

# The Influence of Leader-Member Exchange on Individual Performance: The Roles of Work Engagement as a Mediating Variable and Co-Workers Support as a Moderating Variable

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## ABSTRACT

This study aims to examine the strength of the direct relationship between the quality of leader-member exchange (LMX) and the performance of individuals based on the social exchange theory in the work environment of hospital nurses. This study also tests the role of affective event theory by using work engagement as a mediating variable. The authors argue that the work context can influence the strength of LMX relationships and individual performance. Therefore, this study selects support from co-workers as a moderator of LMX relationships and individual performance. The test results provide support for the role of the above theories and reinforce the important role of work context in predicting the effect of organizational stimuli on the expected behavior.

Keywords: LMX, work engagement, individual performance, co-worker support.

## 1. INTRODUCTION

Leader-Member Exchange Theory (LMX) is different from other leadership theories, such as transformational leadership and transactional leadership, which assume that leader behavior is rationally equal and consistent across all employees without exception. By contrast, LMX theory states that leaders treat followers differently to form "in-groups" and "out-groups" (Schriesheim et al., 1992). LMX emphasizes the personal relationships between the leaders and each of their followers. Simply put, LMX focuses on dyadic relationships as the level of analysis (Gesterner & Day, 1997).

Empirical studies have examined LMX relationships by looking at a number of organizational outcomes such as job satisfaction, outgoing intent, organizational commitment, organizational citizenship behavior and performance (Gerstner & Day, 1997; Sahin, 2012; Huang, Wang, & Xie, 2014; Chaurasia & Shukla, 2014). However, the relationship between LMX and employee performance still needs to be investigated further because of the inconsistent findings of the empirical research (Loi, Ngo, Zhang, & Lau, 2011; Harris, Wheeler, & Kacmar, 2009; DeConinck, 2011). Some research demonstrates that high quality LMX can increase employees' efforts to achieve work goals that exceed expectations (Joo, 2010; DeConinck, 2011), while other research (Liden, Wayne, & Sparrowe, 2000; Harris, Wheeler & Kacmar, 2009) instead found an insignificant positive relationship between LMX quality and performance.

One of the antecedents that have resulted in these conflicting research results are the type of work the research respondents were engaged in. Based on the substitutes for leadership theory, a study by Dunegan, Uhl-Bien and Duchon (2002) found that LMX tends to have a weak effect on the performance of employees with routine work where the need for direction and motivation from superiors is minimal. When the operationalization of the work has been determined and arranged in such a way, the leadership process tends to have a weak impact on employee behavior. For example, the employment of call center employees is based on standardized service scripts for their interactions with customers (Taylor & Bain, 1999). Thus, the worker behavior of the workers providing this service has been shaped by systems and rules, so LMX leadership tends to have little influence on their work performance.

Empirical studies showing insignificant relationships between LMX and performance is also due to other influential situational factors, such as different values, personalities, experiences, and backgrounds on the part of employees (Dunegan, Uhl - Bien, & Duchon, 2002; Bauer, Erdogan, Liden , & Wayne, 2006; Huang, Chan, Lam, & Nan, 2010). Different organizational contexts will also give different results regarding the relationship between the quality of LMX and performance.

Therefore, this study proposes that there is a need for a more comprehensive study model on the relationship between LMX and performance. This model should be able to accommodate individual and organizational factors in explaining the effect of LMX on performance. Several studies suggest the presence of appropriate moderating variables according to the context (Harris, Wheeler, & Kacmar, 2009; Huang, Chan, Lam, & Nan, 2010). Other studies recommend selecting a work context relevant to LMX implementation. Previously, Vecchio, Griffeth, and Hom (1986) have suggested that the relationship between LMX and its dependent variables should be analyzed more deeply by finding variables that mediate or moderate those relationships.

According to affective event theory, the complex relationship between LMX (stimulus) and individual performance (behavior) requires explanatory variables if we are to be able to understand LMX's relationship with performance (Weiss & Cropanzano, 1996; Ashkanasy, 2002; Sue-Chan, Chen, & Lam, 2011) . Affective event theory explains that positive (organizational) stimuli received by individuals will produce positive attitudes and subsequently result in positive behavioral consequences (Weiss & Cropanzano, 1996; Ashkanasy, 2002). For the purposes of this study, work engagement is the positive attitude variable used to explain the relationship between LMX, as a positive stimulus, and performance, as a consequence of positive behavior.

Work engagement is an appropriate positive attitude variable for this study because work engagement is an attitude variable (Keyko, 2014; Robbins & Judge, 2013) which can be caused by situational factors (Keyko, 2014). In this study, LMX is a situational factor. Furthermore, work engagement is the most comprehensive attitude variable in explaining the relationship between stimulus and behavior. The work engagement construct has three energy components which are investments of emotional, cognitive, and physical energy. Therefore, work engagement is a comprehensive predictor of performance compared to other attitude variables (Rich, Lepine, & Crawford, 2010; Agarwal, 2014). Furthermore, high quality LMX will enhance work engagement, in terms of the three dimensions of work engagement, i.e. energy,

dedication, and absorption (Schaufeli, Salanova, Gonzalez - Roma, & Bakker, 2002; Agarwal, Datta, Blake - Beard, & Bhargava, 2012).

