

SUPERVISORS' LEADERSHIP STYLE INFLUENCE ON SUBORDINATE STRESS:
A CROSS-CULTURAL STUDY OF THE BENEFITS OF TRANSFORMATIONAL
SUPERVISION

A Thesis

Presented to

The Faculty of the Division of Applied Behavioral Sciences

University of Baltimore

In Partial Fulfillment

Of the Requirements for the Degree of

Master of Science

by

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December 2016

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ABSTRACT

The purpose of this study was to assess the relationships between transformational leadership (TFL), role stressors (role ambiguity and role conflict), and work strains/outcomes (anxiety, affective commitment, and turnover intentions) in nurses across three countries: U.S.A., Spain, and Germany. Specifically, I tested whether the relationship would be better understood as a mediated process, by which supervisory TFL indirectly decreased job strain via decreasing role stressors, or as a moderated process, in which TFL acted as a moderator of the relationship between role stressors and job strains. Finally, I assessed whether the relationships between work stress and TFL worked similarly within each country. Archival data were used from a total sample of 544 nurses (296 from two U.S. hospitals, 131 from diverse Spanish hospitals and primary care centers, and 117 from a German nursing home). Study results show that TFL negatively influenced anxiety and turnover intentions, and positively influenced affective commitment, via role conflict and role ambiguity when controlling for country of origin. The only significant interaction found was the effect of TFL and role conflict on anxiety. Role stressors mediated supervisory TFL's negative effects on work strains in Germany and U.S.A., similar to the overall findings. In the Spanish sample TFL did not relate to either role stressor, turnover intentions, or affective commitment. A small, negative relationship with anxiety disappeared when role ambiguity and conflict were also added into the regression. Supervisory TFL can be beneficial to nurses' well-being, and this relationship is best understood as one in which role stressors mediate the relationship between TFL and nurse strain, rather than one in which TFL moderates the relationship between stressors and strain. However, the effects of TFL on the work stress process may differ depending on cultural contexts. The cross-sectional nature of the study notwithstanding, the present study lays the foundation for future work related to leadership styles and work stress across different cultural contexts. Additional limitations and future directions are also discussed.

I wish to dedicate this thesis to my mother, Michele Pavisic, my father, Ivica Pavisic, and my late grandmother, Amelia Franchina. Without their love and support, I would never have made it this far.

ACKNOWLEDGEMENTS

I wish to acknowledge the members of my thesis committee, Drs. Sharon Glazer (chair), Rita Berger, and Rebecca Thompson. In particular, I wish to thank Dr. Glazer, who has been a tremendous help with this project. Throughout this process, she has provided thorough feedback, answers to every question I had along the way, and a wealth of academic resources related to work stress and cross-cultural psychology. Beyond her help with this thesis, I also wish to thank her for the guidance she has provided me with my academic career in general. In the four years I have known her, she has been a great supervisor, mentor, and friend.

I would also like to thank Dr. Berger, who collected and provided the data from German and Spanish nurses. Dr. Berger provided helpful insight into how those data were collected, and her suggestions for interpreting the effects found in the Spanish sample were also valuable.

In addition, I wish to thank Rebecca Thompson, who provided me with several rounds of feedback. Her comments, questions, and suggestions were a great help, and ultimately led to a greatly improved finished product.

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INTRODUCTION

Working in a hospital environment can be extremely strain-inducing (Kirkcaldy & Martin, 2000). Nurses in healthcare institutions (the focal population in the present study), in particular, deal with a high number of stressors each day, including rotating schedules, long work hours, conflict with physicians, and dealing with patients' families, among other issues (French, Lenton, Walters, & Eyles, 2000; Glazer, 2005). In the United States of America (U.S.A.), nurses have consistently rated occupational stress as one of their top three concerns, with 74% and 70% of nurses surveyed in 2001 and 2011, respectively, reporting it as a problem (American Nurses Association, 2011).

Because of the stressors they face, nurses may develop anxiety, sleep impairment, and a host of other negative outcomes (Oehler & Davidson, 1992; Rutledge et al., 2009). Ultimately, these strains may lead to decreased quality of care and patient satisfaction, as well as increased rates of medical errors (Leiter, Harvie, & Frizzell, 1998; Rutledge et al., 2009). For example, in a study of U.S. nurses, burnout mediated the relationship between patient-to-nurse ratio and infections in patients, such that an increase in the ratio of patients to nurses led to more burnout in nurses, which led to an increase in the spread of infections (Cimiotti, Aiken, Sloane, & Wu, 2012). The relationships between work stressors and strains among nurses is not unique to the U.S.A., however. Glazer and Beehr (2005) found that nurses' experience of role stressors directly increased anxiety and indirectly predicted decreased job commitment and increased turnover intentions in Hungarian, Italian, British, and U.S. samples. Liu, Spector, and Shi (2007) reported positive correlations between job stressors and strains in both Chinese and U.S. nurse samples, and Liu, Spector, Liu, and Shi (2011) found that conflict with one's supervisor positively related to frustration, depression, anxiety, and depression for both U.S. and Chinese employees.

Supervisors and others in organizational leadership positions can have a significant influence on the amount of strain employees feel (Lyons & Schneider, 2009; Offermann & Hellmann, 1996; Skogstad, Einarsen, Torsheim, Aasland, & Hetland, 2007; Sosik & Godshalk, 2000). One specific style of supervisory leadership that has been

associated with a number of positive benefits for employees is transformational leadership (e.g., Arnold, Turner, Barling, Kelloway, & McKee, 2007; Braun, Peus, Weisweiler, & Frey, 2013; Hoffman, Bynum, Piccolo, & Sutton, 2011). A transformational leader is one who encourages growth in followers through aligning individuals' goals with the organization's, empowers employees, and inspires them to reach their potentials (Bass & Riggio, 2006).

In healthcare facilities, nurses' relationships with nurse managers and head nurses may either alleviate stressors and strains or exacerbate them. For example, leaders who do not make decisions or do not give feedback to their subordinates foster role ambiguity, role conflict, and interpersonal conflict within their employees (Skogstad et al., 2007). Transformational leaders, however, are more likely to make followers feel as though occupational stressors are less threatening to their personal resources (Lyons & Schneider, 2009). This evidence suggests that transformational leadership in nurse supervisors may be negatively related to subordinates' experience of stressors and strains (Lyons & Schneider, 2009; Skogstad et al., 2007). However, the literature on the stressor-strain relationship in healthcare settings is relatively scarce. The first purpose of this study, therefore, is to examine the effects of transformational leadership on the stressor-strain process among nurses.

Although transformational leadership is effective in certain contexts, there is some evidence that it may not be universally endorsed across all national cultures (Ergeneli, Gohar, & Temirbekova, 2007). Therefore, this study's second purpose is to examine whether the relationship between supervisory transformational leadership and the stressor-strain process is similar across cultures, specifically the national cultures of U.S.A., Spain, and Germany.

LITERATURE REVIEW

In the current section, I expand upon the previously stated definition of transformational leadership and outline its four components, as Bass and Riggio (2006) originally explicated. I define occupational stress in terms of an interaction between stressors and strains before presenting a general framework of work stress. Through a summary of previous literature and theoretical justification, I present my initial hypotheses about the relationships between supervisory transformational leadership, role stressors, and employee strains. Finally, I discuss whether transformational leadership's benefits are culturally dependent by presenting relevant findings from different cultural contexts. Through doing so, I justify why there may be cross-cultural differences in my hypothesized relationships between supervisory transformational leadership and occupational stressors and strains.

Transformational Leadership

Burns (1978) first popularized the concepts of transformational leadership, defining it as a process in which leaders establish a relationship with their followers that encourages increased motivation and moral growth. It is distinct from transactional leadership, in which people lead and are lead solely through social exchange, such as receiving financial rewards in exchange for productivity (Bass & Riggio, 2006; Burns, 1978). Burns' transformational leader was conceptually similar to House's (1977) charismatic leader. Charismatic leaders have impressive attributes, such as confidence, communication skills, and strong moral values, that have the effect of captivating and motivating followers (House, 1977). Charismatic leaders possess: (a) a vision of the future that is distinct from the status quo, and the ability to articulate their vision, (b) unconventional means of achieving goals, (c) the ability to assess the environment for both constraints and opportunities for enacting change, (d) a sensitivity to followers' individual needs, and (e) personal risk-taking behaviors (Conger & Kanungo, 1998; Conger, Kanungo, & Menon, 2000).

Building upon these and other theories of leadership, Bass (1991; Bass & Riggio, 2006) defined transformational leaders as "those who stimulate and inspire followers" (p.

3). Transformational leaders align followers' values and goals with those of the organization by challenging them and encouraging personal growth (Bass & Riggio, 2006). Using this definition, researchers have applied transformational leadership to organizational and supervisory contexts (Bass & Riggio, 2006).

There are four distinct qualities that every transformational leader possesses, similar to Conger and Kanungo's (1998) qualities of charismatic leadership: inspirational motivation, idealized influence, intellectual stimulation, and individualized consideration. Inspirational motivation refers to the way in which transformational leaders inspire followers, bring meaning to their work, and articulate a clear vision for the future (Bass & Riggio, 2006). Idealized influence involves leaders communicating high expectations of performance and ethical conduct through both explicitly stating these values to followers and by embodying them (Bass, 1999; Bass & Riggio, 2006). Intellectual stimulation is the emphasis that transformational leaders place on solving problems through innovative and novel methods (Bass & Riggio, 2006). Finally, individualized consideration pertains to the attention that leaders give to followers' individual needs, goals, and concerns (Bass & Riggio, 2006).

Transformational leadership has been associated with a number of beneficial outcomes in the workplace. For example, Judge and Piccolo's (2004) meta-analysis found that transformational leadership positively related to followers' job satisfaction, motivation, and satisfaction with the leader; leaders' job performance and effectiveness; and overall group and organizational performance. In a more recent meta-analysis, Wang, Oh, Courtight, and Colbert (2011) confirmed the beneficial effects of transformational leadership, demonstrating positive relationships between leadership style and (a) followers' task, contextual, and creative performance; (b) team performance; and (c) overall organizational performance. More specifically, in a study of 280 Portuguese nurses and 17 nurse supervisors, Salanova, Lorente, Chambel, and Martínez (2011) found that subordinate-rated supervisory transformational leadership was positively associated with subordinate's organizational citizenship behavior, as rated by their supervisors. This relationship was fully explained by subordinates' self-efficacy beliefs and work

engagement (Salanova et al., 2011). Similarly, using a sample of 343 French nurses and auxiliary nurses, Gillet, Fouquereau, Bonnaud-Antignac, Mokoukolo, and Colombat (2013) found a positive indirect relationship between nurses' reports of supervisors' transformational leadership and their self-reported work engagement, mediated by self-perceived justice and work life quality.

Occupational Stress

Transformational leadership may also benefit nurses by decreasing subordinates' levels of occupational stress. Occupational stress is the dynamic, interactive relationship between job-related stressors (i.e., demands, constraints, or opportunities) that may result in working individuals' strain experiences (i.e., undesirable responses or reactions; Jex, Beehr, & Roberts, 1992; Lazarus, 1990; Lazarus & Folkman, 1984; Sulsky & Smith, 2005). Stressors are external events that elicit an "adaptive response" from a person (Cox & Griffiths, 1995; Jex et al., 1992). In the context of organizational research, a stressor is any characteristic associated with a job that may require an employee to adapt to avoid harmful effects and/or has the potential to harm employees' well-being (Jex et al., 1992; Sulsky & Smith, 2005), even if the stressor is perceived positively (e.g., an opportunity to prepare a presentation that has high stakes visibility). Strains are negative reactions or unfavorable responses that result from unmanageable or minimally manageable stressors (Jex et al., 1992; Sulsky & Smith, 2005). These strains are typically categorized as behavioral, psychological, or physiological reactions in response to environmental stressors (Cox, 1978; Jex et al., 1992). For example, experiencing an extremely high workload may cause a worker to feel anxiety, a psychological form of strain.

According to Lazarus and Folkman (1984, 1987), the extent to which a stressor leads a person to experience strain is dependent on that person's appraisal of the stressor. The appraisal of the stressor as threatening or not (primary appraisal) and the evaluation of one's coping resources (secondary appraisal) both occur with additional input from the person's environment (or context) and aspects of the person him or herself. Thus, a stressor that is perceived as a strain-producing event in one context may not cause strain if it were to occur in a different context. Similarly, a stressor that is perceived as a strain-

producing event for one person within a given context may not be cause strain for another person. In other words, not all stressors will result in strains, but if there are strains, they must have been the result of stressors (Glazer, Kożusznik, & Shargo, 2012). Lazarus and Folkman (1984, 1987) refer to these complex relationships as the *transactional framework of stress*. Table 1 outlines the basic components of this framework.

The benefit of using Lazarus and Folkman's (1984, 1987) transactional framework of stress over other models and frameworks, such as Karasek's (1979) demand-control model (DCM) or Demerouti, Bakker, Nachreiner, and Schaufeli's (2001) job demands-resources model (JD-RM), is that the transactional model accounts for differences in individuals' appraisals of external variables. Both DCM and JD-RM assume that job demands impact employees in the same way. Specifically, both frameworks assume that job demands lead to strain when resources like autonomy or social support are lacking, or when workers have not had adequate time to recover (Bakker & Demerouti, 2007; Karasek, 1979). In contrast to these theories, the transactional framework allows for a more thorough consideration of peoples' perceptions of job demands. A demand that is interpreted by some workers to be a hindrance to goal accomplishment may be seen by others as a challenge to overcome and a beneficial opportunity for personal growth. Employees who see a job demand as a hindrance may experience more strain as a result of that demand, compared to employees who see the demand as a challenge (LePine, Podsakoff, & LePine, 2005). Thus, employees' appraisals of job demands have an impact on the stressor-strain relationship.

Organizational stressors. Organizational stressors are job-related demands, constraints, or opportunities that arise due to one's affiliation and relationship to their employing organization (Beehr & Glazer, 2005; Beehr, Jex, Stacy, & Murray, 2000). They can either be acute—short-term, with discrete beginnings and endings—or chronic—ongoing and long-term. Additionally, organizational stressors may be job-specific (i.e., specific to the job and role one is responsible for fulfilling) or general (i.e., demands that may be found in any kind of job, role, or organization). Role stressors are psychological and social demands, opportunities, or constraints that derive from an

Table 1

Illustrative System Variables for the Stress and Emotion Process

Causal antecedent	Mediating process	Immediate effect	Long-term effect
Person variables		Encounter 1 ... 2 ... 3 ... <i>n</i>	
Values, commitments, and goals		Within an encounter	
General beliefs, such as:		Time 1 ... 2 ... 3 ... <i>n</i>	
Self-esteem	Priming appraisal (stakes)	Affect	Psychological well- being
Mastery			
Sense of control		Physiological changes	Somatic health/illness
Interpersonal trust	Secondary appraisal (coping options)		
Existential beliefs	Coping (including use of social support)	Quality of encounter outcome	Social functioning
Environmental variables			
Demands	Problem-focused forms		
Resources (e.g., social support network)	Emotion-focused forms		
Constraints			
Temporal aspects			

Note. Although not shown here, the model is recursive. Also, note parallelism between short-term and long-term effects.

