instance, the lack of temporal separation of constructs especially for assessing the within-level mediation is necessary to help determine directionality. In other words, meditational and direct effect paths reflect concurrently assessed variables only, which might result in method effects and subsequently inflate the relationship (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). For instance, although the positive relationship between pulse and performance was not hypothesized, it is noteworthy to mention that this unexpected relationship may also be influenced by the notion that individuals with more variability in positive emotions may self-rate their performance more positively as well. Future research should examine directionality and lagged effects with affect variability and organizational constructs.

It is possible that further insights might be gained by examining lagged effects between predictor and outcome variables (Beal et al., 2013). Further, Imai, Keele and Tingley (2010)

discuss that one reason (among others) it is problematic for linear MSEM models to establish causal mediation is due to the difficultly in extending linear frameworks to nonlinear models. Examining nonlinear models is crucial because reciprocal, dynamic effects might occur among many stressor-strain models. Future research should separate the assessment of measures of predictor and criterion variables temporally.

Future Research and Practical Implications

As previously discussed, the lack of affect variability regarding spin might have occurred for a broad range of reasons. What is unique about this dissertation is the application of pulse and spin within an organizational context. Major questions arise from these results. Does affectivity vary enough between qualitatively different states to warrant investigation within an organizational context? Discovering characteristics of pulse and spin are important next steps for future research. For instance, are pulse and spin stable over long periods of time, and if so do they predict more global organizational outcomes? Should there be different "cutoff scores" for what constitutes *high* and *low* levels of spin, especially for organizational research? Because employees might be less likely to feel "hostile" or "afraid" than feel "determined" or "calm" at work, could *high* levels of spin be conceptualized as containing three out of the four quadrants on the affective circumplex?

Further, much research has examined emotional labor and the ability of employees to express, suppress, and/or fake everyday emotions at work. Although employees may *feel* a wide range of emotions, the norm may be to suppress those emotions because of their work environment. Although PANAS items asked the extent to which one *felt* certain emotions, it may take large amount of self-awareness to realize the range of emotions felt during one workday (especially if individuals are expected to suppress such emotions). The level of emotional

intelligence needed to perceive, understand, and manage ones *variability* in emotions might be an interesting avenue for future research in regards to pulse and spin.

For instance, Beal et al. (2013) found significant moderating effects of affect spin when examining how surface acting influences strain and fatigue in restaurant workers. Two important aspects of his study might have contributed to high levels of spin. First, Beal et al. was examining levels of spin in restaurant servers, who work in a fast-paced, volatile environment and were asked to take surveys around the "rush" hours. Second, Beal and colleagues examined an individual's spin with regards to surface acting (i.e., hiding true feelings or showing inaccurate feelings at work). Thus, the working environment sampled and constructs of interest might have contributed to high levels of affect variability. Should affect spin be evaluated in the context of potentially different affective environments within workplaces? Indeed, these questions might be best investigated relevant to the type climate, as there may be large differences in the nature of the work among organizations.

Another area for future research involves group level processes at work. Research has shown that employees within workgroups tend to experience similar affect, called group affective tone (George, 1990). Group affective tone is an emergent state that has dynamic characteristics that are likely to change as patterns among group members also change (Cronin, Weingart, & Todorova, 2011). An interesting area of research could be exploring how employees might *vary similarly* within workgroups. Given evidence for *mean* levels of affect being characterized at the group-level, can pulse and spin also be group-level phenomenon? Can individuals vary similarly within groups with respect to the intensity or quality of affective states?

Further, results from this dissertation suggest practical implications for organizations. The major benefit to organizations involves the positive relationship between pulse and employee performance, being the first study to link affect pulse to performance outcomes. Clearly, it is too early to tell how pulse would work with other environments or assessment methods (supervisor ratings, HR records, etc.). Nevertheless, the findings from this study hold promise for organizational implications. For instance, if feeling variability in affective states leads to a high level of performance, adopting display rules might not always be beneficial for certain organizations. Encouraging employees to feel, and possibly express, varied intensity levels of positive affect may be beneficial to the organization instead of urging employees to suppress or fake emotions.

