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The Effect of Management Commitment and Workers Involvement on Construction Workers Safety Behavior in Saudi Arabia: The Moderating Role of Social Support

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Abstract: Workplace accident has become a serious issue in many countries especially among the construction sector. Investigating safety performance of construction workers employees has become very important as construction sector depends heavily on Foreign workers. The research aims is to examine the moderating effect of social support on the relationship between management commitments, workers involvement and construction workers safety behavior in Saudi Arabia. Partial Least Square Techniques (PLS) approach was used test the hypotheses with a data collected among 282 construction Foreign workers. The finding shows management commitment and workers involvement are significantly related to safety behavior (both compliance and participation. Additionally, social support moderates the relationships between management commitment and safety compliance and the relationship between workers involvement and safety compliance. The finding in this study, provides empirical support of social support as moderator and contributes to the role of social exchange theory and can assist construction practitioners in Saudi Arabia on how to improve construction workers safety behavior.

Key words: Management commitment, workers involvement, safety compliance, safety participation, construction workers, safety

INTRODUCTION

Safety performance of various construction industry is comparatively poor relative to other industries such as manufacturing (Pellicer *et al*., 2014; Zhang and Li, 2015). A huge amount of construction accident, injuries and fatality rate have been recognized globally (Li and Poon, 2013; Lingard, 2013). Consequently, there safety researchers increasing reached a consensus that managerial practices are serious reasons of injuries and accidents relative to technological failures (Lingard, 2013).

This is evidenced that fatalities and injuries still happen to construction workers usually and it seems that safety in construction has reached a plateau (Ibrahim *et al*., 2010). For example, 40% of constructions accidents is reported to occur in Japan and 50% in occur in Ireland (Bomel, 2001). The accidents and fatalities have caused huge financial costs to the companies in addition to personal and social implications to the workers (Ibrahim *et al*., 2010). This called the attention of safety researchers to study managerial practices to improve the organizations safety (Awwad *et al*., 2016; Zhu *et al*., 2016). In the context of Saudi Arabia, during the past two decades, various construction companies have increased their activities rapidly due to the coming of many construction companies all over the world (Al Haadir and Panuwatwanich, 2011). An overview of the statistics presented by the General Organization for Social Insurance (GOSI) shows that between the periods of 2004-2010, serious injuries totaled 261,076, equivalent to 3413.9/100,000 employees on average, annually. The total number of injuries that resulted in death amounted to 2176 (given average rate of 28.3/100,000 workers per annum). Therefore, understanding construction workers safety behavior in Saudi Arabia become a priority.

Hitherto, there are many calls in safety literature to expand safety models by incorporating moderator that could strengthen safety management practices with safety behavior (Mashi, 2014; Zohar, 1980). We address this gap by exploratory a theoretically essential workplace social construct that may influence the relationship between management commitment and workers involvementon safety behavior social support which is defined as social exchange or relationship that helps the workers with actual guidelines and assistance or with a feeling of

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affiliation or attachment to an individual or group that is perceived as loving or caring. Specifically, we examine the moderating effects of social support on relationships between management commitment to safety, workers involvement and construction workers safety behaviors in a sample of Foreign construction workers in Saudi Arabia. In doing so, we contribute in safety literature by empirically investigation a modifiable variable of management commitment to safety, workers involvement that contributes to safety theory development and we provide information on the functioning of social support as a potentially important construct for construction managers to use to improve worker safety. Therefore, the main objectives of this study is to investigate the direct relationship between management commitment to safety, workers involvement and construction workers safety behaviors and examine the moderating effect of social support on the relationships.

Literature review

Safety performance: Previous safety researchers usually used statistics of accidents or injuries to understand and measure their organizational safety performance (Huang *et al*., 2006; Lingard, 2013). However, this statistics keep by the company may not be realsafety indicators for the reason that they only reveal incidences of failures (Glendon and Litherland, 2001). Injuries and accident statistics are also "insufficiently sensitive of dubious accuracy, retrospective and ignore risk exposure" (Glendon and Litherland, 2001).

Neal *et al.* (2000) grounded on Borman and Motowidlo (1993)'s framework that individual performance involves of task and contextual performance. Task performance is "the activitiesthat are formally recognized as part of their jobs, activities that contribute to the organizations technical core either directly or indirectly while contextual performance supports the organizational and psychological environment in which the technical core must function" (Borman and Motowidlo, 1993). Based on the above definitions, safety compliance is describe the compulsory fundamental safety activities that workers must do to keep organization safety (Griffin and Neal, 2000). Examples of employee's safety compliance includes: following right procedures while working or wearing Personal Protection Equipment (PPE). On the other hand, safety participation is reflected to be voluntary and contains employee behaviors that are outside employee's recognized duties for instance considering co-employee's safety or establishing creativities in enhancing safety in organization (Neal *et al*., 2000).

