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Leader-Member Exchange and Its Relationship to Quality of Work and Stress among Information Technology (IT) Workers

James M. Fisher[1], Sheila Hadley Strider[2,*], Mark G. Kelso[1]

[1]College of Business, Columbia Southern University, Orange Beach, USA
[2]College of Business and Mass Communications, Brenau University, Gainesville, USA

Abstract In the U.S., Information Technology (IT) organizations are a $639.4 billion-a-year business. Roughly, 60% of all IT workers feel stress in their jobs. The purpose of this quantitative correlational study was to identify to what degree, if any, a relationship existed between Leader-Member Exchange (LMX) and the levels of stress in IT organizations. The sample population consisted of IT professionals (n=449) of which 249 workers were from IT small-to-medium enterprises (SMEs) and 200 workers from large IT organizations. The target population (N=84,000) was from the Western region of the U.S. The Internet-based 28-item survey included the LMX-7 and Parker and DeCotiis job stress instruments. Examined were two dimensions of stress - time stress and anxiety stress. In IT SMEs and large IT organizations there were high quality leader-member exchanges. However, there was no correlation between LMX quality and time stress among IT workers within SMEs (p = .954) and large organizations (p = .346). Similarly, in SMEs, there was no relationship between anxiety stress and quality LMX (p = .264). Nonetheless, in large IT organizations there was a correlation between anxiety stress and quality LMX (p = .010). The p-value of .010 suggested that there was overwhelming evidence to infer that the alternative hypothesis was true.

Keywords Leader-member exchange, Stress, Information technology, LMX-7, Parker and DeCotiis job stress scale, and IT

1. Introduction

In April 2015, United States (U.S.) workers' engagement in their employment was only 31.7% (Adkins, 2015). The remaining 68.3% of U.S. workers cost U.S. companies between $450 and $550 billion in lost annual revenue due to a decline in productivity (Sorensen & Garman, 2015). Job stress was a contributor to the causes of lost productivity (Johns, 2010). Job stress is a negative behavior that erodes revenue through a lack of productivity in workers (Johns, 2010). The costs of job stress were $300 billion per year (Petree, Broome, & Bennett, 2012). This study included the exploration of a possible correlation between leader-member exchange (LMX) quality and stress in workers of small-medium enterprises (SMEs) and in large information technology (IT) organizations.

According to previous researchers, a relationship existed between LMX and job turnover, job satisfaction, organizational commitment, organizational citizenship behavior, and role stressors (Dulebohn, Brommer, Liden, Brouer, & Ferris, 2012; Harris, Li, & Kirkman, 2014). Nonetheless, this researcher studied IT workers in SMEs of 500 or fewer workers and large IT organizations with 501 or more workers within the Western region of the U.S. to extend previous research in LMX quality and stress. This researcher also discovered how LMX quality might assuage stress on workers in IT organizations.

According to the Gross Domestic Products by Organizations and State Analysis (2009), IT organizations in the U.S. are a $639.4 billion-a-year business. However, roughly 60% of all IT workers suffer from stress in their jobs (Lorenz, 2014). Therefore, studying the relationship between LMX quality and stress in IT organizations was worthwhile due to the negative impact of stress on the economy.

2. Leader-Member Exchange Theory

The leader-member exchange (LMX) theory rose to prominence in the 1970's (Graen & Cashman, 1975). Since most leadership theories included a focus on the leader, researchers suggested a dyadic approach based on the vertical interaction between a leader and follower (Kalshoven, De Hartog, & De Hough, 2011; Power, 2013).

* Corresponding author:
sstrider@brenau.edu (Sheila Hadley Strider)
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LMX researchers reported relationships between LMX and various constructs including job stress, conflict, job involvement, mutual trust, employee engagement, interaction, and support from management (DeConinck, 2011; Dulebohn et al., 2012). Harris et al. (2014) found that high-quality LMX relationships were favorable. However, Thomas and Landau (2009) discovered that mentoring relationships with immediate supervisors decreased stress levels of workers, thus improving the health of the organization.

High-quality LMX relationships enabled workers to gain greater job satisfaction and job autonomy (Harris et al., 2014; Zhang, Wang, & Shi, 2012). Workers also were more amicable in higher LMX than workers who had lower LMX relationships (Bisel, Messersmith, & Keller, 2012). Moreover, as the quality of LMX increased, employee organizational identity rose and turnovers decreased (Harris et al., 2014; Stark & Jeffries, 2011). In addition, in LMX quality relationships, workers viewed their jobs positively (Stark & Jeffries, 2011). Nevertheless, DeConinck (2011) suggested that LMX does not affect turnovers. Since there is a research gap concerning LMX and stress, the intent was to increase the body of knowledge on the effects of LMX and stress in IT organizations (Hesselgreaves & Scholarios, 2014; Lawrence & Kacmar, 2012).

In the U.S., the disengagement of 68.3% of all workers costs the U.S. economy between $450 and $550 billion each year (Sorensen & Garman, 2015). The annual cost of job stress in the U.S. is roughly $300 billion (Petree et al., 2012). Therefore, determining if a correlation existed between LMX quality and stress levels IT workers was essential to combating the adverse financial impact that stress causes in the workplace (Abii, Orgula, & Rose, 2013; Harris et al., 2014; Lorenz, 2014).

Researchers exploring this topic suggested there might be a correlation between LMX to stress (Hesselgreaves & Scholarios, 2014; Lawrence & Kacmar, 2012). Consequently, we were particularly interested in the influence of stress levels on IT workers in the Western region of the United States, and the outcomes quality LMX had on the same IT workers. The intent of our research was to bridge the knowledge gap between LMX quality and stress levels of IT workers. LMX was the independent variable and stress was the dependent variable.

3. Stress, the Workplace, and LMX

The 2014 IT Stress and Pride Survey stated that job stress adversely affected 62% of all IT workers (Eddy, 2014). Furthermore, Eddy (2014) commented that stress affects 32% of all senior level IT workers and 30% of entry-level to mid-level IT workers. Additionally, Thomas and Lankau (2009) posited that undesirable outcomes accompany stress and impacts job productivity and lowers job satisfaction which adversely influencing a person's well-being, stress, personal anxiety, and energy loss (Chullen, 2014; Garg & Dhar, 2014; Hesselgreaves, & Scholarios, 2014; Jian, 2014). Morris and Venkatech (2010) suggested organizational change, workload, inadequate support, and lack of control in the workplace contributed to job stress. Further, Tork, Hamidi, and Heidary (2011) argued the lack of participation in decision-making resulted in stress that adversely affected the worker's performance and affects overall performance in the organization. Researchers also found that the well-being of workers increased commitment that led to greater achievement of organizational goals (Chaudhuri & Naskar, 2014; Folami & Bline, 2012; Newton & Teo, 2014; Sadatsafavi, Walewski, & Shepley, 2015). Moreover, Folami, Asare, Kwesikga, and Bline (2014) explained that management's responsibility is to create an organizational atmosphere that inspires comradery between workers and the organization. Cullen, Edwards, Casper, and Cue (2014) also suggested that when workers enjoyed vigorous support from supervisors, job satisfaction increases, and positive employee attitudes occur. Finally, Tork et al. (2011) argued that lack of decision-making ability resulted in stress that adversely affected worker performance, which influenced overall organizational performance.

Concerning stress and LMX, Hesselgreaves and Scholarios (2014) found high-quality LMX produced positive job experience that reduced stress in workers. High-quality LMX increased job strain in senior staff members in five United Kingdom hospitals (Hesselgreaves & Scholarios, 2014). Further, Chullen (2014) suggested negative attitudes of supervisors created perceptions of LMX in workers. Researchers also discovered supervisors are the primary source of worker burnout (Chullen, 2014; Chung, 2014; Peng Schaubroeck, & Li, 2014, 2014).

Jian (2014) suggested LMX quality has different relationships with role stressors. The ambiguity within the role of LMX showed a negative relationship between LMX quality and role ambiguity (Jian, 2014). Further, Jian (2014) found workers in decreased levels of LMX quality reported higher levels of role ambiguity, resulting in a higher level of stress and job turnover.

Researchers also argued that supervisorial ambivalence created miscommunication, resulting in the increase of stress that decreased work performance (Cullen et al., 2014; Leroy, Palanski, & Simons, 2012). Furthermore, Prottas (2013) found behavioral integrity runs contrary to stress. Lawrence and Kacmar (2012) explained that LMX members enjoy less job stress as communication and information increased between them. According to Thomas and Lankau (2009), high-quality LMX supervisory and nonsupervisory mentors act as positive resources to reduce stress in workers through decreasing emotional exhaustion. Finally, Thomas and Landau (2009) also suggested nonsupervisory mentors produce a positive work-related conduit to improve social support and reduce stress in workers. Figure 1, contains some of the antecedents to stress, effects of stress, and undesirable outcomes that result.

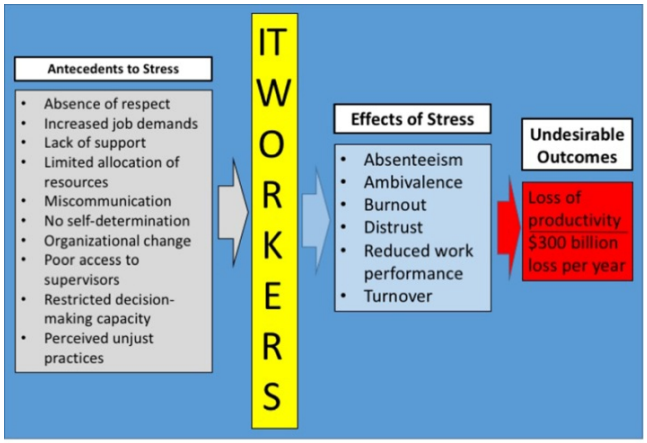

Figure 1. Stress produces undesirable outcome that create loss of productivity. Antecedent behaviors directly influence the stress

4. Methodology

A quantitative research methodology was the best choice to answer the research questions and test the hypotheses. Several recent studies regarding LMX included quantitative methodologies (Chullen, 2014; Geertshuis, Morrison, & Cooper-Thomas, 2015; Lawrence & Kacmar, 2012; Loi, Ngo, & Zhang, 2011; Martinaityte & Sacramento, 2013). Further, Leedy and Ormond (2010) explained that quantitative correlation design offers a non-obtrusive approach to identify significant relationships between variables (LMX and stress). Using descriptive and inferential statistics in quantitative research, an investigator relies on numerical data that facilitates the reliable interpretation of data (Leedy & Ormond, 2010). Due to numerical data, removal of a certain level of research bias occurs and data interpretation becomes more reliable (Cooper & Schindler, 2011; Leedy & Ormond, 2010).

