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Nursing Involvement and Safety Participation among Secondary Health Care Nurses in Jordan: The Mediating Effect of Work Environment

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ABSTRACT

This study suggests that the work environment would mediate the relationship between nursing involvement on nurse's safety participation. Survey data obtained among 517 nurses from the Jordanian ministry of health, Jordan. SmartPLS 3.2.8 was applied to test the hypotheses that comprised both the direct effect of nursing involvement on safety participation and mediating role of work environment on these relationships and consequently bootstrapping was conducted to investigate the standard error of the estimate and t-values. Results from partial least squares analysis show that nursing involvement positively relates to safety participation. Additionally, work environment mediates the relationships between, nursing involvement and safety participation. This contributes to the utility of social exchange theory. Furthermore, to achieve an optimally safe hospital environment, hospital management should encourage employees by involving them in safety activities and decision-making processes within the hospitals and consider enhancing the work environment to improve hospital safety.

Keywords: Nursing Involvement, Work Environment, Safety Participation, Safety Performance
JEL Classification: M12

1. INTRODUCTION

According to the International Labour Organization (ILO), estimated about 2.78 million fatalities occurred workplace less efficient safety systems, management practices, human-error factors and structural inefficiencies (ILO, 2017). Thus, about 7500 people die every day. Of this total, 1000 dies due to workplace injuries, and 6500 dies from disease from the workplace (Hämäläinen et al., 2017). Estimates suggest that about 374 million persons are involved in non-fatal occupational injuries yearly (ILO, 2017; Hämäläinen et al., 2017). The effects of this event had caused economic costs due to workplace incidents, fatalities and injuries which in the state of shocking and it is essential for an organization to identify issues in the workplace related to safety. In addition, Takala and Young (2014) emphasised on economic safety costs in gross domestic product between 1.8% and 6.0% in various countries.

In the Middle East and Jordan, incidents at the workplace have received a lot of attention from researchers and practitioners (Eskandari et al., 2017) because mortality ought to be higher than in other parts of the world (ILO, 2011). For example, in 2006, Hämäläinen calculated that fatal occupational rates per 100,000 were 20.0 in Middle East Crescent countries, as compared to 16.1 per 100,000 in Established Market Economies like Europe and the United States, and 13.1 per 100,000 in Former Socialist Countries. Only Other Asian Countries like Bangladesh, Pakistan, and Thailand at 23.1 per 100,000 and Sub-Sharan Africa at 21.0 per 100,000 were rated as worse (Hämäläinen et al., 2006).

In Jordan, precise figures are difficult to obtain as a good database, and adequate means of collecting data are absent (Dababneh et al., 2018). Previous studies on social security figures, the rate of occupational fatalities in Jordan showed the estimation is between for 25 per 100,000 per year from 1980 to 1993 (Rabbi et al., 1998).

Other studies have found lower rates. The ILO estimated a fatality rate of 15.6 in Jordan for 2006, and the rate was expected to be about 12.0 between 2008 and 2014 (Dababneh et al., 2018). In a study of hospital admissions from three major hospitals using data from 2008 to 2012, Al-Abdallat et al. (2015) estimated the rate of fatality was 2 per 100.000 workers. Also, they specifically noted a 1.1% fatalities rate among Jordanian healthcare workers (HCWs) vis-à-vis other classes of workers. Considering this position in mathematical terms, occupationally-induced fatalities rate among Jordanian health workers could be high in relationship to the number of health care workers in Jordan.

In 2017, Mohammed Hussein, Chairman of the Organizing Committee of First International Jordanian Forum for Occupational Health and Safety, said that "the international worker death rate has increased over the past 7 years, and is likely to be higher in this region" (Al Eman, 2017). These inconsistent estimated rates demonstrate a key difficulty in examining the problem of workplace safety in Jordan. That is the absence of pertinent data for workplace injury reports, which makes studying the problem of workplace injuries and fatalities difficult. As Dababneh et al. (2018), noted a "lack of a good and updated database and the absence of a clear and reliable mechanism for collecting, documenting and analyzing data, make the real size of work-related injuries and losses much more than what is published in our official reports" (p. 162).

