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## THE IMPACT OF LEADER-MEMBER EXCHANGE DIFFERENTIATION ON TEAM EFFECTIVENESS AMONG MALAYSIAN NURSES: TEAM POTENCY AS MEDIATOR

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### Abstract

This study examines how Malaysian leader and member in healthcare industry interpret and demonstrate leader-member relationships differentiation influence team effectiveness, operationalized as team satisfaction and team viability. Our sample of 475 staff nurses represented 92 wards in four hospitals. Results revealed that team potency mediates the

relationship between LMX differentiation and team effectiveness. These findings validate our proposition of leader-member exchange differentiation in Malaysian healthcare industry and empirical support for the central roles of team potency as a socio-emotional process in workgroups.

**Keywords:** LMX Differentiation, Team Potency, Team Effectiveness

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### INTRODUCTION

In Malaysia nowadays has urged into an innovation led economy, it has turned into more significant to enrich the development of highly effective team to meet the desires of the Malaysia economic development cycle. Majority of companies in Malaysia have established environments or situation which allow for the progression of the ideal situations to encourage and facilitate teamwork between employer and employees (Malaysia Productive Corporation, 2017). In healthcare industry, realizing the potential negative impacts of turnover society's future health care needs as well as to the nation, it is believed that nurses must often work together, such that teamwork is an essential aspect of healthcare delivery. Higher effective team associated with better patient outcomes along with reduce turnover (DiMeglio et al., 2005; Valentine, Nembhard, & Edmondson, 2015). Several scholars have theorized that an effective team makes better quality decision and cope more effectively with complex task as well

as better coordinate actions (Valentine et al. 2015; Maciejovsky, Sutter, Budescu, & Bernau 2013; Grumbach & Bodenheimer 2004).

Furthermore, management should focus on employees' emotion especially about their work and personal relationships at workplace and on how leaders influence employees' performance. Indeed, success employees are the leader's priority goal. Besides, there have debated in leadership literature on theoretical basis and empirical findings disputes that whether the different relationship between leaders and members of group support or lower team performance (Anand, Hu, Liden, & Vidyarthi, 2011). Several researchers have found out that the different relation between leaders and members can improve team effectiveness and inspires individual work quality (Choi, 2013; Halevy, Chou, & Galinsky, 2011), while others have found it distresses cohesiveness and team spirit among team

members (Hooper & Martin, 2008; Northouse, 2010; Scandura, 1999; Wu, Tsui, & Kinicki, 2010), and thus, team effectiveness (Beal, Cohen, Burke, & McLendon, 2003). LMX differentiation research still remains limited, its empirical proof is unclear with respect to whether LMX differentiation supports or hurts team performance, and very little is known about when LMX differentiation increases group performance (Anand et al., 2011). In healthcare perspective, without support from superior, nurses may experience negative feelings such as depression and burnout, which will affect their performance.

In leadership literature, it is well known that leaders build different relationships with members within a team. This is partly because internal selection process and competition for limited resources and opportunity (eg. promotions) require that leaders make distinctions among their members. In the nursing context, hospital nurses who work in teams are tending to compare their inputs and outputs with their colleagues to get a sense of relative position within the group and this position affects their attitudes and subsequent behavior, particularly on their perception of fairness

(Omillion-Hodges & Baker, 2013; Tyler & Blader, 2003).

The purpose of this paper is to suggest a mediation model for LMX differentiation and team effectiveness relationships. Hence, we proposed team potency as mediator between LMX differentiation and team effectiveness. Team potency represents key aspects of socio-emotional mechanisms; they capture interpersonal interactions among group members as well as the affective component and cognitive belief of group members. Team potency referred as shared confidence in a team's general capabilities (Campion, Medsker, & Higgs, 1993; Guzzo, Yost, Campbell, & Shea, 1993) and one of the most important ingredients of team motivation and team effectiveness (Hu & Liden, 2011). Team potency refers to the team's overall performance in different areas rather than its capacity to carry out a specific task (Mathieu, Maynard, Rapp, & Gilson, 2008; Ortega, Sanchez-Manzanares, Gil, & Rico, 2013). We focused on team potency in this study because nursing teams perform different types of tasks and are often engaged in multiple team processes at the same time.