In the collection of data, we employed the LMX-7 and the job stress survey instruments. Grohmann and Kauffeld (2013) argued that a quantitative survey-based research approach is the most appropriate and cost-effective way to administer the survey to a large population. Due to the impossibility of direct behavioral observation of this large population, a 28-item survey instrument measured attitudes and behaviors of a sample population. Further, Grohmann and Kauffeld (2013) explained that conducting interviews and observing participant's behavior are unrealistic and prohibitive.

A correlational design was the most effective design for this study since it offered a non-obtrusive approach to identify significant relationships between variables (Leedy & Ormond, 2010). Employment of a descriptive correlational methodology enabled examination of a possible relationship between LMX leadership and stress among IT workers. The collected numerical data employing a survey of IT workers contained their opinions of LMX and attitudes toward stress. The data also included their personal characteristics of age, gender, level of education, and length of employment. The population was 84,000 IT workers in the Western United States with a sample population of 449 subjects. Further, to facilitated measurement of the control variables and rule out alternative explanations, the acquisition of the following data occurred:

- Number of IT workers from IT organizations with 500 or fewer workers in the Western region of the United States was 249.
- Number of IT workers from IT organizations with 501 or more workers in the Western region of the United States was 200.
- Ages of the subjects were as follows: less than 21 years, 21-30 years, 31-40 years, 41-50 years, or 51 or older.
- Gender—female or male
- Level of education of the participant: high school (or equivalent), some college, associate's degree, bachelor's degree, master's degree, doctoral degree, or other
- Length of employment: less than one year, 1-5 years, 6-10 years, or 10-15 years, or 16 years or more.

No attempt to control or manipulate the variables occurred. However, this research design allowed for the use of correlation statistics to describe and measure the degree of relationship between the two variables of LMX and stress (Leedy & Ormond, 2011). The two dimensions of stress measured were time stress (lack of time) and anxiety stress.

The following research questions and hypotheses were at the center of the research.

R1: What correlation, if any, exists between LMX quality and stress among workers within IT organizations in the Western region of the United States with 500 or fewer workers?

H_1: A correlation exists between LMX quality and stress among workers in IT organizations in the Western region of the United States with 500 or fewer workers.

H_0: A correlation does not exist between LMX quality and stress among workers in IT organizations in the Western region of the United States with 500 or fewer workers.

R_2: What correlation, if any, exists between LMX quality and stress among workers within IT organizations in the Western region of the United States with 501 or more workers?

H_2: A correlation exists between LMX quality and stress among workers within IT organizations in the Western region of the United States with 501 or more workers.

H_0: A correlation does not exist between LMX quality and stress among workers within IT organizations in the Western region of the United States with 501 or more workers.

The control variables were age, gender, level of education, and length of employment. Large IT organizations with 501 or more workers and IT SMEs of 500 of fewer workers were also control variables. LMX was the predicator or independent variable, and stress was the criterion or dependent variable (Figure 2). The control variables were age, gender, level of education, and length of employment. Large IT organizations with 501 or more workers and IT SMEs of 500 or fewer workers were also control variables.

The foundation of LMX theory is social exchange theory (SET), which includes a focus on the subjectivity of individual action, which affects the quality of relationships (Peng, Schaubroeck, & Li, 2014). As the quality of LMX relationships increases, employee organizational identity improves and turnover decreases (Harris et al., 2014; Stark & Jeffries, 2011). If LMX quality is high, workers view their jobs positively (Stark & Jeffries, 2011).

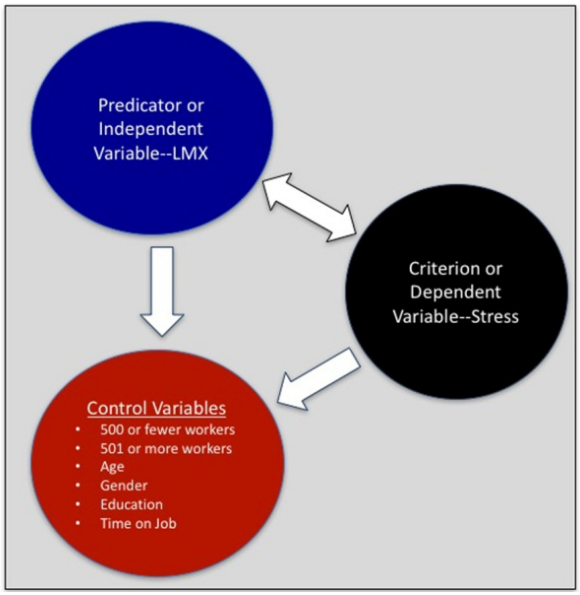

Figure 2. Predicator, Control Variables, and Criterion Diagram pictures the interaction of the various variables in the research that were at the center of the research problem, research questions, and hypotheses

The dyadic vertical interaction between supervisor and subordinate is essential to understand an LMX relationship (Kalshoven et al., 2011; Power, 2013). Through reciprocation of resources, a symbiotic LMX relationship occurs that becomes mutually beneficial to the parties (Peng et al., 2014). The distinctive constructs of empathy, ethical values, and relation-oriented behavior affect the collectivity, quality, and evolution of the exchange relationship and assist to differentiate workers into in-groups and out-groups (DeConinck, 2011; Mahsud, Yukl & Prussia, 2010). According to Zhang, Waldman, and Wang (2012), through LMX creation of "in-groups," supervisorial relationships exert positive and strong influences on subordinates' performance and satisfaction in the workplace. In contrast, workers assigned to "out-groups" include those who follow their contractual obligations, thus possessing a narrow view of reciprocal trust, and therefore, lack support from supervisors (Eisenberger et al., 2014).

The theoretical foundation was LMX and conservation of resources (COR) theories. Definition of LMX theory includes a role-making process that occurs in supervisors who develop various relationships with their workers (Wallumbwa et al., 2011). However, Hobfoll (1989) analyzed COR theory and suggested stress and burnout occur when individuals perceive a threat to what they value in their work environments, such as job security, relationships, competence, and recognition. According to Hobfoll (1998, 2001), stress occurs when people believe that their primary resources were in jeopardy after significant resource investment by the worker. These resources include tangible and intangible assets that are important in the lives of the workers (Gorgievski, Halbesleben, & Bakker, 2010; Gorgievski & Hobfoll, 2008; Martinaityte & Sacramento, 2013).

Therefore, using LMX and COR theories acted as the basis to understand the behavior of LMX and stress, as well as explored if high-quality LMX reduced stress in IT workers from the Western region. Thus, if high-quality LMX exists, the stress reduction should occur (Hesselgreaves & Scholarios, 2014; Lawarence & Kacmar, 2012).

5. Population and Sample Selection

The targeted audience was IT workers (N=84,000) from the Western region of the U.S. The sample population reached (n=449). A significant advantage of using a simple random sampling is that it allowed us to use statistical methods to analyze sample results. The Western region of the U.S. consisted of California, Oregon, Washington, Idaho, Utah, Nevada, Arizona, New Mexico, Colorado, Wyoming, Montana, Hawaii, and Alaska.

In the 2012 U.S. Census, there were 3,136,025 million IT workers in the U.S. (Caruso, 2015). Roughly 861,800 U.S. workers are in IT SMEs with 500 or fewer workers. Nearly, 2,650,953 people were in IT organizations with 500 workers or more (Caruso, 2015). The Bureau of Labor Statistics (2014) reported 83,660 workers were in IT organizations within the Western region of the U.S. Therefore, the estimated target population size for this research was (N=84,000).

It was determined that the original sample size was (n=383) and later grew to (n=449) after data collection. The confidence level was 95%, and the margin of error was 5%. The data collection included distribution of a self-administered internet-based LMX-7 and Parker and DeCotiis (1983) job stress survey. Workers of SMEs with 500 or fewer workers and workers in large IT organizations with 501 or more workers within the Western region of the U.S. received the survey. The data measured the existence of LMX quality and stress in IT workers.

The survey comprised of LMX-7, job stress scale instruments, and demographic queries. To ensure anonymity, subjects received emails asking for their participation. Each participant received an email clarifying the study's purpose and participation instructions. We invited qualified subjects to respond to the survey and continued to invite subjects until the sample size reached (n=449). This distribution of an internet-based survey allowed a greater access to the large target population (N=84,000).

Parker and DeCotiis's (1983) 13-item job stress scale measured anxiety stress and time stress in IT workers. Employing these 13 indicators, allowed us to examine stress

using two dimensions. One dimension of the scale was time stress where a worker felt under constant pressure to produce; and the second dimension was the feelings of anxiety at work (Fields, 2002, p.132). According to Baba, Jamal, & Tourigny. (1998), the Parker and DeCotiis (1983), scale examined overall job stress, and the scale has good psychometric properties.

The survey also facilitated demographic challenges by measurement of the following control variables:

- Number of IT workers from IT organizations with 500 or fewer workers in the Western region of the U.S. was 249.
- Number of IT workers from IT organizations with 501 or more workers in the Western region of the U.S. was 200.
- Age of the participant is as follows: less than 21 years, 21-30 years, 31-40 years, 41-50 years, or 51 or older.
- Gender—female or male.
- Level of education of the participant: high school (or equivalent), some college, associate's degree, bachelor's degree, master's degree, doctoral degree, or other.
- Length of employment: less than one year, 1-5 years, 6-10 years, or 10-15 years, or 16 years or more.

In the informational section of the survey, the respondents listed the State in which they worked.