Management commitment: Management commitment to safety in this study can be comprehends as management active involvement to ensure safe organization and provision of safety-related policies and practices (Flin *et al*., 2000; Zohar, 1980). Since, the capability of management to meaningfully impact the perceptions of a varied organizational issues among employees (Griffin and Neal, 2000), management commitment to safety remains the most commonly used indicator of workers perceptions concerning the priority of safety in an workplace (Zohar, 1980). Indeed, many researchers in safety agreed that the central meaning of safety climate is managerial commitment to safety (Zohar, 1980).

Employee's aspect to management to notify their insights of the value of safety in relations of contending demands such as value of production (Zohar, 1980). Management's importance safety linked to employees safety behaviors across various organizations (Zohar, 1980). Additionally, meta-analytic findings reported that workers perceptions of management commitment positively associated to positive safety behaviors. In summary, literature submits that management commitment is critical in relating to construction workers safety behaviors (Pellicer *et al*., 2014; Zhang and Li, 2015). Therefore, we hypothesized that:

- H_{1a}: management commitment is positively related to safety compliance
- H_{1b}: management commitment is positively related to safety participation

Workers involvement: Many companies are gradually paying more attention to worker involvement in organizational matters. Worker's involvement is a behavior-based method that includes employee in an upward communication and decision-making by partaking in safety related committees in an organization. Clarke and Ward (2006) recommended that in order to attain improved safety, top management must promote worker involvement in safety. Since, literature reported positive relationship between employee participation and workers safety behavior (Vinodkumar and Bhasi, 2010), we hypothesized:

- H_{2a}: workers Involvement is positively related to safety compliance
- H_{2b}: workers Involvement is positively related to safety participation

Social support: Social support is defined as social exchange or relationship that helps the workers with actual guidelines and assistance or with a feeling of

affiliation or attachment to an individual or group that is perceived as loving or caring. This social support depends on individual perception. Kim *et al.* (2008) defined social support as evidence from others articulating concern, respect, love or value. For the support to be obliging, it desires to be apparent by the receiver as being supportive if a worker is specified money when they need a hug or some inspiration, the action of giving money might not be understood as helpful. Shumaker and Brownell (1984) state that "social support is an exchange of resources between at least two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient".

Literature reports social support has moderating effects that mightget rid of the pressure felt by worker (Eaton, 1978). Construction employees that received greater levels of social support summited greater levels of safety and well-being (Shakespeare-Finch and Obst, 2011), signifying that social support can have an effect in or promote psychological outcomes positively. We argued that social support will moderate the relationship between management commitment and workers involvement on construction workers safety behavior. Therefore, we hypothesized that:

- H_{3a}: social support moderates the relationship between management commitment and safety compliance
- H_{3b}: social support moderates the relationship between workers involvement and safety compliance
- H_{3c}: social support moderates the relationship between management commitment and safety participation
- H_{3d}: social support moderates the relationship between workers involvement and safety participation

Underlining theory and research framework: Social Exchange Theory (SET) (Blau, 1964) proposes that employee behavior has reciprocal relationship (Emerson, 1976) and be contingent on the perceived rewards (Emerson, 1976). Employees act in order to maximize benefits and minimize the costs. If employees do not getsome reward when providing favor to others, employee may not do that favorin the future. Additionally, if the worker reciprocate with a coming back, more circles of exchanges will become possible. This act is mostly motivated by the one who obtain benefits from management later sense that there is a requirement to pay

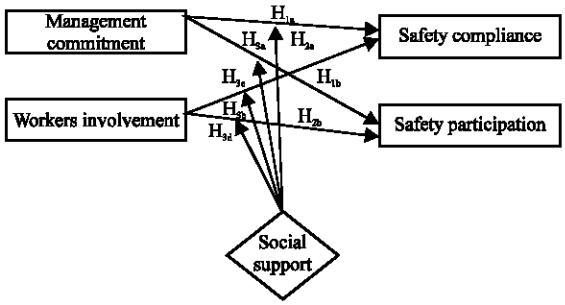

Fig. 1: Research framework

off through effort or loyalty (Cook *et al.*, 2013). In this context if organization involve workers in to safety and committed to construction workers safety, workers will reciprocate in term of safety compliance and participation (Griffin and Neal, 2000). Figure 1 presents the research framework which is underpinned by social exchange theory.