Training employees on the positive effects of mindfulness towards one's varied emotional states might be beneficial to increasing performance levels. Mindfulness is a state of nonjudgmental attentiveness to and awareness of experiences in one's daily life (Bishop et al., 2004; Hulsheger, Alberts, Feinholdt, & Lang, 2013). Both field research and quasi-experimental studies found that mindfulness at work plays a large role in emotion and affect regulation (Hulsheger et al., 2013). Researchers in the emotional labor literature have called for the promotion of healthy coping strategies for emotionally draining jobs, instead of relying on surface acting (Grandey, 2003). The interplay between emotional variability (i.e., pulse and spin) and mindfulness might be a fruitful area for future research. With proper training, informational sessions, or workshops, employees might become more cognizant of how their feelings vary over the workday and structure their work schedule accordingly to maximize performance output and individual well-being.

Concluding Remarks

This dissertation examined multidimensional characteristics of affect variability within an organizational setting. In utilizing a quantitative daily diary approach, results suggested that affect pulse is an important construct to examine within organizational research. More specifically, variation among positive, activated states contributes to the performance and well-being of employees and may be of value to managers and organizations. Further, this dissertation adds to previous research, suggesting core affect variability may not always indicate poor psychological adjustment; instead, the specific characteristics of variability may play a large role in determining aspects of psychological *adjustment*. Given the novelty of pulse and spin, more research is needed on examining these constructs within different contexts, samples, and methodologies. In applied settings, strategies aimed at awareness in the variation of emotional responses, through training sessions or mindfulness workshops, may be beneficial for employees and the organization.

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283.

Footnotes

[1] Given that spin does not have a positive-deactivated quadrant, I examined core affect variability standardized based on valence and activation. As these analyses did not result in changes in the significance or the direction of the hypothesized relationships, I have excluded them from the manuscript.

Tables

Table 1

Construct loadings and ICCs

Construct	Item	Item Loading	Item ICC
Job Stress	Unable to control the important things in my workday	.52	.23
	Confident about my ability to handle my work problems(R)	.45	.44
	Things were going my way(R)	.61	.45
	Difficulties were piling up so high that I could not overcome them	.52	.20
Performance	Interactions with other team members as	.69	.61
	Interactions with patients as	.71	.67
	Completion of work tasks as	.77	.67
	Overall work performance as	.87	.69
Positive-Activated	Inspired	.32	.68
	Determined	.55	.56
	Alert	.77	.52
	Attentive	.78	.45
	Active	.66	.47
Negative-Activated	Hostile	.40	.39
	Upset	.60	.23
	Ashamed	.57	.23
	Nervous	.81	.18
Negative-Deactivated	Upset	.74	.56
	Irritated	.68	.24

Note. All items significant at *p* = .01.

Table 2

Correlations among core affective states

Construct	M(SD)	1	2	3	4	5	6	7	8	9	10
1. Mean Valence	.7(1.2)	--									
2. Mean Activation	3.2(.68)	.75**	--								
3. Mean NA	1.3(.41)	-.86**	-.33**	--							
4. Mean PA	3.6(.57)	.60**	.88**	-.15	--						
5. SD Valence	.7(.4)	-.44**	-.28**	.48**	-.16	--					
6. SD Activation	.6(.3)	-.38**	-.26*	.39**	-.14	.54**	--				
7. SD NA	.28(.23)	-.68**	-.34**	.79**	-.25*	.66**	.51**	--			
8. SD PA	.34(.19)	-.23*	-.27**	.11	-.35**	.47**	.44**	.36**	--		
9. Pulse	3.6(.8)	.31**	.82**	.14	.77**	-.16	-.02	-.09	-.17	--	
10. Spin	1.4(.30)	-.13	-.09	.13	-.01	.15	.04	.03	.07	-.04	--

Note. * denotes significance at .05 level; ** denotes significance at .001 level.