Adapted from Lazarus (1990, p. 4). Reprinted here by permission of Taylor & Francis.

individuals' interactive and social responsibilities in an organization (Beehr & Glazer, 2005). Workers have specific roles and associated expectations. Thus, role expectations are communicated through role senders, such as supervisors, peers, or subordinates (Beehr & Glazer, 2005). Those expectations are then interpreted by the role receiver, who may perceive them as demands, constraints, or opportunities (Beehr & Glazer, 2005). Role stressors arise when there is an incongruity between what role receivers perceive to be their expected roles and how much they are realistically achieving within their roles (Lambert & Lambert, 2001). Two generic role stressors often cited in the literature include role ambiguity and role conflict (Glazer & Beehr, 2005).

Role ambiguity. Role ambiguity occurs when individuals are unclear about their work duties and responsibilities, and when role receivers do not understand the expectations given to them by role receivers (Beehr & Glazer, 2005; King & King, 1990). For example, new nurses may experience a high amount of role ambiguity during their first months on the job as they attempt to make sense of their new roles, including how to fulfill those roles given an organization's procedures, practices, and policies (Chang & Hancock, 2003).

Because one of the duties of a supervisor is to communicate expectations and directions to subordinates, supervisors can be a major source of role ambiguity. Indeed, Beehr, Farmer, Glazer, Gudanowski, and Nair (2003) confirmed that the more social support U.S. employees working at a hospital supply company received from their supervisors, the less role ambiguity they experienced. Further, when role ambiguity was high, job dissatisfaction, anxiety, and psychological strain were also high (Beehr et al., 2003). Skogstad and colleagues (2007) also found a positive link between poor leadership (i.e., laissez-faire style leadership) and role ambiguity in a sample of Norwegian employees. They reasoned that a lack of communication and explicit expectations between leaders and followers were the source of low role clarity. Ultimately, Skogstad and colleagues found that role stressors mediated the relationship between a poor leadership style and negative outcomes. More specifically, laissez-faire leadership led to an increase in role conflict and ambiguity, which then led to an increase in workplace

bullying. This increase, in turn, led to psychological distress among employees (Skogstad et al., 2007).

Role conflict. Role conflict in the workplace refers to incompatibilities a person may face in his or her work role. There are several specific types of role conflict. One is inter-sender role conflict. It refers to the demand an employee experiences when receiving incompatible expectations from two or more role senders (Beehr & Glazer, 2005). An example of inter-sender role conflict is when two physicians in a hospital (e.g., the attending physician the patient's personal physician) give conflicting instructions to the same nurse. Second, inter-role conflict occurs when an employee has two or more roles (e.g., head of a hospital unit and primary care provider to a patient in the unit) that require careful attention to potentially conflicting goals (Beehr & Glazer, 2005; Rizzo, House, & Lirtzman, 1970). Person-role conflict (or intra-role conflict) occurs when an employee's values, beliefs, and obligations are not aligned with the organization's needs, policies, practices, or procedures (Beehr & Glazer, 2005; Rizzo et al., 1970). For example, a hospital may require that nurses advise couples on methods of contraception that some nurses may not personally agree with due to religious beliefs. Finally, intra-sender conflict pertains to an employee receiving incompatible expectations from a single role sender (Kahn, Wolfe, Quinn, Snock, & Rosenthal, 1964). A nurse manager may demand that a nursing unit maintain high standards of care while simultaneously refusing to provide additional resources to the unit, such as more staff.

In a meta-analysis examining role stressors across a variety of occupational contexts, role conflict related to increased anxiety and turnover intentions, and decreased organizational commitment (Jackson & Schuler, 1985). Studies that draw specifically from healthcare environments have demonstrated similar results. Using a sample of U.S. registered nurses (RNs) and other hospital staff, Bedeian and Armenakis (1981) found that role conflict related to increased turnover intentions and tension, and decreased job satisfaction. In regard to leadership, Skogstad and colleagues (2007) found a positive relationship between poor leadership and role conflict.

Role overload is a role stressor that is conceptually related to role conflict. Role overload occurs in two different ways: qualitative, in which employees do not possess the necessary qualifications to complete their work tasks, regardless of any time limits, and quantitative, in which employees are not able to achieve their work goals by a specific deadline (Beehr & Glazer, 2005). New nurses, for example, often have difficulties with task prioritization and time management (Chang & Hancock, 2003). Kahn and colleagues (1964) originally considered role overload to be one type of role conflict, although more recent researchers (e.g., Beehr & Glazer, 2005) have conceptualized it as a discrete construct.

Both role ambiguity and role conflict have been conceptualized as hindrance stressors, or stressors that people perceive as barriers to goal accomplishment or personal growth, and have adverse effects on work-related outcomes (LePine et al., 2005; Podsakoff, LePine, & LePine, 2007). In contrast, challenge stressors are perceived as opportunities to obtain personal growth and achievement, and have positive effects on work-related outcomes (LePine et al., 2005; Podsakoff et al., 2007). Previous authors (e.g., LePine et al., 2005) assumed that role stressors were universally perceived by workers as hindrances; however, Webster, Beehr, and Love (2011) found that people appraised the two role stressors as both challenges and hindrances simultaneously, and that respondents varied in terms of how they appraised each. Respondents were just as likely to appraise role ambiguity as a challenge as they were to appraise it as a hindrance. While role conflict was more highly associated with a hindrance appraisal, there was nonetheless a positive relationship between experiencing role conflict and appraising it as a challenge. Further, there was a significant positive relationship between experiencing role stressors and negative work outcomes when the stressors were appraised as hindrances, but the relationship between role stressors and negative work outcomes did not exist when stressors were appraised as challenges (Webster et al., 2011).

Work strain and other outcomes. When people do not successfully cope with perceived stressors, they may experience adverse outcomes known as strain (Beehr & Glazer, 2005; Lazarus & Folkman, 1984; Thoits, 1995). Strain manifests in a number of

different ways, and can be experienced at both the individual and group level. In this study, I focus on individuals' experiences of strain and related outcomes.

Strain can be behavioral, physiological, or psychological, and can vary in length of occurrence and intensity (Lazarus & Folkman, 1984). Behavioral strains are harmful behaviors enacted in response to stressors, such as drug use and verbal abuse of colleagues (Beehr & Glazer, 2005; Rowe & Sherlock, 2005). Physiological strains are negative bodily changes, such as high blood pressure, back pain, and headaches, resulting from unmanaged/unmanageable stressors (Beehr & Glazer, 2005; Liu et al., Spector, & Shi, 2007). A longitudinal study of Swedish nurses linked musculoskeletal problems to work demands, such as conflicting duties and high workload (Josephson, Lagerstrom, Hagberg, & Hjelm, 1997). Psychological strain occurs when stressors adversely influence cognition and affect (Beehr & Glazer, 2005). Anxiety, decreased affective commitment, and turnover intentions are all psychological strains that people commonly experience in the workplace (Beehr & Glazer, 2005; Jex, Adams, Bachrach, & Sorenson, 2003).

Anxiety is a negative affective state characterized by fear and emotional discomfort, and is often accompanied by physiological responses, such as increased heart rate and blood pressure (Frazier et al., 2003; Lazarus & Lazarus, 1994; Spielberger, 1966). Kirmeyer and Dougherty (1988) found that supervisory emotional support buffered the effects of workload on employees' anxiety in a U.S. sample, such that employees who had supportive supervisors did not report increases in anxiety as a result of increases in workload.

Affective commitment pertains to an employee's desire to continue working at an organization, as well as a congruence between the employee's beliefs and values and those of the organization (Glazer & Kruse, 2008). A decrease in affective commitment may be conceptualized as a psychological strain if the negative changes in employees' attitudes toward the organization are the result of work stressors. Jones, Chonko, Rangarajan, and Roberts (2007) found that role overload had a negative effect on employees' affective commitment in a sample of U.S. salespeople. Specific to nurses, Yeh, Ko, Chang, and Chen (2007) found moderate negative correlations between a

measure of physical, psychological, and behavioral strains and both organizational and occupational affective commitment in a Taiwanese sample.

Turnover intentions refer to an employee's desire to leave an organization. Ultimately, this desire may lead to employees quitting their jobs. Chan and Morrison (2000) found that 75% of RNs who decided to leave a Singaporean hospital listed their supervisor's leadership as a major factor influencing their decision. Similarly, Kalliath and Beck (2001) reported that supervisory social support decreased employees' turnover intentions directly as well as indirectly via decreasing levels of burnout. Jones and colleagues (2007) identified role overload as a positive predictor of turnover intentions.

Leadership applied to the transactional stress framework. Within the transactional framework, supervisory leadership style may affect the stressor-strain relationship in one of two different ways: as antecedent or as moderator. First, supervisory leadership may be a contextual "causal antecedent" (Lazarus & Folkman, 1987, p. 4) to role stressors and thus indirectly influence strain by influencing work stressors. Indeed, supervisors play a major role in the kinds of work demands placed on subordinates. Supervisors provide subordinates with tangible and intangible resources to fulfill their jobs. An example of a helpful intangible resource is supervisor social support. A socially supportive supervisor may create a supportive work environment and help instill in the subordinate a sense of confidence and increased motivation. A supportive supervisor may utilize individualized consideration by acting as a role model for supervisees and expanding opportunities for a subordinate's career advancement and personal growth (Bass, 1991; Bass & Riggio, 2006). A supervisor may also serve to reduce work stressors. For instance, frequent contact with supervisors may provide supervisees with role information that serves to reduce role ambiguity or conflict. An example of a detrimental work environment in the control of a supervisor is one in which supervisors create obstacles that impede their subordinates' ability to fulfill their job duties. For example, laissez-faire supervisors may refrain from making decisions, present unclear or inadequate instructions and feedback, or refuse to attend to subordinates' needs—all of which may result in an increase in subordinates' levels of strain. In other

words, supervisory leadership can indirectly influence work-related strain by directly influencing the amount of objective work stressors in the environment.

A second way that supervisory leadership style may fit into Lazarus and Folkman's (1987) model is as an environmental variable that moderates the relationship between work stressors and employee strains. Subordinates may identify role stressors, but their supervisor may have the ability to prevent strain from developing. When employees perceive stressors in a workplace, the extent to which the supervisor can provide necessary resources will impact the extent to which employees may view the stressors as threats and experience strain. Supervisors, possibly through intellectual stimulation and inspirational motivation (Bass & Riggio, 2006), may also be able to help subordinates re-conceptualize stressors that were originally perceived as hindrances to be perceived as challenges. In other words, supervisors may influence subordinates' appraisal of stressors and, therefore, minimize strains. Further, supervisors may influence the types of coping strategies that subordinates employ to overcome stressors, or, at the very least, mitigate their effects.

In sum, supervisors can affect the amount of objective stressors in subordinates' work environments (i.e., acting as an antecedent in a mediation model), and they may also be able to influence subordinates' perceptions of stressors, as would be evident if leadership style moderates the relationship between stressors and strains. Below, I present arguments supporting both ways in which a supervisor's leadership style might affect a subordinate's experienced work stress.

Transformational Leadership as an Antecedent in a Mediaton Model

Transformational leaders may decrease strains indirectly, through decreasing work stressors. Densten (2005) argued that concept-based inspirational motivation (i.e., communicating a vision and achieving an organization-wide understanding of explicitly stated goals) is conceptually similar to role clarification. Because of this similarity, Densten predicted that concept-based inspirational motivation would result in less emotional exhaustion due to the reduction in role ambiguity. Although the author did not directly measure role ambiguity and could not assess a mediation effect, he nevertheless

found support for a total effect: concept-based inspirational motivation was negatively correlated with emotional exhaustion (Densten, 2005).

In a study of laissez-faire leadership—a style of leadership defined by a hands-off approach to management—Skogstad and colleagues (2007) found that Norwegian employees who experienced laissez-faire leadership from their supervisors had high amounts of role ambiguity and role conflict. Results from Skogstad et al. serve as an example of how poor leadership can lead to undesirable outcomes, such as role ambiguity and conflict. Without a clear explanation of goals and expectations, subordinates of laissez-faire leaders have less understanding of what is required of them in their roles. A transformational leader, in comparison, inspires and provides clear and explicit role information to followers through communicating a vision and expectations. Thus, transformational leadership may be associated with reduced role ambiguity and role conflict in organizations, which may in turn be associated with a reduction in strain.

Taking a broader view of the literature, there is also evidence that other models and styles of leadership that are conceptually similar to transformational leadership are negatively related to occupational stressors. According to Jackson and Schuler's (1985) meta-analysis, the two factors of effective leadership (belonging to the Ohio State model of leadership), person- and task-oriented leadership behaviors, were both negatively correlated with role ambiguity and role conflict. Although these factors are distinct from those of transformational leadership, the facets of each style of leadership are nonetheless moderately-to-strongly positively correlated with one another (Seltzer & Bass, 1990). Thus, there is further justification to suggest that supervisory transformational leadership may indirectly decrease strains by minimizing role ambiguity and role conflict.

Transformational Leadership as a Moderator

It may be that certain stressors cannot be reduced by a supervisor, or cannot be reduced beyond a certain point. Alternatively to reducing stressors directly, transformational leaders may be able to buffer the effects of work stressors on employee strain by creating resources or helping subordinates to reconceptualize stressors as challenges instead of hindrances. Transformational leaders inspire and motivate their

followers, by shaping their work to be a source of “meaning and challenge” (Bass & Riggio, 2006, p. 6). Finding meaning or purpose in different aspects of life has been associated with a number of positive outcomes, such as decreased symptoms of depression and anxiety (Mascaro & Rosen, 2005). Specific to the context of work, viewing one’s job as meaningful allows an employee to see benefits in occupational stressors (Britt, Adler, & Bartone, 2001). Encouraging workers to find meaning in stressors or to view them as challenges is a means of influencing the appraisal process (Lazarus & Folkman, 1984). By viewing job stressors as challenges to overcome rather than as threats to one’s desired outcomes, workers are more likely to engage in positive work behaviors, and may be less likely to feel strain as a result (Lazarus & Folkman, 1984). They may be less likely to view specific stressors as threats to their resources, or may be more likely to feel as though they have gained something for having dealt with those stressors.