According to Cooper and Schindler (2011), internal validity exists when an instrument measures the research variables. In contrast, external validity exists when data is generalizable across time, people, and setting (Cooper & Schindler, 2011). The validity of this research focused on how well the survey instrument performed in measuring the variables in the study (Cozby & Bates, 2014). Graen and Uhl-Bien (1995) suggested that LMX-7 is the most appropriate and recommended measure of LMX. Researchers also concluded LMX-7 is more concise than previous instruments (Graen & Uhl-Bien, 1995). Scandura, Graen, and Novak, (1986) had significant interaction while measuring LMX $p < .05$, and the standard deviation was 2.58.

The 13-item job-induced stress scale developed by Parker and DeCotiis (1983) measured stress levels in IT workers. The statistical information from Parker and DeCotiis (1983) initial research had standard deviations of .682 for time stress and .649 for anxiety stress. According to Baba et al. (1998), the Parker and DeCotiis (1983) scale examines overall job stress, having good psychometric properties. These 13-stress indicators measured stress employing two dimensions. The first dimension was time stress, which measures employee's reactions under constant pressure (Fields, 2002). The second dimension is the feelings of job anxiety (Fields, 2002).

Reliability is the degree to which instrument yields a consistent result, yet reliability is insufficient for validity (Cooper & Schindler 2011). Cronbach's alpha is not a statistical test. However, it is a coefficient of reliability and consistency (Falk & Savalei, 2011). The scaling of the Cronbach's alpha is from 0 to 1.0. Falk and Savalei (2011) noted that a 0.70 or greater Cronbach's alpha suggests instrument reliability. Furthermore, Cronbach's alpha measures the internal consistency of the Likert-scale formatted instrument.

The LMX-7 instrument is the most often used survey in LMX research and reportedly has the highest reliability (Joseph, Newman, & Sin, 2011; Lawrence & Kacmar, 2012; Setley, Dion, & Miller, 2013). The reliability of any correlation study has two different sectors —internal consistency and external consistency (Neuman, 2003). The internal consistency examines how consistent the data collection was (Hesse-Biber & Leavy, 2005; MacKenzie, Podsakoff, Podaskoff, 2011). On the other hand, using external consistency, the researcher verifies the new data discovered and compare the findings within current research (Hesse-Biber & Leavy, 2005; Neuman, 2003).

In previous studies, Cronbach's alpha for LMX-7 was α = 0.89 to 0.90 (Lawrence & Kacmar, 2012). Further, Cronbach's alpha for LMX-7 in the research of Graen and Unl-bien (1995) was consistently α = .80 to .90. Moreover, in a study conducted by Scandura et al., 1986, Cronbach's alpha for LMX-7 was α =.86. On the other hand, Cronbach's alpha for time and anxiety stress was α =.86 and .74 in Parker & Decotiis (1983) research. In other research, Cronbach's alpha for the Parker and DeCotiis (1983) job stress instrument was 0.86 to 0.91 (Shabir, Abrar, Baig, & Javed, 2014; Wu & Shih, 2010).

However, in this study, the LMX-7 instrument for IT SMEs was α = .78, and in large IT organizations, Cronbach's alpha was α = .82 for LMX-7. In contrast, Cronbach's alpha for time stress in IT SMEs was α =.90. However, in large IT organizations, Cronbach's alpha was α = .92 for time stress. Further, Cronbach's alpha for anxiety stress in IT SMEs was α =.87 compared to large IT organizations that was α = .88 for anxiety stress. All alpha scores suggested the LMX-7 and the Parker and DeCotiis (1983) job stress scale were reliable.

The numerical and percentage breakdown of 449 workers who participated in the survey comprised two groups of IT workers. The first group of 249 workers (55.5%) was from IT SMEs. The second group of 200 workers (44.5%) came from large IT organizations.

Subjects came from the States of California, Oregon, Washington, Idaho, Utah, Nevada, Arizona, New Mexico, Colorado, Wyoming, Montana, Hawaii, and Alaska. Table 1 contains the total number of subjects who participated. In Table 1, California had the highest respondent rate of 251 subjects or 55.9% of the total respondents (n=449). In contrast, Wyoming had the lowest respondent rate of one or 0.2% of (n=449).

Subjects in the Western region belonged to two groups: IT SMEs (500 or fewer workers) and large IT organizations (501 or more workers). Originally, the suggested sample size for this research was (n=383). However, the final tabulation for the sample population was (n=449). The breakdown by State, frequency, and percentage of participation from the

sample population (n=449) is in Table 2 for SMEs and in Table 3 for large organizations.

Demographics. To rule out alternative explanations, we used demographic control variables. Control variables were age, gender, level of education, and length of employment. The gender distribution of SMEs IT workers and IT workers in large organizations were 119 (47.8%) female and 130 (52.2%) male IT workers from the Western region of the U.S.

On the other hand, in large IT organizations of 501 or more workers, 85 (42.5%) were female. in comparison to 115 (57.5%) male workers. These subjects also came from the Western region. Total female subjects were 204 (45.4%), and 245 subjects (54.6%) were male.

Table 1. Total Subjects

States	Frequency (n=449)	Percent	Valid Percent	Cumulative Percent
California	251	55.9%	55.9%	55.9%
Oregon	23	5.1%	5.10%	61.00%
Washington	37	8.20%	8.20%	69.30%
Idaho	8	1.80%	1.80%	71.00%
Utah	24	5.40%	5.40%	76.40%
Nevada	17	3.80%	3.80%	80.20%
Arizona	42	9.40%	9.40%	89.50%
New Mexico	8	1.80%	1.80%	91.30%
Colorado	24	5.40%	5.40%	96.70%
Wyoming	1	0.20%	0.20%	96.90%
Montana	5	1.10%	1.10%	98.00%
Hawaii	6	1.30%	1.30%	99.30%
Alaska	3	0.70%	0.70%	100.00%
Total	449	100%	100%	

Table 2. SMEs in Western Region

States	Frequency (n=249)	Percent	Valid Percent	Cumulative Percent
California	140	56.2%	56.2%	56.2%
Oregon	9	3.6%	3.6%	59.8%
Washington	20	8.0%	8.0%	67.8%
Idaho	7	2.8%	2.8%	70.7%
Utah	12	4.8%	4.8%	75.5%
Nevada	10	4.0%	4.0%	79.5%
Arizona	24	9.6%	9.6%	89.1%
New Mexico	3	1.2%	1.2%	90.3%
Colorado	15	6.0%	6.0%	96.4%
Wyoming	1	0.4%	0.4%	96.8%
Montana	3	1.2%	1.2%	98.0%
Hawaii	3	1.2%	1.2%	99.2%
Alaska	2	0.8%	0.8%	100.0%
Total	249	100.0%	100.0%	

Table 3. Large Organizations in Western Region

States	Frequency (n=200)	Percent	Valid Percent	Cumulative Percent
California	111	55.5%	55.5%	55.5%
Oregon	14	7.0%	7.0%	62.5%
Washington	17	8.5%	8.5%	71.0%
Idaho	1	0.5%	0.5%	71.5%
Utah	12	6.0%	6.0%	77.5%
Nevada	7	3.5%	3.5%	81.0%
Arizona	18	9.0%	9.0%	90.0%
New Mexico	5	2.5%	2.5%	92.5%
Colorado	9	4.5%	4.5%	97.0%
Wyoming	0	0.0%	0.0%	97.0%
Montana	2	1.0%	1.0%	98.0%
Hawaii	3	1.5%	1.5%	99.5%
Alaska	1	0.5%	0.5%	100.0%
Total	200	100.0%	100.0%	

Almost, 72% of the 449 subjects were between 21 and 40 years of age. The group with the most subjects was 31-41 years if age or 106 (42.6%) of the subjects working in SMEs. In contrast, there were 84 subjects (42%) in large organizations. The age group least frequented was less than 21 years of age. SMEs had 5 (2%) subjects, and there were 2 (1%) subjects from large organizations.

Of the total 449 subjects, 33 (7.4%) had no college education. In contrast, the highest frequency of education in SMEs and large organization was a Bachelor's Degree, representing 178 respondents (39.6%) of the total subjects. The education level least frequented was "other." These subjects (0.5%) in large IT organizations had professional certifications. In comparison, in IT SMEs 500 or fewer workers, 23 (9.2%) workers had no college education, and 97 (39%) had Bachelor's Degrees. However, in large IT organizations with 501 or more workers, 10 (5.0%) workers were without any college education, and 81 (40.5%) workers had Bachelor's Degrees.

Out of the 449 total subjects, the greatest frequency rate of tenure was 6 to 10 years or 109 SMEs subjects (43.8%) responding. On the other hand, in large IT organizations, 73 subjects (36.5%) had length of employment for 6-10 years. The "less than one-year" group in large IT organizations had a length of employment rate of 4.5% compared with IT SMEs of 4.4% in "less than one-year" group.

To determine the amount of time stress, we used the mean score on the first 8-items in the Parker and DeCotiis (1983) job stress scale. Subjects responded using a five-point Likert scale (*1=strongly disagree to 5=strongly agree*). Thus, a higher score depicts the greater amount of time stress and a lower score shows a smaller amount of time stress in IT organizations. The reliability of Parker and DeCotiis (1983) instrument for measuring time stress in IT SMEs was α = 0.90, and in large IT organizations for time stress was α = 0.92. Researchers noted α = 0.70 or greater Cronbach's alpha suggests instrument reliability (Falk & Savalei, 2011). Table

4 contains results for time stress in IT workers. In SMEs, 63.7% of respondents suffered from time stress. In contrast, 61.6% of IT workers in large organizations had time stress. In total, 62.7% of all IT workers in the Western region of the U.S. experienced time stress.