## LITERATURE REVIEW

With rising interest in highlighting the purpose of study teams for organizational effectiveness, understanding the significance of different leader-member exchanges (LMX) for team processes and outcomes has become increasingly important because LMX relationships operate on a social network boundary that influences other exchange relationships within work teams (Liden, Erdogan, Wayne, & Sparrowe, 2006; Tse, Dasborough, & Ashkanasy, 2008; Sui, Wang, Kirkman, & Li, 2016; Tse, Ashkanasy, & Dasborough, 2012). The study of LMX has proven to be rich leadership approach over the past several decades (Anand, et al., 2011; Graen & Uhl-Bien, 1995, Hu & Liden, 2013). LMX is an alternative approach to understanding a leaders' influence on by focusing on dyadic or paired relationship between leaders and each of their subordinates (Dansereau, Graen, & Haga, 1975). The LMX model suggests that leaders do not use the same style or set of behaviors uniformly across all members. Instead, unique relationship exchange develops with each employee that remains relatively stable over time. These

exchanges range from low to high quality. Employees with high-quality exchanges have been referred to as in the "in-group" and those with low-quality exchanges as in the "out-group." When the relationship between a leader and a subordinate is of high quality (rather than low-quality), subordinate will received better performance evaluations (Graen, Novak, & Sommerkamp, 1982; Mansueti, Grandi, & Grazio, 2016), more promotions (Dulebohn, Bommer, Liden, Brouer, & Ferris, 2012) more mutual trust, liking, respect and reciprocal influence (Dansereau et al., 1975; Martin, Guillaume, Thomas, Lee, & Epitropaki, 2016), better objective performance (Klein & Kim, 1998; Schwepker, 2016), less turnover (Graen, Liden, & Hoel, 1982; Palanski, Avey, & Jiraporn, 2014), and a number of beneficial consequences for both themselves and the organizations (Breevaart, Bakker, Demerouti, van den Heuvel, 2015). Although these results are compelling, LMX research has largely overlooked group-level differentiation in LMX relationships, which is naturally embedded in the phenomenon of LMX (Ma & Qu, 2010). Accordingly, House and

Aditya (1997) note that the majority of LMX studies have tended only to look at the relationships between high-quality LMX relationships and employee work outcomes from an individual perspective (Gerstner & Day, 1997; Tse, 2014). Therefore, research examining the LMX differentiation within work teams has not been thoroughly investigated (Ma & Qu, 2010; Tse, 2014; Vidyarthi et al., 2010).

According to Cashman, Dansereau, Graen, Haga (1976), some members are implicitly placed on paths to termination and others on paths to organizational assimilation through the development of LMX. When a leader orients different members on different pathways, the leader is differentiating the treatment of these members and defining relationships with them as in-groups or out-groups. Furthermore, work groups also could differ in the degree to which the quality of the in-group and out-group relationship varies within the group. Thus, by definition, LMX differentiation refers to the degree of within-team variability in the quality of LMX relationships between a leader and members within a work team (Erdogan & Liden, 2002). Past research has revealed that employees are conscious of their relative standing in a set of differentiated LMX relationships in their work team (Henderson, Wayne, Shore, Bommer, & Tetrick, 2008; Tse et al., 2012; Vidyarthi, et al., 2010).

The present study by Choi (2013) postulates that high LMX differentiation lead to lower team potency which refers to group members' shared belief that group members as a whole can be effective (Shea & Guzzo, 1987). Due to LMX status differences within a group, high LMX differentiation may lead to self-efficacy divergence in a work group, which in turn inhibits group members' shared perceptions of their effectiveness as a group and subsequently decreases their satisfaction and intention to work together (Wu et al., 2010).

Accordingly, at the group level, highly diverse LMX relationships may ultimately engender self-efficacy divergence among members. As LMX relationship qualities differ among members, their levels of self-efficacy may diverge. Supporting this prediction, Wu et al. (2010) found that high self-efficacy divergence in a work group and low collective efficacy mediate the negative relationship between differential leadership measured by group members and group effectiveness. Besides, previous studies suggest that a general assurance in team potency links positively to team effectiveness (Guzzo et al., 1993; Lee, Farh, & Chen, 2011; Stajkovic, Lee, & Nyberg 2009). Team potency also can be generated relatively primary in the group creation process and can have positive effects on group outcomes (Lee et al., 2011).