Table 3

Correlations among organizational constructs and pulse/spin

Construct	M(SD)	1	2	4	5	6	7	8
1. Stress	1.8(.41)	--						
2. Appreciation / Recognition	2.6(.92)	-.44**	--					
4. Exhaustion	1.8(.94)	.46**	-.33**	--				
5. Satisfaction	3.1(.92)	-.47**	.57**	-.56**	--			
6. Performance	3.9(.69)	-.48**	.28**	-.26**	.34**	--		
7. Pulse	3.6(.81)	-.32**	.20**	-.07	.41**	.21*	--	
8. Spin	1.4(.29)	.09	-.12	-.14	-.18	.09	.17	--

Note. *denotes significance at .05 level; ** denotes significance at .001 level.

Table 4

Correlations among personality traits and pulse/spin

Big 5 Personality Traits	M(SD)	Pulse	Spin
1. Openness to Experience	4.2(.75)	-.01	-.19
2. Conscientiousness	3.8(.82)	-.08	-.13
3. Extraversion	4.7(.75)	.43**	-.06
4. Agreeableness	4.2(.89)	-.16	-.06
5. Neuroticism	4.2(.77)	-.09	-.09

Note. ** denotes significance at .001 level

Table 5

Regression betas and standard errors for Hypotheses 1-3

Separate Direct Effects	
	Pulse
1. Stressful Events	-.32(.19)**
2. Appreciation/Recognition	.26(.08)**
Additive Effects	
Step 1	Spin
Stressful Events	.06(.10)
Appreciation/Recognition	-.10(.10)

Note. ** denotes significance at .001 level

Table 6

Regression betas and standard errors for Hypotheses 4-6 (supervisor and employee)

Predictor	Employee Outcome	Supervisor Outcome
	Performance	*Performance*
1. Pulse	.41(.09)**	-.09(.16)
2. Spin	.10(.95)	-.25(.19)

Note. ** denotes significance at .001 level

Table 7

Regression betas, standard errors, and confidence intervals for Hypotheses 7-12

Predictors	Outcomes	
	Exhaustion	*Satisfaction*
Stress	.47(.04)**	-.30(.04)**
	Job Performance	*Deviance*
Exhaustion	-.14(.04)**	n/a
Satisfaction	.19(.03)**	n/a
	Total Indirect Effects	
	Estimate(SE)	CI(95%)
Exhaustion	-.06(.02)**	(-.10,-.03)
Satisfaction	-.05(.01)**	(-.08,-.02)

Note. ** denotes significance at .01 level.

Table 8

Regression betas, standard errors, and confidence intervals for Hypotheses 13-14a-d

Interaction	Exhaustion		
	Beta	**SE**	**P-value**
Stress x Pulse	.17	.15	.27
Stress x Spin	.73	.49	.14
	Job Satisfaction		
Stress x Spin	.73	.69	.29

Note. All effects are non-significant.

Table 9

Supplemental analyses

Predictors	Outcomes	
	Exhaustion	*Satisfaction*
App/Rec	-.27(.04)**	.35(.04)
	Job Performance	*Deviance*
Exhaustion	-.15(.04)**	n/a
Satisfaction	.20(.03)**	n/a
	Total Indirect Effects	
	Estimate(SE)	CI(95%)
Exhaustion	.02(.01)**	(.01-.04)
Satisfaction	.04(.01)**	(.02-.05)

Note. ** denotes significance at .01 level.

Table 10

Supplemental analyses

Interaction	Exhaustion		
	Beta	**SE**	**P-value**
App/Rec x Pulse	-.17	.11	.10
App/Rec x Spin	.18	.24	.45
	Job Satisfaction		
App/Rec x Spin	-.13	.56	.55

Note. All effects are non-significant.