Table 4. Time Stress

Time Stress	500 or Fewer Workers (n=249) Mean	501 or More Workers (n=200) Mean	Minimum	Maximum
Time-1	3.05	3.08	1	5
Time-2	3.04	2.92	1	5
Time-3	3.14	3.08	1	5
Time-4	3.32	3.15	1	5
Time-5	3.28	3.17	1	5
Time-6	3.12	3.04	1	5
Time-7	3.19	2.96	1	5
Time-8	3.33	3.31	1	5

The employment of the 5-items on the Parker and DeCotiis (1983) instrument measured anxiety stress *(1=strongly disagree to 5=strongly agree*). Higher mean scores suggested greater anxiety stress levels. Both IT SMEs (n=249) with 500 or fewer workers and large IT organizations (n=200) of 501 or more workers participated, as shown in Table 5. The reliability in measuring anxiety stress in IT SMEs was $\alpha = 0.78$, and $\alpha = 0.88$ was for large IT organizations. Further, Falk and Savalei (2011) commented a 0.70 or greater Cronbach's alpha illustrates the instrument is reliable. Table 5 contains means score of IT workers from SMEs with 500 or fewer works and IT workers within large organizations. In SMEs, 63.3% of IT workers suffered from anxiety stress. In comparison, 61.8% of IT workers had anxiety stress. In total, 62.6% of all IT workers in the Western Region of the U.S. suffered from anxiety stress.

Table 5. Anxiety Stress

Anxiety Stress	500 or Fewer Workers (n=249) Mean	501 or More Workers (n=200) Mean	Minimum	Maximum
ANX-1	3.05	3.08	1	5
ANX-2	3.04	3.15	1	5
ANX-3	3.14	3.36	1	5
ANX-4	3.32	2.98	1	5
ANX-5	3.28	3.08	1	5

6. Results

R_1: What correlation, if any, exists between LMX quality and stress among workers within IT organizations in the Western region of the U.S. with 500 or fewer workers?

This research question guided the study in IT workers from SMEs. As a result, we employed LMX-7 instrument to measure the strength and quality of LMX relationships between the leader (supervisors) and the follower (subordinate). There were 249 IT workers from SMEs who participated. Table 6 contains the total LMX mean score of 25.83 for IT workers in SMEs with 500 or fewer workers. According to Graen and Uhl-Bien (1995), this mean score represents a high-quality LMX relationship.

Table 6. LMX-7 Total Mean Score in SMEs

LXM-7 Items	500 or Fewer Workers (n=249) Mean	Minimum	Maximum
LMX-1	3.90	1	5
LMX-2	3.72	1	5
LMX-3	3.85	1	5
LMX-4	3.85	1	5
LMX-5	3.38	1	5
LMX-6	3.88	1	5
LMX-7	3.25	1	5
Totals	25.83	7	35

Table 7 contains the standard deviation of distribution of scores around the mean. The smaller the standard deviation, the narrower the range between the lowest and highest scores. The closer the cluster to the average score also makes the results of answers in closer proximity to the whole.

Table 7. Demographics in SMEs

Control Variables	n	Minimum	Maximum	Mean	Std. Deviation
Age	249	1	5	3.00	0.957
Gender	249	1	2	1.48	0.501
Level of Education	224	1	5	2.67	1.066
Length of Employment	249	1	5	2.71	0.856

LMX Descriptive Statistics

Predictor Variable	n	Minimum	Maximum	Mean	Std. Deviation
LMX	249	1.71	5.00	3.6961	0.82989

Time and Anxiety Stress Descriptive Statistics

Criterion Variables	n	Minimum	Maximum	Mean	Std. Deviation
Time Stress	233	1.38	5.00	3.2951	0.82303
Anxiety Stress	249	1.00	5.00	3.2056	0.93695

Table 7 also contains mean and standard deviation for control variables, predicator variable (LMX), and the criterion variable (stress) results. Standard deviation for length of employment (0.856) and gender (0.501) were closer to the mean score than age (0.957) and level of education (1.066) were. Level of education had more

disparity. However, standard deviation for time stress (0.82303) was close to the mean. Moreover, standard deviation for anxiety stress was (0.93695).

Among IT SMEs with 500 or fewer workers, the *p-value* (p = .954) indicated no probability of significant correlation between time stress and LMX. Thus, there was no evidence to reject the null hypothesis (H_0). In Tables 8, 9, and 10, the control variables of age, gender, level of education, and length of employment also had insignificant *p-values* in determining the predicator (LMX) and criterion variables for outcomes for time stress in IT workers from SMEs.

Table 8. Control Variable Regression in SMEs by Time Stress

Control Variables	Unstandardized Coefficients		Standardized Coefficients	*t*	*p-value*
	β	Std. Error	Beta		
Constant	3.098	0.419		7.389	0.000
Age	-0.125	0.090	-0.126	-1.393	0.166
Gender	0.075	0.150	0.040	0.499	0.619
Level of Education	0.056	0.067	0.067	0.844	0.400
Length of Employment	0.080	0.081	0.090	0.982	0.327

Table 9. Predictor and Control Analysis in SMEs by Time Stress

Variables	Unstandardized Coefficients		Standardized Coefficients	*t*	*p-value*
	β	Std. Error	Beta		
Constant	3.642	0.489		7.45	0.00
LMX	0.027	0.093	0.02	0.29	0.77
Age	-0.269	0.068	-0.295	-3.95	0.00
Gender	-0.042	0.116	-0.025	-0.36	0.72
Level of Education	0.05	0.055	0.064	0.92	0.36
Length of Employment	0.109	0.077	0.11	1.43	0.16

Table 10. Predictor Variable Regression Analysis in SMEs by Time Stress

Variables	Unstandardized Coefficients		Standardized Coefficients	*t*	*p-value*
	β	Std. Error	Beta		
Constant	3.314	0.331		10.00	0.00
LMX	-0.005	0.089	-0.004	-0.06	0.95

Further, anxiety stress in SMEs had a *p-value of* (p = .264), suggesting no probability of a significant correlation between LMX and anxiety stress. Therefore, the null hypothesis (H_0) stating there is no relationship between LMX and (anxiety) stress was true. Tables 11, 12, and 13 contain the control variables also had insignificant *p-values* in determining the predicator (LMX) and criterion variables for stress outcomes for anxiety stress in IT SMEs.

Table 11. Control Variable Regression Analysis in SMEs by Anxiety Stress

Variables	Unstandardized Coefficients		Standardized Coefficients	*t*	*p-value*
	β	Std. Error	Beta		
Constant	3.421	0.435		7.39	0.00
Age	-0.228	0.092	-0.211	-2.49	0.17
Gender	0.036	0.155	0.017	0.23	0.62
Level of Education	-0.067	0.057	-0.073	-0.99	0.40
Length of Employment	0.177	0.083	0.184	2.13	0.33

Table 12. Predictor and Control Analysis in SMEs by Anxiety Stress

Variables	Unstandardized Coefficients		Standardized Coefficients	*t*	*p-value*
	β	Std. Error	Beta		
Constant	3.997	0.529		7.5	0.0
LMX	-0.103	0.099	-0.068	-1.0	0.3
Age	-0.278	0.073	-0.268	-3.8	0.0
Gender	-0.11	0.129	-0.058	-0.9	0.4
Level of Education	0.086	0.06	0.096	1.4	0.2
Length of Employment	0.141	0.084	0.124	1.7	0.1

Table 13. Predictor Variable Regression Analysis in SMEs by Anxiety Stress

Variables	Unstandardized Coefficients		Standardized Coefficients	*t*	*p-value*
	β	Std. Error	Beta		
Constant	6.596	0.354		10.17	0.00
LMX	-0.106	0.094	-0.071	-1.12	0.26

Table 14 contains the model summary by time stress in SMEs. The R-squared for the control and predictor variables combined were .081, suggesting the model accounted for roughly 8.1% of the variation in time stress in SMEs. For the predictor variable, the R-squared statistic was (R^2 = 0.000) or 0.0%. Therefore, the four variables only accounted for a 8.1% improvement. Thus, the control variables were not significant.

Figure 3 contains a graph showing a negative and nonlinear relationship between time stress and LMX in IT workers from SMEs with 500 or fewer workers in the Western region of the U.S. The R-squared was (R^2 = 0.13264). Only 13.26% of the variation in time stress LMX explained. Therefore, there was no correlation between time stress and LMX in SMEs.

Table 15 contains the model summary of anxiety stress in SMEs. The R-squared for the control and predictor variables combined were .088, indicating that the model accounted for about 8.8% of the variation in anxiety stress in SMEs. For the

predictor variable, the R- squared statistic was (R^2 = 0.005) or 0.5%. Therefore, the four control variables only accounted for 8.3% improvement, thereby, were not significant variation.

Table 14. Model of SMEs by Control Variable, LMX and Time Stress

Variables	R	R Squared	Adjusted R Squared	Std. Error of the Estimate
LMX Age, Gender, Level of Education Length of Employment	0.285	0.081	0.058	0.80296

Model of SMEs by LMX

Variable	R	R Squared	Adjusted R Squared	Std. Error of the Estimate
LMX	0.004	0.000	-0.004	0.8248

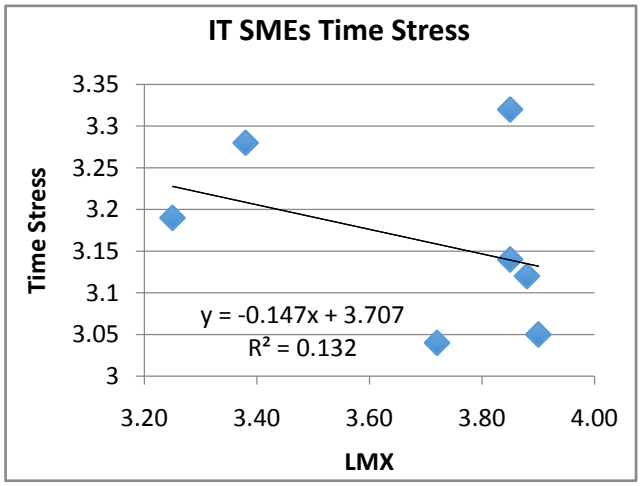

Figure 3. Nonlinear relationship between LMX and Time Stress in SMEs suggests no linear correlation

Table 15. Model of SMEs, Control Variable, LMX and Anxiety Stress

Variables	R	R Squared	Adjusted R Squared	Std. Error of the Estimate
LMX Age, Gender, Level of Education Length of Employment	0.296	0.088	0.067	0.921

Model of SMEs by LMX

Variable	R	R Squared	Adjusted R Squared	Std. Error of the Estimate
LMX	0.071	0.005	0.001	0.93647

Figure 4 contains a negative and nonlinear relationship between LMX and anxiety stress in SMEs with 500 or fewer workers. The R-squared was (R^2 = 0.03592). Only 3.59% of the variation in anxiety stress LMX explained. Consequently, there was no correlation between anxiety stress and LMX in SMEs.