Team potency refers to generalized values and beliefs about the capabilities of the team within tasks and contexts (Guzzo et al., 1993). For example, members in a team will be successful no matter what the task is given. Teams should have a high sense of potency or belief that they can be effective. Conceptually, group potency is considered to capture broader perceptions and more generalized beliefs concerning group capability and group effectiveness on any tasks and jobs (Gully, Incalcaterra, Joshi, & Beaubien, 2002; Stajkovic, et al., 2009). Based upon these empirical findings, therefore, we expect:

*Hypothesis 1: LMX differentiation is related negatively to team potency*

*Hypothesis 2: Team potency is related positively to team effectiveness*

*Hypothesis 3: Team potency mediates the relationship between LMX differentiation and team effectiveness*

## **RESEARCH METHODOLOGY**

### **Sample and Procedure**

Respondents in this study comprise of staff nurses and sisters (immediate supervisor) who are working in four general hospitals in Peninsular Malaysia. Normally, work nature for any ward in Malaysian hospitals consists of team lead by sister and staff nurse as a member. Therefore, unit of analysis of this study is a team which is involve of hospital ward. The sample included nurses who work in a variety of specialized units including cardiology, surgery, pediatrics, neurology, and emergency medicine.

In this study, staff nurses and sister were asked to evaluate their relationship between each other. Consistent with the minimum time period typically needed to develop a mature workplace relationship, our sample excluded sisters who had been in the position for less than 6 months, and staff nurses who had been in their hospital ward for less than 6 months (Graen & Uhl-Bien 1995). This ensured that both were sufficiently familiar with each other and had developed exchange relationships.

The questionnaires were distributed to selected staff nurses (475) and sisters (95), across 95 hospital wards. Each questionnaire was coded with a researcher-assigned identification number to match staff nurses and sisters. To ensure confidentiality, the participants were asked to seal the completed questionnaires in the return envelopes and return them directly to the researchers.

The usable sample was composed of 413 staff nurses belonging to 86 wards and 86 sisters, giving a response rate of 87 percent to staff nurses and 91 percent to sisters, respectively. The number of respondents per team ranged from three to five, with an average of four respondents per team. To examine possible sampling bias, we compared sample means for the usable cases and those cases dropped due to unmatched questionnaires for all study variables. Our analysis of variance procedures did not yield any significant different means for the two groups, indicating little sample bias.

### **Measures**

All scales were measured with a 5-point Likert-type scale (1 = strongly disagree, 5 = strongly agree).

*Leader-member exchange differentiation.* The member's perception of leader-member exchange was assessed with the LMX-MDM developed by Liden and Maslyn (1998) using twelve items measure. Whereas to assess leader-rated leader-member exchange, the researchers used the SLMX-MDM developed by Greguras and Ford (2006) based on LMX-MDM and also consists of twelve items measurement. The complete questionnaires will then pair between the subordinate's questionnaire and that of his or her immediate supervisor to form a dyad. Then, LMX differentiation for each group will measure by subtracting the mean individual-level LMX score for each team from each individual team members' LMX scores (Graen, et al., 1982; Henderson et al., 2008).

*Team potency.* Team potency will be measure via the self-report method with items examining individual members' perception of team potency. The scale for team potency consisted of three items was developed by Campion et al. (1993).

*Team effectiveness.* Team effectiveness was measure by team satisfaction and team viability by member ratings. This is also consistent with the team effectiveness models developed by Hackman (1987), Gladstein (1984), and Sundstrom, De Meuse, and Futrell (1990). Team satisfaction was measured with seven items developed by Doolen (2001) and Van der Vegt, Emans and Van De Vliert (2000). A scale of constructed by Hackman (1987) which consisted seven items was used to measure team viability.