Globally, HCWs (palliative care, dental, surgical, nursing, laboratory, home-based, clinical, non-clinical, etc.) are exposed to occupational hazards daily while carrying out their routine tasks. Notwithstanding that hospitals are set up for the treatment of a wide range of illnesses, they are also a channel for transmitting diseases (Brotfain et al., 2017). The routes through which these HCWs sustain injuries occur while using injections, poor waste management systems, treatment of patients and during general patient care and management. Doctors, physicians and theatre nurses also have reported injuries or contact with blood/body fluids during procedures (Martins et al., 2012).

Workplace stressors can contribute to disease and injuries in nursing field which the factors include immediate work context, organization characteristics and changes that occurred outside organization especially in the healthcare industry. On top of that, nurses experienced physical and mental demands during their shift which the hazard at the workplace can be avoided from damaging health both acutely and chronically. The effect of risk at the workplace includes musculoskeletal injuries/disorders, other injuries, infections, changes in mental health, and the longer term, cardiovascular, metabolic, and neoplastic diseases (Hassan et al., 2015; Bhatnagar et al., 2017; Selamu et al., 2017).

Thus, the need to examine and understand factors that can improve safety performance and safety performance metrics of HCWs cannot be overemphasized. Commonly, incidents of accidents are used to measure safety performance, but this metric suffers from several flaws. (Zhou et al., 2008). First, this metric is reactive. Second, fewer numbers of accident cannot be used in proposing safety in the organization (Beus et al., 2016). Third, as Martins et al. (2012) noted, organizations often do not report accidents as they occur. They also posited that organizations underreport by about 70%. In the healthcare setting, Santos and Reis (2016) noted a massive underreporting of accidents amongst nurses.

Therefore, studying factors that can improve the safety performance of HCWs is necessary both in terms of identifying key factors and in terms of developing more proactive metrics. One key element is this search is organizational factors, which have been identified as being responsible for positively shaping the safety-related behaviours of employees (McFadden et al., 2015). While accidents are pointers of safety performance, Beus et al. (2016) noted that safety behaviours are more proactive and accurate measures of safety performance in organizations. Also, mistakes and willful transgressions caused by non-participation and non-compliance with safety guidelines, and the propensity to take risks characteristically leads to workplace accidents (Gibb et al., 2014; Griffin et al., 2015; Strauch, 2016). In the healthcare setting, complacency, lack of attention, heavy work schedules, and a lack of management attention to the safety of HCWs have all been noted to be significant causes of poor safety performance (Lievens and Vlerick, 2014; Pousette et al., 2017).

As the above challenges, researchers and industry practitioners have paid so much attention to identifying organizational factors that are capable of improving the safety performance levels of health care workers (Stock and McFadden, 2017) and more especially those in Jordan (Al-Hamdan et al., 2017). To this end, the present paper intends examining one of safety management practices (SMPs) such as nursing involvement that has been identified across a myriad of socio-demographic settings vis-à-vis their ability to influence safety participation due to improve safety performance outcomes among HCWs.

2. LITERATURE REVIEW

2.1. Safety Performance

A number of researchers have defined safety performance based on the nature and context of their studies. Earlier definitions in studies proposed on the meaning of safety performances which it is a set of rule, regulation and activities in enhancing safety procedures in organization (Xia et al., 2018), which is usually self-reported (Andersen et al., 2018) but it is the way in promoting the safety and health among the workers eventually (Zahoor et al., 2017). Present study discovered safety performance could be defined as safety level in the organization either action or inaction involving the structures, organization and systems (Fernández-Muñiz et al., 2017; Gunduz and Laitinen, 2018; Jahangiri et al., 2017). In general, safety performance is a measurement in determining safety level at the workplace which involves accident, fatalities and injuries (Curcuruto et al., 2015; Mullen et al., 2017). Safety performance also means the tendency of incidents that might happen either result in fatalities, injuries and damage of property (Erdogan et al., 2018).