In an experimental study, Lyons and Schneider (2009) examined the effects of different styles of leadership on stressor and strain outcomes in a sample of U.S. undergraduate students. Participants in one of three leadership conditions (transformational, transactional-contingent, and transactional-management by exception) listened to a set of digitally recorded task instructions meant to simulate the relationship between a subordinate and a leader. In the transformational leadership condition, the instructions included language meant to bolster esteem support (e.g., “You might view this task as a challenge you can master”) and emotional support (e.g., “I know this may be a difficult task, and you may be feeling a little nervous;” Lyons & Schneider, 2009, p. 740). The authors found that those in the transformational leadership condition perceived the impending task as less threatening, compared to those in the other conditions (Lyons & Schneider, 2009). This result may have been due to transformational leaders’ tendency to frame problems as challenges to overcome rather than framing them as threats (Bass & Riggio, 2006). Lyons and Schneider also found that those in the transformational leadership condition had higher perceptions of social support—a job resource associated with reductions in strain (e.g., Sargent & Terry, 2000)—than did those in the other two

conditions. They reasoned that this was because transformational leaders tend to foster socially supportive relationships (Lyons & Schneider, 2009). Further, they found that those in the transformational leadership condition experienced less negative affect compared to those in the transactional-management by exception group (Lyons & Schneider, 2009).

Similarly, Syrek, Apostel, and Antoni (2013) examined the effects of transformational leadership on time pressure, work-life balance, and exhaustion within a sample of 262 German Information Technology (IT) employees using a cross-sectional survey design. They found that transformational leadership buffered the relationships between time pressure and both exhaustion and work-life imbalance. There were also significant negative and positive main effects of transformational leadership on exhaustion and work-life balance, respectively. In line with Lyons and Schneider (2009), the authors posited that this moderating effect was due to transformational leaders' tendencies to encourage subordinates to reframe problems as challenges, as well as provide them with social support and individualized consideration.

In the context of nursing, nurse supervisors do not always have the power to alter certain features of the work environment. For example, in a hospital environment, role stressors may result from changes in hospital policies, discrepant orders from doctors, or an unusually large influx of patients—none of which can be easily altered by nurse supervisors. These events may be interpreted by nurses as hindrances, which may then lead to strain. However, in accordance with previous research (Lyons & Schneider, 2009; Syrek et al., 2013), if nurse supervisors (a) encourage their supervisees to see their work as a challenge and (b) provide them with social support, then nurses may not experience negative symptoms as a result. Both of these strategies are characteristics of transformational leadership; thus, transformational leadership in nurse supervisors should buffer the effects of work stress on nurses' strain.

In summary, there is both rational and empirical support for transformational leadership's role in reducing workplace stressors and strains. Through providing a vision and clear expectations, encouraging subordinates to find meaning and challenge in their

work, and providing support, supervisors that behave as transformational leaders can mitigate subordinates' job-related strains.

Hypothesis 1. Supervisory transformational leadership is negatively related to job strains, including anxiety, turnover intentions, and low affective commitment.

Moreover, there are two plausible explanations for this relationship. Supervisory transformational leadership may result in fewer job stressors, which in turn leads to a decrease in personal strains (i.e., a mediated relationship). Alternatively, transformational leadership may buffer the relationship between job stressors and strains (i.e., a moderated relationship). Because previous research supports both models, the present study tests competing hypotheses: one in which transformational leadership is an antecedent in a mediator model, and one in which transformational leadership is a moderator. These models are both depicted in Figure 1.

Hypothesis 2. Role ambiguity and role conflict each individually mediate the relationship between supervisory transformational leadership and strains (i.e., anxiety, turnover intentions, and low affective commitment).

Hypothesis 3. Supervisory transformational leadership buffers the relationship between role stressors (i.e., each of role ambiguity and role conflict) and job strains (i.e., each of anxiety, turnover intentions, and low affective commitment), such that high levels of supervisory transformational leadership reduces the positive relationship between role stressors and job strains.

The Universality of Transformational Leadership's Benefits

Much of the cross-cultural research examining transformational leadership does so through the lens of cultural values. Cultural values are shared, abstract ideas about what is desirable and good (Glazer, 2006; Hofstede, 1984; Schwartz, 1999). Society encourages individuals, either implicitly or explicitly, to use these ideas as guiding principles for behavior across different situations (Glazer, 2006; Schwartz, 1999). For example, members of societies that highly value uncertainty avoidance will typically show a preference against uncertain situations and ambiguity (Hofstede, 1984). It should be noted, however, that cultural values do not represent the personal values of every

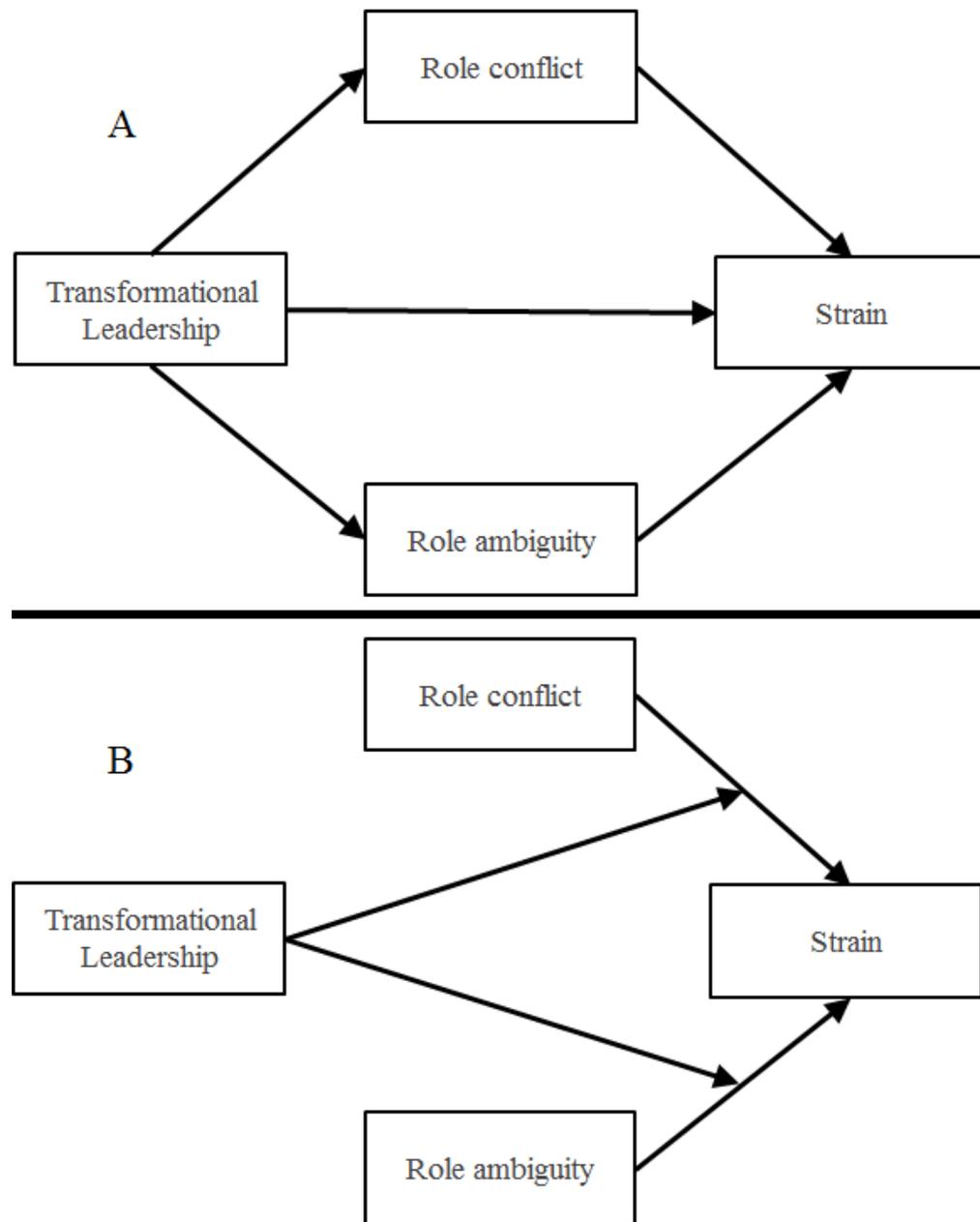


Figure 1. Hypothetical models of the relationship between supervisory transformational leadership, role stressors, and outcomes/strains. In model A, after controlling for country, transformational leadership is expected to indirectly decrease strain via decreasing role stress. In model B, after controlling for country, transformational leadership is expected to buffer the positive relationship between role stressors and strains.

member of a society; rather, they represent the values of a society as a whole (Hofstede, 1984).

According to Shamir, House, and Arthur (1993), the message of an effective leader is one that is “congruent with the existing values and identities held by potential followers” (p. 588). Leaders cannot assume that subordinates all value the same things, as values differ widely across different cultural contexts (Hofstede, 1983; House & Javidan, 2004; Schwartz, 1992). Given the rise of multinational organizations and the desire for a multicultural workforce in recent decades, leaders who can operate effectively within different cultures are of great value. If culture influences employees’ receptiveness to different leadership styles, organizations cannot assume that a successful leader in one cultural context can be deployed into a different context and be similarly effective.

Findings from research into the universality of transformational leadership’s benefits have been mixed. Bass (1997) claimed that transformational leadership is universally effective across national cultures, and some researchers have found evidence for this assertion (e.g., Den Hartog, House, Hanges, Ruiz-Quinanilla, & Dorfman, 1999; Zagorsek, Marko, & Stanley, 2004). However, others (e.g., Ergeneli et al., 2007; Smith & Peterson, 1988) argued that the success of the leadership style is specific to certain national cultural contexts.

Ergeneli and colleagues (2007) surveyed graduate students in Pakistan, Kazakhstan, and Turkey in order to assess whether endorsement of transformational leadership was culture-specific. Respondents completed both the Leadership Practices Inventory, which pertains to the qualities of transformational leadership, and the Hofstede Values Survey. The authors found that uncertainty avoidance negatively correlated with endorsements of overall transformational leadership, idealized influence, and visioning behavior. Uncertainty avoidance is a cultural value associated with an intolerance toward risks and deviances from established beliefs and ideas (Hofstede, 1983, 2006; House, Javidan, & Dorfman, 2001). High uncertainty avoidant cultures create rules, policies, and regulations that provide structure and reduce ambiguity. Uncertainty acceptance, in contrast, is associated with a tolerance for different opinions and ideas (Hofstede, 2006).

Uncertainty acceptant societies are not as averse to risk-taking, and generally have more flexible rules than do uncertainty avoidant cultures (Hofstede, 1983, 2006). Because transformational leadership emphasizes novelty and innovation, it follows that societies that do not tolerate ambiguity are less likely to respond positively to it as a leadership style. Transformational leaders, according to Bass and Riggio (2006), encourage followers to challenge old ideas and try novel approaches to problems. While this sentiment may resonate within societies that value tolerance for ambiguity, people in cultures that are high on uncertainty avoidance may not be as receptive to it.

Leong and Fischer (2010) conducted a meta-analysis to determine the relationships between two cultural values models and transformational leadership, as assessed by the Multifactor Leadership Questionnaire (MLQ), using samples from 18 countries. The authors used country-level values scores from both Schwartz's (1999) and Hofstede's (1980) models of cultural values. Using Schwartz's model, mastery and egalitarian values both positively correlated with transformational leadership. Using Hofstede's model, power distance value negatively related to transformational leadership.

High mastery cultures endorse self-assertion, changes to the status quo, and achievement of individual or group goals (Schwartz, 1994). Societies that endorse mastery values encourage people to be assertive, take control, and direct others. Thus, it follows that, compared to low mastery cultures, high mastery societies are more likely to endorse a leadership style in which leaders encourage change and growth in others to achieve desired outcomes (Leong & Fischer, 2010; Schwartz, 1994).

Furthermore, societies that emphasize egalitarian values encourage individuals to view others as moral equals and show concern about others' well-being (Schwartz, 1999). In egalitarian societies, little emphasis is placed on social hierarchies or rules associated with power differentials (Schwartz, 1992). In Schwartz's (1992, 1999) value system, the opposite of egalitarianism, called "hierarchy," is conceptually similar to Hofstede's (1980) power distance value. In societies that score highly on power distance values, the rigidity of the power hierarchy is clear, and people do not question or challenge the structure (Hofstede, 1980). According to Leong and Fischer (2010), egalitarian societies

are more likely to endorse transformational leadership because of its emphasis on individualized consideration and providing support to followers. However, leaders in high power distance societies are less likely to transform or empower subordinates, as doing this may cause an upset in the established hierarchy (Leong & Fischer, 2010).

The present study examines the relationship between transformational leadership and the stressor-strain process among nurses in three countries: U.S.A., Germany, and Spain. In each of these countries, the healthcare industry presents unique situations that nurses must navigate. For example, in Spain, nurses must work despite drastic budgetary cuts made to the country's national health system, the *Sistema Nacional de Salud* (SNS), after the financial crisis. The Spanish government reduced expenditures to the SNS by 13.7% in 2012, and by an additional 16.2% in 2013 (Legido-Quigley et al., 2013). In the U.S.A., nurses must adapt to significant changes made to the health care industry as part of the 2010 Patient Protection and Affordable Care Act (Rosenbaum, 2011). In Germany, nurses must manage caring for a rapidly aging population—the third oldest in the world, with 20.6% of its citizens aged 65 years or older (U.S. Central Intelligence Agency, 2015). Examining workers in a single profession, nurses, allows for the comparison of each of these three countries, despite their unique circumstances.

Furthermore, these countries have different cultural characteristics. Spain ranks the highest on both uncertainty avoidance and power distance values (Hofstede, 1984). Further, Spain ranks lower than both U.S.A. and Germany on mastery values (Schwartz, 1999). Spanish society may be less likely to endorse transformational leadership than U.S.A. or Germany, as the values espoused by transformational leaders are at odds with the values of Spain's national culture. This discrepancy may mean that transformational leadership is less effective at reducing occupational stressors and strain in this context. However, because the U.S. and German societies are theoretically more likely to endorse transformational leadership, the relationships between transformational leadership, work stressors, and strains may be strong in these cultural contexts.

Research Question 1. Will results from hypotheses 1, 2, and 3 be consistent within groups of nurses from U.S.A., Spain, and Germany?

METHODS

Participants

A total of 544 nurses—296 registered nurses (RNs) from two hospitals in the U.S.A., 131 registered and auxiliary nurses from university hospitals and primary care centers Spain, and 117 RNs from a nursing home in Germany—returned completed surveys. Respondents were primarily female (94.93% in U.S.A., 76.50% in Spain, and 84.62% in Germany). The average ages for U.S., Spanish, and German respondents were 47.33 ($SD = 10.72$), 41.48 ($SD = 11.06$), and 41.36 ($SD = 12.70$), respectively.