Figures

Figure 1. Graph (A) shows a high level of spin and a low level of pulse; Graph (B) shown a low level of spin and a high level of pulse.
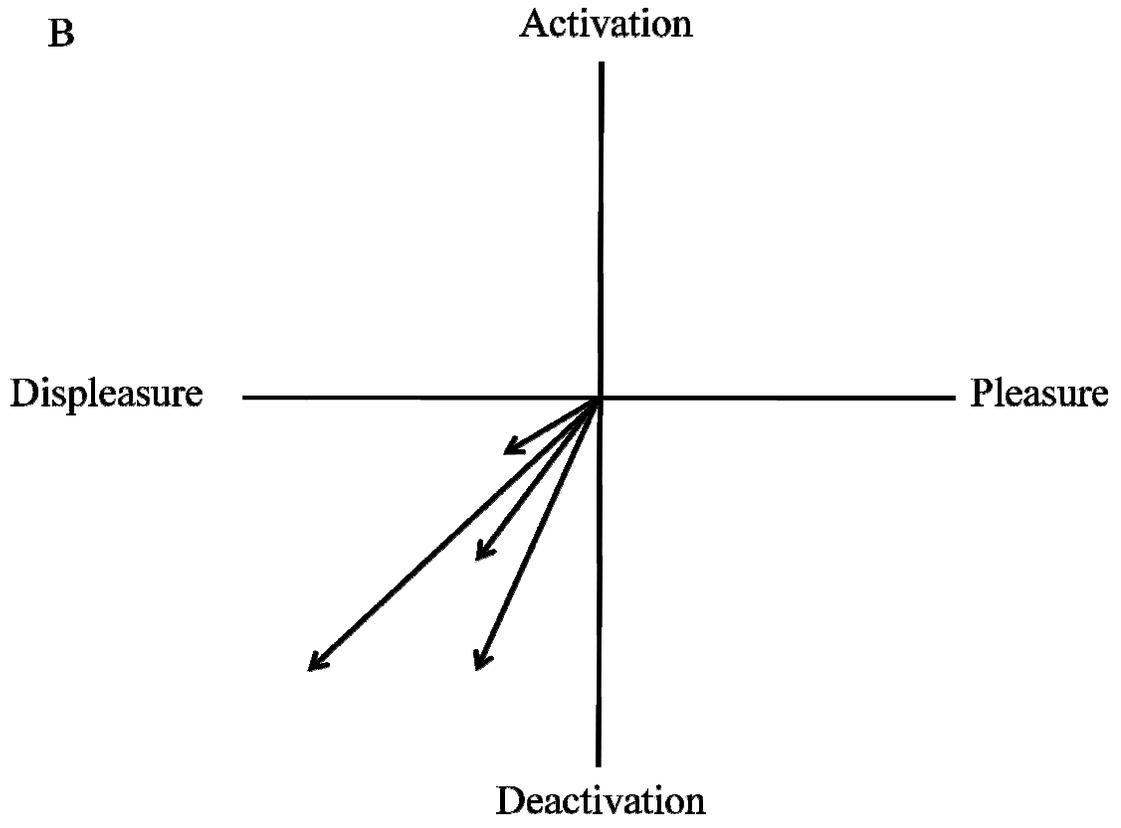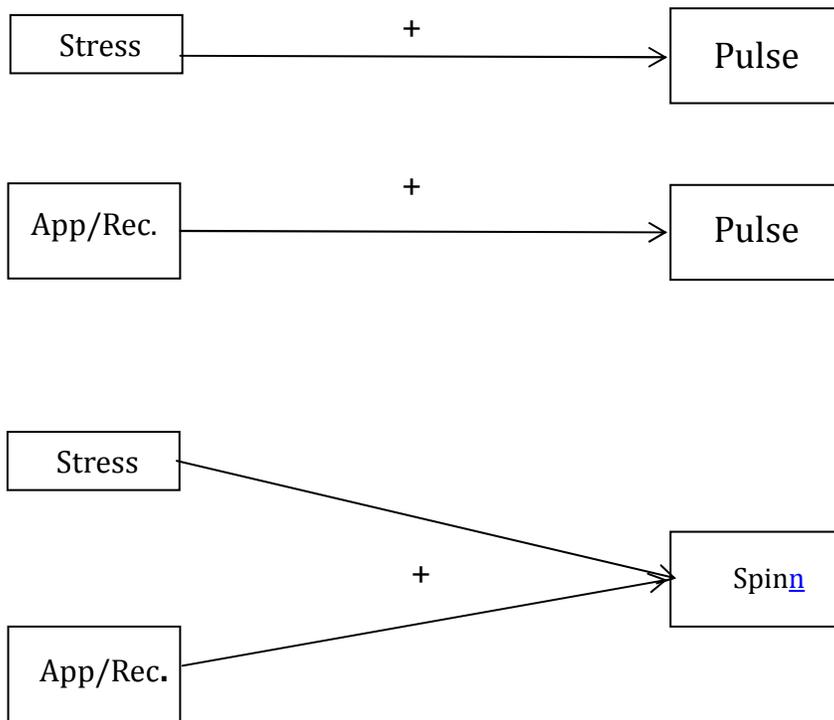