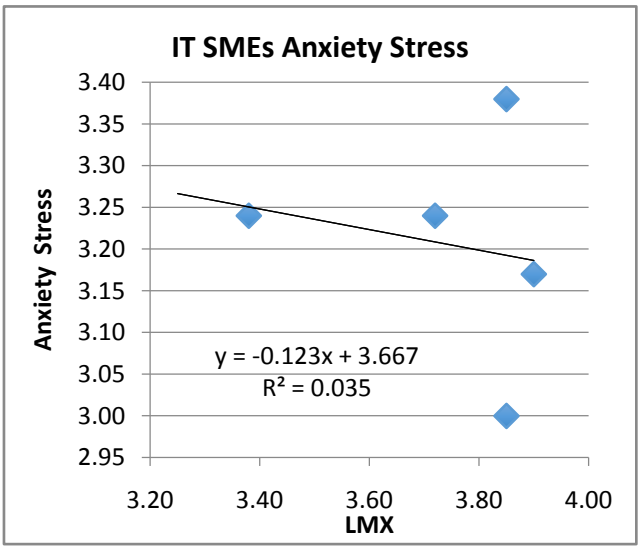

Figure 4. The data indicated a non-linear relationship in SMEs between LMX and anxiety stress

LMX, time stress, and anxiety stress in SMEs. Among IT SMEs of 500 or fewer workers, Pearson Correlation for time stress was (r = -.004). As a result, there was no relationship between time stress and LMX. Further, sig. (2-tailed) for time stress was (p = .954) that also suggested there was no probability a relationship exists between time stress and LMX. Thus, acceptance of null hypothesis that no relationship exists between LMX and stress occurred. Concerning anxiety stress in SMEs, the Pearson Correlation was (r = -.071) that also signifies a very slight negative relationship between LMX and anxiety stress. However, there was no significance in the data that a correlation existed between LMX and stress. The sig. (2-tailed) for anxiety stress was (p = .264) suggesting no probability of a relationship between LMX and stress. Therefore, the null hypothesis was valid. Table 16 contains the Pearson Correlation statistics.

There was no correlation found between LMX quality and stress (time and anxiety stress) in IT workers within IT SMEs with 500 or fewer workers in the Western region of the U.S. The data analysis and results used written and graphical information to ensure readability and clarification of the research findings. The following hypotheses were at the center of the research.

H_1: A correlation exists between LMX quality and stress among workers in IT organizations in the Western region of the U.S. with 500 or fewer workers.

There was no relationship between LMX quality and stress in IT SMEs within the Western region of the U.S. Therefore, rejection of the alternative hypothesis occurred. These results surprised us.

H_0: A correlation does not exist between LMX quality and stress among workers in IT organizations in the Western region of the U.S. with 500 or fewer workers.

There was no correlation between quality and stress among workers of IT SMEs within the Western region of the U.S. Both time stress and anxiety stress had no relationship with LMX.

Table 16. Correlation between LMX, Time Stress, and Anxiety Stress in SMEs

		LMX	Time Stress
LMX	Pearson Correlation	1	-0.004
	Sig. (2-tailed)		0.954
	N	233	233
Time Stress	Pearson Correlation	-0.004	1
	Sig. (2-tailed)	0.954	
	N	233	233
		LMX	Anxiety Stress
LMX	Pearson Correlation	1	-0.071
	Sig. (2-tailed)		0.264
	N	233	233
Anxiety Stress	Pearson Correlation	-0.071	1
	Sig. (2-tailed)	0.264	
	N	233	233

As a result, acceptance of the null hypothesis that a correlation does not exist between LMX quality and stress among workers in IT organizations in the Western region of the U.S. with 500 or fewer workers resulted.

R_2: What correlation, if any, exists between LMX quality and stress among workers within IT organizations in the Western region of the U.S. with 501 or more workers?

Table 17 contains the total mean score of 26.85 in IT organizations with 501 or more workers. Therefore, IT workers in large organizations were in a high-quality LMX relationship (Graen & Uhl-Bien, 1995). Both IT SMEs and IT large organization had high-quality LMX relationships.

Table 17. LMX Mean Scores in Large Organizations

LXM-7	501 or More Workers (n=200)	Minimum	Maximum
Items	Mean		
LMX-1	4.04	1	5
LMX-2	3.92	1	5
LMX-3	3.99	1	5
LMX-4	4.00	1	5
LMX-5	3.48	1	5
LMX-6	3.99	1	5
LMX-7	3.43	1	5
Totals	26.85	7	35

Time stress negatively influenced 61.8% of IT workers from large organizations, and anxiety stress affected 62.6% of IT workers in large organizations. The standard deviation in Table 18 provided score distribution around the mean. In essence, the smaller the standard deviation, the narrower the range between the lowest and highest scores. These scores cluster closely around the average score making the results closer to the proximity of the whole. Table 19 also contains the results for mean and standard deviation for control variables, predicator variable (LMX), and the criterion variable (stress).

Table 18. Large Organizations Demographic Descriptive Statistics

Control Variables	n	Minimum	Maximum	Mean	Std. Deviation
Age	200	1	5	3.05	0.955
Gender	200	1	2	1.43	0.496
Level of Education	190	1	5	2.87	1.121
Length of Employment	200	1	5	3.08	1.091

Large Organizations LMX Descriptive Statistics

Predicator Variable	n	Minimum	Maximum	Mean	Std. Deviation
LMX	200	1.14	5.00	3.8264	0.69054

Large Organizations Time and Anxiety Stress Descriptive Statistics

Criterion Variables	n	Minimum	Maximum	Mean	Std. Deviation
Time Stress	181	1.13	5.00	3.2424	0.92835
Anxiety Stress	200	1.00	5.00	3.1300	1.01640

Similarly, concerning time stress in large IT organizations of 501 or more workers, the *p*-value ($p = .346$) indicated there was no significant probability that a correlation exists between time stress and LMX. Thus, the null hypothesis (H_0) was true. In Tables 19, 20, and 21, the control variables had insignificant *p-values.* Therefore, the control variables were not significant in determining LMX and outcomes for both time stress and anxiety stress in large IT organizations.

Anxiety stress in large IT organizations with 501 or more workers had a *p*-value of ($p = .010$) suggesting the probability there was a correlation between anxiety stress and LMX. The data were significant supporting the alternative hypothesis (H_2) that there is a correlation between LMX and (anxiety) stress. The control variables had insignificant *p-values* in determining the predicator (LMX) and criterion variable for stress (Tables 22 and 23). Therefore, the control variables were not significant factors in determining the effects of time stress and anxiety stress in large IT organizations. Table 24 contains anxiety stress *p-value* ($p = .010$) suggesting there was a correlation

between LMX and anxiety stress in IT workers of large organizations in the Western region of the U.S.

Table 19. Control Variable Regression in Large Organizations by Time Stress

Variables	Unstandardized Coefficients		Standardized Coefficients	*t*	*p-value*
	β	Std. Error	Beta		
Constant	2.681	0.419		7.39	0.00
Age	0.105	0.09	-0.126	-1.39	0.17
Gender	-0.118	0.15	0.04	0.50	0.62
Level of Education	0.078	0.067	0.067	0.84	0.40
Length of Employment	0.06	0.081	0.09	0.98	0.33

Table 20. Predictor and Control in Large IT Organizations by Time Stress

Variables	Unstandardized Coefficients		Standardized Coefficients	*t*	*p-value*
	β	Std. Error	Beta		
Constant	2.681	0.6		4.47	0.00
LMX	0.105	0.108	0.075	0.97	0.33
Age	-0.118	0.09	-0.116	-1.30	0.95
Gender	0.078	0.15	0.042	0.52	0.60
Level of Education	0.06	0.067	0.071	0.90	0.37
Length of Employment	0.074	0.081	0.084	0.91	0.37

Table 21. Predictor Variable Regression Analysis in Large Organizations by Time Stress

Variables	Unstandardized Coefficients		Standardized Coefficients	*t*	*p-value*
	β	Std. Error	Beta		
Constant	2.875	0.395		7.277	0.000
LMX	0.097	0.103	0.070	0.945	0.346

Table 22. Control Variable Regression in Large Organizations by Anxiety Stress

Variables	Unstandardized Coefficients		Standardized Coefficients	*t*	*p-value*
	β	Std. Error	Beta		
Constant	3.596	0.838		9.40	0.00
Age	-0.279	0.073	-0.269	-3.80	0.00
Gender	-0.106	0.129	-0.055	-0.82	0.41
Level of Education	0.088	0.06	0.098	1.46	0.15
Length of Employment	0.137	0.083	0.12	1.64	0.10

Table 23. Predictor and Control in Large Organizations by Anxiety Stress

Variables	Unstandardized Coefficients		Standardized Coefficients	*t*	*p-value*
	β	Std. Error	Beta		
Constant	4.502	0.603		7.47	0.00
LMX	-0.272	0.107	-0.181	2.55	0.01
Age	-0.241	0.09	-0.223	-2.66	0.01
Gender	0.03	0.53	0.014	0.19	0.85
Level of Education	-0.068	0.066	-0.074	-1.03	0.30
Length of Employment	0.18	0.082	0.187	2.19	0.03

Table 24. Predictor Variable Regression in Large Organizations by Anxiety Stress

Variables	Unstandardized Coefficients		Standardized Coefficients	*t*	*p-value*
	β	Std. Error	Beta		
Constant	4.155	0.4		10.39	0.00
LMX	-0.268	0.103	-0.182	-2.61	0.01

Table 25 contains the model summary of time stress in large IT organizations. The R- squared for the control and predictor variables combined were .023, indicating that the model accounted for roughly 2.3% of the variation in anxiety stress in SMEs LMX explained. For the predictor variable, the R-squared statistic was ($R^2 = 0.005$) or 0.5%. Therefore, the four control variables only accounted for a 1.8% improvement, and, thereby, were not significant.