Among U.S. RNs, 32.69% of respondents reported their ethnicity as White, 15.38% as Asian, 6.25% as Pacific Islander, 2.88% as Black, 2.40% as Hispanic, and 3.85% as some other ethnicity, while 36.54% of the U.S. nurses did not report their ethnicity. Among Spanish nurses, 59.85% reported their ethnicity as White, and 3.79% as some other ethnicity, while 36.36% did not report their ethnicity. Among German RNs, 83.05% reported their ethnicity as White, and .85% as some other race, while 16.10% did not report their ethnicity. Further demographic information can be found in Table 2.

Procedure

This study utilized archival data, originally collected from RNs in a U.S. hospital; university hospitals of the University of Barcelona in Spain, and primary care centers of the Catalanian government or private insurances in Spain; and a nursing home in Germany. Researchers collected the U.S. data in June of 2010, Spanish data were collected between January and February of 2013, and German data were gathered between April and May of 2013.

Researchers delivered collection envelopes and survey instruments written in the dominant language of each country to nurses within each healthcare facility. At the U.S. hospital, researchers delivered surveys to each nursing unit; in the Spanish and German health care entities, researchers delivered surveys to hospital management to distribute amongst nurses. Participant anonymity was guaranteed. Once participants completed the survey, they sealed them in individual envelopes. These were then consolidated into larger envelopes, which were either collected by research assistants or mailed directly to

Table 2

Frequencies and Descriptive Statistics for Demographic Variables

Variable		U.S.A.				Spain				Germany			
		<i>M</i>	<i>SD</i>	<i>n</i>	%	<i>M</i>	<i>SD</i>	<i>n</i>	%	<i>M</i>	<i>SD</i>	<i>n</i>	%
Age		47.33	10.72	259	–	41.36	12.70	106	–	41.48	11.06	93	–
Years in occupation		21.42	12.17	280	–	14.01	10.46	98	–	18.98	11.65	94	–
Years in org.		10.51	9.95	295	–	9.89	8.75	104	–	14.61	11.40	91	–
Years in unit		7.96	7.41	292	–	7.66	7.61	104	–	10.22	9.71	88	–
Sex	Male	–	–	15	5.07	–	–	5	3.80	–	–	13	11.11
	Female	–	–	281	94.93	–	–	101	76.50	–	–	99	84.62
		–	–	–	–	–	–	–	25	19.70	–	–	5
Marital status	Single	–	–	40	13.51	–	–	17	12.90	–	–	20	17.09
	Married/Re-married	–	–	198	66.89	–	–	55	41.70	–	–	64	54.70
	Living with partner(s)	–	–	7	2.36	–	–	21	15.90	–	–	19	16.24
	Divorced/Separated	–	–	42	14.19	–	–	4	3.00	–	–	8	6.84
	Widowed/Widower	–	–	6	2.03	–	–	1	.80	–	–	0	–
	Other	–	–	1	0.34	–	–	0	–	–	–	1	.85
	Missing/No response	–	–	2	0.68	–	–	33	25.8	–	–	5	4.27

the project's in-country principal investigator. Participants in the U.S.A. received a free movie ticket as an incentive to participate, and also had a chance mailed directly to the project's in-country principal investigator. Participants in the U.S.A. received a free movie ticket as an incentive to participate, and also had a chance to win a prize from a raffle for completing the survey along with an additional survey delivered later (the data of the second survey are not included in the present study, as a second wave was not collected in Germany or Spain). Participants in Spain and Germany did not receive an incentive for completing the survey.

Measures

Data were collected via a structured survey originally written in English, but also translated into Spanish and German. Each survey consisted of a number of validated measures and demographic items (See Appendix A for the measures used to assess this study's variables).

Transformational Leadership. The Human Systems Audit Transformational Leadership (HSA-TFL) Short-scale was used to measure transformational leadership (Berger, Romeo, Guardia, Yepes, & Soria, 2012). The scale consisted of eight items pertaining to respondents' beliefs about their supervisors ($\alpha = .97, .94,$ and $.95$ for U.S., Spanish, and German participants, respectively). The scale's validity was confirmed in four countries using a five-point Likert-type scale (Berger, Yepes, Gomez, & Brodbeck, 2011), although the present study utilized a seven-point Likert type scale, ranging from 1—"Strongly disagree" to 7—"Strongly agree." An example item is "S/he promotes the use of intelligence to overcome obstacles."

Role Stressors. A total of nine items adapted from Glazer and Beehr (2005) were used to assess role conflict and role ambiguity. Participants responded to each item using a seven-point Likert-type scale, ranging from 1—"Strongly disagree" to 7—"Strongly agree."

Three items measured role conflict (e.g., "I work with two or more groups who operate quite differently"; $.73, .69,$ and $.56$ for U.S., Spanish, and German respondents, respectively). Given the low reliability estimates for role conflict, three additional items

from a measure of a related type of role stress, role overload, were included in the role conflict measure. Role overload refers to an insufficient time given to complete work (Glazer & Beehr, 2005). According to Rizzo and colleagues (1970), role conflict and role overload are conceptually indistinguishable, though several studies (e.g., Bacharach, Bamberger, & Conley, 1990; Coverman, 1989; Peterson et al., 1995) study them as separate constructs. The newly constructed role conflict (with 6 items) had reliability estimates of .86, .89, and .71 for U.S., Spanish, and German samples, respectively. Three reverse-scored items measured role ambiguity (e.g., “I know exactly what is expected of me”; $\alpha = .83, .66, \text{ and } .70$ for U.S., Spanish, and German respondents, respectively).

Anxiety. Work-related anxiety was assessed using four items adapted from Parker and DeCotiis' (1983, as cited in Glazer & Beehr, 2005) 13-item scale ($\alpha = .92, .87, .89$ for U.S., Spanish, and German respondents, respectively). A sample anxiety item is “Sometimes when I think about my job I get a tight feeling in my chest.” Participants responded to each item using a seven-point Likert-type scale, ranging from 1—“Strongly disagree” to 7—“Strongly agree.”

Turnover Intentions. Intention to leave one's job was assessed using three items from Seashore, Lawler, Mirvis, and Cammann's (1982, as cited in Glazer & Beehr, 2005) Michigan Organizational Assessment Questionnaire. An example turnover intention item is “I will probably look for a new job in the next year.” Participants rated each item using a seven-point Likert-type scale, ranging from 1—“Strongly disagree” to 7—“Strongly agree.” Cronbach's alpha reliability estimates were .90, .83, and .92 for U.S.A., Spain, and Germany, respectively.

Affective Commitment. Three items were adapted from Allen and Meyer's (1990, as cited in Glazer & Beehr, 2005) 16-item scale to assess affective commitment. An example of an affective commitment item is “This organization has a great deal of personal meaning for me.” Participants responded to each item using a seven-point Likert-type scale, ranging from 1—“Strongly disagree” to 7—“Strongly agree.” For both Spanish and German respondents, one item (“This organization has a great deal of personal meaning for me”) was not correlated with the other two items. Therefore, I

removed this item from the scale, changing the reliability estimates for U.S., Spanish, and German respondents from .75, .47, and .67, respectively, to .60, .70, and .78, respectively. In accordance with Eisinga, de Grotenhuis, and Pelzer (2012), I used Spearman-Brown coefficients to assess the reliability estimates of the new, two-item scale.

Data Analysis

To test the first hypothesis, I used a series of multiple regression analyses in SPSS using supervisory transformational leadership as the predictor and anxiety, affective commitment, and turnover intentions as outcome variables. I controlled for country using two dummy variables, with U.S.A. as a reference group. To assess the second and third hypotheses, I tested two separate models, a mediation model (model A) and a moderation model (model B). Although some researchers (e.g., Cole & Maxwell, 2003) have cautioned against testing mediational models using cross-sectional data, others (e.g., Hayes, 2013) have stated that it is an acceptable approach to explaining relationships between variables, as long as the proposed relationships are based on sound theoretical evidence. Because prior research supports my hypotheses, I believe that I am justified in testing mediational models using this study's data.

For model A, I used Hayes' (2013; 2015) PROCESS macro for SPSS (version 2.14) to run three separate parallel multiple mediator analyses in which role ambiguity and role conflict were entered as mediators in the relationships between transformational leadership and each of anxiety, turnover intentions, and affective commitment. Country of origin was controlled for with two dummy-coded variables, using U.S.A. as a reference group. I used a 95% bias-corrected bootstrap confidence intervals based on 10,000 bootstrap samples to assess indirect effects within each mediation analysis.

For model B, I used PROCESS to run three separate moderation analyses, in which transformational leadership moderated the effects of role conflict and role ambiguity on anxiety, turnover intentions, and affective commitment. Country of origin was controlled for with two dummy-coded variables, using U.S.A. as a reference group. Interactions that were statistically significant were probed using the pick-a-point

approach, examining the relationship between a stressor and a strain at three different levels of transformational leadership: low (i.e., the mean of transformational leadership minus one standard deviation), moderate (i.e., the mean of transformational leadership), and high (i.e., the mean of transformational leadership plus one standard deviation).

To investigate the research question (i.e., whether results from hypotheses 1, 2, and 3 were consistent within groups of nurses from the U.S.A., Spain, and Germany), I assessed the relationships between the study's variables of interest within each specific country. I reran the previous analyses used to test models A and B using the data from each individual country and excluding the control variables.

RESULTS

Table 3 contains a pan-cultural analysis, displaying means, standard deviations, reliabilities, correlations, and sample sizes among study variables across all three countries (controlling for country), U.S.A., Spain, and Germany.

According to Hypothesis 1, perceived level of a supervisor's transformational leadership should negatively relate to each of the three types of strains for nurses— anxiety, turnover intentions, and low affective commitment. The hypothesis was fully supported: controlling for country, nurses' perceptions of their supervisors as high on transformational leadership negatively related to anxiety, $t(511) = -5.53, p < .001$, and turnover intentions, $t(521) = -8.21, p < .001$, and positively related to affective commitment, $t(520) = 4.73, p < .001$. Further, perceived supervisory transformational leadership explained significant proportions of the variance in anxiety, $R^2 = .07, F(3, 509) = 11.92, p < .001$, affective commitment, $R^2 = .12, F(3, 516) = 23.65, p < .001$, and turnover intentions, $R^2 = .12, F(3, 518) = 24.03, p < .001$. Table 4 contains regression coefficients and standard errors of the total effects of transformational leadership on each of the outcome variables, controlling for country.

Overall Mediation Model

I performed mediation analyses to determine whether role stressors mediated the relationship between managers' transformational leadership ratings and strain among nurses. Tables 5, 6, and 7 contain regression coefficients, standard errors, and model summary information for each parallel mediator analysis. In each analysis, there were significant negative relationships between supervisory transformational leadership and both role ambiguity and role conflict.

Both role stressors positively related to anxiety. An indirect effect of transformational leadership on anxiety through role ambiguity ($B = -.02$) was found using a 95% bias-corrected bootstrap confidence interval based on 1,000 bootstrap samples, and its confidence interval was entirely below zero ($-.04, -.002$), meaning that transformational leadership indirectly negatively related to anxiety through its negative relationship with role ambiguity. Transformational leadership also had an indirect effect

Table 3

Pan-cultural and Country-specific Means, Standard Deviations, Reliabilities (on Diagonal in Bold for Each Country), Correlations, and Sample Sizes among Study Variables Pan-Culturally, (Controlling for Country), U.S.A., Spain, and Germany

Country	Var.	<i>M</i>	<i>SD</i>	<i>N/n</i>	1	2	3	4	5	6
All, controlling for country	1 TFL	4.70	1.58	526	–	-.20***	-.26***	-.23***	.28***	-.34***
	2 RA	2.86	1.58	540		–	.23***	.22***	-.22***	.21***
	3 RC	4.50	1.25	527			–	.56***	-.15**	.39***
	4 Anx.	4.02	1.79	531				–	-.21***	.45***
	5 AC	4.53	1.65	536					–	-.36***
	6 TI	2.45	1.66	538						–
U.S.A.	1 TFL	4.76	1.67	283	.97	-.37**	-.31**	-.25**	.40**	-.39**
	2 RA	2.56	1.23	295		.86	.38**	.33**	-.28**	.36**
	3 RC	4.35	1.31	294			.83	.57**	-.25**	.43**
	4 Anx.	3.86	1.82	291				.92	-.31**	.50**
	5 AC	4.74	1.50	290					.60 †	-.53**
	6 TI	2.57	1.69	292						.90
Spain	1 TFL	4.23	1.38	130	.94	.08	-.14	-.21*	-.08	-.05
	2 RA	4.29	1.79	130		.89	.08	.14	-.30**	-.01
	3 RC	4.82	1.06	126			.66	.52**	.08	.25**
	4 Anx.	4.25	1.59	128				.87	-.07	.46**
	5 AC	3.90	1.63	131					.70 †	.02
	6 TI	2.24	1.39	131						.83
Germany	1 TFL	5.09	1.45	113	.95	-.22*	-.22*	-.25*	.32**	-.45**
	2 RA	2.03	1.05	115		.71	<.01	.09	.13	.17
	3 RC	4.54	1.21	107			.70	.58**	-.11	.37**
	4 Anx.	4.19	1.90	112				.89	-.13	.30**
	5 AC	4.75	1.86	115					.78 †	-.33**
	6 TI	2.37	1.83	115						.92

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. †The Pearson-Brown coefficient was used instead of Cronbach's alpha in calculating this reliability estimate, as the construct contained less than three items. TFL = Transformational leadership, RA = role ambiguity, RC = role conflict, AC = affective commitment, and TI = turnover intentions.

Table 4

Unstandardized Regression Coefficients and Standard Errors for the Total Effects of Transformational Leadership on Anxiety, Affective Commitment, and Turnover Intentions Pan-culturally (Controlling for Country), as well as U.S.A., Spain, and Germany

Country	Anxiety				Affective commitment				Turnover intention			
	<i>B</i>	<i>SE</i>	<i>p</i>	<i>N/n</i>	<i>B</i>	<i>SE</i>	<i>p</i>	<i>N/n</i>	<i>B</i>	<i>SE</i>	<i>p</i>	<i>N/n</i>
All, controlling for country	-.27	.05	<.001	513	.28	.04	<.001	520	-.36	.04	<.001	522
U.S.A.	-.27	.06	<.001	278	.37	.05	<.001	279	-.40	.06	<.001	281
Spain	-.23	.10	.02	127	-.09	.10	.37	130	-.05	.09	.59	130
Germany	-.32	.12	.01	108	.40	.12	.001	111	-.58	.11	<.001	111

on anxiety via role conflict ($B = -.16$) whose confidence interval was also entirely below zero ($-.22, -.10$). Transformational leadership did not influence anxiety independent of its effect on role stressors (see Table 5).