*Control variables.* Following Spector and Brannick's (2011) suggestion, we controlled for the following variables to test the hypotheses. First, group size and team tenures (in years) were controlled because these variables are potentially related to team effectiveness (Liden et al., 2006; Sin, Nahrgang, & Morgeson, 2009; Tse et al., 2008). We measured team tenure as the logged average number of years that team members had been member of team, while team

size is measured by the logarithm of the number of team members.

**Level of Analysis Aggregation**

As we operationalized the constructs at the team level, we aggregated nurses' responses on the scales to compute single score for each team. We used within-group interrater reliability (rwg, James, Demaree, & Wolf, 1984), and intraclass correlation coefficient (ICC (1) and ICC (2); Bliese, 2000) to examine the appropriateness of aggregation. All indices

of mean rwg, ICC (1) and ICC (2) for LMX (rwg = 0.96, ICC (1) = 0.51, ICC (2) = 0.82, F (91,1012) = 13.59 , p <0.01), team potency (rwg = 0.97, ICC (1) = 0.24, ICC (2) = 0.86 , F ( 91,552) = 3.18 , p <0.01), and team effectiveness (rwg = 0.92, ICC (1) = 0.35, ICC (2) = 0.90 , F ( 91,552) = 9.98 , p <0.01) indicated acceptable agreement because rwg was greater than 0.70 and because ICC (1) was above 0.12. Accordingly, these indices support the aggregation of individual ratings to create group scores.

**DATA ANALYSIS**

Table 1 provides the means, standard deviations and correlations for the study variables. The zero-order correlation indicated that LMX differentiation was found to be significantly negatively correlated to team potency (r = -0.354, p <0.01) and team effectiveness (r = -0.648, p <0.01). Moreover,

team potency was found to be positive relationship with team effectiveness (r = 0.262, p<0.01). In addition, an analysis of the variance inflation factors (VIFs) indicated the VIFs in all models to be lower than 10. Thus, all variables could be maintained in the regression analysis (Neter, Wasserman, & Kutner 1985).

**Table 1: Descriptive Statistics**

| Variables           | Mean | SD   | 1       | 2      | 3        | 4       | 5 |
|---------------------|------|------|---------|--------|----------|---------|---|
| Team size           | 4.51 | 0.58 | 1       |        |          |         |   |
| Team tenure         | 4.66 | 0.59 | 0.115*  | 1      |          |         |   |
| LMX differentiation | 0.75 | 0.33 | 0.105   | 0.017  | 1        |         |   |
| Team potency        | 3.77 | 0.34 | 0.222*  | 0.400* | -0.354** | 1       |   |
| Team effectiveness  | 3.97 | 0.42 | -0.168* | 0.143* | -0.648** | 0.262** | 1 |

Note: \*p<0.05; \*\*p<0.01

**Hypotheses Results**

Our model proposed three of hypotheses: (1) direct effects of LMX differentiation on team potency; (2) direct effects of team potency on team effectiveness and (3) the mediating role of team potency in the LMX differentiation – team effectiveness relationship. We test Hypotheses 1 and Hypotheses 2 by using a hierarchical regression technique. Demographic variables such as team size and team tenure were statistically controlled. As shown in Table 2, based on Model 1, the control variables accounted for 10.4% of the variance in team potency (r<sup>2</sup> = 0.104, F-change = 12.293, p<0.01). Two control variables; team size and team tenure were significantly related to team potency (β = -0.202, p<0.01; β = 0.236, p<0.01).

On adding LMX differentiation based on Model 2, the R<sup>2</sup> increased to 0.202. This indicated that LMX differentiation was able to explain an additional of 9.8% (r<sup>2</sup>-change = 0.098, p<0.01) of the observed variations on team potency. LMX differentiation was significantly and negatively related to team potency (β = -0.316, p<0.01), thereby supporting Hypothesis 1. This indicated that high differentiation of LMX will decrease team potency.

Based on model 3, the control variables accounted for 1.7% (r<sup>2</sup> = 0.017, p>0.01). However, the results show that team size (β = -0.028, p>0.01) and team tenure (β = -0.124, p>0.01) were not related to team effectiveness. This indicates that these two control variables were not influence team effectiveness. However,

in Model 4, by adding team potency, the R<sup>2</sup> increased to 0.039. This result shows that the predictor variables were able to explain addition 2.3% of the variance related to team effectiveness (*r*<sup>2</sup>-change = 0.023, *p*<0.05). Team potency was positively related to team effectiveness ( $\beta = 0.159$ , *p*<0.05), which support Hypothesis 2.