Table 25. Model of Large Organizations by Control Variable, LMX and Time Stress

Variables	R	R Squared	Adjusted R Squared	Std. Error of the Estimate
LMX Age, Gender, Level of Education Length of Employment	0.1582	0.023	-0.007	0.93647

Model of Large Organizations by LMX

Variable	R	R Squared	Adjusted R Squared	Std. Error of the Estimate
LMX	0.07	0.005	-0.001	0.92863

Figure 5 contains a slightly positive nonlinear relationship between LMX and time stress in large IT organizations with 501 or fewer workers. The R-squared ($R^2 = 0.00343$). Only .343% of the variation in time stress LMX explained. Thus, there was no correlation between LMX and time stress.

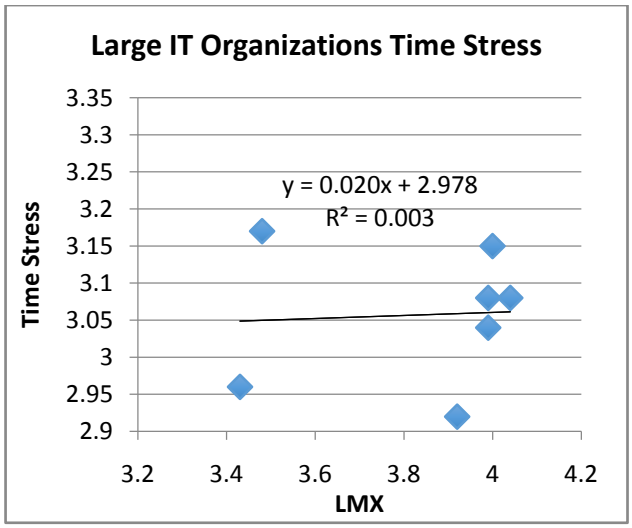

Figure 5. The data indicated a non*l*inear relationship between LMX and Time Stress

Table 26 contains, the R- squared for the control and predictor variables combined were .073, suggesting the model accounted for roughly 7.3% of the variation in anxiety stress in SMEs. For the predictor variable, the R-squared statistic was (R^2 = 0.033) or 3.3%. Therefore, the four variables only accounted for a 4.0% improvement, which was not a significant variation.

Table 26. Model of Large Organizations by Control Variable, LMX and Anxiety Stress

Variables	R	R Squared	Adjusted R Squared	Std. Error of the Estimate
LMX Age, Gender, Level of Education Length of Employment	0.271	0.073	0.048	1.00672

Model of Large Organizations by LMX and Anxiety Stress

Variable	R	R Squared	Adjusted R Squared	Std. Error of the Estimate
LMX	0.182	0.033	0.028	1.00193

Figure 6 contains a negative and nonlinear relationship between anxiety stress and LMX in large IT organizations with 501 or fewer workers. The R-squared was (R^2 = 0.03412). Therefore, only 3.41% of the variation in anxiety stress LMX explained. Thus, there was no clear correlation between anxiety stress in large IT organizations.

LMX, time stress, and anxiety stress in large organizations. In large IT organizations of 501 or more workers for time stress, Pearson Correlation was (r = .070) which indicated no correlation between time stress and LMX. The sig. (2-tailed) concerning time stress was (p = .346), suggesting the probability there was no evidence to reject the null hypothesis. On the other hand, in Table 27 anxiety stress in large IT organizations, Pearson Correlation was (r = -.182) which also suggested no correlation. Nevertheless, the sig. (2-tailed) was (p = .010) which inferred the probability of correlation between anxiety stress and LMX was significant to accept the alternative hypothesis (H_2) that a correlation exists between (anxiety) stress and LMX.

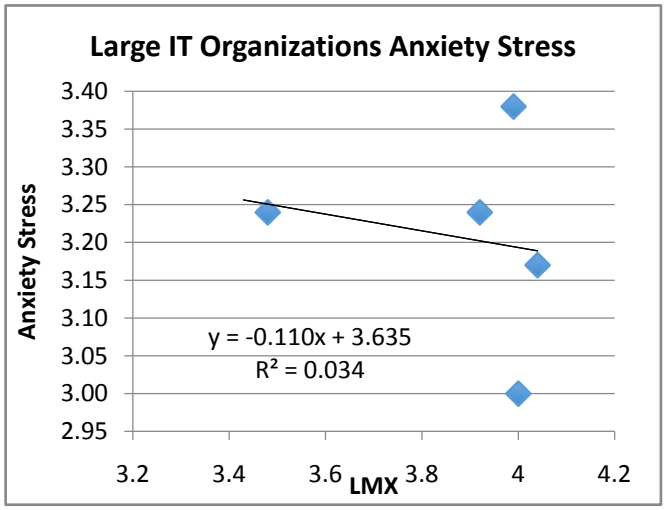

Figure 6. There was no linear relationship in large IT organizations between LMX and anxiety stress

Table 27. Correlation between LMX, Time Stress, and Anxiety Stress in Large Organizations

		LMX	Time Stress
LMX	Pearson Correlation	1	0.070
	Sig. (2-tailed)		0.346
	N	181	181
Time Stress	Pearson Correlation	0.070	1
	Sig. (2-tailed)	0.346	
	N	181	181
		LMX	Anxiety Stress
LMX	Pearson Correlation	1	-0.182**
	Sig. (2-tailed)		0.010
	N	200	200
Anxiety Stress	Pearson Correlation	-0.182**	1
	Sig. (2-tailed)	0.010	
	N	200	200

** Correlation is significant at the 0.01 level (2-tailed)

There was no correlation between (time) stress and LMX among workers within large IT organizations of 501 or more workers in the Western region of the U.S. Therefore, the null hypothesis that declared a correlation does not exist between LMX quality and (time) stress among IT workers in the Western region of the U.S. with 501 or more workers was valid. Nevertheless, there was a correlation between (anxiety) stress and LMX within large IT organizations. Therefore, validation of the alternative hypothesis (H_2) that declared a

correlation exists between LMX quality and (anxiety) stress among workers within IT organizations in the Western region of the U.S. with 501 or more workers occurred.

H_2: A correlation exists between LMX quality and stress among workers within IT organizations in the Western region of the U.S. with 501 or more workers.

There was no relationship between LMX and (time) stress in IT workers of large organizations within the Western region. Rejection of the alternative hypothesis (H_2) occurred. Nonetheless, there was evidence of a relationship between LMX and (anxiety) stress in workers of large IT organizations within the Western region of the U.S. As a result, there was evidence to accept the alternative hypothesis (H_2).

H_0: A correlation does not exist between LMX quality and stress among workers within IT organizations in the Western region of the U.S. with 501 or more workers.

Due to the lack of evidence that a correlation existed between LMX quality and (time) stress, the acceptance of null hypothesis occurred. On the other hand, there was a correlation between LMX and (anxiety) stress in large IT organizations. Therefore, the alternative hypothesis (H_2) was valid. Again, these results amazed us.

LMX-7 comparison. Employing the LMX-7, we measured the strength and quality of the relationship in an LMX relationship in SMEs and large organizations. In IT SMEs with 500 or fewer workers, the total mean was 25.83, suggesting high-quality LMX relationships. Further, large IT organizations of 501 or more workers had a total mean of 26.85 also suggesting high-quality LMX relationships. Table 28 contains the comparisons between SMEs and large IT organizations.

Table 28. LMX-7 Mean Scores in SMEs IT and Large IT Organizations

LXM-7	500 or Fewer Workers	501 or More Workers	Minimum	Maximum
	(n=249)	(n=200)		
Items	Mean	Mean		
LMX-1	3.9	4.04	1	5
LMX-2	3.72	3.92	1	5
LMX-3	3.85	3.99	1	5
LMX-4	3.85	4.00	1	5
LMX-5	3.38	3.48	1	5
LMX-6	3.88	3.99	1	5
LMX-7	3.25	3.43	1	5
Totals	25.83	26.85	7	35

Figure 7 contains the comparison of weighted averages of LMX quality in IT SMEs of 500 or fewer workers and large IT organizations of 501 or more workers. Further, the data from LMX-7 measured the quality of LMX with IT SMEs and large IT organizations using a 7-item scale. SMEs received a slightly lower mean LMX score than large organizations.

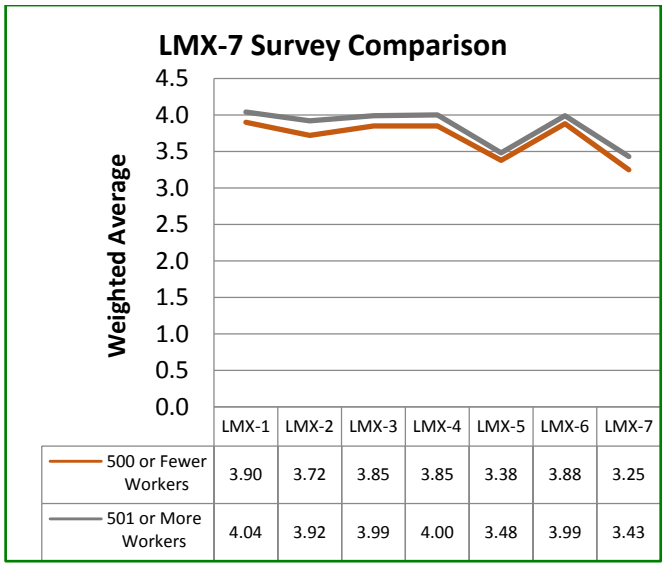

Figure 7. LMX-7 Survey Results Comparison Graph illustrates the mean score per LMX item. As demonstrated in the survey, workers in larger IT organizations on an average scored higher in LMX quality than their counterparts in SMEs

IT workers in SMEs of 500 or fewer workers received a mean score of 25.83 (Figure 8). The mean score of LMX for large organizations with 501 or more workers was 26.85 (Figure 8). Both scores suggest high-quality LMX relationships.