The above definitions are all-encompassing as they relate to reactive and proactive views of what safety performance is. Also, accident indicators (Vinodkumar and Bhasi, 2010) and human

factor elements (Cooper, 2015; Curcuruto et al., 2015; Mullen et al., 2017) are the main factors that contributed in establishing safety performance within organizations. As such, some other definitions of safety performance are suggested. Accordingly, Griffin and Curcuruto (2016) viewed safety performance as an actor in promoting health safety among employees, customers, public and environment. Based on the definition of safety performance, organization seek way in enhancing safety performance in the organization in order to prevent their personnel expose to the threats due to loss prevention in the organization (Erdogan et al., 2018; Osman et al., 2015).

Maintaining safety level in the organization has become huge challenge to the organization (Clarke, 2016; Ashour et al., 2018). Accordingly, Hughes et al. (2004), Kaynak, et al. (2016), and Zohar and Polachek (2014) scrutinised the most crucial factor in measuring organization performance is the safety level performance in the organization. Indeed, some scholars proposed that the successful organization depends on how they prevent occupational accidents in the organization (Erdogan et al., 2018). Being cognizant of the above considerations, the present paper defines safety performance efforts, practices, and behaviour-based indicators that show the level of inherent and displayed in an organization.

The above definitions of safety performance have brought to light the importance of safety performance in organizational studies. Characteristically, efforts by organizations to ensure improved safety performance outcomes have been noted in terms of their efforts to continuously ensure reductions in accidents, injuries, fatalities and improve safety-related behaviours among their employees. Succinctly put, safety performance is crucial in evaluating organization performance. It reduces the rates of accidents, injuries and fatalities and the attendant costs accruable to such possible occurrences. Hence, organizations utilize many resources to ensuring that safety is given the necessary attention it deserves (Curcuruto et al., 2015; Ashour et al., 2018).

In the present study, safety performance is being examined as behaviours that improve safety in the workplace. These behaviours, which has been assessed as a critical component of safety performance in previous studies, is safety participation.

2.2. Employee Involvement

Nursing involvement, also referred to as employees' involvement, is a behaviour-based technique that involves individuals or groups in an upward communication flow and decision-making process within an organization. To ensure workplace safety across the organisation, employees can directly involve in a decision- making process is by participating in safety committees (Vredenburgh, 2002). However, Vredenburgh stressed that for the committees to be effective, they have to be given real power to affect the changes needed in all safety-related issues. According to Goetsch (2011), when the employees involved in the design and implementation, monitoring, and follow-up of the safety management process, they will have a sense of ownership of the programs, which will eventually lead to the reduction in accidents and injury rates.

Ford and Tetrick (2011) found that involving workers in the safety management process was the key to an organisation's safety performance because such involvement empowered the workers psychologically via their participation in safety committees. Minter (2002) reviewed various occupational safety and health studies done by HSE and found that companies that promoted workers' involvement in safety- and health-related matters were mostly characterised by a reduction in accidents and injury rates. He also noted that there were improvements in hazards awareness and productivity. Jervis and Collins (2001) did a study on safety's return on investment to ascertain various levels of significance of six selected SMPs that were related to OSH performance. They revealed that management commitment and workers' involvement ranked the highest in terms of their significance, followed by safety training.

While generally studies tend to demonstrate a direct relationship between SMPs and safety participation (Vinodkumar and Bhasi, 2010; Huang et al., 2012), our study is different as we theorize that the practices (nursing involvement) affect safety participation through the mediating effect of work environment. Even though Neal et al. (2000), building on Borman and Motowidlo's (1993) work on job performance, considered safety participation as one of the critical dimensions of safety performance.

Besides, there is still no convergence of opinion regarding the number of dimensions that should constitute SMP constructs. Therefore, implying that a researcher can navigate in choosing SMP constructs based on their content-context elements (Thomas, 2012). Thus, any dimension of safety practices constitutes safety management in the workplace.

To this end, the present paper intends examining one of SMPs such as nursing involvement that has been identified across a myriad of socio-demographic settings vis-à-vis their ability to influence safety participation due to improve safety performance outcomes among HCWs.