Firstly, high quality LMX relationships will increase the energy dimension, because high LMX quality will provide subordinates with psychological security, due to interpersonal support and trust, and management support, that boost such security (Kahn, 1990; Saks, 2006). When employees are guaranteed security, they can do their work without worrying about negative consequences (Spreitzer et al., 2010 in Agarwal, Datta, Blake-Beard, & Bhargava, 2012; Sparrowe & Liden 1997; Saks, 2006). Psychological security is closely related to the dimension of energy, because employees will give to the best their abilities even in difficult circumstances and do so without anxiety about the consequences (Schaufeli, Salanova, Gonzalez - Roma, & Bakker, 2002).

Secondly, high quality LMX enhances dedication as a dimension of work engagement (Agarwal, Datta, Blake - Beard, & Bhargava, 2012; Schaufeli, Salanova, Gonzalez - Roma, & Bakker, 2002). Support, opportunities and promotions from superiors, as characteristics of high LMX, can increase the dedication of subordinates (Brunetto, Shacklock, Teo, & Farr - Wharton, 2014). When the support is given by senior leaders, subordinates will respond to it by serving the organization as well as possible (Sears & Holmvall, 2010). This is in accordance with the concept of LMX which pertains to the reciprocal relationship between leaders and subordinates.

Thirdly, high quality LMX can increase absorption as a dimension of work engagement. Where there is high LMX, leaders will train subordinates and teach them the knowledge necessary to help them grow and develop (Sue-Chan, Chen, & Lam, 2011) and a lot of information and knowledge will be provided (Brunetto, Shacklock, Teo & Farr-Wharton, 2014). This process of knowledge absorption is highly relevant for professional work, such as the nursing profession. Nurses strongly expect leaders to act as mentors or coaches to train them and teach them practical and actual knowledge in their professional work environment (Brunetto, Shacklock, Teo, & Farr-Wharton, 2014).

Work engagement also has a direct positive effect on performance (Kahn, 1990; Kahn, 1992; Rich, Lepine, & Crawford, 2010). High work engagement will result in greater effort and responsibility with regard to tasks, resulting in high performance (Vogelgesang, Leroy, & Avolio, 2013, Keyko, 2014). The energy dimension of work engagement shows that investment of physical energy can contribute to the achievement of organizational goals (Kahn, 1990; Rich, Lepine, & Crawford, 2010).

Meanwhile, the absorption dimension is related to cognitive investment (Wildermuth, 2008). Investment in cognition can have a positive effect on individual performance (Rich, Lepine, & Crawford, 2010), because the individual will be more careful, more focused, and more attentive (Kahn, 1990). In the research of Weick and Roberts (1993) in Rich, Lepine, and Crawford (2010), the performance of employees who have a decrease in investment in cognitive energy also diminishes due to errors in seeing or taking notes. Furthermore, the dedication dimension is closely related to emotional investment (Wildermuth, 2008). These emotional investments also contribute to improvements in performance (Rich, Lepine, & Crawford, 2010; Vogelgesang,

Leroy, & Avolio, 2013). Through investments of emotional energy in the work roles they have, individuals will have enhanced empathy in building relationships with co-workers in cooperating to achieve organizational goals (Kahn, 1990, 1992) and help individuals to meet the emotional demands of those work roles (Rich, Lepine & Crawford, 2010).

The above explanation has provided an understanding of the relationship between LMX, as a positive stimulus, and performance, as a consequence of positive behavior, through a positive attitude of work engagement, as a mediator. The next issue is the results of empirical research that do not align with this concept. Because other studies show insignificant results regarding the relationship between LMX and performance, such as Harris, Wheeler, and Kacmar (2009). this study argues that differences in these empirical research results can be attributed to situational factors. Therefore, this study considers that the model above requires moderating variables appropriate to their context in order to strengthen the relationship between LMX and individual performance (Huang, Chan, Lam, & Nan, 2010; Harris, Wheeler, & Kacmar, 2009).

The study by DeConinck (2011) examined the relationship between LMX and individual performance of a salesperson and obtained significant research results. According to DeConinck (2011), salespersons need the support of their leaders to improve their performance because of their dynamic and challenging work. A high LMX is very influential on the performance of salespersons because employees need rewards, promotions, and bonuses from their leaders (Klein & Kim, 1998). If the research is conducted in the context of the nursing profession in a hospital, it is not certain that high LMX will improve performance because, in addition to support from leaders, nurses also need support from co-workers to help with the quality of patient care (Al-Rub, 2004). Al-Rub (2004) also reveals that nurses who are supported by their co-workers work better than nurses who receive less support.

On the basis of the above explanation, this study aims to examine the LMX relationship model and individual employee performance through the mediation of work engagement and the role of support from co-workers in moderating relationships. In other words, this study will test the role of support from co-workers in the strength of LMX relationships and individual performance mediated by work engagement. This research model approach refers to the research of Ng, Ang, and Chan (2008), which was testing a moderated mediation model with a different research topic. Additionally, this study contributes to filling a gap in the organizational contexts by examining the previously unreported nursing professions in hospitals as a response to the phenomenon of inconsistent empirical research results pertaining to the relationship between LMX and individual performance. In general, this study aims at examining the interaction of contextual variables of the leadership process being critical to determine effective leadership (Gavino & Portugal, 2015).

## **2. THEORY AND DEVELOPMENT OF HYPOTHESES**

### **Leader-Member Exchange**

Leader-member exchange (LMX) is a construct of mutual relations between leaders and subordinates in organizational work units (Scandura & Pellegrini, 2008; DeConinck, 2011; Casimir, Ng, Wang, & Ooi, 2014; Fein, Tziner, Lusky, & Palachy, 2013). LMX consists of high-quality relationships (in-group) and low-quality relationships (out-group) (Harris, Wheeler, & Kacmar, 2009). In-group members will gain greater support from their leaders than out-group members (Sparrowe & Liden, 1997; Farr-Wharton, Brunetto, & Shacklock, 2011; Bauer & Green, 1996).