MATERIALS AND METHODS

Sample, data collection and data analysis technique: We employed cross-sectional study design using the quantitative method. The study unit of analysis were construction workers. The population of the study were 8738 and required samples sizes is 368 using table of sample determination. Additionally, the study used stratified sampling technique to select the required sample. Of the 368 distributed, 282 were returned. The data was collected by the researcher and the data collected was examined using SPSS 18 and SEM-PLS.

Measures: Seven items were used to measure management commitment adapted Cox and Cheyne. Sampled items: "In my workplace management acts quickly to correct safety problems" and "Management acts decisively when a safety concern is raised". The internal consistency value of the items was 0.845. Four items were used to measure worker's involvement in safety adopted from (Vinodkumar and Bhasi, 2010). Sampled items include: "In my workplace opinions are always welcomed from Foreign employees before making final decisions on safety related matters" and "Management promotes employees involvement in safety related matters". The internal consistency value of the items was 0.69. Fifteen items were used to measure social support adopted from Ujiwara. Sample items include: "How much does your supervisor recognize and value your job? and "How much support do you receive from

your supervisor?". The internal consistency value was 0.87. Four items were used to measure worker's compliance adopted from (Vinodkumar and Bhasi, 2010). Sampled items include: "I use necessary safety equipment to do my job" and "I follow correct safety rules and procedures while carrying out my job". The internal consistency value of the items was 0.66. Four items were used to measure safety participation adopted from (Vinodkumar and Bhasi, 2010) sampled items include: "I voluntarily carryout tasks or activities that help to improve workplace safety" and "I always point out to the management if any safety related matters are noticed in my company". The internal consistency value of the items was 0.66.

RESULTS

Respondent's profile: The profile of respondents shows that 53.5% (n = 151) of respondents have high certificate and 55.7% (157) have lower certificate. Respondent's age showed more than half of respondents are between 21-30 years which indicated that construction companies are hiring young workers. With regards to the respondents gender, all respondents are men 100% (n = 282), this due to the fact that all workers in constructions site in Saudi are men. The demographic also showed that the majority of respondents are from Pakistan was 39.4% (n = 111) since, the Pakistani workers represent the majority of Foreign workers in construction site; meanwhile those form Philippines were 1.4% (n = 4) because they represent the minority of Foreign workers. The demographic results also shows that despite the majority of respondents 67.7% (n = 191) have experience working abroad between 1-5 years and the most of them 88.7% (n = 250) have attended occupational safety training, even though, the majority of them 56% (n = 158) had occupational accident.

Descriptive statistics: Table 1 shows the descriptive statistics which include the constructs means and standard deviations for descriptive purposes. As presented in Table 1 the mean value of all the constructs ranged between 4.07 and 4.41.

Common method variance: Common Method Variance (CMV) need to be tested when data are gathered through self-reported questionnaires or when both the endogenous and exogenous variables are took from the same sources (Podsakoff *et al*., 2003). To reduce the effect of CMV in this study, firstly, the researcher guaranteed workers of their anonymity and privacy so that, workers would response to the questions as honestly as possible. Secondly, Harman's single factor statistical test was used, CMV happens when onlyone factor appears from the factor analysis or one overall factor accounts for more than 50% of the variance (Podsakoff *et al*., 2003). First, we ran a factor analysis, the analysis returned a 6 factor solution explaining 64.24% of the variance. The first factor explained only 38.07% of variance, thus indicating method bias is not a serious issue in this study.

Table 1: Mean, standard deviation of the study variables

Construct	N	Mean	SD
Management commitment	282	4.07	0.828
Worker's involvement in safety	282	4.32	0.736
Social support	282	4.20	0.885
Safety compliance	282	4.38	0.819
Safety participation	282	4.41	0.657