2.3. The Role of Work Environment

Analysing statistical mediation is common in psychology because sociologists are inquisitive on how the systems work (Montoya and Hayes, 2017). In spite of the fact, the establishment of the connection between SMPs and safety performance, Mathieu et al. (2007) and Wu and Zumbo (2008) noted that the introduction of a mediator is justified (Baron and Kenny, 1986). Moreover, when researchers sought to have additional understanding of how and why such relationships occur, and especially in an intermediary process (Montoya and Hayes, 2017; Muller et al., 2005), the introduction of a mediator should be worthwhile.

Furthermore, MacKinnon (2012) suggested that the introduction of mediators in statistical relationships is for pursuing additional explanation on the nature of the relationship between an independent and a dependent variable. Interestingly, because scholars are now directing their empirical endeavors on gaining a better understanding of established findings, Cohen et al. (2013) suggested that the introduction of a mediator and its subsequent analyses could be used to understand a well-known relationship

better. As such, one of the key thrusts of this current study is to understand the mediating role of the work environment in the relationship between SMPs and safety performance. That is, given the empirical and logical workers of how mediators should work, better SMPs should be building the perception of nurses about the suitability of their work environment, which should naturally lead to improved safety performance indicators.

Clearly put, worker involvement are organizational factors put in place by management to positively shape the perception of employees that safety is being given adequate priority in the workplace. When employees actually feel this priority, they tend to have a sense that indeed their work environment is comfortable, safe and user-friendly enough for them to carry out their tasks. Also, a positive perception of nurses that their work environment is well-placed for them to work safely should lead them to comply with and participate in safety-related activities of their organizations. This is in addition to the fact that they will also tend to reduce risk-taking behaviours.

Work environment means that the social, physical and psychological criteria of the work environment (Bergström et al., 2015; Searcy et al., 2016). In addition, the workplace environment is related to every aspect of the approach and the work management system and how the system interrelates with employees and their workplaces (Searcy et al., 2016). Besides, a better work environment or perceptions could lead to some indicators of organizational performance. For example, the work environment is known to have a robust effect on organizational performance (Searcy et al., 2016; Zúñiga et al., 2015) and effects on health and survival (Hemström, 2001). However, assessment on the working environment as a mediator in justifying the link between management practices with safety performance, such as nursing involvement on safety performance. This is first look and purpose-based which contribute to the body of knowledge in the field of security research.

As noted by some researchers, better work environment could increase job satisfaction (Atefi et al., 2014 ; Ketterman et al., 2016), improving the attention quality and reduce impairment to patients in the field of health care (Newhouse et al., 2013). Nurses work in a promising work environment in China were observed to ensure safe care with low dissatisfaction or work outbreak (You et al., 2013). On the other hand, many factors are often associated with a poor work environment; Therefore, organization management should be accountable for guaranteeing better work environments so that their employees can work safely (Dai et al., 2014; Nguyen et al., 2015; Zúñiga et al., 2015).

However, the study context, we examined the work environment based on the organizational criteria of the health institutions should improve the performance of safety performance especially safety participation among nurses. Therefore, the reason for proposing to assess the work environment as a mediator in the context of this study is essential for the study. Thus, the work environment is an element of organizational outcomes. Besides, organizational factors affect the criteria of the work environment. Therefore, SMPs (organizational factors) will have an impact on the work environment and safety indicators as well.

The present study seeks to answer that call within the context of the nursing profession in the Jordanian ministry of health. For the present study, safety performance will be measured with items of safety participation at the employee level. The present study proposes to examine a combination of the above safety-related behaviours within the context of the nurses working in public health facilities in Jordan. Hence, based on the above arguments, we proposed the following hypotheses:

H_1. There is a significant positive relationship between nursing involvement in safety and safety participation

H_2. There is a significant positive relationship between nursing involvement in safety and work environment

H_3. There is a significant positive relationship between work environment and safety participation

H_4. Work environment mediates the relationship between nursing involvement and safety participation.