A high quality LMX relationship has easy access to information, support, participation in decision making (Farr-Wharton, Brunetto, & Schacklock, 2011). (Fein, Tziner, Lusky, & Palachy, 2013). By contrast, low quality LMX relationships are characterized by low levels of trust, formal relationships, one-way influences (from managers to employees), limited support, and low levels of interaction.

LMX is shaped by the theory of social exchange (Ariani, 2012; Dulebohn, Bommer, Liden, Brouer, & Ferris, 2011; Agarwal, Datta, Blake-Beard, & Bhargava, 2012; Wilson, Sin & Conlon, 2010; Meng & Wu, 2015; Volmer, Spurk, & Niessen, 2012). The social exchange theory emphasizes transactions and interdependence or mutual relations (Cropanzano & Mitchell, 2005). According to the social exchange theory, the LMX construct explains the mutual relationships between leaders and subordinates.

The LMX construct explains leader-follower relationships based on work bonds and personal bonds (Zhang, Li, & Harris, 2015). The LMX construct is more likely to be work-oriented, while the *guanxi* construct that is also part of the leader-follower relationship concept tends to be non-work-oriented (personal). However, over time, LMX constructs also include personal interactions outside the work domain resulting in high respect, high confidence, and mutual appreciation as the characteristics of high quality LMX relationships (Zhang, Li, & Harris, 2015).

### **Individual Performance**

Performance is a behavior that is controlled by an individual that can contribute to the achievement of organizational goals. Performance is the effective behavior of individuals, teams, and organizations. Performance measurement should capture all aspects of behavior that are of beneficial value to the company (Parker, 2007).

With reference to the context of a nurse's workplace, a nurse's performance is defined as how effective he or she is in fulfilling their duties and responsibilities, particularly with regard to patient care (Al-Rub, 2004; Al-Homayan, Shamsudin, Subramaniam, & Islam, 2013). Treatment quality is indicated as the greatest predictor of patient satisfaction with the care received in health care organizations. The physical and psychological health of patients is also greatly influenced by the quality of care provided by nurses (Amarneh, Al-Rub, & Al-Rub, 2010; Abiodun, Osibanjo, Adeniji, & Okojie, 2014).

According to the theory of social exchange, LMX is a reciprocal personal relationship. High quality LMX produces positive consequences for LMX relationships and individual performances. In other words, a good LMX relationship can result in positive individual performances (Casimir, Ng, Wang, & Ooi, 2014, Buch, 2015). A

high quality LMX generates leader support both professionally and emotionally. This will encourage followers to offer their optimal abilities to complete their tasks (Agarwal, Datta, Blake-Beard, & Bhargava, 2012). Thus, the conclusion is that there is a direct positive relationship between LMX and individual performance.

Hypothesis 1: LMX has a positive effect on individual performance.

### **Work Engagement**

Work engagement is an attitude that expresses the individual's physical, cognitive, and emotional self-involvement in performing his or her work role within their organization (Khan, 1990; Agarwal, Datta, Blake-Beard, & Bhargava, 2012; Keyko, 2014). When employees are engaged in their work, they will be physically involved, cognitively thorough, and emotionally connected. They will make greater effort, take more responsibility for their job, and contribute to the profit margins of their company (Vogelgesang, Leroy, & Avolio, 2013). Engagement involves the hands, heart, and mind in work (Agarwal, Datta, Blake-Beard, & Bhargava, 2012). Examples of its application in the context of nurses are those who are investing their physical energy such as re-examining records, investing cognitively, such as paying greater attention and focusing, as well as investing emotionally, such as by feeling empathetic towards their co-workers.

Work engagement is an attitude variable that has three related components, namely cognition, affectiveness, and behavior (Robbin & Judge, 2013; Agarwal, 2014). Based on this concept, the three dimensions of work engagement are energy, absorption, and dedication (Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002; Schaufeli & Bakker, 2004). Energy can be characterized by high levels of stamina, strength and toughness when working, willingness to make effort, and being tenacious even in difficult circumstances. Dedication can be categorized as employees' willingness to work continuously and enthusiastically regardless of any difficulties encountered. Absorption can be characterized by full concentration, focus, and deep enjoyment when working, leading to one forgetting the time (Agarwal, Datta, Blake-Beard, & Bhargava, 2012; Brunetto, Shacklock, Teo, & Farr - Wharton, 2014; Gupta, Acharya, & Gupta, 2015).

As has been explained in the development of hypothesis 1 above, the theory of social exchange can justify the positive relationship between LMX quality and employee performance. However, the relationship mechanism between LMX and performance requires variables that explain the role of LMX in terms of employee performance (Sue-Chan, Chen, & Lam, 2011). This study uses the affective event theory (AET) proposed by Weiss and Cropanzano (1996) for this purpose. According to the AET, the relationship between stimulus and attitude and behavior can be regarded as the mechanism of a mediating relationship (Weiss & Cropanzano, 1996; Ashkanasy, 2002). A positive stimulus (LMX) cannot improve performance directly in terms of behavior because, to achieve good performance, an employee needs to have a positive attitude first (Weiss & Cropanzano, 1996; Ashkanasy, 2002).