Table 2: Loadings and cross loading

Factors	COM	MC	PAR	SS	WI
MC1	0.395	**0.952**	0.374	0.413	0.454
MC5	0.394	**0.972**	0.379	0.396	0.435
MC6	0.354	**0.878**	0.325	0.402	0.408
SCO1	**0.813**	0.354	0.496	0.616	0.391
SCO2	**0.807**	0.276	0.622	0.449	0.296
SCO3	**0.793**	0.267	0.645	0.417	0.368
SCO4	**0.859**	0.406	0.678	0.637	0.447
SPA1	0.605	0.373	**0.823**	0.433	0.299
SPA2	0.485	0.243	**0.802**	0.353	0.297
SPA3	0.596	0.262	**0.773**	0.458	0.313
SPA4	0.652	0.336	**0.789**	0.429	0.321
SS12	0.492	0.349	0.426	**0.855**	0.363
SS13	0.492	0.293	0.350	**0.807**	0.442
SS15	0.547	0.349	0.497	**0.773**	0.419
SS3	0.521	0.380	0.366	**0.862**	0.436
SS6	0.545	0.354	0.453	**0.843**	0.305
SS7	0.573	0.324	0.440	**0.723**	0.440
SS9	0.576	0.385	0.437	**0.801**	0.353
WI2	0.450	0.463	0.337	0.496	**0.856**
WI3	0.283	0.340	0.265	0.338	**0.758**
WI4	0.385	0.317	0.336	0.339	**0.828**

Bold values are loadings for items which are above the recommended value of 0.5

Measurement model evaluation: We used SmartPLS 2.0 technique to analyze both the measurement and structural model in this study (Ringle *et al*., 2005). Specifically in the analysis, we first evaluate themeasurement model which consist both the validity and reliability of the constructs (Ringle *et al*., 2005).

First, the measurement model started with the test of convergent validity. Table 2 and 3 showed the factor loadings, Average Variance Extracted (AVE) and composite reliability. Table 3 reported all items loadings surpassed the suggested value of 0.6 (Chin *et al*., 2008). Composite reliability which show the extent to which the variable indicators specify the latent variable, surpassed the suggested value of 0.7 while the AVE which reveals the total sum of variance in the indicators accounted

Table 3: Convergent validity

Constructs/Items	Loadings	AVE	CR
COM			
SCO1	0.813	0.669	0.890
SCO2	0.807		
SCO3	0.793		
SCO4	0.859		
MC			
MC1	0.952	0.874	0.954
MC5	0.972		
MC6	0.878		
PAR			
SPA1	0.823	0.635	0.874
SPA2	0.802		
SPA3	0.773		
SPA4	0.789		
SS			
SS12	0.855	0.657	0.930
SS13	0.807		
SS15	0.773		
SS3	0.862		
SS6	0.843		
SS7	0.723		
SS9	0.801		
WI			
WI2	0.856	0.664	0.856
WI3	0.758		
WI4	0.828		

AVE = Average Variance Extracted; CR = Composite Reliability

Table 4: Discriminant validity

Factors	COM	MC	PAR	SS	WI
COM	**0.818**				
MC	0.408	**0.935**			
PAR	0.740	0.385	**0.797**		
SS	0.665	0.432	0.529	**0.810**	
WI	0.467	0.463	0.387	0.486	**0.815**

Diagonals (in bolded) represent the square root of the Average Variance Extracted (AVE) while the off-diagonals are correlations among constructs. Diagonal elements should be larger than off-diagonal elements in order to establish discriminant validity

for by the variable, surpassed the suggested value of 0.5 (Hair *et al*., 2013). Therefore, convergent validity is achieved in this study.

Next, we assessed the discriminant validity which is the extent to which the measures are not a replication of some other construct this is indicated by low correlations between the measure of interest and the measures of other constructs. Table 4 present that diagonal values which is the square root of the AVE of each variable is greater than its matching correlation values demonstrating acceptable discriminant validity based on (Fornell and Larcker, 1981).

Structural model evaluation: Based on the suggesting by Hair *et al.* (2013), we evaluate the structural model looking at the R^2 value, beta values and corresponding t-values using 5000 bootstrapping resample. We also reported the effect sizes (f^2) and predictive relevance (Q^2).

Table 5: Results of the structural model analysis (direct relationships)

Hypothesis	Relationship	Std. (β)	SE	t-values	Decision
1a	MC→COM	0.242	0.066	3.647**	Supported
1b	MC→PAR	0.264	0.064	4.127**	Supported
2a	WI→COM	0.355	0.069	5.135**	Supported
2b	WI→PAR	0.264	0.067	3.937**	Supported

**t-value >2.33 = p<0.01; *t-value >1.645 = p<0.05

Table 6: Results of the structural model analysis (moderating effects)

Hypothesis	Relationship	Std. (β)	SE	t-values	Decision
3a	MC*SS→COM	-0.1660	0.0705	2.352**	Supported
3c	MC*SS→PAR	-0.0189	0.1038	0.182	Not supported
3b	WI*SS→COM	-0.1415	0.0621	2.279*	Supported
3d	WI*SS→PAR	-0.0460	0.0903	0.509	Not supported