Role ambiguity negatively related to affective commitment. The relationship between role conflict and affective commitment was nonsignificant. There was a significant indirect effect of transformational leadership on affective commitment via role ambiguity, based on 1,000 bootstrap samples ($B = .03, CI = .02, .09$); however, the indirect effect via role conflict was nonsignificant ($B = .01, CI = -.01, .05$). Additionally, transformational leadership had a significant, positive direct effect on affective commitment that was independent of its effects on either role stressor (see Table 6).

Finally, there were significant, positive relationships between both role stressors and turnover intentions. Perceived supervisory transformational leadership indirectly affected nurses' turnover intentions via both role ambiguity ($B = -.02, CI = -.05, -.002$) and role conflict ($B = -.09, CI = -.13, -.06$). Perceived transformational leadership was also negatively related to turnover intentions independent of its effects via role stressors (see Table 7).

Tables 8, 9, and 10 contain results from the mediation analyses for the U.S. sample. Higher levels of perceived supervisory transformational leadership negatively related to both role conflict and role ambiguity. Role conflict and role ambiguity, in turn, both positively related to anxiety and turnover intentions. Transformational leadership had negative indirect effects on anxiety via both role ambiguity ($B = -.05$) and role conflict ($B = -.17$), and 95% confidence intervals based on 1,000 bootstrap samples were entirely below zero for both effects ($-.11, -.002$ and $-.25, -.11$, respectively). Transformational leadership also had small, positive indirect effects on affective commitment via role ambiguity ($B = .04, CI = .00, .10$) and role conflict ($B = .03, CI = .00, .07$). Further, perceived transformational leadership had a direct negative effect on turnover intentions and positive effect on affective commitment, independent of its relationships with role stressors. There was no significant direct effect of transformational leadership on anxiety, however.

Table 5

Unstandardized Regression Coefficients, Standard Errors, and Model Summary Information for the Parallel Mediator Model Examining Role Stressors as Mediators in the Relationships between Transformational Leadership and Anxiety, Pan-Culturally (Controlling for Country)

Antecedent	Mediator						Outcome		
	Role ambiguity			Role conflict			Anxiety		
	B	SE	t	B	SE	t	B	SE	t
Constant	3.43	.20	17.02***	5.36	.18	29.51***	.72	.38	1.87
RA	–	–	–	–	–	–	.11	.05	2.12*
RC	–	–	–	–	–	–	.75	.06	13.49***
TFL	-.18	.04	-4.59***	-.21	.04	-6.01***	-.09	.04	-1.92
Country d1	-.41	.16	-2.57*	.25	.14	1.78	.23	.18	1.29
Country d2	1.53	.15	10.35***	.36	.13	2.71**	-.20	.18	-1.12
	$R^2 = .27$			$R^2 = .09$			$R^2 = .34$		
	$F(3, 492) = 61.73,$			$F(3, 492) = 16.44,$			$F(5, 490) = 50.00$		
	$p < .001$			$p < .001$			$p < .001$		

Note. 'TFL' = transformational leadership. 'Country d1' and 'Country d2' = country of origin dummy coded using U.S.A. as a reference group for Spain and Germany, respectively. * = $p < .05$. ** = $p < .01$. *** = $p < .001$. $N = 496$.

Table 6

Unstandardized Regression Coefficients, Standard Errors, and Model Summary Information for the Parallel Mediator Model Examining Role Stressors as Mediators in the Relationships between Transformational Leadership and Affective Commitment, Pan-Culturally (Controlling for Country)

Antecedent	Mediator						Outcome		
	Role ambiguity			Role conflict			Affective commitment		
	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>
Constant	3.40	.20	17.03***	5.35	.18	29.97***	4.40	.40	11.02***
RA	–	–	–	–	–	–	-.19	.05	-3.68***
RC	–	–	–	–	–	–	-.07	.06	-1.20
TFL	-.17	.04	-4.39***	-.21	.03	-6.04***	.24	.05	5.24***
Country d1	-.45	.16	-2.85**	.25	.14	1.81	-.15	.18	-.85
Country d2	1.55	.15	10.57***	.37	.13	2.80**	-.39	.19	-2.12*
	$R^2 = .28$			$R^2 = .09$			$R^2 = .34$		
	$F(3, 499) = 64.12,$			$F(3, 499) = 16.63,$			$F(5, 497) = 18.08$		
	$p < .001$			$p < .001$			$p < .001$		

Note. 'RA' = role ambiguity. 'RC' = role conflict. 'TFL' = transformational leadership. 'Country d1' and 'Country d2' = country of origin dummy coded using U.S.A. as a reference group for Spain and Germany, respectively. * = $p < .05$. ** = $p < .01$. *** = $p < .001$. $N = 503$.

Table 7

Unstandardized Regression Coefficients, Standard Errors, and Model Summary Information for the Parallel Mediator Model Examining Role Stressors as Mediators in the Relationships between Transformational Leadership and Turnover Intentions, Pan-Culturally (Controlling for Country)

Antecedent	Mediator						Outcome		
	Role ambiguity			Role conflict			Turnover intentions		
	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>
Constant	3.41	.20	17.11***	5.35	.18	29.88***	1.77	.39	4.59***
RA	–	–	–	–	–	–	.11	.05	2.23*
RC	–	–	–	–	–	–	.41	.06	7.27***
TFL	-.17	.04	-4.52***	-.21	.03	-6.06***	-.26	.04	-5.92***
Country d1	-.43	.16	-2.73**	.25	.14	1.80	-.06	.18	-.34
Country d2	1.55	.15	10.61***	.37	.13	2.82**	-.85	.18	-4.72***
	$R^2 = .28$			$R^2 = .09$			$R^2 = .34$		
	$F(3, 500) = 64.52,$			$F(3, 500) = 16.79,$			$F(5, 498) = 29.15$		
	$p < .001$			$p < .001$			$p < .001$		

Note. ‘RA’ = role ambiguity. ‘RC’ = role conflict. ‘TFL’ = transformational leadership. ‘Country d1’ and ‘Country d2’ = country of origin dummy coded using U.S.A. as a reference group for Spain and Germany, respectively. * = $p < .05$. ** = $p < .01$. *** = $p < .001$. $N = 504$.

Spanish sample. Table 4 shows that supervisory transformational leadership had a negative total effect on nurse anxiety in the Spanish sample, $t(121) = -2.04, p = .04$, and explained a significant portion of anxiety's variance, $F(1, 120) = 4.15, p = .04$.

Transformational leadership did not significantly relate with either of the other types of strain, nor did it significantly relate to either role ambiguity or role conflict (see Tables 11, 12, and 13). There were no significant indirect effects via role stressors of transformational leadership on anxiety (role ambiguity: $B = -.04, CI = -.11, .01$; role conflict: $B = -.03, CI = -.11, .00$), affective commitment (role ambiguity: $B = -.05, CI = -.15, .03$; role conflict: $B = -.02, CI = -.10, .01$), or turnover intentions (role ambiguity: $B = -.003, CI = -.05, .02$; role conflict: $B = -.03, CI = -.11, .003$).

German sample. Within the German sample, perceived supervisory transformational leadership negatively related to anxiety, $t(96) = -2.09, p < .04$, and explained a significant amount of variance in nurse anxiety, $F(1, 95) = 4.38, p < .04$. It also positively related to affective commitment, $t(100) = 3.38, p = .001$, and negatively related to turnover intentions, $t(99) = -4.31, p < .001$. Additionally, it explained significant proportions of the variance in affective commitment, $F(1, 99) = 11.41, p = .001$, and turnover intentions, $F(1, 98) = 26.42, p < .001$ (see Table 4).

Tables 14, 15, and 16 contain results from the mediation analyses for the German sample. Transformational leadership significantly negatively related to role conflict and role ambiguity in the analysis in which turnover intentions was the outcome. However, in the other two analyses, transformational leadership was only negatively related to role conflict; the relationship between transformational leadership and role ambiguity was nonsignificant.

Role conflict positively related to anxiety and turnover intentions, and role ambiguity negatively related to affective commitment. Transformational leadership had a negative indirect effects on anxiety via role conflict ($B = -.17, CI = -.32, -.02$), and on turnover intentions via role ambiguity ($B = -.09, CI = -.21, -.02$). There was no significant indirect effect on affective commitment via role ambiguity ($B = -.05, CI = -.16, .002$) or role conflict ($B = .01, CI = -.04, .09$). Additionally, transformational leadership explained

a significant proportion of the variance in each strain independent of its relationships with role stressors.

Country-Specific Mediation Models

I performed separate mediation analyses using data from each individual country to test the extent to which perceived supervisory transformational leadership relates with strains, as mediated by role stressors within each cultural context. Differences that may be present may be indicative of cultural differences in the role of leadership in subordinates' experiences of work stress.

U.S. sample. In the U.S. sample, perceived supervisory transformational leadership had negative effects on both anxiety, $t(276) = -4.27, p < .001$, and turnover intentions, $t(276) = -7.17, p < .001$. Further, it explained significant portions of the variance for both anxiety, $F(1, 275) = 18.23, p < .001$, and turnover intentions, $F(1, 276) = 51.42, p < .001$. Transformational leadership was also positively associated with affective commitment, $t(277) = 24.33, p < .001$, and explained a significant proportion of its variance, $F(1, 276) = 29.70, p < .001$ (see Table 4).

Overall Moderation Model

I performed moderation analyses to determine whether supervisory transformational leadership buffered the effects of role stressors on nurses' levels of strains, controlling for country. Table 17 contains regression coefficients, standard errors, and model summary information for each moderator analysis. In each analysis, there were significant negative relationships between supervisory transformational leadership and both role ambiguity and role conflict.

The interaction effects between transformational leadership and role stressors were nonsignificant in almost every case. The only significant interaction was between transformational leadership and role conflict, with anxiety as the dependent variable. However, contrary to my prediction, transformational leadership reverse-buffered the stressor-strain relationship (see Figure 2). The relationship between role conflict and anxiety was significant and positive at all levels of transformational leadership: low, $B = .59, SD = .08, t(495) = 7.57, p < .001$, medium, $B = .74, SD = .06, t(495) = 13.37, p <$

Table 8

Unstandardized Regression Coefficients, Standard Errors, and Model Summary Information for the Parallel Mediator Model Examining Role Stressors as Mediators in the Relationships between Transformational Leadership and Anxiety among U.S. Nurses

Antecedent	Mediator						Outcome		
	Role ambiguity			Role conflict			Anxiety		
	B	SE	t	B	SE	t	B	SE	t
Constant	3.89	.21	18.46***	5.52	.23	23.97***	.56	.51	1.10
RA	–	–	–	–	–	–	.18	.08	2.19*
RC	–	–	–	–	–	–	.71	.07	9.60***
TFL	-.28	.04	-6.57***	-.24	.05	-5.35***	-.05	.06	-.86
	$R^2 = .14$			$R^2 = .09$			$R^2 = .35$		
	$F(1, 275) = 43.19,$			$F(1, 275) = 28.67,$			$F(3, 273) = 48.91$		
	$p < .001$			$p < .001$			$p < .001$		

Note. 'RA' = role ambiguity. 'RC' = role conflict. 'TFL' = transformational leadership. * = $p < .05$. ** = $p < .01$. *** = $p < .001$.

$n = 277$.

Table 9

Unstandardized Regression Coefficients, Standard Errors, and Model Summary Information for the Parallel Mediator Model Examining Role Stressors as Mediators in the Relationships between Transformational Leadership and Affective Commitment among U.S. Nurses

Antecedent	Mediator						Outcome		
	Role ambiguity			Role conflict			Affective commitment		
	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>
Constant	3.89	.21	18.57***	5.54	.23	24.33***	4.31	.47	9.17***
RA	–	–	–	–	–	–	-.16	.07	-2.09*
RC	–	–	–	–	–	–	-.13	.07	-1.84
TFL	-.27	.04	-6.54***	-.25	.05	-5.45***	.29	.05	5.44***
	$R^2 = .13$			$R^2 = .10$			$R^2 = .20$		
	$F(1, 276) = 42.81,$			$F(1, 276) = 29.70,$			$F(3, 273) = 22.32$		
	$p < .001$			$p < .001$			$p < .001$		

Note. ‘RA’ = role ambiguity. ‘RC’ = role conflict. ‘TFL’ = transformational leadership. * = $p < .05$. ** = $p < .01$. *** = $p < .001$.

$n = 278$.

Table 10

Unstandardized Regression Coefficients, Standard Errors, and Model Summary Information for the Parallel Mediator Model Examining Role Stressors as Mediators in the Relationships between Transformational Leadership and Turnover Intentions among U.S. Nurses

Antecedent	Mediator						Outcome		
	Role ambiguity			Role conflict			Turnover intentions		
	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>
Constant	3.90	.21	18.67***	5.54	.23	24.31***	1.55	.50	3.10**
RA	–	–	–	–	–	–	.22	.08	2.77**
RC	–	–	–	–	–	–	.38	.07	5.26***
TFL	-.28	.04	-6.65***	-.25	.05	-5.47***	-.25	.06	-4.35***
	$R^2 = .14$			$R^2 = .10$			$R^2 = .28$		
	$F(1, 278) = 44.16,$			$F(1, 278) = 29.93,$			$F(3, 276) = 36.19$		
	$p < .001$			$p < .001$			$p < .001$		

Note. ‘RA’ = role ambiguity. ‘RC’ = role conflict. ‘TFL’ = transformational leadership. * = $p < .05$. ** = $p < .01$. *** = $p < .001$.

$n = 280$.

Table 11

Unstandardized Regression Coefficients, Standard Errors, and Model Summary Information for the Parallel Mediator Model Examining Role Stressors as Mediators in the Relationships between Transformational Leadership and Anxiety among Spanish Nurses

Antecedent	Mediator						Outcome		
	Role ambiguity			Role conflict			Anxiety		
	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>
Constant	3.70	.52	7.09***	5.31	.31	17.15***	1.07	.76	1.40
RA	–	–	–	–	–	–	.08	.07	1.09
RC	–	–	–	–	–	–	.71	.12	6.03***
TFL	.12	.12	1.03	-.11	.07	-1.62	-.14	.09	-1.52
	$R^2 = .01$			$R^2 = .02$			$R^2 = .28$		
	$F(1, 120) = 1.07$			$F(1, 120) = 2.61,$			$F(3, 118) = 15.00$		
	<i>ns</i>			<i>ns</i>			$p = .04$		

Note. 'RA' = role ambiguity. 'RC' = role conflict. 'TFL' = transformational leadership. * = $p < .05$. ** = $p < .01$. *** = $p < .001$.