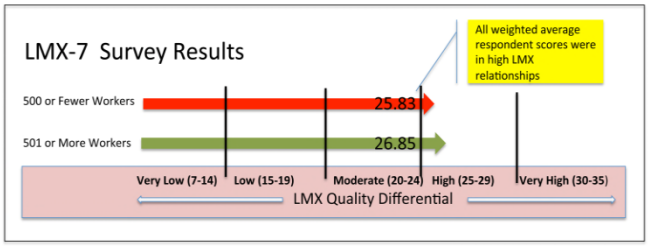

Figure 8. LMX-7 Survey Results depicts both IT SMEs of 500 of fewer workers and large IT organizations with 501 or more workers enjoyed high LMX relationships. Further, large IT organizations scored slightly higher in the LMX index than did IT SMEs with 500 of fewer workers. We created this graph

Comparison of stress results. About 60% of all IT workers feel stress in their jobs (Lorenz, 2014). Further, Eddy (2014) commented stress affects 32% of all senior level IT professionals and 30% of entry-level to mid-level IT professionals, resulting in an overall stress factor of 62%. According to the data, time stress affected 63.7% IT SMEs workers compared to 61.8% of IT workers from large IT organizations. Finally, anxiety stress negatively affected workers from SMEs (64.1%) more than workers (62.6%) in large IT organizations. In large IT organizations, 76.7% of all surveyed respondents viewed their workplace relationships as possessing high-quality LMX. However, in SMEs, 73.8% of respondents saw their workplace relationships as possessing high-quality LMX. However, total stress for SMEs of 500 or fewer workers was 63.2% compared to 63% of workers in large IT organizations with

501 or more workers. Table 29 contains these statistics in overall percentages of stress in both IT SMEs and large IT organizations.

Table 29. LMX, Time Stress, and Anxiety Stress in SMEs and Large Organizations

Group	LMX	Time Stress	Anxiety Stress	Total Stress
	Percent	Percent	Percent	Percent
500 or Fewer Workers (n=249)	73.8%	63.7%	62.6%	63.3%
501 or More Workers (n=200)	76.7%	61.8%	64.1%	62.7%

In this research, the independent or predictor variable was LMX, and the dependent or criterion variable were stress. The 28-item survey that encompassed LMX-7 and Parker and DeCotiis (1983) job stress scale aided in the measuring LMX quality and the levels of stress in both IT SMEs and large IT organizations. Further, Parker and DeCotiis (1983) job stress 13-item scale possessed two dimensions—one dimension measured time stress, and the other dimension assessed anxiety stress.

Relationship between LMX and stress. The predictor variable was LMX and stress (time stress and anxiety stress) was the criterion variable. To rule out alternative explanations, the demographic control variables were age, gender, level of education, and length of employment. A majority of the respondents (89.1%) participated in answering all queries in the survey. Their responses became the data we used to analyze if a correlation exists between LMX and stress in IT SMEs of 500 and fewer workers and large IT organizations with 501 or more workers. Furthermore, the analysis of control variables determined if any correlation existed between them and LMX and stress. Through Pearson Correlation Coefficient statistic, we made inferences based on the collection and analysis of data. The control variables of age, gender, the level of education, and length of employment were not statistically significant to establish a correlation with LMX and stress.

7. Summary

In the Western region of the U.S., 63% of all IT workers identified with job stress. Time stress negatively affected 63.7% of IT workers in SMEs with 500 or fewer workers compared to 61.8% of IT workers from large IT organizations of 501 or more workers. Further, anxiety stress negatively influenced IT workers from SMEs (64.1%) more than IT workers (62.6%) of large IT organizations.

Further, in large IT organizations of 501 or more workers, 76.7% of all surveyed subjects viewed their workplace relationships as high-quality LMX. In contrast, in IT SMEs with 500 or fewer workers, 73.8% of all subjects viewed their IT organizations as having high-quality LMX. The slightly higher LMX quality in large IT organizations might contribute to slightly lower stress levels than in SMEs that had lower LMX quality and higher stress levels in their IT workers.

However, there was no correlation found between LMX quality and stress (time and anxiety) among IT workers within SMEs. Therefore, acceptance of the null hypothesis (H_0) that declared that a correlation does not exist between LMX quality and stress in SMEs with 500 or fewer workers occurred. Moreover, the control variables of age, gender, level of education, and length of employment were not significant in predicting a correlation with the predictor (LMX) and criterion (stress) variables. In fact, there was also no correlations between these control variables and LMX and stress in IT SMEs.

Likewise, there was no correlation between (time) stress and LMX among IT workers in large organizations. Therefore, acceptance of the null hypothesis (H_0) suggesting no correlation exists between LMX quality and (time) stress in workers of large IT organizations resulted. In contrast, there was a correlation between (anxiety) stress and LMX in large IT organizations. Thus, acceptance of the alternative hypothesis that a correlation exists between LMX and (anxiety) stress (H_2) resulted. Further, the control variables of age, gender, level of education, and length of employment had no correlation and were not significant factors that impacted independent variable (LMX) and the dependent variable (stress) in large IT organizations.

In conclusion, there was no correlation between LMX quality and stress among IT workers in SMEs with 500 or fewer workers within the Western region of the U.S. Further, there was also no correlation between LMX quality and (time) stress among IT workers in large organizations of 501 or more workers in the Western region of the U.S. On the other hand, there was a correlation between LMX and (anxiety) stress in large IT organizations with 501 or more workers. Therefore, there was no evidence to reject the null hypothesis that there was no relationship between LMX and (time) stress. In contract, the acceptance of alternative hypothesis that stated that was a relationship between LMX and (anxiety) stress resulted.

REFERENCES

[1] Abii, F. E., Ogula, D. C. N. & Rose, J. M. (2013). Effects of individual and organizational factors on the turnover intentions of information technology professionals. *International Journal of Management, 30*(2), 740–756.

[2] Adkins, A. (2015). *U.S. employee engagement holds steady at 31.7%*. Retrieved from http://www.gallup.com/.

[3] Baba, V.V., Jamal, M. & Tourigny, L. (1998). Work and mental health: A decade in Canadian research. *Canadian Psychology, 38*, 94–107.

[4] Bisel, R. S., Messersmith, A. S., & Kelley, K. M. (2012). Supervisor-subordinate communication: Hierarchical mum

effect meets organizational learning. *Journal of Business Communication, 49*, 128–147. doi:10.1177/0021943612436972.

[5] Bureau of Labor Statistics. (2014). *Occupational employment and wage estimates. May 2014 State occupation employment and wage estimates*. Retrieved from http://www.bls.gov/.

[6] Caruso, A. (2015). *Statistics of U.S. businesses employment and payroll summary: 2012 economy-wide statistics briefs*. Retrieved fromhttp://www.census.gov/content/dam/Census/library/publications/2015/econ/g12-susb.pdf.

[7] Chaudhuri, M. R., & Naskar, P. (2014). Job satisfaction: The eventual smidgeon for occupational consummation and contentment in profession. *DLSU Business & Economic Review, 24*(1), 7–83.

[8] Chullen, C. L. (2014). How does supervisor burnout affect leader-member exchange a dyadic perspective? *International Business & Economic Research Journal, 13*(5), 1113–1126.

[9] Cullen, K. L., Edwards, B. D., Casper, W. C., & Cue, K. R. (2014). Employees' adaptability and perceptions of change-related uncertainty: Implications for perceived organizational support, job satisfaction, and performance. *Journal of Business & Psychology, 29*(2), 269 –280. doi:10.1007/s10869-013-9312-y.

[10] Cooper, D. R., & Schindler, P. S. (2011). *Business research methods* (11th ed.). New York, NY: McGraw-Hill/Irwin.

[11] Creary, S. J., Caza, B. B., & Roberts, L. M. (2015). Out of the box? How managing a subordinate's multiple identities affects the quality of a manager-subordinate relationship. *Academy of Management Review, 40*(4), 538–562. doi:10.5465/amr.2013. 0101.

[12] Cozby, P. C., & Bates, S. (2014). *Methods in behavioral research* (12th ed.). New York, NY: McGraw Hill.

[13] DeConinck, J. B. (2011). The effects of leader-member exchange and organizational identification on performance and turnover among salespeople. *Journal of Personal Selling & Sales Management, 31*(1), 21–3. doi:10.2753/PSS0885-3134310102.

[14] Dulebohn, J. H., Brommer, W. H., Liden, R. C., Brouer, R. L., & Ferris, G. R. (2012). A meta-analysis of antecedents and consequences of leader-member exchange: Integrating the past with and toward the future. *Journal of Management 38*(6), 1715–1559. doi:10.1177/ 0149206311415280.

[15] Eddy, N. (2014). IT professional overworked, losing price in their jobs. *eWeek*, 5. Retrieved from http://www.eweek.com/small-business/it-professionals-over worked-losing-pride-in-their-jobs.html.

[16] Eisenberger, R., Shoss, M. K., Karagonlar, G., Gonzalaes-Morales, M. G., Wickham, R. E., & Buffardi, L. C. (2014). The supervisor PLS-LMX-subordinate POS chain: Moderation by reciprocation wariness and supervisor's organizational embodiment. *Journal of Organizational Behavior, 35(5),* 635–656. doi:10.1002/job.1877.

[17] Falk, C. F., & Savalei, V. (2011). The relationship between unstandardized and standardized alpha, true reliability, and the underlying measurement model. *Journal of Personality Assessment, 93*(5), 445–453. doi:10.1080/00223891.2011.59 4129.

[18] Fields, D. L. (2002). *Fields taking the measure of work: A guide to validated scales for organizational research and diagnosis.* Thousand Oaks, CA: Sage Publications, Inc.

[19] Folami, L. B., Asare, K, Kwesikga, E., & Bline, D. (2014). The impact of job satisfaction and organizational context variables on organizational commitment. *International Journal of Business & Public Administration, 11*(1), 1–18.

[20] Folami, L., & Bline. D. (2012). Relationship among job satisfaction, task complexity, and organizational context in public accounting. *International Review of Business Research Papers, 8,* 207–224.