High quality LMX can improve performance through work engagement as a positive attitude variable for several reasons. Firstly, according to Sparrowe and Liden (1997) and Wilson, Sin, and Conlon (2010), the high quality of LMX is reflected in the

benefits that the followers receive through the availability of time and greater support of leaders for their followers in carrying out their work. Therefore, followers with high quality LMX will gain psychological security (Spreitzer et al., 2010 in Agarwal, Datta, Blake-Beard, & Bhargava, 2012). Thus, nurses do not experience feelings of worry about performing tasks with negative consequences that must be accepted (Kahn, 1990). Psychological security is essential for building work engagement as it can increase the effect of the energy dimension, as the core dimension of work engagement (Agarwal, Datta, Blake-Beard, & Bhargava, 2012). The energy dimension is closely related to stamina and the willingness to make optimal efforts at work.

Secondly, high LMX will increase dedication as the second dimension of work engagement. Opportunity, direction, information, support, and promotion from superiors, as the characteristics of high LMX, can enhance the dedication of subordinates characterized by dedication, enthusiasm and initiative in work (Schaufeli & Bakker, 2004; Schaufeli, Bakker, & Salanova, 2006; Brunetto, Shacklock, Teo, & Farr-Wharton, 2014;). This reason corresponds to the nature of the concept of the LMX relationship, the reciprocal relationship between leaders and their followers (Sears & Holmval, 2010; DeConinck, 2011; Brunetto, Shacklock, Teo, & Farr - Wharton, 2014; Tastan & Davoudi, 2015).

Thirdly, the high quality of LMX relationships also leads to work engagement through the dimension of absorption. According to Schaufeli and Bakker (2004), absorption means full concentration and enjoyment of work. The absorbed employee is highly focused, clear minded, their mind and body is integrated, they concentrate, and they enjoy their work very much (Schaufeli & Bakker, 2004). When viewed from the characteristics of the dimension of absorption, it is closely related to investment in cognition, namely the process of acquiring knowledge (Schaufeli & Bakker, 2004; Wildermuth, 2008). When the quality of the LMX relationship is high, leaders will guide and teach their subordinates, and so these subordinates will gain knowledge (Li, Sanders, & Frenkel, 2012; Sue-Chan, Chen, & Lam, 2011). The knowledge then involves the absorption dimension to be internalized, especially the work in professions such as nursing which is different from other jobs in so far as they are in great need of knowledge from their leaders related to their profession (Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002; Schaufeli & Bakker, 2004; Sue-Chan, Chen, & Lam, 2011; Brunetto, Shacklock, Teo, & Farr-Wharton, 2014).

Based on these explanations, LMX, as a positive stimulus, can improve performance that is considered as behavior through work engagement (positive attitude). This positive stimulus (high LMX) will produce a positive attitude in individuals toward their leader and further encourage them to invest their physical energy, emotions, and cognition to improve productivity or performance. From the exposure, here is the second hypothesis for this study.

Hypothesis 2: Work engagement mediates the positive effect of LMX on individual performance.

### **Support from Co-workers**

Iverson (1999) in Tews, Michel, and Ellingson (2013) defines co-worker support as the level of individual acceptance by members of social networks. Co-worker

support is a form of quality of care that provides emotional support and the information needed for, or that helps them to cope with, stressful situations (Fisher, 1985 in Tews, Michel, & Ellingson, 2013). Co-worker support is important in the context of teamwork (Tews, Michel, & Ellingson, 2013). Two critical functions of co-worker support are to help the individual to do something (instrumental support) and provide sympathy (emotional support). Emotional support can be realized through listening to their co-workers' problems. Instrumental support is manifested through helping to complete the work of co-workers (Beehr, Jex, Stacy, & Murray, 2000).

There are still inconsistencies between several studies on the effect of LMX on performance (Harris, Wheeler, & Kacmar, 2009; Loi, Ngo, Zhang, & Lau, 2011; DeConinck, 2011). Therefore, Harris, Wheeler, and Kacmar (2009) suggest that the relationship between LMX and its inconsistent output requires moderating variables within the work context. In the context of the nursing profession, although the head nurse also plays a role in creating good working conditions to improve work engagement, nurses also need support from co-workers to improve work engagement which will then have an impact on performance improvement (Al-Rub, 2004; Shirey, 2006; Rich, Lepine, & Crawford, 2010; Karatepe, Keshavarz, & Nejati, 2010; Li, Sanders, & Frenkel, 2012; Sarti, 2014).

Nurses carry out critical duties related to the quality of patient care, so they very much need communication with their co-workers to complete their work (Amarneh, Al-Rub, & Al-Rub, 2010). In addition, co-worker support will foster a sense of comfort in terms of asking them to help complete their tasks (Beehr, Jex, Stacy, & Murray, 2000). Therefore, the support of co-workers creates good working conditions for the nurse and therefore improves the performance of the nurse (Al-Rub, 2004). Thus, greater co-worker support will help LMX to improve individual performance through the mediation of work engagement. The following is the third hypothesis for this study.

Hypothesis 3: Co-worker support moderates the strength of the positive effect of LMX on individual performance mediated by work engagement. The positive effect of LMX on individual performance, mediated by work engagement, will be stronger when co-worker support is high than when co-worker support is low.

### **3. RESEARCH METHOD**

#### **Sampling**

The samples of this research are nurses who have been working in hospitals at least for one year. The method of data collection was a self-administered survey, i.e. data were collected by providing questionnaires directly to the respondents which were then filled out by the respondents (Cooper & Schindler, 2011). The questionnaires were used to measure the four variables analyzed, which consisted of one independent variable, namely the leader-member exchange; one moderating variable, namely the support of co-workers; one mediating variable, namely work engagement; and one dependent variable, namely individual performance.