**t-value>2.33 = p<0.01; *t value>1.645 = p<0.05

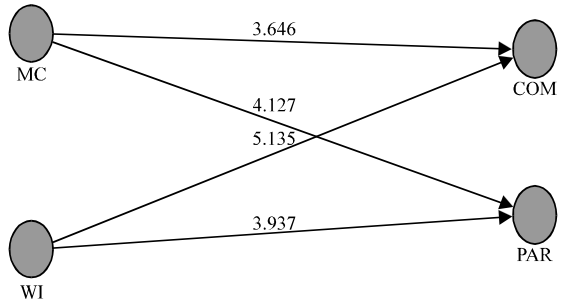

Fig. 2: Structural model of the direct effect

Result of the direct effect: Firstly, we examine the direct relationships between management commitment and workers involvement on workers safety behavior. Management commitment positively and significantly related to safety compliance (β = 0.242, t = 3.647, p<0.01) and safety participation (β = 0.264, t = 4.127, p<0.01). In addition, workers involvement positively and significantly related to safety compliance (β = 0.355, t = 5.135, p<0.01) and safety participation (β = 0.264, t = 3.937, p<0.01). Thus, H_{1a}, H_{1b}, H_{2a} and H_{2b} were all supported in this study (Table 5 and Fig. 2).

Result of the interaction effect: The moderating result from Table 6 and Fig. 3 showed that social support moderates the relationships between management commitment and safety compliance (β = -0.166, t = 2.352, p<0.01) and workers involvement and safety compliance (β = -0.1415, t = 2.279, p<0.05). Thus, H_{3a}, H_{3b} were supported in this study. In contrast, this study did not find social support as moderator between management commitment and safety participation (β = -0.0189, t = 0.182, p>0.05) and the relationship between workers involvement and safety participation (β = -0.046, t = 0.509, p>0.05). Thus, H_{3c}, H_{3d} were not supported in this study.

Figure 4 provides a plot of the interaction between management commitment and social support on safety

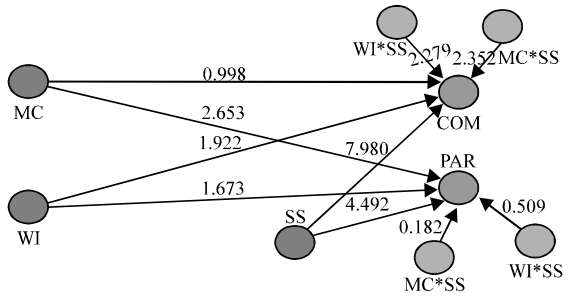

Fig. 3: Structural model with moderator

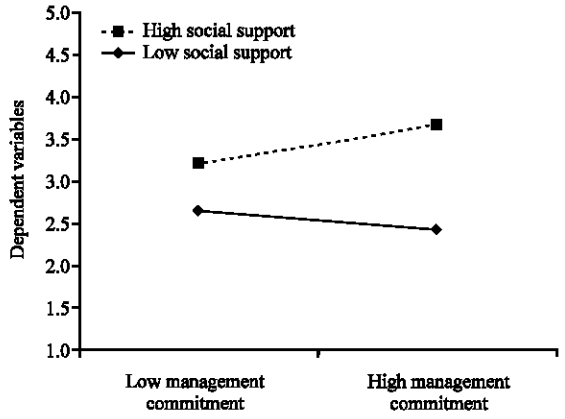

Fig. 4: Interaction effects of management commitment *social support→safety compliance

compliance at high and low social support based on the recommendation by Dawson (2014). As shown in Fig. 4, the relationship between management commitment and safety compliance is strongest in the case of high social support and weakest in the case of low social support. Individuals of different level of social support did not differ much in safety compliance under conditions of low management commitment but large differences were noted under conditions of high management commitment. In other words, under conditions of high management commitment, individuals reporting high levels of social support reported significantly better safety compliance than individuals reporting low social support.