3. METHOD

3.1. Sample and Data Collection Procedure

To collect data, we surveyed nurses in Jordanian ministry of health located in the northern region of Jordan, particularly in the governorate of Irbid. In Jordan, the hospitals provide secondary and tertiary healthcare services. A statistic provided by the Jordanian Ministry of Health (2016) shows that the secondary and tertiary health system in Jordan comprises 110 total hospitals categorised into the public and private health sector. The public health sector includes 32 hospitals under the authority of the Ministry of Health (MOH). University hospitals such as the Jordan University Hospital (JUH), and King Abdullah University Hospital (KAH), and 14 related hospitals are under the control of the Royal Medical Services (RMS). Lastly, there are 62 private hospitals. Table 1 shows the healthcare sectors in Jordan and the total number of beds for each sector in 2016.

Because this study examines safety participation in the healthcare settings, it would be suitable to consider HCWs because they are exposed to various occupational hazards in hospitals that related to their jobs (Chalya et al., 2015). In the proposed study, based on the categorization in Table 1, the population will include the registered nurses who are working under the control of the Ministry of Health (MOH) in 32 hospitals.

At the beginning of the study, Written approval obtained from the committee with the protocol approval from the Jordanian ministry of health. The distribution of the self-administered questionnaire was conducted by the researcher together with the assistance of

Table 1: Types of hospitals, number of hospitals, and beds in the Jordanian health sector (2016)

Health sectors	No. of hospitals	No. of beds
Public health sector	48	9235
Ministry of health	32	5177
Royal medical services	14	2917
Jordan university hospital and king Abdullah university hospital	2	1141
Private health sector	62	4496
Total	110	13731

Source: Jordanian Ministry of Health (JMoH) (2016)

two research assistants. We interviewed the employees to get a first-hand understanding of the area of the investigation. In the subsequent visits, we administered the questionnaires via a contact person in the hospital who agreed to collect the completed survey. By doing so, we avoided disrupting the working time of the employees. After 2 weeks, we received the questionnaires from the contact person.

Data was collected from the nurses in the eight (JMoH) hospitals in Irbid including Abu-Obaidah, Al Yarmouk, AL-Ramtha, Princess Basma, Princess Badea', Princess Raya, Princess Rahma and Mua'th Bin Jabal hospitals chosen using cluster sampling. The distribution of the self-administered questionnaire was conducted by the researcher together with the assistance of two research assistants.

The questionnaires were prepared in the Arabic language because this is the language that the participants were most familiar with even though the original instruments were developed in the English language. Back translation, following Brislin (1970), was employed in that the original instruments were translated into the Arabic language by academic experts in both languages. The translated version was later back-translated into the English language to examine the match between the original and the English translated versions by a different group of academics. After some discrepancies between the two versions had been addressed, the Arabic version of the questionnaire was pre-tested. The content and substances were discussed with two competent safety officers who had experience working with Jordanian hospitals to ensure face validity. One of the officers was currently attached to the Department of Occupational Safety and Health, and the other was working as a head nurse in an emergency room. Furthermore, a pretest was conducted to assess the suitability of the wording and format, and the extent to which measures represented all the facets of the constructs. Based on the pretest responses, necessary changes were later incorporated into the final questionnaire.

2 months after administering the questionnaire, 480 completed questionnaires were received from the respondents which the researcher labelled as early responses After several follow-ups to remind those participants who were not yet to complete and return their surveys using regular visits, and Additional 123 questionnaires were received and labelled as late responses. Overall, out of 800 questionnaires distributed, 523 were returned. This explains the 65.3% response rate. But six questionnaires were removed because the respondents filled only the demographic part of the questionnaire making the correct response of 517. This accounted for the valid response rate of 64.6%.

3.2. Measures

The measures of nursing involvement adapt from Vinodkumar and Bhasi (2010), safety participation was taken from Vinodkumar and Bhasi (2010), and work environment made from Tourangeau and McGilton (2004) who developed the instruments from previous works. Following their tool, we used five items to measure nursing involvement, six items of the work environment and four items of safety participation.