#### **Measurement of Variables**



The measurement of the LMX construct uses the seven items developed by Scandura and Graen (1984) in Wulani (2013) with a five point Likert scale (1 = 'strongly disagree' up to 5 = 'strongly agree'). An example of a statement is "Usually, I know how to conduct myself in front of my immediate superior".

The measurement of the work engagement construct uses UWES-17, developed by Schaufeli, Bakker, and Salanova (2006) in Amalia (2012). The statement items consist of three dimensions, namely energy, dedication, and absorption. The energy dimension consists of six items, the dedication dimension consists of five items, and the absorption dimension consists of six items. Respondents use a five point Likert scale to respond to the measurement indicators (1 = 'strongly disagree' up to 5 = 'strongly agree'). One example of a statement is "I feel very energetic at work".

The measurement of nurses' performance variables uses items developed by Al-Homayan, Shamsudin, Subramaniam, and Islam (2013) who divide the nurse's performance comprehensively into eight dimensions. These dimensions include providing information, coordinating care, providing support, technical care, providing interpersonal support, providing task support, compliance, and volunteering to carry out additional tasks. Respondents use a five point Likert scale to respond to the measurement indicators (1 = 'strongly disagree' up to 5 = 'strongly agree'). An example of a statement is "I explain to patients when they can resume their usual activities, for example going to work or driving a car".

The measurement of the support of co-workers variable uses items developed by Settoon and Mossholder (2002) adapted by Tews, Michel and Ellingson (2013), where six items are used to measure instrumental support and eight items are used to measure emotional support. Respondents use a five point Likert scale to respond to the measurement indicators (1 = 'strongly disagree' up to 5 = 'strongly agree'). An example of a statement is "My co-workers praise me for my work."

This study uses several control variables so that the relationship of independent variables to the dependent variable is not influenced by other factors that have not been examined (Gudono, 2014). The control variables are age and length of tenure (Amarneh, Al-Rub, & Al-Rub, 2010). These variables can affect the performance of the nurse, so the need to be controlled (Amarneh, Al-Rub, & Al-Rub, 2010).

#### **4. RESEARCH RESULTS**

The research respondents are dominated by the group of employees aged 21 to 30 years i.e. 54.1%. These were followed by the 31 to 40 years age group which were 34.8%. The majority of respondents have tenure within a range of 1 to 5 years (54.7% of respondents).

In testing the validity, the researcher has used confirmatory factor analysis (CFA) with varimax rotation method to see the factor loading for each item. The requirements to be met are KMO (Keizer-Meyer-Olkin) > 0.5 and Barlett's test has a significance < 0.05 (Hair, Black, Babin, & Anderson, 2010). The value of KMO in the second round is 0.846 and the significance level of Barlett's test is 0.000. Items do not show any cross loading and the item has a loading factor > 0.5 that clumps on four

components. The total item that can be included in the next analysis is 65 and there are 12 items that are eliminated from 77 items.

Reliability testing has been done using Cronbach's Alpha method by entering valid items. From the reliability test results of the four items the Alpha Cronbach coefficient for the LMX is 0.882; for individual performance it is 0.955; for work engagement it is 0.889 and for co-worker support it is 0.945. The four items have qualified so the measurement items in this study are homogeneous and reflect the same construct (Cooper & Schindler, 2011).

The descriptive statistics in this study serve to explain the data in the form of average value, standard deviation, and correlation between variables of the LMX, individual performance, work engagement and co-worker support variables. The descriptive statistics for each of these variables are shown in Table 1.

Table 1. Average, Standard Deviation, and Correlation between Variables

N o.	Variable	Average	SD	1	2	3	4	5
	<b>Control</b>							
1.	Age	31.76	6.67					
2.	Tenure	7.39	6.21	0.92**				
3.	LMX	3.72	0.53	0.16*	0.09			
4.	<i>Work engagement</i>	3.93	0.43	0.34**	0.32**	0.42**		
5.	Co-workers support	3.94	0.51	0.29**	0.30**	0.39**	0.40**	
6.	Individual performance	3.93	0.35	0.19*	0.14	0.53**	0.37**	0.29**

\*N = 181; \* $p < 0.05$ ; \*\* $p < 0.01$

In this study, the classical assumption test used is a multicollinearity test. An indication of a multicollinearity problem occurs when the VIF value is not greater than 10 (Gudono, 2014).

Overall, the assumption test results for multicollinearity show a VIF value not greater than 10. Thus the regression model in this study is assessed as not having multicollinearity problems.

The testing of mediation relationships uses hierarchical multiple regression and, for moderated mediation testing (conditional indirect effect), uses hierarchical moderated regression (Ng, Ang, & Chan, 2008). The result of the hypothesis tests of this research can be shown in Tables 2, 3, and 4 below.

Table 2. The Regression Analysis of Control Variables of the Individual Performance

Control Variable	Standardized Coefficient ( $\beta$ )	Value of t	Value of p	Note
Age	0.383	2.019	0.045	Significant
Tenure	-0.212	-1.115	0.266	Not significant
Adjusted R Square = 0.031 F = 3.910 Sig. = 0.022				

The adjusted  $R^2$  value of the regression equation in Table 2 is 0.031 indicating that 3.1% of the variance of the individual performance variable can be explained by the age control variable and the tenure control variable. The remaining 96.9% is explained by other variables outside the model. Furthermore, the age control variable has a positive and significant effect on individual performance ( $\beta = 0.383$ ;  $t = 2.019$ ;  $p < 0.045$ ). Meanwhile, the tenure control variable shows a negative result and has an insignificant effect on individual performance ( $\beta = -0.212$ ;  $t = -1.115$ ;  $p > 0.266$ ).