$n = 122$.

Table 12

Unstandardized Regression Coefficients, Standard Errors, and Model Summary Information for the Parallel Mediator Model Examining Role Stressors as Mediators in the Relationships between Transformational Leadership and Affective Commitment among Spanish Nurses

Antecedent	Mediator						Outcome		
	Role ambiguity			Role conflict			Affective commitment		
	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>
Constant	3.61	.51	7.06***	5.29	.30	17.42***	4.38	.86	5.10***
RA	–	–	–	–	–	–	-.32	.08	-4.04***
RC	–	–	–	–	–	–	.19	.13	1.41
TFL	.15	.12	1.27	-.11	.07	-1.55	-.01	.10	-.14
	$R^2 = .01$			$R^2 = .02$			$R^2 = .13$		
	$F(1, 122) = 1.60$			$F(1, 122) = 2.40,$			$F(3, 120) = 5.97$		
	<i>ns</i>			<i>ns</i>			$p = .001$		

Note. ‘RA’ = role ambiguity. ‘RC’ = role conflict. ‘TFL’ = transformational leadership. * = $p < .05$. ** = $p < .01$. *** = $p < .001$.

$n = 124$.

Table 13

Unstandardized Regression Coefficients, Standard Errors, and Model Summary Information for the Parallel Mediator Model Examining Role Stressors as Mediators in the Relationships between Transformational Leadership and Turnover Intentions among Spanish Nurses

Antecedent	Mediator						Outcome		
	Role ambiguity			Role conflict			Turnover intentions		
	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>
Constant	3.61	.51	7.06***	5.29	.30	17.42***	.81	.77	1.06
RA	–	–	–	–	–	–	-.02	.07	-.33
RC	–	–	–	–	–	–	.33	.12	2.74**
TFL	.15	.12	1.27	-.11	.07	-1.55	-.01	.09	-1.10
	$R^2 = .01$			$R^2 = .02$			$R^2 = .06$		
	$F(1, 122) = 1.60$			$F(1, 122) = 2.40,$			$F(3, 120) = 2.59$		
	<i>ns</i>			<i>ns</i>			<i>ns</i>		

Note. 'RA' = role ambiguity. 'RC' = role conflict. 'TFL' = transformational leadership. * = $p < .05$. ** = $p < .01$. *** = $p < .001$.

$n = 124$.

Table 14

Unstandardized Regression Coefficients, Standard Errors, and Model Summary Information for the Parallel Mediator Model Examining Role Stressors as Mediators in the Relationships between Transformational Leadership and Anxiety among German Nurses

Antecedent	Mediator						Outcome		
	Role ambiguity			Role conflict			Anxiety		
	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>
Constant	2.84	.41	6.94***	5.49	.46	11.98***	.47	1.05	.45
RA	–	–	–	–	–	–	.09	.15	.59
RC	–	–	–	–	–	–	.89	.13	6.62***
TFL	-.14	.08	-1.85	-.19	.09	-2.17*	-.11	.12	-.89
	$R^2 = .03$			$R^2 = .05$			$R^2 = .35$		
	$F(1, 95) = 3.43$			$F(1, 95) = 3.43,$			$F(3, 93) = 16.75$		
	<i>ns</i>			$p = .03$			$p < .001$		

Note. 'RA' = role ambiguity. 'RC' = role conflict. 'TFL' = transformational leadership. * = $p < .05$. ** = $p < .01$. *** = $p < .001$.

$n = 97$.

Table 15

Unstandardized Regression Coefficients, Standard Errors, and Model Summary Information for the Parallel Mediator Model Examining Role Stressors as Mediators in the Relationships between Transformational Leadership and Affective Commitment among German Nurses

Antecedent	Mediator						Outcome		
	Role ambiguity			Role conflict			Affective commitment		
	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>
Constant	2.80	.40	6.99***	5.46	.45	12.17***	2.00	1.14	1.75
RA	–	–	–	–	–	–	.35	.16	2.15*
RC	–	–	–	–	–	–	-.07	.15	-.47
TFL	-.14	.08	-1.84	-.18	.08	-2.13*	.46	.13	3.58***
	$R^2 = .03$			$R^2 = .04$			$R^2 = .15$		
	$F(1, 99) = 3.39$			$F(1, 99) = 4.51,$			$F(3, 97) = 5.57$		
	<i>ns</i>			$p = .04$			$p = .001$		

Note. ‘RA’ = role ambiguity. ‘RC’ = role conflict. ‘TFL’ = transformational leadership. * = $p < .05$. ** = $p < .01$. *** = $p < .001$.

$n = 101$.

Table 16

Unstandardized Regression Coefficients, Standard Errors, and Model Summary Information for the Parallel Mediator Model Examining Role Stressors as Mediators in the Relationships between Transformational Leadership and Turnover Intentions among German Nurses

Antecedent	Mediator						Outcome		
	Role ambiguity			Role conflict			Turnover intentions		
	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>
Constant	2.88	.40	7.14***	5.47	.46	11.99***	2.69	1.06	2.54**
RA	–	–	–	–	–	–	.12	.15	.76
RC	–	–	–	–	–	–	.47	.13	3.52***
TFL	-.15	.08	-2.02*	-.18	.09	-2.12*	-.51	.12	-4.31***
	$R^2 = .04$			$R^2 = .04$			$R^2 = .30$		
	$F(1, 98) = 4.07$			$F(1, 98) = 4.51,$			$F(3, 96) = 14.03$		
	$p = .05$			$p = .04$			$p < .001$		

Note. ‘RA’ = role ambiguity. ‘RC’ = role conflict. ‘TFL’ = transformational leadership. * = $p < .05$. ** = $p < .01$. *** = $p < .001$.

$n = 100$.

.001, and high, $B = .89$, $SD = .07$, $t(495) = 12.00$, $p < .001$.

Country-specific Moderation Models

I performed separate moderation analyses using data from each individual country to test supervisory transformational leadership's effects on the stressor-strain process within each cultural context.

U.S. sample. Moderation analysis results using the U.S. sample can be found in Table 18. Similar to the results found in the overall model, the only significant interaction was the reverse-buffering effect of transformational leadership and role conflict on anxiety. This relationship is depicted in Figure 3. Role conflict had significant, positive effects on anxiety at every level of transformational leadership: low, $B = .53$, $SD = .10$, $t(276) = 5.11$, $p < .001$, medium, $B = .70$, $SD = .07$, $t(276) = 9.52$, $p < .001$, and high, $B = .88$, $SD = .10$, $t(276) = 8.71$, $p < .001$.

Spanish sample. Moderation analysis results using the Spanish sample can be found in Table 19. The effect of the interaction between transformational leadership and role conflict on turnover intentions was the only one that reached statistical significance. Similar to the previous significant interactions, transformational leadership reverse-buffered the positive relationship between role conflict and turnover intentions. This relationship is depicted in Figure 4. When transformational leadership was low, the effect of role conflict on turnover intentions was nonsignificant, $B = -.09$, $SD = .16$, $t(123) = -.54$, *ns*. The effect was significant and positive, however, at a moderate level of transformational leadership, $B = .30$, $SD = .12$, $t(123) = 2.61$, $p = .01$, and at a high level of transformational leadership, $B = .69$, $SD = .15$, $t(123) = 4.45$, $p < .001$.

German sample. Moderation analysis results using the German sample can be found in Table 20. There were no statistically significant interactions within any of the analyses in the German sample.

Table 17

Unstandardized Regression Coefficients, Standard Errors, and Model Summary Information for the Moderator Model Examining Transformational Leadership as a Moderator in the Relationship Between Role Stressors and Work Strains Pan-Culturally (Controlling for Country)

	Anxiety (N = 496)			Affective commitment (N = 503)			Turnover intentions (N = 504)		
	B	SE	t	B	SE	t	B	SE	t
Constant	2.50	.86	2.90**	3.34	.91	3.68***	2.90	.88	3.32***
RA	.24	.13	1.88	-.13	.13	-.98	.00	.13	-.01
TFL	-.44	.16	-2.72**	.46	.17	2.68**	-.49	.16	-3.00**
RC	.31	.17	1.85	.10	.18	.59	.25	.17	1.48
Country d1	-.21	.18	-1.18	-.37	.19	-1.96	-.88	.18	-4.88***
Country d2	.21	.18	1.19	-.15	.18	-.81	-.06	.18	-.37
TFL*RA	-.03	.03	-1.14	-.01	.03	-.52	.03	.03	.96
TFL*RC	.09	.03	2.76**	-.04	.04	-1.03	.03	.03	.95
	TFL*RA: $\Delta R^2 = .001$ $F(1, 488) = 1.31, ns$			TFL*RA: $\Delta R^2 = .001$ $F(1, 495) = .27, ns$			TFL*RA: $\Delta R^2 = .001$ $F(1, 496) = .93, ns$		
	TFL*RC: $\Delta R^2 = .01$ $F(1, 488) = 7.64, p = .006$			TFL*RC: $\Delta R^2 = .002$ $F(1, 495) = 1.05, ns$			TFL*RC: $\Delta R^2 = .001$ $F(1, 496) = .89, ns$		

Note. 'RA' = role ambiguity. 'RC' = role conflict. 'TFL' = transformational leadership. 'Country d1' and 'Country d2' = country of origin dummy coded using U.S.A. as a reference group for Spain and Germany, respectively. * = $p < .05$. ** = $p < .01$. *** = $p < .001$.

Table 18

Unstandardized Regression Coefficients, Standard Errors, and Model Summary Information for the Moderator Model Examining Transformational Leadership as a Moderator in the Relationship Between Role Stressors and Work Strains in U.S.A.

	Anxiety (n = 277)			Affective commitment (n = 278)			Turnover intentions (n = 280)		
	B	SE	t	B	SE	t	B	SE	t
Constant	2.73	1.04	2.63**	4.10	.96	4.26***	1.14	1.03	1.11
RA	.27	.17	1.57	-.43	.16	-2.63**	.29	.17	1.67
TFL	-.48	.19	-2.49*	.32	.18	1.77	-.16	.19	-.85
RC	.21	.22	.97	.08	.20	.38	.42	.21	1.99*
TFL*RA	-.02	.04	-.59	.07	.04	1.87	-.02	.04	-.46
TFL*RC	.10	.04	2.46*	-.04	.04	-1.14	-.01	.04	-.19
	TFL*RA: $\Delta R^2 = .001$ $F(1, 271) = .35, ns$			TFL*RA: $\Delta R^2 = .01$ $F(1, 272) = 3.51, ns$			TFL*RA: $\Delta R^2 = .001$ $F(1, 274) = .22, ns$		
	TFL*RC: $\Delta R^2 = .01$ $F(1, 271) = 6.06, p = .01$			TFL*RC: $\Delta R^2 = .004$ $F(1, 272) = 1.83, ns$			TFL*RC: $\Delta R^2 < .00$ $F(1, 274) = .04, ns$		

Note. 'RA' = role ambiguity. 'RC' = role conflict. 'TFL' = transformational leadership. * = $p < .05$. ** = $p < .01$. *** = $p < .001$.

Table 19

Unstandardized Regression Coefficients, Standard Errors, and Model Summary Information for the Moderator Model Examining Transformational Leadership as a Moderator in the Relationship Between Role Stressors and Work Strains in Spain

	Anxiety (n = 122)			Affective commitment (n = 124)			Turnover intentions (n = 124)		
	B	SE	t	B	SE	t	B	SE	t
Constant	.18	2.13	.09	5.26	2.38	2.21*	7.36	2.06	3.58***
RA	.05	.21	.23	.10	.24	.44	-.09	.20	-.44
TFL	.06	.46	.14	-.23	.51	-.45	-1.50	.44	-3.37***
RC	.91	.37	2.42*	-.32	.42	-.75	-.89	.36	-2.45*
TFL*RA	.01	.05	.15	-.10	.05	-1.93	.01	.04	.27
TFL*RC	-.05	.08	-.55	.12	.09	1.32	.28	.08	3.52***
	TFL*RA: $\Delta R^2 < .00$ $F(1, 116) = .02, ns$			TFL*RA: $\Delta R^2 = .03$ $F(1, 118) = 3.73, ns$			TFL*RA: $\Delta R^2 = .001$ $F(1, 118) = .07, ns$		
	TFL*RC: $\Delta R^2 = .002$ $F(1, 116) = .16, ns$			TFL*RC: $\Delta R^2 = .01$ $F(1, 118) = 1.73, ns$			TFL*RC: $\Delta R^2 = .09$ $F(1, 118) = 6.34, p < .001$		

Note. 'RA' = role ambiguity. 'RC' = role conflict. 'TFL' = transformational leadership. * = $p < .05$. ** = $p < .01$. *** = $p < .001$.

Table 20

Unstandardized Regression Coefficients, Standard Errors, and Model Summary Information for the Moderator Model Examining Transformational Leadership as a Moderator in the Relationship Between Role Stressors and Work Strains in Germany

	Anxiety (n = 97)			Affective commitment (n = 101)			Turnover intentions (n = 100)		
	B	SE	t	B	SE	t	B	SE	t
Constant	2.46	2.78	.88	-2.78	3.11	-.90	4.83	2.87	1.68
RA	.92	.56	1.64	.51	.61	.83	-.73	.58	-1.28
TFL	-.50	.50	-.99	1.37	.56	2.43*	-.91	.52	-1.76
RC	.10	.49	.20	.84	.55	1.54	.42	.50	.84
TFL*RA	-.16	.10	-1.56	-.03	.11	-.24	.16	.11	1.53
TFL*RC	.16	.09	1.69	-.18	.10	-1.73	.01	.09	.09
	TFL*RA: $\Delta R^2 = .02$ $F(1, 91) = 2.45, ns$			TFL*RA: $\Delta R^2 = .001$ $F(1, 95) = .06, ns$			TFL*RA: $\Delta R^2 = .02$ $F(1, 94) = 2.34, ns$		
	TFL*RC: $\Delta R^2 = .02$ $F(1, 91) = 2.87, ns$			TFL*RC: $\Delta R^2 = .03$ $F(1, 95) = 2.98, ns$			TFL*RC: $\Delta R^2 < .00$ $F(1, 94) = .01, ns$		

Note. 'RA' = role ambiguity. 'RC' = role conflict. 'TFL' = transformational leadership. * = $p < .05$. ** = $p < .01$. *** = $p < .001$.