All items were measured on a five-point Likert-type, ranging from "1" strongly disagree" to "5" strongly agree." Sample items included "Management promotes nursing involvement in safety-related matters" (nursing involvement), "Nurses who work in this environment have shared goals" (work environment), and "I promote the safety program within the organization" (safety participation).

4. DATA ANALYSIS

We utilized partial least squares (PLS) which is a variance-based structural equation modelling technique (Hair et al., 2018) to test the research model depicted in Figure 1. According to Roldán and Sánchez-Franco (2012), PLS allows the assessment of both the measurement model and the structural model. In addition, we used PLS in for the following reasons: an appropriate analysis tool for the exploratory nature of this study. Further, it is better meaning of prediction to extend the existing theory confirmatory testing for it (Hair et al., 2018), This study investigated the mediation effect of work environment on the relationship among nursing involvement and safety participation. In addition, the PLS-SEM approach is one of the powerful statistical tools in social and behavioural sciences that simultaneously test several relationships (Hair et al., 2018). All these arguments have contributed to the widespread acceptance of PLS in safety research (Hajmohammad and Vachon, 2013). In this study, we used the SmartPLS by Ringle et al. (Hair et al., 2018).

Results measurement model the reliability and validity of the constructs were evaluated through the reflective measurement models. The process started with assessing the individual item reliability as shown in Table 2. The loadings were above the acceptable threshold value of 0.5; this is acceptable if the summation of loadings results in high loading score and

Figure 1: Results of path analysis

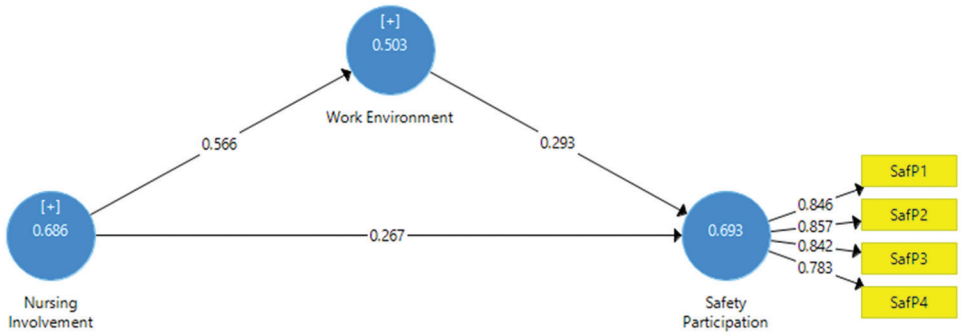

Table 2: Measurement model: Loadings, construct reliability, and convergent validity

Construct	Items	Loading	Average variance extracted	Composite reliability
Safety participation (SC)	SafCom1	0.839	0.696	0.855
	SafCom2	0.860		
	SafCom3	0.847		
	SafCom4	0.788		
Work environment (WE)	WE1	0.580	0.695	0.845
	WE3	0.743		
	WE4	0.764		
	WE5	0.746		
	WE6	0.725		
Nursing involvement (WI)	NISaf1	0.864	0.503	0.866
	NISaf2	0.666		
	NISaf3	0.855		
	NISaf4	0.829		
	NISaf5	0.870		

contributing to average variance extracted (AVE) score >0.5 (Byrne, 2016). With regards to the construct validity, all constructs achieved the value of composite reliability >0.708. The convergent validity was assessed by the AVE, suggested being more significant than 0.5 (Fornell and Larcker, 1981). In this study, all variables indicated AVE values >0.503. To satisfy discriminant validity, the diagonal value should be significantly higher than the off-diagonal values in the corresponding rows and columns.

To meet discriminant validity, the diagonal value should be more significant than the off-diagonal values in the corresponding rows and columns (Hair et al., 2017). This requirement has been met as shown in Table 3. As such, it can be said that both structures are more strongly linked to their own measure than others.

4.1. Structural Model

After ascertaining the validity, reliability, and standard method bias of the instrument, the path analysis was conducted to test the seven hypotheses formulated earlier. This was done by assessing the structural model's algebraic sign, magnitude, and significance of the structural path coefficients, R^2 values, and the Q^2 (redundancy) test for predictive relevance.