A

Activation

Displeasure — Pleasure

Deactivation

B
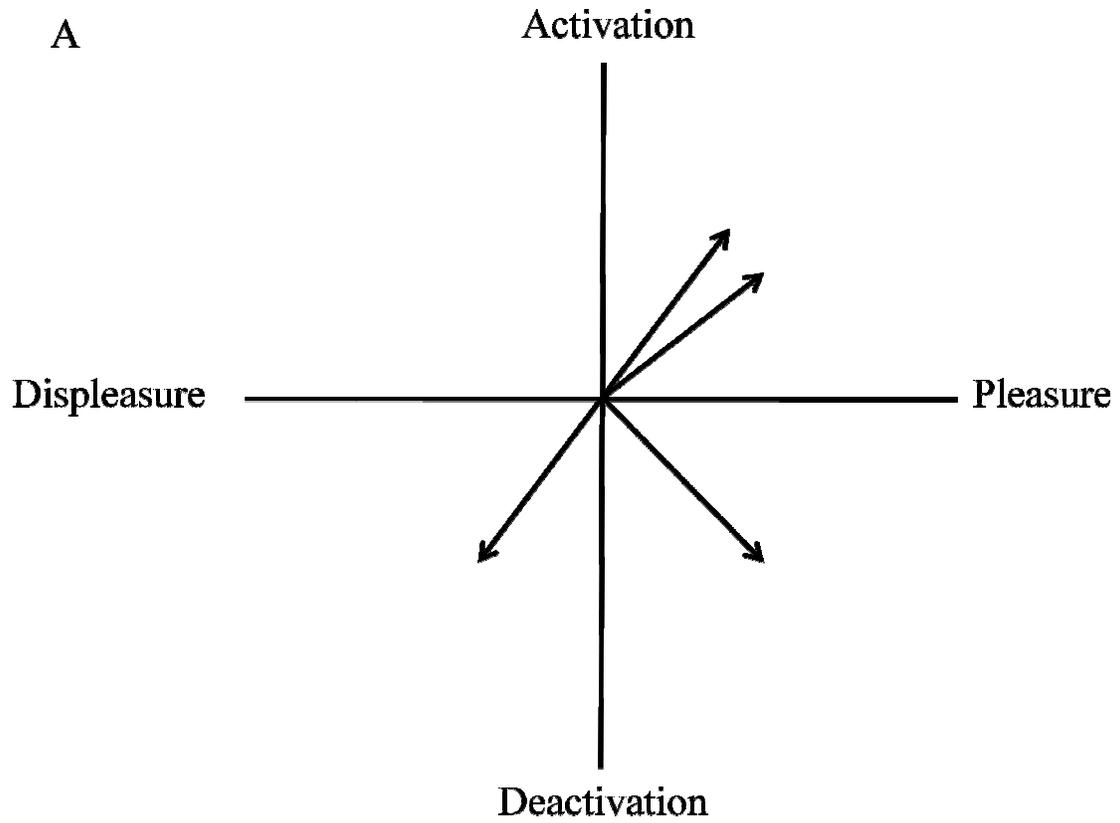
Figure 2. Antecedents of pulse and spin.