Table 3. Regression Testing of Hypothesis 1 and Hypothesis 2

Regression LMX against Individual Performance (Step 1)				
Variable	Standardized Coefficient ( $\beta$ )	Value of t	Value of p	Note
Age (control)	0.139	0.838	0.403	Not significant
Tenure (control)	-0.034	-0.209	0.835	Not significant
LMX	0.513	7.947	0.000	Significant
Adjusted R Square = 0.282 F = 24.571 Sig. = 0.000				
Regression LMX against Work Engagement (Step 2)				
Variable	Standardized Coefficient ( $\beta$ )	Value of t	Value of p	Note
Age (control)	0.111	0.649	0.517	Not significant
Tenure (control)	0.180	1.066	0.288	Not significant
LMX	0.387	5.843	0.000	Significant
Adjusted R square = 0.245 F = 20.469 Sig. = 0.000				
Regression Work Engagement against Individual Performance (Step 3)				
Variable	Standardized Coefficient ( $\beta$ )	Value of t	Value of p	Note
Age (control)	0.283	1.560	0.121	Not significant
Tenure (kontrol)	-0.228	-1.266	0.207	Not significant
Work engagement	0.342	4.635	0.000	Significant
Adjusted R square = 0.131 F = 10.067 Sig. = 0.000				
Regression LMX and Work Engagement against Individual Performance (Step 4)				
Variable	Standardized Coefficient ( $\beta$ )	Value of t	Value of p	Note
Age (control)	0.108	0.743	0.458	Not significant
Tenure (control)	-0.062	-0.378	0.706	Not significant
LMX	0.454	6.503	0.000	Significant
Work engagement	0.152	2.097	0.037	Significant
Adjusted R square = 0.296 F = 19.882 Sig. = 0.000				

The adjusted  $R^2$  value of the regression equation in Table 3 (stage 1) is 0.282. This indicates that 28.2% of the variance of the individual performance variable can be explained by the age control variable, the tenure control variable, and the LMX variable. Meanwhile, the remaining 71.8% is explained by other variables outside the model. In the regression equation in Table 3 (stage 2), it can be seen that the adjusted R square is 0.245. This indicates that 24.5% of the variance of work engagement variable can be explained by the age control variable, the tenure control variable, and the LMX variable. Meanwhile, the remaining 75.5% is explained by other variables outside the model.

Table 3 (stage 3) shows that the adjusted  $R^2$  value is 0.131, indicating that 13.1% of the variance of individual performance variables is influenced by the age control variable, the tenure control variable, and the work engagement variable. The rest, which is 86.9%, is explained by other variables outside the model. The adjusted value of  $R^2$  in the regression equation in Table 3 (stage 4) is 0.296. This indicates that 29.6% of the variance of the individual performance variable can be explained by the age control variable, the tenure control variable, the LMX variable, and the work engagement variable. Meanwhile, the remaining 70.4% is explained by other variables outside the model.

Table 3 (stage 1) shows that the age control variable has positive and insignificant effect on individual performance ( $\beta = 0.139$ ;  $t = 0.838$ ;  $p > 0.05$ ). The tenure control variable has a negative and insignificant effect on the individual performance variable ( $\beta = -0.034$ ;  $t = -0.209$ ;  $p > 0.05$ ). Furthermore, the LMX variable has a positive and significant effect on the individual performance variable ( $\beta = 0.513$ ;  $t = 7.947$ ;  $p < 0.01$ ). The results in Table 3 (stage 1) show that the LMX variable has a significant positive effect on individual performance. This indicates that the test results on hypothesis 1 show that it is supported. Table 3 (stage 2) shows that the age control variable has a positive and insignificant effect on the work engagement variable ( $\beta = 0.111$ ;  $t = 0.649$ ;  $p > 0.05$ ). The tenure control variable has a positive and insignificant effect on the work engagement variable ( $\beta = 0.180$ ;  $t = 1.066$ ;  $p > 0.05$ ). The LMX variable has significant effect on the work engagement variable ( $\beta = 0.387$ ;  $t = 5.843$ ;  $p < 0.01$ ), thus the second requirement from Baron and Kenny (1986) is met.

Table 3 (stage 3) shows that the age control variable has a positive and insignificant effect on the individual performance variable ( $\beta = 0.283$ ;  $t = 1.560$ ;  $p > 0.05$ ). The tenure control variable negative and insignificant effect on individual performance ( $\beta = -0.228$ ;  $t = -1.266$ ;  $p > 0.05$ ). The work engagement variable has positive and significant effect to individual performance variable ( $\beta = 0.342$ ;  $t = 4.635$ ;  $p < 0.01$ ). This indicates that the third requirement of the mediation relationship is met. The regression results in Table 3 (stage 4) show that age control variable has a positive and insignificant effect on the individual performance variable ( $\beta = 0.123$ ;  $t = 0.734$ ;  $p > 0.05$ ). The tenure control variable has a negative and insignificant effect on individual performance ( $\beta = -0.062$ ;  $t = -0.378$ ;  $p > 0.05$ ). The work engagement variable has a positive and significant effect on the individual performance variable ( $\beta = 0.152$ ;  $t = 2.097$ ;  $p < 0.05$ ). The LMX variable still has a significant effect on the individual performance variable after the work engagement variable is added ( $\beta = 0.454$ ;  $t = 6.503$ ;  $p < 0.01$ ).