Figure 1 illustrates the results of the test on the hypothesized structural model. A minimal level of the explanatory power of an endogenous construct was achieved through the explained variance of R^2 and deemed to be adequate. The R^2 value of 0.131 and 0.319 showed that safety participation and work environment respectively were explained by the variables of nursing Involvement.

In addition to R^2 estimation, we looked at the predictive significance of Q^2 of the path model (Stone, 1974; Geisser, 1975) as an additional assessment appropriate to the model. Predictive relevance, Q^2, is a criterion that assesses predictive relevance and can be calculated by using the blindfolding procedure, which available in most pls software packages, whereby Q^2 more than 0 means that the model has predictive relevance. The blindfold procedure was performed in PLS to assess the predictive suitability, and the results indicated that the Q^2 value was more significant than 0, implying that the model had predictive relevance as suggested by Chin (2010) and Hair et al. (2017). The Q^2 values of Work environment and safety participation were higher than 0 (Table 4), suggesting that the model exhibited an acceptable fit and high predictive relevance.

Table 3: Measurement model: discriminant validity

Constructs	NI	SP	WE
Nursing involvement	0.829		
Safety participation	0.266	0.838	
Work environment	0.591	0.332	0.701

Table 4: Predictive relevance

Construct	Q^2
Work environment	0.147
Safety participation	0.092

The hypotheses were examined by testing for the significance by the measure as suggested by Hair et al. (2018). A bootstrapping (5000 subsamples) was deployed to produce standard errors and t-values, which allow the evaluation of the statistical significance of the path coefficients.

The procedure also enables the reporting of bootstrapping confidence intervals (CIs) of standardized regression coefficients. A significant path is ascertained when P-value is below 0.01 (t-value >2.58) and 0.05 (t-value >1.96), respectively, for two-tailed test.

Table 5 provides a summary of the hypothesis test for this study nursing involvement ($\beta = 0.566$, $P > 0.000$) was strong, significant, positive correlations related to work environment. In addition, nursing involvement ($\beta = 0.101$, $P > 0.027$) Work environment ($\beta = 0.294$, $P > 0.000$) were strong, significant positive to safety participation.

The bootstrapping procedure (5000 resamples) described by Hayes (2009) was adopted to test the mediation hypotheses (H_7). Adhering to Castro and Roldán's (2013) suggestion, we applied a two-step procedure to test the indirect effect. In the first step, we included both the direct and indirect paths to perform a bootstrapping procedure and explicitly calculated the product of the direct paths that formed the indirect path. Then, we estimated the significance using the percentile bootstrap CI. This procedure generated 95% CI for the mediators. The indirect effect is significantly different from 0 with 95% confidence when the interval for a mediation hypothesis does not contain 0. Table 6 shows that Work environment mediated the relationship between nursing involvement and safety participation.

Table 5: Structural model (direct relationship)

Hypotheses	Relationship	β	SE	t-value	P-value	Decision
H_1	NI->SP	0.165	0.056	3.129	0.027	Significant*
H_2	NI->WE	0.576	0.035	15.2	0.000	Significant**
H_3	WE->SP	0.253	0.052	3.068	0.000	Significant**

P**-value > 0.01 (2.58), P*-value > 0.05 (1.96)

Table 6: Structural model (mediation)

				Bootstrapped confidence				
Hypotheses	Relationship	Path a	Path b	Indirect effect	Standard Deviation	t-value	95% LL	95% UL
H_4	NI→WE→SP	0.576	0.255	0.098	0.031	3.007**	0.030	0.155

P**-value > 0.01 (2.58), P*-value > 0.05 (1.96)

5. DISCUSSION

In this study, we examined the indirect effect of one component of SMPs (workers' involvement) on safety participation through the mediation of the work environment. We found both of these practices have indirectly affected safety participation through the work environment. The influence of nursing involvement on safety performance (i.e., safety participation) demonstrated in this study is consistent with previous works (e.g., Vinodkumar and Bhasi, 2010; Wachter and Yorio, 2014; Fernández-Muñiz et al., 2017).