Figure 5 provides simple plot of the interaction between workers involvement and social support on safety compliance at high and low social support based on the recommendation by Dawson (2014). As shown in Fig. 5, the relationship between workers involvement and safety compliance is strongest in the case of high social support and weakest in the case of low social support. Individuals of different level of social support did not differ much in safety compliance under conditions of low workers involvement but large differences were noted

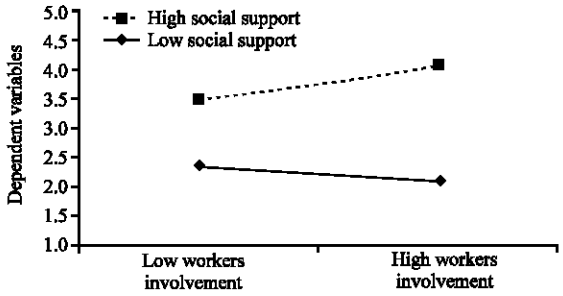

Fig. 5: Interaction effects of workers involvement *social support→safety compliance

under conditions of high workers involvement. In other words, under conditions of high workers involvement, individuals reporting high levels of social support reported significantly better safety compliance than individuals reporting low social support.

Additional, criteria for assessing the structural model is coefficient of determination (R^2). The R^2 of the safety compliance in this study was 0.26 which implied that management commitment and workers involvement collectively explained 26% of the variations in safety compliance. Also, R^2 of safety participation is 0.20 which implied that management commitment and workers involvement collectively explained 21% of the variations in safety participation. Chin (1998) classified R^2 of 0.19, 0.33 and 0.67 as weak, moderate and substantial, respectively. Therefore, the R^2 values in the present study can be considered as weak.

Additional, vital criterion for assessing a structural model is effect-size (f^2). Cohen considered f^2 of 0.02, 0.15 and 0.35 as small, medium, large, respectively. The f^2 of the management commitment and workers involvement on safety compliance were 0.06, 0.13 which are small, small, respectively. The f^2 of management commitment and workers involvement on safety participation were 0.07, 0.6 which are small, small, respectively. The f^2 of the moderators were 0.13 on safety compliance and 0.004 on safety participation which are small and none, respectively. The concluding valuation criterion is predictive relevance (Q^2). The $Q^2>0$ indicates predictive relevance of a model (Geisser, 1974). Q^2 of safety compliance is 0.66 and for safety participation is 0.63 which are all greater than zero which indicates the model of this study has predictive relevance.

DISCUSSION

The findings in this study provide additional support for the significant positive relationships between workers involvement and management commitment on

safety participation and compliance of construction workers in Saudi Arabia. Significantly, the study also found the significant empirical support for the hypotheses that workers with high levels of social support are connected with stronger positive relationships between workers involvement, management commitment safety compliance behaviors. These results offer additional evidence for the view that social support plays a significant part in influencing the relationships between workers involvement and management commitment and safety.

The result from Table 5 shown that a significant relationship exists between management commitment and construction workers safety behavior in Saudi Arabia (both safety compliance and participation), hence H_{1a} and H_{1b} is supported. This result is consistent with earlier research (Naveh *et al*., 2005). The probable explanations for this finding is that if construction company concentrates on workers safety and involve in events that make company safer. Companies are utmost certain to gain high paybacks in terms of employee safety performance. Another likely explanations for this result is that workers might recognize top manager's commitment to their own safety as indication of commitment towards workers safety. Earlier research by Mearns *et al*. (2010) reported that the higher the company investment in s safety the greater the better the company safety performance.

The result from Table 5 shown that a significant relationship exists between workers involvement and construction workers safety behavior in Saudi Arabia (both safety compliance and participation), hence H_{2a} and H_{2b} is supported. This result is consistent with earlier research. The probable explanations for this finding is that if construction company involve workers in to safety decision. Workers reciprocate in form of safety compliance. Earlier research by Vinodkumar and Bhasi (2010) reported that the higher the company involvement of workers in to safety the greater the better the company safety performance.

With regards to social support as moderator, the study found empirical support of H_{3a} and H_{3c}. Figure 4 demonstrated that management commitment and social support on safety compliance at high and low social support. In other words, the relationship between management commitment and safety compliance was high among constructions workers with high social support, but low among constructions workers with low social support. Thus, social support buffered the effect of management commitment on safetycompliance. Therefore, company with high management commitment and workers with high social support, safety compliance can be improved.

Additionally, the interaction between workers involvement and social support on safety compliance at high and low social support as shown in Fig. 5, the relationship between workers involvement and safety compliance was high among constructions workers with high social support but low among constructions workers with low social support. Thus, social support buffered the effect of workers involvement on safety compliance. Therefore, company that involves workers in to safety activities and workers with high social support, safety compliance can be improved. The possible reason of these finding is that the Saudi government is providing an avenue for Foreign workers especially construction workers in term of their welfare (Al-Haadir and Panuwatwanich, 2011). Is possible this reason make social support to moderate these relationships.