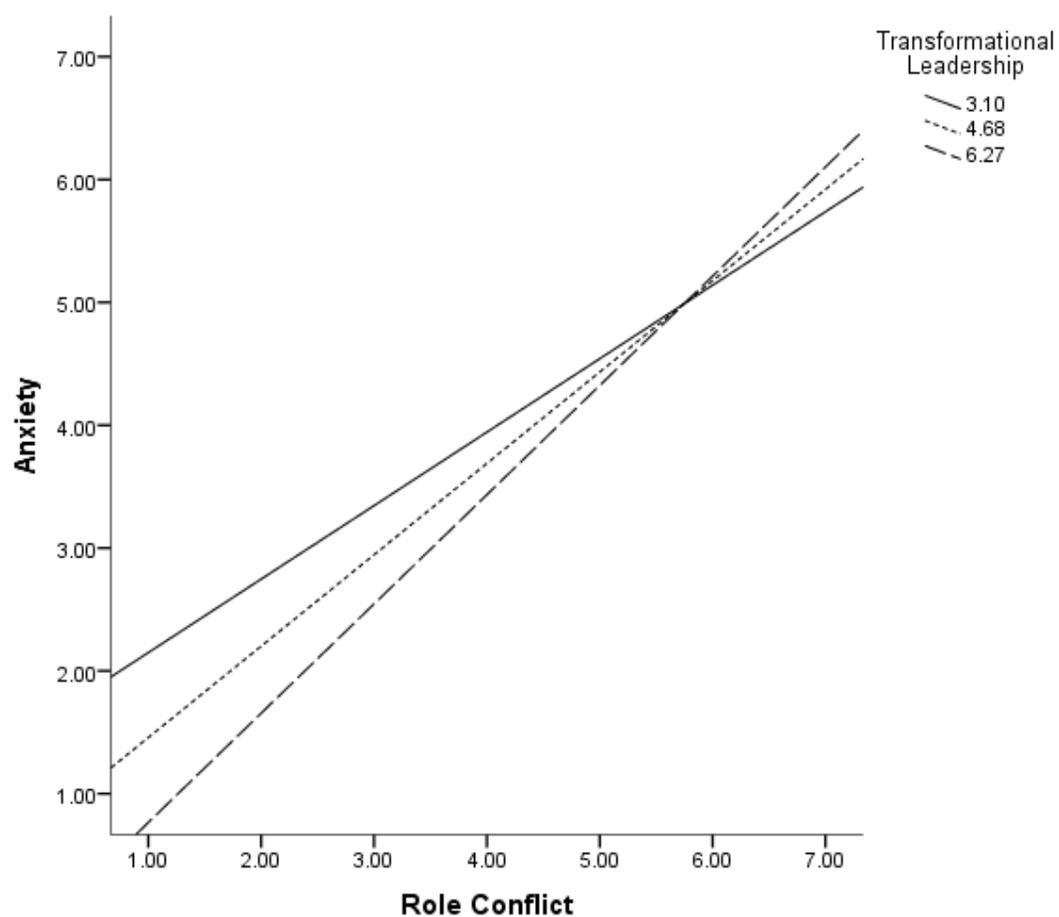


Figure 2. The moderating role of supervisory transformational leadership on the relationship between role conflict and anxiety in nurses, pan-culturally, controlling for country.

Note: Values for transformational leadership are the mean and plus/minus one standard deviation from the mean.

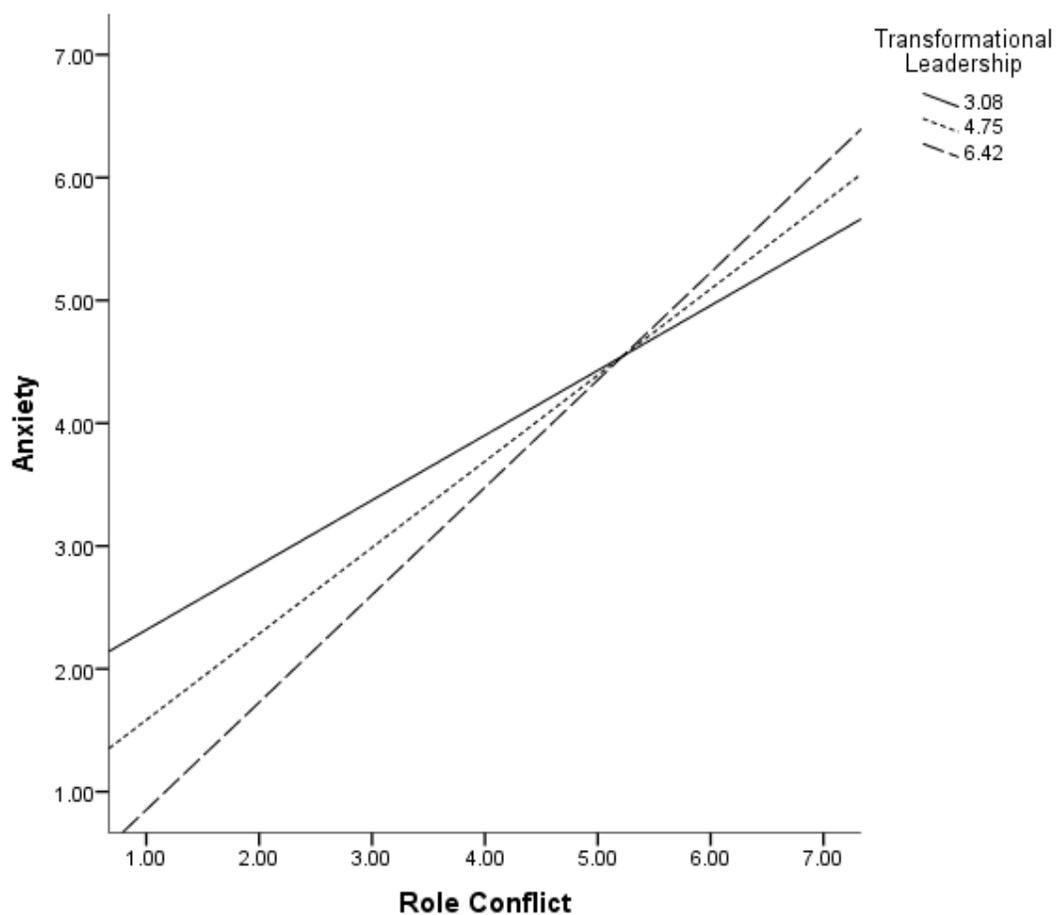


Figure 3. The moderating role of supervisory transformational leadership on the relationship between role conflict and anxiety among U.S. nurses.

Note: Values for transformational leadership are the mean and plus/minus one standard deviation from the mean.

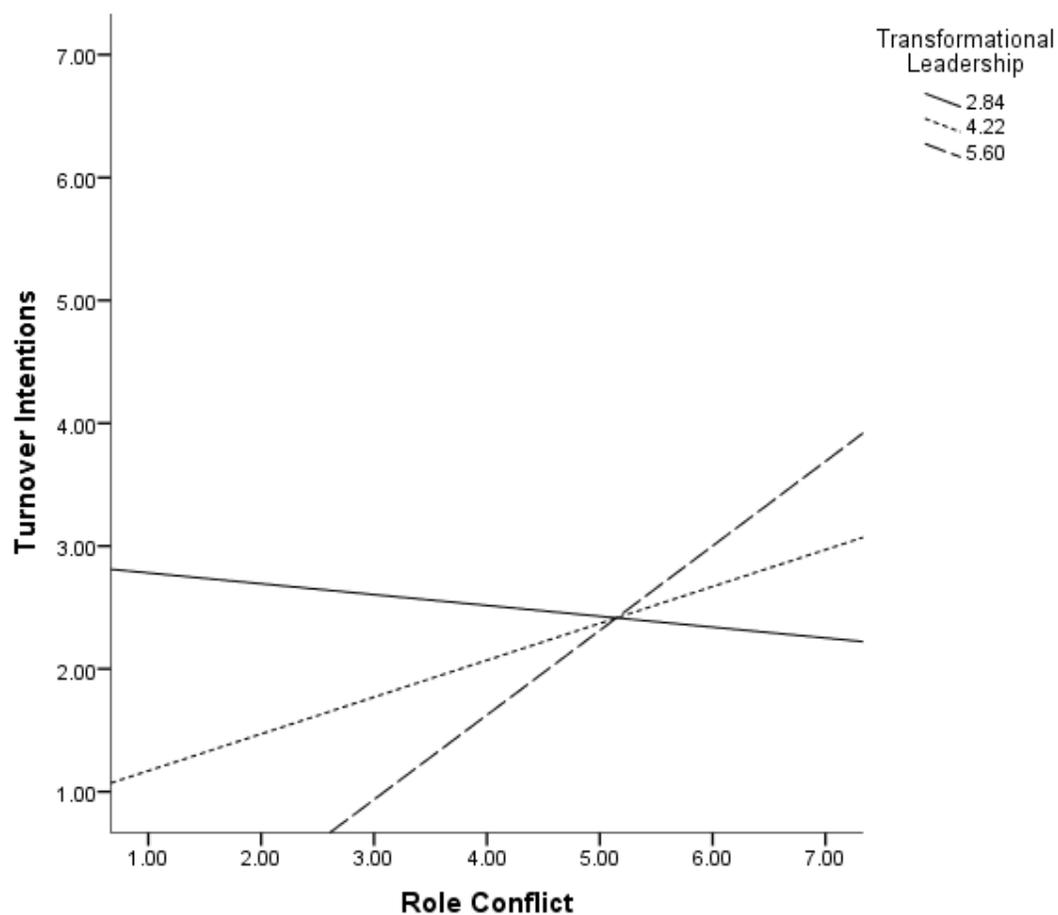


Figure 4. The moderating role of supervisory transformational leadership on the relationship between role conflict and turnover intentions among Spanish nurses.

Note: Values for transformational leadership are the mean and plus/minus one standard deviation from the mean.

DISCUSSION

The goals of this study were (1) to assess the nature of the relationship between supervisory transformational leadership and the stressor-strain process among nurses, and (2) to determine whether this relationship could be found independently in each of the three countries: U.S.A., Germany, and Spain. I found that, in a pan-cultural analysis, controlling for country, supervisory transformational leadership related to reduced anxiety and turnover intentions, and increased affective commitment. Further, supervisory transformational leadership's relationships with anxiety, turnover intentions, and affective commitment were mediated, to varying degrees, through its relationships with role conflict and role ambiguity.

Transformational leadership's indirect effects on each of the outcomes were consistent with other authors' findings. Skogstad and colleagues (2007) found that a hands-off approach to supervisory leadership (as opposed to an active style, like transformational leadership) resulted in an increase in role stressors, which then led to negative outcomes in the workplace. Similarly, I found that transformational supervision directly led to decreased role ambiguity and role conflict, and indirectly led to reduced strains.

Although transformational leadership's effects on anxiety were fully explained via its relationship with role stressors, significant proportions of the variance in nurses' levels of affective commitment and turnover intentions were still explained by transformational leadership, independent of transformational leadership's effects on role ambiguity or role conflict. Thus, there may be some other mechanism responsible for transformational leadership's effects on affective commitment and turnover intentions. For example, transformational leaders may be in a better position to reduce subordinates' situational constraints, or conditions that make work more difficult for employees, compared to supervisors who do not. Situational constraints, such as a lack of supplies or budgetary cuts, have been negatively associated with affective commitment (Jex et al., 2003), and positively associated with anxiety and turnover intentions (Katz & Quinn, 1978; Spector & Jex, 1998). A future study might examine whether transformational

leaders are better able than non-transformational leaders to mitigate situational constraints or their effects on strains, and if so, whether the relationship between transformational leadership and situational constraints explains a significant proportion of variance beyond what role stressors explain in employee strain.

Contrary to findings from Syrek and colleagues (2013), the hypothesis that transformational leadership would buffer the effects of role stressors on work strains was not supported. In this regard, the present findings were also inconsistent with those of Lyons and Schneider (2009), who found that being exposed to a transformational leader made people less likely to perceive stressors as threatening or experience negative emotions due to stressors. The results of the present study may have been due to the specific stressors examined. Role stressors can be seen as either challenges or hindrances, but people are more likely to view them as hindrances (Webster et al., 2011). Perhaps transformational supervisors are more readily able to influence how subordinates perceive stressors, such as workload or time pressure, compared to role stressors.

Additionally, nurses who experience role stressors may view their direct supervisors as sources of those stressors. As role senders, supervisors are meant to communicate expectations to employees (Katz & Kahn, 1978). If subordinates experience role ambiguity or role conflict because of their direct supervisors, they may not be as receptive to their supervisors, regardless of the extent to which their supervisors are transformational. Nurses might be less willing to follow transformational supervisors' advice to re-conceptualize problems at work as challenges when they see their supervisors themselves as the cause of those problems.

The one exception to the lack of moderation effects in the overall model was the reverse-buffering effect on role conflict's relationship with anxiety. When supervisory transformational leadership was high, the relationship between role conflict and anxiety was stronger than it was when supervisory transformational leadership was low. In the absence of role conflict, nurses with non-transformational supervisors experienced significantly more anxiety than did nurses with transformational supervisors. This relationship seems to suggest that the nurses in the overall sample expected a certain

degree of transformational leadership from their supervisors. When that expectation was left unmet, nurses might have experienced the lack of transformational supervision as a stressor in and of itself, which then resulted in higher anxiety. Thus, the reverse buffering effect of transformational leadership on role conflict and anxiety may simply be because nurses with non-transformational supervisors had a higher base rate of anxiety than did nurses with highly transformational supervisors, and as role conflict increased, nurses in the former group reached the ceiling of the anxiety scale faster than those in the latter group. In other words, this effect may be better understood as a ceiling effect than a reverse-buffering effect.

In addition, there appeared to be differences in relationships between transformational leadership, role stressors, and work strains between the three samples. Prior to discussing these findings, I wish to note a limitation to this study: because I did not establish any level of measurement invariance, I could not quantitatively compare my models between the three groups. Without establishing measurement invariance, it is unclear whether the scales I used to measure my variables of interest were capturing information about the same constructs within each country. A future analysis involving structural equation modeling would aid in establishing some level of invariance, and I would then be able to justifiably determine whether transformational leadership had stronger or weaker relationships with stressors and strains in one or more groups over another.

With that said, the analyses I conducted within each cultural context provided valuable information about how transformational leadership related to other variables of interest within each specific sample. In both the U.S. and German samples, supervisory transformational leadership negatively related to nurses' anxiety and turnover intentions, and positively related to nurses' affective commitment. In both cultural contexts, each of these relationships were at least partially mediated by one or more role stressors. However, in the Spanish sample, transformational leadership was not related to either role stressor, affective commitment, or turnover intentions. Although there was a small effect of transformational leadership on anxiety, this effect disappeared when controlling

for role stressors. Further, transformational leadership did not indirectly affect any outcome via role stressors.