More importantly, we found the significant role of the work environment in affecting the safety participation of employees. However, the examination of the work environment as a mediator in explaining the relationship between nursing involvement and safety participation is, to the best of the researcher's knowledge unavailable. This is the first look, and an intended original contribution to the body of knowledge in the safety research area, and a paucity of research exists in this regard with a specific focus on the Jordanian setting. Our result suggests the importance of organizational characteristics of a work setting that facilitate professional nursing practice to the promotion of safety participation among nurses in hospitals.

Jordanian Health care workers, and especially nurses also have a high level of exposure to risks in the workplace. Whereas, working conditions occasioned by management practices of the management of hospitals where HCWs are attached can affect their level of productivity and their proclivity to becoming infected with diseases (Adams et al., 2018). Moreover, the level of the safety performance of HCWs is predicated upon the safety management systems of healthcare facilities to which they are attached (Picakciefe et al., 2017). Because of this, conducting empirical examinations into proposing organizational factors that can improve safety performance indicators among nurses has been suggested (Lievens and Vlerick, 2014). Poor management practices in the healthcare setting have been recognized as a critical factor affecting the performance of nurses in terms of safety (Subramaniam et al., 2014). Most healthcare facilities have reported a reduced level of commitment by the management of healthcare facilities to the safety of the nurses working in their facilities (McFadden et al., 2015).

The importance of SMPs such as nursing involvement toward safety is the significance to provide a sense that indeed their work environment is comfortable, safe and user-friendly enough for them to carry out their tasks. Also, a positive perception of nurses that their work environment is well-placed for them to work safely should lead them to comply toward complying with safety rules and procedures at work.

Involving employees in the safety management process of organizations is critical to maintaining safety in such organizations. Worker involvement is a behaviour-based technique that involves individuals or groups in an upward communication flow and decision-making process within an organization (Fang et al., 2015). However, the amount of participation depends on the connection and effects of the decisions to be made. This is because employees know better than anyone else where hazards exist, and their involvement in the safety management process of the organization makes them committed to the cause (Goetsch, 2011). Also, the extent of involvement can range from not involving employees (where the supervisor makes all decisions), to complete involvement of employees (where the safety decision making process is all involving).

6. IMPLICATIONS, RECOMMENDATIONS, AND CONCLUSION

Taken together, the findings of this research have reported partial support for the key theoretical propositions. The results of the study have provided theoretical and practical implications in the domain of occupational safety and health management. Specifically, this study suggests that the work environment would mediate the relationship between nursing involvement on nurse's safety participation. As for practical ramification, the research results validated the notion that nursing involvement through work environment are of extreme importance in participating with safety activity.

Practically put, in reviewing the existing policies and procedures with regard to occupational safety and health, the aforesaid factors deserve a higher level of scrutiny in any hospitals. This is attributed to t provide a sense that indeed their work environment is comfortable, safe and user-friendly enough for them to carry out their tasks. Also, a positive perception of nurses that their work environment is well-placed for them to work safely should lead them to comply toward complying with safety rules and procedures at work.

This study has highlighted several trends for further research efforts. Future research should replicate the framework of this study in other settings, such as construction and mining and quarrying industries because these sectors are also considered as high-risked industries. Importantly, studies on safety issues in these industries may yield an interesting perspective and understanding regarding safety participation in various areas. A comparative study of industries, such as manufacturing, agriculture, construction, as well as mining and quarrying, would be beneficial in further understanding factors related to safety participation and overall performance safety in the different nature of work. Besides that, future studies should consider adopting other approaches, for instance, qualitative research design, in analyzing issues on the reasons why employees are ignoring complying with safety rules and procedures.

Finally, the above positions brought to light the prevalent factors used in measuring safety performance including accidents and injuries, safety participation and safety participation. Interestingly, risky behaviour, as another, yet an under-researched component of safety performance, is worth examining because of its striking relationship, yet a different objective measure of safety performance. The need to examine risky behaviour as a core component of safety performance is predicated on Ramanujam and Goodman (2003), who advanced the concept of latent errors.

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