In contrast, we did not find the moderating role of social support on the relationships between workers involvement, management commitment and safety participation. Therefore, were rejecting hypotheses H_{3b} and H_{3d}. The possible reasons for these finding may be attributable to the measure of social support used in this study.

CONCLUSION

This study provides some evidence from the use of PLS modeling which demonstrated that workers involvement and management commitment were significantly and positively related to construction workers safety behavior in Saudi Arabia. This study also has established the moderating role of social support that play a theoretically significant role in construction workers safety. Generally, these results highlighted the significance of social support when attempting to improve construction workers safety performance.

IMPLICATIONS

These findings are significant to both research (theory) and practice. Theoretically, the results offered the boundary conditions under which the effect of workers involvement and management commitment construction workers safety compliance can be improve in Saudi Arabia. The study also verified the utility of Social Exchange Theory (SET) (Blau, 1964) in the context of Saudi Arabia. From practical standpoints, since this result

suggest that management commitment and workers involvement show a significant impact in employee safety behavior. Therefore, one can believe that a committed management to ensure safe construction site is likely to provide useful changes in workers safety positively. This perhaps will extant a benefit for companies by maintaining a healthier status on site and improving their morale and reduce compensation cost to the management. Since, workers involvement is significant predictor of construction workers safety behavior, it is vital that workers have input into all safety matters in the companies or site.

The key implication of the study is that even though workers involvement and management commitment are critical for keeping workers safe, companies also need to consider workers social support that may provide further information.

As in all empirical studies, our result is not without limitations. So, while interpreting the findings, the subsequent limitations can be taking into account. The study is cross-sectional, hence, no causal inferences could be made to the population. So, future research are recommended to use longitudinal research design. Moreover, in this study construction workers safety behavior was measured using self-report measures which may be related with social desirability bias (Grimm, 2010). There is possibility that the workers may have over-reported their behavior. Hence, future investigators may apply other method to evaluate safety behavior. More precisely, supervisor ratings of workers safety or peers reporting to control for the social desirability bias.

REFERENCES

Al-Haadir, S. and K. Panuwatwanich, 2011. Critical success factors for safety program implementation among construction companies in Saudi Arabia. Procedia Eng., 14: 148-155.

Awwad, R., O. El-Souki and M. Jabbour, 2016. Construction safety practices and challenges in a Middle Eastern developing country. Saf. Sci., 83: 1-11.

Blau, P.M., 1964. Exchange and Power in Social Life. Transaction Publisher, Piscataway, New Jersey, USA., ISBN:978-0-88738-628-8, Pages: 352.

Bomel, 2001. Improving health and safety in construction, phase 1: Data collection, review and structuring. HSE Books, Hucknall, England.

Borman, W.C. and S.M. Motowidlo, 1993. Expanding the Criterion Domain to Include Elements of Contextual Performance. In: Personnel Selection in Organizations, Schmitt, N. and W.C. Borman (Eds.). Jossey-Bass, San Francisco, California, pp: 71-98.

Chin, W.W., 1998. The partial least squares approach to structural equation modeling. Modern Methods Bus. Res., 295: 295-336.

Chin, W.W., R.A. Peterson and S.P. Brown, 2008. Structural equation modeling in Marketing: Some practical reminders. J. Marketing Theory Pract., 16: 287-298.

Clarke, S. and K. Ward, 2006. The role of leader influence tactics and safety climate in engaging employee's safety participation. Risk Anal., 26: 1175-1185.

Cook, K.S., C. Cheshire, E.R. Rice and S. Nakagawa, 2013. Social Exchange Theory. In: Handbook of Social Psychology, DeLamater, J. and W. Amanda (Eds.). Springer, Netherlands, Europe, ISBN: 978-94-007-6771-3, pp: 61-88.

Dawson, J.F., 2014. Moderation in management research: What, why, when and how. J. Bus. Psychol., 29: 1-19.

Eaton, W.W., 1978. Life events, social supports and psychiatric symptoms: A re-analysis of the new haven data. J. Health Social Behav., 19: 230-234.

Emerson, R.M., 1976. Social exchange theory. Annu. Rev. Sociology, 2: 335-362.

Flin, R., K. Mearns, P.O. Connor and R. Bryden, 2000. Measuring safety climate: Identifying the common features. Safety Sci., 34: 177-192.

Fornell, C. and D.F. Larcker, 1981. Evaluating structural equation models with unobservable variables and measurement error. J. Market. Res., 18: 39-50.