There are several possible explanations for transformational leadership's lack of significant effects in the Spanish sample. The first is that there may have been issues with the measures used. In particular, the Cronbach's alpha internal consistency estimates for role conflict and affective commitment were low for the Spanish sample, suggesting that the scales used to measure those constructs were not reliable. There may have been an issue with the Spanish translation of the survey materials, or perhaps the items selected for inclusion in each scale were simply poor indicators of the constructs in a Spanish setting. However, reliability estimates were also low for other constructs in the U.S. and German samples, and significant relationships were nonetheless found in those samples. So, this may not have been the only reason for the lack of significant effects in the Spanish sample.

A second possibility is that there are factors specific to the Spanish health care entities surveyed that prevented transformational supervisors from impacting levels of stressors and strains in the workplace. For example, there may have been policies in place at the health care entity that made transformational leadership less effective.

If I were to collect more data from numerous health care entities within each country and find similar results, it may mean that the effects of transformational leadership on work stress are culture-specific. This result would confirm findings from Ergeneli and colleagues (2007) and Leong and Fischer (2010) who found that a society's endorsement of transformational leadership depended on its endorsement of certain cultural values—specifically, high mastery and egalitarian values, and low power distance values. Because Spanish culture endorses high power distance values but does not endorse egalitarian or mastery values as highly as U.S.A. and Germany, transformational supervision in a Spanish cultural context may not provide as many ameliorative benefits (i.e., low anxiety, high affective commitment, and low turnover intention) as those working in German or U.S. contexts. German and U.S. national cultures both endorse egalitarian, mastery, and power distance values at relatively similar

levels, which may explain why transformational leadership was associated with lower levels of work stressors and strains in both samples.

Several authors (e.g., Boz, Martínez, & Munduate, 2009; Gil-Monte & Peiró, 1998) have found positive relationships between supervisor support and negative outcomes in Spanish samples. Boz and colleagues (2009) found that supervisor support buffered the effects of workplace conflict and job satisfaction. Gil-Monte and Peiró (1998) reported moderate, negative correlations between supervisor social support and role conflict, role ambiguity, and emotional exhaustion in Spanish care workers. These findings seem to contradict the notion that transformational leadership is ineffective in a Spanish cultural context. However, supervisor support relates to just one facet of transformational leadership, individualized consideration. Other facets, such as intellectual stimulation, which relates to encouraging followers to question old conventions and be innovative, may be less accepted in a Spanish context and might cancel out the positive effects of supervisor support.

Another factor that may have had differential influences on workers in each country was the recent worldwide economic crisis. Each of the three countries involved in this study were affected by the crisis and recession, but Spain was particularly hard-hit (Urbanos-Garrido & Lopez-Valcarcel, 2015). Compared to Spain, the rates of unemployment in U.S.A. and Germany were relatively low during the time of data collection (9.4% and 5.4%, respectively; Eurostat, 2015; U.S. Bureau of Labor Statistics, 2015). In contrast, just prior to data collection in Spain, the percentage of unemployed workers in the country had rapidly increased to an all-time high of 26.3% (Eurostat, 2015). The poor state of the economy may have been an additional source of stress for Spanish nurses—one that direct supervisors, regardless of their levels of transformational leadership, could not mitigate.

Implications

Although much has been written about transformational leadership's beneficial effects on job performance (e.g., Judge & Piccolo, 2004; Wang et al., 2011), literature relating to its effects on subordinates' job-related strain is less prevalent. This study

contributes to this body of research, and presents evidence that one mechanism through which transformational supervisors reduce subordinates' job strain is by reducing role stressors in the work environment.

This finding is particularly relevant to the field of nursing. In the U.S.A., occupational stress is seen as a top concern for 70% of nurses (American Nurses Association, 2011). Transformational supervisory leadership can be an effective tool in mitigating work-related stressors and strain. The importance of a supportive leader may be especially true for nurses working in U.S.A.'s fastest growing industry, home healthcare (Torpey, 2014). Because nurses in home healthcare do not work in a centralized location, they have fewer interactions with coworkers and opportunities to receive coworkers' social support, a valuable resource for coping with work stress. Thus, home healthcare nurses may be especially reliant on their supervisors as sources of social support. Future research into transformational leadership's effects on nurse's work stress should consider this growing population.

To capitalize on transformational leadership's beneficial effects on stress-related outcomes, organizations may wish to obtain more transformational supervisors. Several authors (e.g., Bass, 1999; Kelloway & Barling, 2000) suggest that transformational leadership can be trained. The health industry, in which role stressors and strains are major problems for nurses, may wish to invest in training their supervisors on the strategies and techniques of transformational leadership in order to increase role clarity and reduce psychological strain. Training nurse supervisors on transformational leadership techniques could potentially make a huge impact by providing nurse managers with tools to reduce stressors or help mitigate strains. Kelloway, Barling, and Helleur (2000) found that a one-day workshop on transformational leadership theory and application and a one-hour, one-on-one feedback session with transformational leadership were both effective intervention strategies for nurse supervisors. Following the intervention, supervisors who either attended the workshop or received individual feedback were rated by subordinates as displaying more transformational leadership than supervisors who did not participate in either intervention (Kelloway et al., 2000). Given

the potential costs of supervisor training or feedback sessions, an alternative possibility to increase transformational leadership among nurse supervisors is to hire them based in part on their likelihood of using transformational leadership strategies in the workplace.

However, transformational leadership training is not a fix-all solution to work stress; the cultural context is critical. In societies whose values do not resonate with those that are intrinsic to transformational leadership, other solutions to occupational stress must be sought. For instance, transactional leadership, which emphasizes maintaining the status quo, complying with existing standards, and being explicitly clear about the “right” way to do things (Bass, Avolio, Jung, & Berson, 2003), may better suit societies that are less tolerant of ambiguity.

Limitations and Future Directions

There are several limitations to this study. First, because of the cross-sectional nature of the study, causality of the discussed relationships could not be established. While it is theoretically probable that supervisory transformational leadership leads to a decrease in environmental role stressors, there is also a possibility that workplaces that are prone to a lot of role stressors are not conducive to high levels of supervisory transformational leadership. There may also be a confounding variable that causes supervisory transformational leadership to covary with work stressors and strains. For instance, the leadership style endorsed by the head of the hospital may affect both the leadership styles of nurses’ supervisors and the amount of stressors and strains that nurses experience. When controlling for this, the relationship between supervisory transformational leadership and work stress may weaken or disappear. In the future, a longitudinal study should be conducted using the variables of interest to this study. In doing so, researchers will be able to assess whether supervisory transformational leadership alters the amount of role stressors and work strains experienced over time, or if these causal relationships are reversed.

Second, the data came from different healthcare entities within each country (i.e., the U.S. data came from nurses working at two hospitals, the German data came from nurses working at a nursing home, and the Spanish data came from university hospitals

and primary care centers run by the Catalanian government or private insurances), therefore, it is difficult to say whether differences in variables' relationships between countries were indeed due to differences at the level of national culture, as I theorized, or to differences in the specific healthcare settings that were surveyed (e.g., differences in organizational policies, the nature of working in a hospital versus a clinic). Future researchers may wish to collect data from multiple types of healthcare entities in the three countries I examined to ensure that effects found across countries were due to culture and not merely characteristics specific to the type of healthcare entities examined.

Third, the reliability estimates for some constructs in certain cultural contexts were lower than what is typically considered acceptable. In particular, role conflict's reliability estimates in Germany and Spain were below the normally accepted threshold of .70, even after I incorporated items from the theoretically similar construct of role overload. Further, reliability estimates for affective commitment were low in the U.S. sample, and just barely at the threshold of acceptability for the Spanish sample. One potential reason for these low reliability estimates was that the scales employed used only a small number of items from the original measures due to strict parameters about the length of the survey. Another possible explanation for poor reliability is that, while the survey was translated into two different languages, the translations might not have captured the items with the same conceptual meanings; thus, the items might not be completely comparable across cultures. However, according to Schmitt (1996), a low reliability estimate for a scale is not necessarily an unacceptable problem if the scale either meaningfully covers a range of construct content or if the construct is uni-dimensional. Moreover, there are differences in how people across cultures complete surveys (Clarke, 2000). There might have been an uncontrolled response style bias.

Fourth, it was not possible to directly compare results between countries, because I could not establish measurement invariance using the present data. Without demonstrating measurement invariance, it could not be assumed that participants across the three groups attributed the same meaning to each of the study's underlying factors of interest (Cheung & Rensvold, 2002). Thus, it was not possible to compare the strengths

of relationships between constructs in one sample with those of another. Future researchers who wish to determine the strength of supervisory transformational leadership's effects on role stressors and work strains in different cultural contexts should follow the procedure to establish measurement invariance laid out by Cheung and Rensvold (2002) prior to making cross-cultural comparisons.

A fifth limitation was that context variables were not directly considered in the research design. Future research should consider economic variables like the rate of unemployment, or employees' beliefs about the likelihood of finding other employment opportunities, in order to better understand how these and other issues might impact the stressor-strain process in employees.

Sixth, due to constraints in available software, I was prevented from testing models that were more complex in nature, but perhaps more representative of actual relationships between measured constructs. For example, rather than looking at separate models for anxiety, affective commitment, and turnover intentions as individual outcomes, I could have included each of them as endogenous variables in a single path model, as in Glazer and Beehr (2005). However, creating a complex path analysis would have required software more advanced than was available to me, such as MPlus or LISREL.

Future studies can expand upon this research by including a larger variety of national cultural contexts. Including samples from countries in other parts of the world, such as Eastern Europe, Africa, Asia, South America, and the Middle East could provide further insights into the role that national culture plays in the effectiveness of transformational leadership in alleviating workplace stressors and strains. Researchers who wish to pursue this should collect data from multiple hospitals within each country of interest to ensure that effects found across national cultures were due to culture and not merely characteristics specific to each hospital.

Another avenue for future research is to examine how each of the four facets of transformational leadership relates to occupational stressors and strains. While this study used an overall score of supervisory transformational leadership, a more nuanced

approach may help identify the ways in which each individual facet affects the occupational stressor-strain process. Based on its conceptual similarity to supervisor support, which has been demonstrated to reduce work stress (Babin & Boles, 1996; Viswesvaran, Sanchez, & Fisher, 1999), individualized consideration may play a much larger role in reducing workplace stressors and strains compared to other facets. Some facets may even be counter-productive to stress reduction. Given that intellectual stimulation pertains to encouraging individuals to challenge old conventions and try novel approaches, it may be related to a slight increase in role ambiguity.

Future researchers may also wish to examine how other styles of leadership serve to reduce stressors and strain within the workplace. This study demonstrated that transformational supervisory leadership is an effective strategy to reduce work-related stressors and strain among nurses, but other styles may be similarly effective. Transactional leadership, which concerns clearly defining organizational goals and rewards, and upholding the organizational status quo in terms of performance (Bass & Riggio, 2006; Burns, 1978), may be a successful strategy for reducing role ambiguity among employees. Lyons and Schneider (2009) found that a task prompt exemplifying transformational leadership was more effective at reducing perceived stressors and strain among experimental participants compared to a transactional leadership prompt; however, transformational and transactional leadership are not mutually exclusive (Eriksson, 2011). Supervisors in actual organizational contexts may use transformational tactics in some circumstances and transactional ones in others. For example, a hospital nurse supervisors may provide supervisees rewards contingent on performance (transactional leadership) while also offering them social support and individualized guidance (transformational leadership). Boumans and Landeweerd (1993) found that there was a tendency for nurses working under supervisors who used a combination of a relationship-oriented leadership style (similar to transformational leadership) and a task-oriented leadership style (similar to transactional leadership) to be more satisfied and have less health complaints than subordinates of nurse supervisors using a single or neither style, although relationship-oriented style appeared to have more of an effect than did task-

oriented style. Further research can examine whether a combination of transactional and transformational leadership techniques in nurse supervisors results in fewer work stressors and/or lower strain among nurses, and if so, whether one leadership style contributes more to these reductions than the other. Conclusion

In this paper, I sought to examine the relationships between supervisory transformational leadership, role stressors, and three types of strains among U.S., Spanish, and German nurses. Across the overall sample, I found that perceived supervisory transformational leadership negatively related to nurses' levels of anxiety and turnover intentions, and positively related to affective commitment. I identified role stressors as a possible mechanism through which transformational leadership affected strains. Transformational supervisors help to increase role clarity by fostering communicative relationships with subordinates and clearly defining expectations and goals. An increase in role clarity, in turn, can lead to a reduction in subordinates' work-related strains.

This thesis adds to a growing body of literature about the benefits provided by transformational leadership to workers in an organization. It also adds to the occupational health literature, which has traditionally only focused on adverse outcomes of poor or negative leadership, rather than the positive effects of good leadership (Kelloway & Barling, 2010). Supervisors and managers in high-stress organizational environments may wish to consider adopting traits of transformational leaders in an effort to reduce workplace stress. However, as found in the present study, there is an important caveat: the benefits of transformational leadership may be context-specific. Before embarking on costly and time-intensive leadership development programs, management in organizations should first determine whether transformational leadership would be well-received by existing employees, or if an alternative solution to work stress would be more appropriate.

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APPENDIX A: SURVEY ITEMS USED

All items were accompanied by a response scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree).

Role Conflict

1. I work with two or more groups who operate quite differently
2. I receive incompatible requests from two or more people
3. I do things that are apt to be accepted by one person and not accepted by another

Role Overload

1. It seems like I have too much work for one person to do
2. On my present job, the amount of work seems to interfere with how well I can do the job
3. I often notice a marked increase in my workload

Role Ambiguity

1. I have clear, planned goals and objectives for my job (Reverse)
2. I know exactly what is expected of me (Reverse)
3. Explanation is clear of what has to be done (Reverse)

Anxiety

1. Sometimes when I think about my job I get a tight feeling in my chest
2. I have felt fidgety or nervous as a result of my job
3. My job gets to me more than it should
4. There are lots of times when my job drives me right up the wall

Turnover Intentions

1. I will actively look for a new job in the next year
2. I often think about quitting
3. I will probably look for a new job in the next year

Affective Commitment

1. This organization has a great deal of personal meaning for me
2. I do not feel a strong sense of belonging to my organization (Reverse)
3. I do not feel "emotionally attached" to this organization (Reverse)

Transformational Leadership

1. I have trust in his/her ability to overcome any obstacle
2. S/he develops ways of motivating us
3. I feel proud to work with him/her
4. S/he is concerned with training those who need it
5. S/he gives advice to those who need it
6. S/he gets us to rely on reasoning and evidence to solve problems
7. S/he promotes the use of intelligence to overcome obstacles
8. S/he presents things through an approach that stimulates me