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Ghulam Murtaza Rafique Dr.

Assistant Professor, University of Sargodha, ghulam.murtaza692@gmail.com

Khalid Mahmood Dr.

Professor, Institute of Information Management, University of the Punjab, khalid.im@pu.edu.pk

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Effect of Knowledge Sharing on Nurse's Job Satisfaction: The Mediating Effect of Innovation Behavior

Dr. Ghulam Murtaza Rafique¹ (corresponding author)

Dr. Khalid Mahmood²

¹ Assistant Professor at *Department of Information Management, University of Sargodha, Sargodha, Pakistan*

² Professor of Information Management at *Institute of Information Management, University of the Punjab, Lahore, Pakistan*

Abstract

Knowledge sharing (KS) plays a vital role in increasing the innovation behavior (IB) of employees which ultimately causes their job satisfaction (JS). The extant literature indicated a lack of studies that determined the effect of KS at work place on JS where the mediating role of IB was also analyzed. As, no study was conducted before on this topic considering professional nurses as a unit of analysis, therefore, this study extends the scant literature by examining the effect of KS on nurses' JS with the mediating effect of IB. The data were collected from 208 currently working professional nurses at public and private sector hospitals of Pakistan using a quantitative survey questionnaire. Equal sized convenient sampling technique was used to select the sample from intended population. Simple linear and hierarchical regression was applied to test the research hypotheses. The findings revealed that KS and IB had positive significant effect on nurses' JS. Further, IB fully mediated between the relationship of KS and JS. This study provides empirical evidence for positive effect of KS on nurses' IB which significantly related to their JS. The findings suggest that health care organizations should consider the importance of KS to enhance innovation capabilities of their employees so that they could be satisfied with their job, and provide quality care to the patients.

Keywords: Knowledge sharing; Knowledge sharing; Innovation behavior; Job satisfaction; Nurses; Health care; Hospitals; Lahore; Pakistan.

Introduction

Knowledge sharing (KS) is an effective strategy to achieve collaborative benefits in all types of organizations including healthcare sectors. It has become a vital element of knowledge management (KM) contributing a lot in individuals' learning and organizations' development in today's knowledge-based societies. KS is a process of exchanging individuals' tacit and explicit information, knowledge, ideas, skills, and experiences that facilitate innovation at workplace (Wang and Noe, 2010). Previous studies illustrate that KM, specifically KS, is an imperative antecedent of innovation (Nonaka, 2008). KM and innovation, mutually correlated and potential factors, play a crucial role to increase employees' job satisfaction (JS) by reducing their turn over (Castaneda and Cuellar, 2020; Kucharska and Bedford, 2019; Kurniawan, *et al.*, 2020; Lei *et al.*, 2019; Malik and Kanwal, 2018; Usmanova *et al.*, in press; Zhao *et al.*, ahead-of-print). Innovation management has received a considerable attention of researchers and even practitioners over last three decades, and they accepted it as a driving force for individual and organizational survival, sustainability, and economic growth (Drach-Zahavy *et al.*, 2004; Freeman and Soete, 1997; Yu *et al.*, 2013). Simply, it can be defined as "the generation, acceptance and implementation of new ideas, processes, products or services" (Thompson, 1965, as cited in Kamaşak and Bulutlar, 2010, p. 308).

With relation to KS, a several organizational and individual variables are and have been investigating over time. However, JS and innovation behavior (IB), the

most researched variables in the field of organizational behavior and psychology (Rafique and Mahmood, 2018; Yiu *et al.*, 2019), have not yet been explored with KS in healthcare sector, especially in Pakistani context. Previous studies have also empirically proven the impact of KS on JS (Almahamid *et al.*, 2010; Kianto *et al.*, 2016; Koseoglu *et al.*, 2010) and on IB (Kang and Lee, 2016; Nguyen *et al.*, 2019; Wijngaards, 2016) of employees working in different organizations. But, none of the study examined the effect of KS on JS through mediating innovation, nor selected professional nurses as a unit of analysis. Therefore, keeping in view the importance of topic, the present study is designed with an aim to examine the effect of KS on JS of nurses in Pakistan while examining the mediating role of their innovation.