[21] Garg, S., & Dhar, R. L. (2014). Effects of stress, LMX and perceived organizational support on service quality: Mediating effects of organizational commitment. *Journal of Hospitality and Tourism Management, 21,* 64–75. doi:10.1016/j.jhtm.2014.07.002.

[22] Geertshuis, S. A., Morrison, R. L., & Cooper-Thomas, H. D. (2015). It's not what you say, it's the way that you say it: The mediating effect of upward influencing communications on the relationship between leader-member exchange and performance ratings. *International Journal of Business Communication, 52*(2), 228–245. doi:10.1177/2329488415572784.

[23] Gorgievski, M. J., Halbesleben, J. R. B., & Bakker, A. B. (2011). *Expanding the boundaries of psychological resource theories. Journal of Occupational and Organizational Psychology, 84*(1), 1–7. doi: 10.1111/j.2044-8325.2010.0201 5.x.

[24] Gorgievski, M. J., & Hobfoll, S. E. (2008). Conservation of resources in burnout and engagement. In Halbesleben, R. B. (Ed.), *Handbook of Stress and Burnout in Health Care* (pp. 1–17). Hauppauge, NY: Nova Science Publishers, Inc

[25] Graen, G. B., & Cashman, J. (1975). A role-making model of leadership in formal organizations: A developmental approach. In J. Hunt & L. Larson (Eds.), *Leadership frontiers* (pp.143–165). Kent, OH: Kent State University Press.

[26] Graen, G., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader- member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *Leadership Quarterly, 6*, 219–247. doi:10.1016/1048 -9843(95)90036-5.

[27] Grohmann, A., & Kauffeld, S. (2013). Evaluating training programs: Development and correlates of the questionnaire for professional training evaluation. *International Journal of Training and Development*. doi:10.1111/ijtd.12005.

[28] *Gross domestic product by industry & state*. (2009). Retrieved from http://www.census.gov/.

[29] Harris, T. B., Li, N., & Kirkman, B. L. (2014). Leader-member exchange (LMX) in context: How LMX differentiation and LMX relational separation alternate LMX's influence of OCB and turnover intentions. *The Leadership Quarterly 25*(2), 312–328.

[30] Hesse-Biber, S. N., & Leavy, P. P. (2005). *The practice of qualitative research*. Thousand Oaks, CA: Sage.

[31] Hesselgreaves, H., & Scholarios, D. (2014). Leader-member exchange and strain: a study of job demands and role status. *Human Resource Management Journal, 24*(4), 459–478. doi:10.1111/1748-8583.12042.

[32] Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist, 44*, 513–524. doi:10.1037/0003-066X.44.3.513.

[33] Hobfoll, S. E. (1998). *Stress, Culture and Community. The psychology and philosophy of stress.* New York, NY: Plenum.

[34] Hobfoll, S. E. (2001). The influence of culture, community and the nested-self in the stress process: Advancing Conservation of Resources theory. *Journal of Applied Psychology, 50*, 337–396. doi:10.1111/1464-0597.00062.

[35] Hu, J., & Liden, R. C. (2013). Relative leader-member exchange within team context: How and when social comparison impacts individuals. *Personnel Psychology, 66*, 127–172.

[36] Jian, G. (2014). Revisiting the association of LMX quality with perceived role stressors: Evidence for inverted U relationships among immigrant workers. *Communication Research, 41*(1), 52–73. doi:10.1177/0893318914533201.

[37] Johns, G. (2010). Presenteeism in the workplace: A review and research agenda. *Journal of Organization Behavior, 31*, 519–542. doi: 10.1002/job.630.

[38] Joseph, D. L., Newman, D. A., & Sin, H. (2011). Leader-member exchange (LMX) measurement: Evidence for consensus, construct breadth, and discriminant validity. *Research Methodology in Strategy and Management, 6*, 89–135. doi:10.1108/S14799-8387(2011)0000006012.

[39] Kalshoven, K., Den Hartog, D. N., & De Hoogh, A. H. B. (2011). Ethical leader behavior and big five factors of personality. *Journal of Business Ethics, 100*, 346–366. doi:10.1007/s10551-010-0685-9.

[40] Lawrence, E. R., & Kacmar, K. M. (2012). Leader-member exchange and stress: The mediation role of job involvement and role conflict. *Journal of Behavioral & Applied Management, 14*(1), 39–52.

[41] Leedy, P. E., & Ormrod, J. E. (2010). *Practical research: Planning and design* (9th ed.). Upper Saddle River, NJ: Pearson Education, Inc.

[42] Leroy, H., Palanski, M., & Simons, T. (2012). Authentic leadership and behavioral integrity as drivers of follower commitment and performance. *Journal of Business Ethics, 107*(3), 255–264.

[43] Loi, R., Ngo, H., & Zhang, L. (2011). The interaction between leader-member exchange and perceived job security in predicting employee altruism and work performance. *Journal of Occupational and Organizational Psychology 84(*4), 669–685.

[44] Lorenz, M. (2014, February 10). *America's most stressful jobs: What are they?* Retrieved from http://thehiringsite.careerbuilder.com/.

[45] Mackenzie S. B., Podsakoff, P.M., & Podsakoff, N. P. (2011). Construct measurement and validation procedures in MIS and behavioral research: Integrating new and existing techniques. *MIS Quarterly, 35*(2), 293–334.

[46] Mahsud, R., Yukl, G., & Prussia, G. (2010). Leader empathy, ethical leadership, and relations-oriented behaviors as antecedents of leader-member exchange quality. *Journal of Managerial Psychology, 25*(6), 561–577. doi:10.1108/02683941011056932.

[47] Martinaityte, I., & Sacramento, C. A. (2013). When creativity enhances sales effectiveness: The moderating role of leader-member-exchange. *Journal of Organizational Behavior, 34*, 974–994. doi:10.1002/job.1835.

[48] Morris, M. G., & Venkatesh, V. (2010). Job characteristics and job satisfaction: Understanding the role of enterprise resource planning system implementation. *MIS Quarterly 34*(1), 143–161.

[49] Neuman, W. L. (2003*). Social research methods qualitative and quantitative approaches* (5th ed.). Boston: Allyn & Bacon.

[50] Newton, C., & Teo, S. (2014). Identification and occupational stress: A stress-buffering perspective. *Human Resource Management, 53*(1), 89–113. doi:10.1002/hrm.21598.

[51] Parker, D. F, & DeCotiis, T. A. (1983). Organizational determinants of job stress. *Organizational Behavior and Human Performance, 32*, 160–177.

[52] Peng, A. C., Schaubroeck, J. M., Li, Y. (2014). Social exchange implications of own and coworkers' experiences of supervisory abuse. *Academy of Management Journal, 57*(5), 1385–1405. doi:10.5465/amj.2012.0080.

[53] Petree, R. D., Broome, K. M., & Bennett, J. B. (2012). Exploring and reducing stress in your restaurant workers: Result of a randomized field trial. *American Journal of Health Promotion, 26*(4), 21 –224. doi:10.4278/ajhp.091001-QUAN-321.

[54] Power, R. L. (2013). Leader-Member Exchange in higher and distance education. *The International Review of Research in Open and Distributed Learning, 14*(4), 277 –283.

[55] Prottas, D. (2013). Relationships among employee perception of their manager's behavioral integrity, moral distress, and employee attitudes and well-being. *Journal of Business Ethics, 113*(1), 51–60.

[56] Sadatsafavi, H., Walewski, J., & Shepley, M. (2015). Physical work environment as a managerial tool for decreasing job-related anxiety and improving employee-employer relations. *Journal of Healthca Management, 60*(2), 114–131.

[57] Scandura, T.A., Graen, G.B., & Novak, M.A. (1986). When managers decide not to decide autocratically: An investigation of leader-member exchange and decision influence. *Journal of Applied Psychology, 71*(4), 579–584. doi.apa.org/journals/apl/71/4/579.pdf.

[58] Setley, D. M., Dion, P., & Miller, J. (2013). Do various styles of leadership significantly relate to a subordinate's perceived relationship with his leader? *International Journal of Human Resource Studies, 4*(21), 1–10.

[59] Shabir, M., Abrar, M., Baig, S. A., & Javed, M. (2014). The contribution of workplace incivility and psychological capital toward job stress. *International Journal of Human Resource Studies, 4*(2), 1–17. doi:10.5296/ijhrs.v4i2.5786.

[60] Sorensen, S., & Garman, K. (2015). *How to tackle U.S. employees' stagnating engagement*. Retrieved from http://www.gallup.com/businessjournal/162953/tackle-workers-stagnating-engagement.aspx.

[61] Stark, E. E., & Jeffries, F. L. (2011). Social capital via leader-member exchanges: An avenue to human capital? *Current Topics in Management, 15*, 117–136.

[62] Thomas, C. H. & Lankau, M. J. (2009). Preventing burnout: the effects of LMX and mentoring on socialization, role stress, and burnout. *Human Resource Management, 48*(3), 417- 432. doi:10.1002/hrm.20288.

[63] Tork, M. H. K., Hamidi, M., Goodarzi, M., & Heidary, M. (2011). Identification of Organizational Factors Associated with IOC Employees Performance Based on Wise Board Model. *International Journal of Academic Research in Business & Social*, 2(6), 396–402.

[64] Woolley, L., Caza, A., & Levy, L. (2010). Authentic leadership and follower development: Psychological capital, positive work climate, and gender. *Journal of Leadership & Organizational Studies*, November 2010. doi:10.1177/1548051810382013.

[65] Wu, Y-C, & Shih, K-Y (2010). The effect of gender role on perceived job stress. *The Journal of Human Resource and Adult Learning, 6*(2). Retrieved from http://www.hraljournal.com/.

[66] Zhang, Z., Waldman, D. A., & Wang, Z. (2012). A multilevel investigations of leader-member exchange, informal leaser emergence, and individual and team performance. *Personnel Psychology, 65*(1). doi:10.1111/j.1744-6570.2011.01238.x.

[67] Zhang, Z., Wang, M., & Shi, J. (2012). Leader-follower congruence in proactive personality and work outcomes: The mediating role of leader-member exchange. *Academy of Management Journal, 55*(1), 111–130. doi:10.5465/amj.2009.0865.