Geisser, S., 1974. A predictive approach to the random effect model. Biometrika, 61: 101-107.

Glendon, A.I. and D.K. Litherland, 2001. Safety climate factors, group differences and safety behaviour in road construction. Saf. Sci., 39: 157-188.

Griffin, M.A. and A. Neal, 2000. Perceptions of safety at work: A framework for linking safety climate to safety performance, knowledge and motivation. J. Occup. Health Psychol., 5: 347-358.

Grimm, P., 2010. Social Desirability Bias. Wiley, Hoboken, New Jersey, USA.,.

Hair, J.F., G.T.M. Hult, C. Ringle and M. Sarstedt, 2013. A Primer on Partial Least Squares Structural Equation Modelling (PLS-SEM). Sage Publications, Thousand Oaks, California, USA., ISBN:978-1-4522-1744-4, Pages: 293.

Huang, Y.H., M. Ho, G.S. Smith and P.Y. Chen, 2006. Safety climate and self-reported injury: Assessing the mediating role of employee safety control. Accid. Anal. Prev., 38: 425-433.

Ibrahim, A.R., M.H. Roy, Z. Ahmed and G. Imtiaz, 2010. An investigation of the status of the Malaysian construction industry. Benchmarking: Int. J., 17: 294-308.

Kim, H.S., D.K. Sherman and S.E. Taylor, 2008. Culture and social support. Am. Psychologist, 63: 518-526.

Li, R.Y.M. and S.W. Poon, 2013. A Literature Review on the Causes of Construction Accidents. In: Construction Safety, Rita Y.M.L. and S.W.M.L. Poon-Yi (Eds.). Springer, Berlin, Germany, ISBN:978-3-642-35045-0, pp: 1-11.

Lingard, H., 2013. Occupational health and safety in the construction industry. Constr. Manage. Econ., 31: 505-514.

Mashi, M.S., 2014. Moderating effect of consideration of future safety consequences on the relationship between safety management practices and safety performance among health care workers: A conceptual analysis. Intl. J. Acad. Res. Bus. Social Sci., 4: 402-411.

Mearnsa, K., L. Hopeb, M.T. Fordc and L.E. Tetrick, 2010. Investment in workforce health: Exploring the implications for workforce safety climate and commitment. Accident Analysis Prevention, 42: 1445-1454.

Naveh, E., K.T. Navon and Z. Stern, 2005. Treatment errors in healthcare: A safety climate approach. Manage. Sci., 51: 948-960.

Neal, A., M.A. Griffin and P.M. Hart, 2000. The impact of organizational climate on safety climate and individual behavior. Saf. Sci., 34: 99-109.

Pellicer, E., G.I. Carvajal, M.C. Rubio and J. Catala, 2014. A method to estimate occupational health and safety costs in construction projects. KSCE. J. Civ. Eng., 18: 1955-1965.

Podsakoff, P.M., S.B. MacKenzie, J.Y. Lee and N.P. Podsakoff, 2003. Common method biases in behavioral research: A critical review of the literature and recommended remedies. J. Applied Psychol., 88: 879-903.

Ringle, C.M., S. Wende and A. Will, 2005. Smart PLS 2.0(M3) Beta. Hamburg University, Hamburg, Germany,.

Shakespeare-Finch, J. and P.L. Obst, 2011. The development of the 2-way social support scale: A measure of giving and receiving emotional and instrumental support. J. Personality Assess., 93: 483-490.

Shumaker, S.A. and A. Brownell, 1984. Toward a theory of social support: Closing conceptual gaps. J. Social Issues, 40: 11-36.

Vinodkumara, M.N. and M. Bhasi, 2010. Safety management practices and safety behaviour: Assessing the mediating role of safety knowledge and motivation. Accident Anal. Prevention, 42: 2082-2093.

Zhang, R.P. and R.Y.M. Li, 2015. A Conceptual Study of Construction Workers' Safety Performance from Safety Climate and Social Exchange Perspectives. In: Construction Safety and Waste Management, Rita, Y.M.L. (Ed.). Springer, Berlin, Germany, ISBN:978-3-319-12429-2, pp: 123-137.

Zhu, Z., M.W. Park, C. Koch, M. Soltani and A. Hammad et al., 2016. Predicting movements of onsite workers and mobile equipment for enhancing construction site safety. Autom. Constr., 68: 95-101.

Zohar, D., 1980. Safety climate in industrial organizations: Theoretical and applied implications. J. Applied Psychol., 65: 96-102.