Related Literature and Hypotheses Development

Knowledge Management and Knowledge Sharing

Knowledge management is an important element of any type of organizations for sustainable development. It is defined as “a process of collecting and identifying valuable information (i.e., knowledge acquisition), enabling employees to recover organizational knowledge (i.e., organizing knowledge), exploiting and beneficially applying knowledge (i.e., knowledge leverage), disseminating it through the whole organization (i.e., Knowledge sharing) and storing the knowledge in a repository (i.e., organizational memory)” (Trivellas *et al.*, 2015, p. 239). KM embraces two types of knowledge i) *tacit/implicit*, and ii) *explicit* knowledge. The second type of knowledge comprised upon knowledge that could be codified and transferred from one individual

to another as it exists in print format (documents and databases). Whereas, the first one is knowledge which is difficult to communicate, store, and/or organize as it resides in individuals' minds (Nonaka, 1994). Therefore, most of the organizations, either corporate or health-care, are investing their efforts to manage tacit type of knowledge in order to fully implement KM practices and to gain maximum benefits from it. One of a widely discussed and crucial aspect of KM is KS (Bock and Kim, 2002) that encompasses social interactions and interpersonal relationships. Essentially, it is an activity of exchanging and combining one's knowledge, ideas, practices, and expertise with others (Serban and Luan, 2002).

Knowledge Sharing and Innovation

KS is a strong enabler of innovation and its absence impede innovation. Exchanging of ideas, knowledge, and skills leads towards creation of innovative ideas (Kremer *et al.*, 2019). Organizations that increase their involvement in sharing knowledge of employees tend to strengthen their innovative capabilities. KS helps individuals by developing various innovative approaches to meet with problems encountered at workplaces, and thus enhance their innovative capabilities and work performance (Belso and Diez, 2018). KS-innovation relationship is and has been studying widely since last five decades. The first known empirical study that determined the relationship between these two variables came into scholarly literature in 1973, as Castaneda and Cuellar (2020) claimed. Further, empirical evidences confirmed a strong association between KS and innovation (Darroch and

McNaughton, 2002). The extant literature revealed the effect of KS on innovation behavior and capabilities of employees working in various types of organizations. For instance, Zhao *et al.* (ahead of print) confirmed that outbound sharing of knowledge improved innovation

capabilities of employees. Similarly, Ratasuk *et al.* (2020) revealed that employees exhibiting a greater amount of KS with colleagues received a high amount of innovative capabilities. Wijngaards (2016) found a strong effect of knowledge donation (one of a key aspect of KS) on innovative work behavior of employees. Likewise, Nguyen *et al.*, (2019) found a significant effect of employees' willingness to donate and collect knowledge on their innovative work behavior. As KS among employees occurs; their IB, practices, and/or capabilities increases together with the increase in competitive advantage of organizations (Cavusgil *et al.*, 2003; Mura *et al.*, 2013; Podrug *et al.*, 2017). Kim and Park (2017) supported this notion and found that employees engaging in sharing of knowledge and expertise improved their level of innovation behavior which instigated overall advancement of organizations.

In clinical nursing setting, it is also evident that KS is significantly associated with nurses' innovation (Moon, 2005). Li-Ying *et al.* (2016) investigated the effect of KS behavior of intensive care unit nurses on their innovation behavior. Their findings showed that three types of KS: *KS through written contributions, organizational communication, and personal interaction* positively correlated with innovation behavior of ICU nurses. Another study was conducted by Waha *et al.* (2018) on

Malaysian nurses and found a positive significant association of nurses' tacit KS with their innovation behavior. Although, a plenty of studies have been carried out on KS-innovation relationship and the amount is still increasing, however, a scarcity of published research could be observed in healthcare setting. Therefore, due to the dynamic association between KS and innovation, following hypothesis is established.

H1 – *Knowledge sharing impacts positively on innovation behavior.*

Knowledge Sharing and Job Satisfaction

JS is an important element of employees' attitude and has been defined in several ways over years that indicates its value at workplace. About 85 years ago, the concept of JS clearly came into front after the work done by Hoppock (1935). Later, a considerable attention of researchers from the field of Psychology, Business, and Human Resource Management has been paid to define and explain this concept (Rafique and Mahmood, 2018). Lock (1976) defined it as a positive or negative attitude of workers towards his/er job. According to Spector (1997), it is a state of mind, personal feelings, and complex indicator of emotional well-being of employees about their work. Saeed (2016) elaborated this concept as:

The difference between what an employee expects from job and what he/she actually gets from job. When an employee's expectations from job are less or equal to what job actually delivers in return, employee is satisfied. On the contrary, job dissatisfaction results when individual's expectations are higher from what the job actually delivers to him/her. (p. 16)

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JS and KS, the critical elements for employees' development, have positive association with each other, therefore, in literature, these two variables are discussed together (Jacobs and Roodt, 2007). KS and JS play a dynamic role to obtain organizational goals at micro and macro level. Inter-personal and intra-personal sharing of knowledge leads towards JS which in turn causes the development of overall organizational performance. Wu *et al.* (2013) identified that when employees collaborated with each other by sharing their ideas, knowledge and skills, they got more chances of promotion which resulted in higher level of JS. Based on an extensive review of published literature in psychology, organizational

behavior, sociology, and educational literature, Rafique and Mahmood (2018) put forth the view that KS and JS are core influential factors that are strongly associated with each other. Other studies have also confirmed the association between KS and JS (Kucharska and Bedford, 2019; Zamir, 2019). Among these studies, mostly were conducted in the field of organizational behavior (Spector, 1985), however, this phenomenon has rarely been approached through healthcare setting (Rafique, 2020), specifically in clinical nursing in Pakistan. Therefore, this hypothesis is framed out.

H2 – Knowledge sharing exerts a significant positive impact on job satisfaction.

Innovation and Job Satisfaction

Innovation has been recognized as a critical element for individual, organizational, and economic development (Freeman and Soete, 1997). Yu *et al.*, (2013) depicted that organizational survival and sustainability were linked to the

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innovation capabilities of employees. The main purpose of innovation is to create new knowledge to find out feasible solution(s) of the issues at work place by utilizing existing knowledge and cognitive approaches (Harkema, 2003). This term has been defined in different ways by various researchers and practitioners, for instance, Barnett (1953) defines it as something that is new. According to Scott and Bruce (1994), it is "... a process involving both the generation and implementation of ideas" (p. 606). McSherry and Douglas (2011) are in view that innovation is regarded as 'practicing' for gaining new skills. In nursing perspective, they define it as:

the encouragement of professionals to utilize their acquired knowledge and skills to creatively generate and develop new ways of working, drawing on technologies, systems, theories and associated partners/stakeholders to further

enhance and evaluate practice. Innovation in practice is imperative in order to improve patient safety and quality care; it does not and will not occur in isolation requiring investment, support and resource allocation from managers, leaders and governments. (p. 165)

Innovation is a strong predictor of JS (Lee and Ha, 2018; Wei *et al.*, 2020). Mayfield *et al.* (2020) identified that innovative work environment boosted the satisfaction level of employees with their job. Similarly, Jamshed and Siddiqui (2019) confirmed that organizational innovative culture enhanced JS of employees. Loyola (2019) indicated that there was a very strong relationship between JS and employees' innovation. The satisfied workers develop various innovative approaches to meet with problems encountered at workplaces, and enhance their innovative capabilities and

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work performance. Han *et al.* (2010) were in opinion that IB of clinical nurses and the level of their JS were correlated with each other. Likewise, Barchielli *et al.* (2019) conducted a study on Italian nurses and concluded that innovation was a strong leverage factor for their JS. The research on innovation-JS relationship has been grasping the attention of many scholars in the field of management sciences and social behavior during last few decades. However, the studies investigating the relationship between these two variables (innovation and JS) in healthcare sector are meager especially within developing countries' context like Pakistan. This research, thus, proposed the following hypothesis:

H3 – Innovation behavior positively influences nurses' job satisfaction.

Knowledge Sharing, Job Satisfaction, and Innovation

KS may be seen as a precursor of IB which in turn may be considered as an antecedent of critical work outcome such as JS (Lin, 2006). This argument is also partially supported by Tufail *et al.* (2016) who concluded that KS and its practices among employees are related with JS playing as mediatory role in between social support and innovation. Further, it is also evident that KS mediated between IB and JS (Tarigh and Nezhad, 2016) and hereafter IB impacted JS of employees. However, such literature is scarce discussing the role of innovation as mediator in relation between KS and JS of professional nurses, therefore, the following research hypothesis is developed.

H4 – *Innovation behavior mediates the relationship between KS and JS.*

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On the basis of above-mentioned hypotheses, following conceptual model is proposed.