The regression results show that the relationship between the LMX variable and the individual performance variable is weakened after the mediating variable is added. The value of the LMX beta coefficient of the individual performance in Table 3 (stage 4), i.e. 0.454, is smaller than the beta coefficient value in Table 3 (stage 1), i.e. 0.513, after the mediating variable is added. This indicates that work engagement partially mediates the influence of LMX on individual performance, so hypothesis 2 is supported partially.

Hypothesis 3 is a moderated mediation model, that is, co-worker support moderates the power of LMX's influence on individual performance mediated by work engagement. The first requirement, according to Muller, Judd, and Yzerbyt (2005), is independent variables significantly predict the dependent variable in regression 1. The second term is product-term X\*Mo at regression 1 and is not significant. The third condition, product-term X\*Mo significantly predicts the mediating variable in regression 2 and the mediating variable significantly predicts the dependent variable in regression 3; and/or independent variables significantly predict the mediated variables in regression 2 and product-term Me\*Mo significantly predict the dependent variable in regression 3.

Table 4. Regression of Moderated Mediation Model

Variable	Equation 1			Equation 2			Equation 3		
	$\beta$	t	p	$\beta$	t	p	$\beta$	t	P
Age	0.158	0.956	0.340	0.102	0.622	0.534	0.044	0.277	0.782
Tenure	-0.069	-0.419	0.676	0.128	0.779	0.437	-0.015	-0.098	0.922
LMX	0.634	5.707	0.000	0.066	0.602	0.548	0.623	5.931	0.000
DRK	0.213	1.981	0.049	0.016	0.154	0.878	0.472	2.425	0.016
LMX*DRK	0.263	1.709	0.089	0.431	2.833	0.005	0.337	2.270	0.024
WE							0.349	2.390	0.018
WE*DRK							0.955	4.142	0.000
	<i>Adjusted R</i> <sup>2</sup> = 0.290 F = 15.720 Sig. = 0.000			<i>Adjusted R</i> <sup>2</sup> = 0.304 F = 16.699 Sig. = 0.000			<i>Adjusted R</i> <sup>2</sup> = 0.367 F = 15.895 Sig. = 0.000		

Note: LMX= leader-member exchange, DRK = co-workers support, WE = work engagement; KI = individual performance

The adjusted  $R^2$  value of regression equation 1 in Table 4 is 0.290. This indicates that, by 29.0%, the variance of individual performance variables can be explained by the age control variables, the tenure control variable, the LMX variable, the co-worker support variable (DRK), and product-term LMX\*DRK. Regression equation 2 in Table 4 shows the adjusted value of  $R^2$  of 0.304. That is, 30.4% of the variance of the work variable can be explained by the age control variable, the tenure control variable, the LMX variable, the co-worker support variable (DRK), and product-term LMX\*DRK. The adjusted  $R^2$  value of regression equation 3 in Table 4 is 0.367. This means that 36.7% of variance of the individual performance variable can be explained by the age control variable, the tenure control, the LMX variable, the co-worker support variable (DRK), the product-term LMX\*DRK, the work-engagement (WE) variable, and the product-term WE\*DRK.

The LMX variable, as an independent variable, significantly predicts the individual performance variable as the dependent variable in equation 1 ( $\beta = 0.634$ ;  $t = 5.707$ ;  $p < 0.01$ ). This indicates that the first requirement of the moderated mediation model is met. The product-term LMX\*DRK in the regression equation 1 is not significant ( $\beta = 0.263$ ;  $t = 1.709$ ;  $p > 0.05$ ), thus the second condition of the moderated mediation model is supported.

The product-term LMX\*DRK significantly predicts the work engagement mediation variable in equation 2 ( $\beta = 0.431$ ;  $t = 2.833$ ;  $p < 0.01$ ) and the work engagement variable, as a mediator, significantly predicts the individual performance variable as the dependent variable in equation 3 ( $B = 0.349$ ;  $t = 2.390$ ;  $p < 0.05$ ). Thus, the requirements are met. The LMX variable, as a significant dependent variable, predicts the work engagement variable as the mediating variable in equation 2 ( $\beta = 0.066$ ;  $t = 0.602$ ;  $p > 0.05$ ), and it is not met. The product-term WE\*DRK significantly predicts the individual performance variables in equation 3 ( $\beta = 0.955$ ;  $t = 4.142$ ;  $p < 0.01$ ), so this is met. However, in this condition, the LMX variable does not significantly predict the work engagement variable, thus the requirements for this condition are not met.

Based on the result of the regression test for hypothesis 3, which is based on the moderated mediation model conditions built by Muller, Judd, and Yzerbyt (2005), it can be concluded that hypothesis 3 is supported. The three requirements for a moderated mediation assessment are met, i.e. the fulfillment of the first requirement (LMX significantly predicts the individual performance in equation 1), the fulfillment of the second requirement (product-term LMX \* DRK in equation 1 is not significant), and the fulfillment of the third requirement. However, the third requirement is the condition of the choice between the two requirements, and from the two requirements the one that is met is the first condition, that the product-term LMX\*DRK significantly predicts the mediation of work engagement in equation 2 and the work mediator variables significantly predict the individual performance variables as the dependent variable in equation 3.