Next, we used PROCESS macro in SPSS version 21.0 (Hayes, 2013) to test Hypothesis 3. Zhao, Lynch, and Chen (2010) have recommended that researchers test mediation effects by using indirect effect approach. The PROCESS macro is preferable to Sobel's test because the PROCESS macro estimates indirect effects by bootstrapping, which mitigates the problem of a non-normality

violation of the indirect effect (Preacher, Rucker & Hayes 2007).

According to Table 3, the indirect effect of LMX differentiation on team effectiveness through team potency is 0.162 (SE= 0.031), and confidence interval (CI) for the indirect effect did not include zero (95% bootstrap CI [0.105, 0.229], *p* <0.05), supporting a statistically significant indirect effect. The direct effect of LMX differentiation on team effectiveness was negatively significant (*b* =-0.781, *p*<0.01). Since indirect effect × direct effect (0.162 × -0.781 = -0.126) is negative, these findings together provide that statistical evidence for a competitive mediation (Zhao et al., 2010). Overall, team potency mediates the relationships between LMX differentiation and team effectiveness, thus supports Hypothesis 3.

**Table 2: Regression summary for direct relationship**

| Predictors                        | Team potency |          |         | Team effectiveness |          |
|-----------------------------------|--------------|----------|---------|--------------------|----------|
|                                   | Model 1      | Model 2  | Model 3 | Model 4            | Model 5  |
| <b>Step 1: Control variable</b>   |              |          |         |                    |          |
| Team size                         | -0.202**     | -0.172** | -0.028  | 0.004              | 0.010    |
| Team tenure                       | 0.236**      | -0.208** | -0.124  | -0.086             | -0.085   |
| <b>Step 2: Predictor variable</b> |              |          |         |                    |          |
| LMX differentiation               |              | -0.316** |         |                    | -0.237** |
| Team potency                      |              |          |         | 0.159*             | 0.441**  |
| <i>r</i> <sup>2</sup>             | 0.104        | 0.202    | 0.017   | 0.039              | 0.088    |
| Adjusted <i>r</i> <sup>2</sup>    | 0.096        | 0.191    | 0.007   | 0.026              | 0.071    |
| <i>r</i> <sup>2</sup> -change     | 0.104        | 0.098    | 0.017   | 0.023              | 0.049    |
| <i>F</i> -change                  | 12.293**     | 25.792** | 1.791   | 4.930*             | 8.232**  |

Note: \**p* <0.05 \*\**p*<0.01

**Table 3: Regression summary for mediation**

| Variables   | Direct, indirect and total effects |       |          |          | Bootstrap for indirect effect |
|---|------------------------------------|-------|----------|----------|-------------------------------|
|   | $\beta$                            | SE    | <i>t</i> | <i>p</i> |                               |
| Team effectiveness regressed on LMX differentiation (path c)                                | -0.618                             | 0.060 | -10.210  | 0.000    | Effect = 0.162                |
| Team potency regressed on LMX differentiation (path a)                                      | -0.366                             | 0.077 | 4.706    | 0.000    | Boot SE = 0.031               |
| Team effectiveness regressed on team potency, controlling for LMX differentiation (path b)  | 0.443                              | 0.047 | 9.327    | 0.000    | LL95% CI= 0.105               |
| Team effectiveness regressed on LMX differentiation, controlling for team potency (path c') | -0.781                             | 0.052 | -14.770  | 0.000    | UL95% CI= 0.229               |

Notes: Control variables include team size and team tenure; Boot SE= bootstrapped standard error; LL = lower limit; UI = upper limit; CI= confidence interval. Bootstrapped sample size = 5000