| Stress | $\xrightarrow{\quad + \quad}$ | Pulse |

| App/Rec. | $\xrightarrow{\quad + \quad}$ | Pulse |

Stress, App/Rec. $\xrightarrow{\quad + \quad}$ Spinn
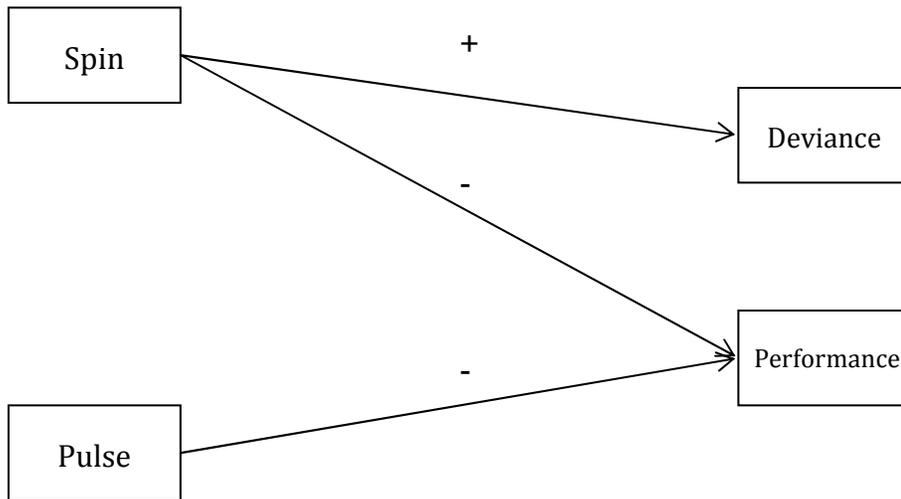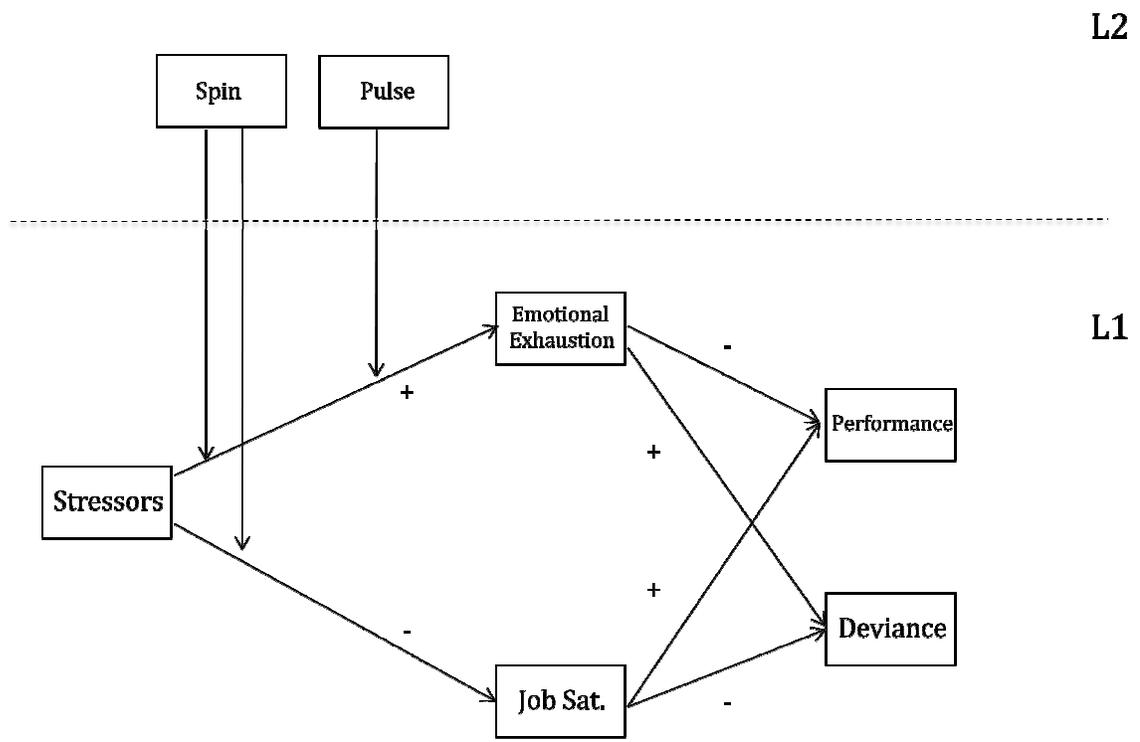
Figure 3. Direct Effects of pulse and spin.