## 5. DISCUSSION OF RESEARCH RESULTS

Hypothesis 1 states that LMX has a positive effect on individual performance. The results of this study suggest that hypothesis 1 is supported in accordance with previous theories and empirical studies (Sue-Chan, Chen, & Lam, 2011; DeConinck, 2011). This quality of LMX that positively affects performance is in accordance with the theory of social exchange (Dulebohn, Bommer, Liden, Brouer, & Ferris, 2011). Employees will increase their efforts to achieve their work goals because they have the support and resources from their leaders that make it possible to improve their performance (Sue-Chan, Chen, & Lam, 2011; Casimir, Ng, Wang, & Ooi, 2014). In the context of this study, nurses very much need the support of their leaders to improve the quality of patient care. Leaders also play a role in exploring the potential of nurses to improve their nursing skills.

Hypothesis 2 states that work engagement mediates the influence of LMX on individual performance. This study found that work engagement partially mediates the

influence of LMX on individual performance because the LMX variable is still significantly related to performance. High quality LMX can shape work engagement. When employees are engaged, their performance will also improve. Employees will invest their physical, cognitive, and emotional energies, which are related to the dimensions of energy, dedication, and absorption. Investment of physical energy can help to achieve organizational goals. Emotional investment helps individuals to meet the emotional demands of their roles so they will improve performance. Investment in cognition can also improve performance, because individuals who concentrate and focus on work find it difficult to remove themselves from their job until it can be completed (Rich, Lepine, & Crawford, 2010).

This study supports hypothesis 3 which states that the mediated relationship (in hypothesis 2) gets stronger when it has high co-worker support. It indicates that co-worker support helps high quality LMX to improve individual performance through work engagement. For the nursing profession in particular, high co-worker support will help the high quality of LMX to improve nurse performance (Al-Rub, 2004), as co-workers help to complete the work related to patient care. The hypothesis 3 test results are in line with the statements of Ng, Ang, and Chan (2008) and Muller, Judd, and Yzerbyt (2005) that there are several conditions for testing moderated mediation. Firstly, there is significant interaction between the independent variable and the dependent variable. Secondly, there is significant interaction between the independent variables and the moderating variables in predicting the mediating variables. Thirdly, there is a significant effect between the mediating and the dependent variables. Fourthly, there is a conditional indirect effect on the influence of independent variables on the dependent variable through the mediating variable, and the mediated relationship will be stronger when the higher the moderating variables.

## 6. CONCLUSION

The results of the tests in this study prove that LMX is positively related to individual performance in the context of the nursing profession. This is in accordance with the theory of social exchange namely the reciprocal relationship between superiors and subordinates within the organizational unit. With support, trust and respect, leaders encourage followers (nurses) to increase their efforts in order to achieve the work goals. For nursing professions in particular, they very much need information and direction from leaders to improve the quality care for patients.

Based on the affective event theory, a positive stimulus will shape a positive attitude before leading to positive behavior. Therefore, the high quality of LMX relationships should lead to a positive attitude first before improving individual performance. This study confirms that work engagement partially mediates the influence of LMX on individual performance. High quality LMX, as a positive stimulus, will encourage work engagement, as a positive attitude, which will further improve individual performance, as a positive behavior. Based on the testing of this study, it also can be seen that the support of co-workers has a role as a moderator of LMX influence on individual performance mediated by work engagement. Thus, the higher the support of co-workers, the stronger the mediated relationship.

The results of hypothesis testing are relatively in accordance with the test results of several previous studies where the research respondents were salespersons. Thus, LMX's influence on improving individual performance does not only apply to salespersons. LMX also proved able to improve the performance of individuals who work as nurses. Thus, this study contributes to the enrichment of the positive impacts of LMX on organizational outcomes within the scope of a broader work context, particularly in teamwork.

In addition, this study provides a contribution in terms of how the concept of work engagement is able to act as a mediator in the influence of LMX on individual performance. Therefore, the relationship between LMX and employee performance is not simple if it refers to the concept of Weiss and Cropanzano (1996). Thus, the relationship between LMX (stimulus) and performance (behavior) requires proper explanatory variables in order to be able to understand it. Therefore, LMX needs to go through work engagement as an attitude variable to achieve employee performance as a consequence of behavior (Parker, 2007; Agarwal, Datta, Blake-Beard, & Bhargava, 2012).

Furthermore, several studies show different test results regarding LMX and performance. Some studies have found that there is significant LMX influence on individual performance (Gerstner & Day, 1997; DeConinck, 2011; Loi, Ngo, Zhang, & Lau, 2011). However, other studies have found an insignificant LMX effect on individual performance (Harris, Wheeler, and Kacmar, 2009). According to Dunegan, Uhl-Bien, and Duchon (2002), the problem of inconsistent research results on the link between LMX and performance requires appropriate moderating variables to strengthen the relationship according to the context. Therefore, this study also contributes by explaining how work context variables (support of co-workers) can strengthen the relationship between LMX and performance through work engagement. In other words, contextual variables (support of co-workers) in a specific work environment (hospital nurses) has been shown to play the role of moderating the relationship between LMX and performance through work engagement.

This study shows that work engagement variables act partially as mediators. Therefore this study recommends testing other mediating variables such as organizational commitment and self efficacy to clarify the LMX relationship mechanism and individual performance. Subsequently, further studies may involve nurses in inpatient and outpatient units in some areas, and not in just one region, in order to strengthen the generalization of job support role testing in the context of nurses' work in a wider and more diverse population.

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