## **DISCUSSION**

Hypothesis 1 suggests that LMX differentiation has negatively influence team potency ( $\beta = -0.316, p < 0.01$ ). Thus, Hypothesis 1 was supported. In other words, higher levels of LMX differentiation are predictive of lower levels of team potency. This result is similar with previous finding by Choi (2013). Hypothesis 2 suggests that team potency would be positively related to team effectiveness. Team potency was found to be significant positive related to team effectiveness ( $\beta = 0.159, p < 0.05$ ). Thus, hypothesis 2 was supported. In other words, higher levels of team potency are predictive of higher levels of team effectiveness. These findings are similar to those of Lee et al. (2011) who found positive relationships between potency and team effectiveness. Finally, the findings showed that the relationship between LMX differentiation and team effectiveness was mediated by team potency (Hypothesis 3). The findings are consistent with those of previous studies by Wu et al. (2010). LMX differentiation makes the group members engage in social comparison processes, which in turn affects individual attitudes and behaviors (Vidyarthi et al., 2010). Considering that group members have social and developmental needs when developing LMX relationships with the leader (Huang et al., 2008), this LMX status difference within a group may be detrimental to maintaining their socio-emotional bonds within a group. Specifically, high LMX differentiation may lead to self-efficacy divergence in a work group, which in turn inhibits group members' shared perceptions of their effectiveness as a group and subsequently decreases their satisfaction and intention to work together (Wu et al., 2010).

### **Theoretical and practical implications**

This study attempts to make several theoretical and practical contributions. This research will contribute to team and leadership literature by examining how leaders differentiate among group members in order to be an effective team particularly in Malaysian context. Even though the theoretical and practical bases of LMX differentiation have been made explicit literature, current LMX research has not yet been clear about LMX differentiation and team effectiveness relationship (Le Blanc & Gonzales-Roma, 2012; Tse, 2014; Liden et al., 2006).

Besides, this research will contribute knowledge and evidence on the importance of team performance in order to deliver of quality care of patients. According to Kalisch and Lee (2010) indicated that the importance of teamwork among nurses has been little understood and largely ignored. This study provides evidence that teamwork is critical for the provision of quality nursing care. Furthermore, nurses involve in a wider range of behavior that are more flexible and promotes overall quality care (Greenslade & Jimmieson, 2007). Likewise, sisters (immediate supervisor) should provide a quality of relationship equally to all nurses under their supervision so that it will increase their work performance and consequently might affect their quality care to their patients.

The findings also suggest that Malaysian Ministry of Health (MOH) must look over the human resource development policies aimed at improving the psychological resource among nurses in term of training and information system, which enables them to manage efficiently with any situation. Nurses who have strong teamwork between each other, they are believed to present better their works and provide quality of care to the patients and will reduce medical error as well. Hence, this research expects to provide information and evidence regarding important of teamwork among nurses in public hospitals.

Besides, this study hope that the high relationship between sisters and staff nurses and high cooperative communication among peers will lead to team effectiveness and consequently lead to higher service quality. It would be worthwhile for the Malaysian Ministry of Health and nursing management to provide more training and mentoring programs for sister to encourage a greater range of support to their staff nurses and develop strong networks among themselves. This will enable the sisters to provide greater support in terms of showing concern for staff nurses' feelings and needs, providing help and information, and providing constructive feedback. Appropriate amounts of supervisory support to nurses will enable them to become more engaged in their work.

### **Limitations and future directions**

Similar to other studies, this study also has some limitations. This study focused on theorizing team potency as key variable in LMX differentiation-team effectiveness relationship and believes team potency is mechanism that could influence the relationship. Future research can consider comparing and contrasting the relative importance of potential mediators such

as team coordination, cooperative communication, or team conflict in order to advance our understanding of the precise mechanism that explain the relationship between LMX differentiation and team effectiveness well. In addition, this study is limited to nurses who are working in four general hospitals only which limits generalizability. The same research could be expanded among other health-care employees from public and private hospitals. A larger sample in the same industry would improve the generalization of the findings.

### **CONCLUSION**

It can be concluded that teamwork in healthcare industry is widely recognized as an important factor in providing high quality patient care. This study also developed understanding on how LMX differentiation related to team effectiveness among nurses in Malaysian public

hospital. Our finding indicated that team process mechanism such as team potency serves as a socio-emotional process to influence LMX differentiation and team effectiveness relationship.

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