Figure 4. Moderating effects of pulse and spin (L2) in a stressor-strain framework (L1).

Appendix A

Job Stress
1=Not at all
2=Slightly
3=Moderately
4=Very
5=Extremely

Today at work, I felt:
1. Unable to control the important things in my workday
2. Confident about my ability to handle my work problems (Reverse Scored)
3. Things were going my way (Reverse Scored)
4. Difficulties were piling up so high that I could not overcome them

Appreciation/Recognition
1=Not at all
2=Slightly
3=Moderately
4=Very
5=Extremely

Today at work, I felt:
1. Appreciated
2. Recognized

Positive and Negative Affect
1=Never
2=Almost never
3=Sometimes
4=Almost always
5=Always

Today, I feel:
1. Hostile
2. Inspired
3. Upset
4. Determined
5. Alert
6. Ashamed
7. Nervous
8. Attentive
9. Active
10. Afraid

Irritable

1=Not at all
2=Slightly
3=Moderately
4=Very
5=Extremely

Today at work, I was:
1. Irritable

Job Satisfaction
1=Not at all
2=Slightly
3=Moderately
4=Very
5=Extremely

Today, I:
    1. Was satisfied with my job
    2. Liked working at XXXX

Emotional Exhaustion
1=Not at all
2=Slightly
3=Moderately
4=Very
5=Extremely

Today, I:
1. Felt emotionally drained from work
2. Felt used up at the end of the workday

Self-reported Job Performance
1= poor
2 =below average
3 = average
4 = above average
5 = excellent

Today, my clinical supervisor would rate my:
1. Interactions with other team members as
2. Interactions with patients as
3. Completion of work tasks as
4. Overall work performance as

Organizational Deviance
1=Not at all

2=Slightly
3=Moderately
4=Very
5=Extremely

Today, I:
1. Came to work late or left early
2. Intentionally worked slowly
3. Spent too much time fantasizing or daydreaming instead of working
4. Took an additional or longer break than is acceptable
5. Talked with co-workers instead of working

Supervisor Rated Job Performance
1= poor
2 =below average
3 = average
4 = above average
5 = excellent

In the past two weeks, this employee's:
1. Quality of work was
2. Quality of interactions with coworkers was
3. Quality of interactions with patients was
4. Overall work performance was

Supervisor Rated Organizational Deviance
1=never
2=rarely
3=occasionally
4=weekly
5=daily

In the past two weeks, how often has the employee engaged in any of the following behavior:
1. Coming to work late or leaving early
2. Coming to work late or leaving early
3. Talking with co-workers instead of working

Big-Five Personality Traits
1=strongly disagree
2 =disagree
3 = somewhat disagree
4 = neither disagree nor agree
5 = somewhat agree
6= agree
7 = strongly agree

I see myself as:
1. Extraverted, enthusiastic
2. Critical, quarrelsome (Reverse Scored)
3. Dependable, self-disciplined
4. Anxious, easily upset (Reverse Scored)
5. Open to new experiences, complex
6. Reserved, quiet (Reverse Scored)
7. Sympathetic, warm
8. Disorganized, careless (Reverse Scored)
9. Calm, emotionally stable
10. Conventional, uncreative (Reverse Scored)