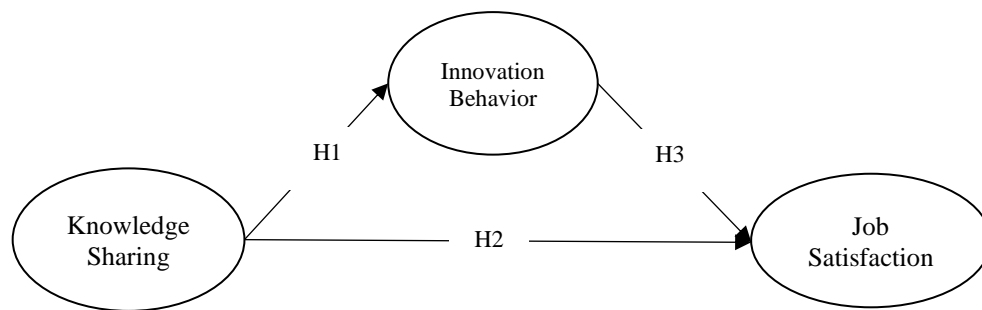


Figure 1. Conceptual model of the study

Research Method

Design – To examine the effect of KS on JS of intended population and the role of IB as mediator, a cross-sectional quantitative approach using a survey method was opted.

Population, Sample, and Data Collection – All the hospitals in Pakistan can be divided into two main sectors: the public and the private sector. Thus, the population frame of this study

was consisted on currently working professional nurses at both public and private sector hospitals of one of a second largest populous cities of Punjab, Pakistan i.e. Lahore (11,126,285 individuals). Lahore is selected as a study setting, because majority of public and private sector hospitals are situated in this metropolitan city than other cities of Pakistan. Second, due to time and resources constraint, this city was chosen as a place of study. Equal size sampling technique was used to select the sample size from the intended population (50 from each

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hospital). A sample of 300 voluntary participants were approached through a personally administered survey questionnaire after getting a permission from administrative head of each hospital. A total of 242 questionnaires were received back after several follow-ups, out of which 14 incomplete and poorly filled questionnaires were dropped out. Thus, 228 (76%) useable questionnaires were entered into SPSS-22 for preliminary data analysis.

Measures

The survey questionnaire was comprised on two sections; the first section covered the questions about demographic aspects of the respondents e.g. hospital type, gender, age, designation, and their experience as a professional nurse. While, in the second section of the survey, pre-validated scales were adopted to measure the study variables (KS, JS, & IB). The detail of each scale is as follows:

Knowledge sharing – This construct was measured by adopting the scale developed by Collins and Smith (2006) having eight items. It measured *KS attitude*, associated *perceived benefits*, and KS related *self-efficacy* on five-point Likert scale ranging from strongly disagree to strongly agree. The sample item is: “I see benefits in exchanging and combining ideas with

one another". Internal consistency reliability of this scale was 0.91, as reported by its developer.

Innovation Behavior – Innovation behavior of the respondents was determined by Scott and Bruce (1994) 06 items scale. The sample items are: "I search

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out new technologies, product, processes, techniques, and/or ideas" and "I generate creative ideas". Scott and Bruce (1994) reported the Cronbach's alpha for the *innovation behavior* as 0.89.

Job Satisfaction – To study JS of participants, *Job Satisfaction Scale for Nurses* by Ng (1993) was used. This scale used 24 items assessing seven facets of JS (Administration, Co-worker, Career, Patient care, Relationship with supervisor, Nursing education, Communication). The example items are: "I know that the hospital administration is there to back nurses up" and "There are enough opportunities on my unit for developing my professional skills". Internal consistency reliabilities of this scale reported by Ng (1993) was 0.84.

Reliability of measures – Internal consistency of the measures were assessed through Cronbach's Alpha value. The alpha value for KS was .755, while α was .799 and .822 for JS and IB respectively. All values were in the acceptable range of $\alpha > .70$ showing a good internal consistency between the items according to the criteria given by Frankfort-Nachmias and Nachmias (2008).

Table I: Descriptive statistics, internal consistency reliability, KMO, and correlation matrix

Variable	M	SD	Cronbach's alpha	KMO ^a	KS	JS	IB	Skewness	Kurtosis
KS	3.70	.557	.755	.782	1			-.210	.577
JS	3.30	.319	.799	.756	.219**	1		-.183	.328
IB	3.69	.609	.822	.757	.379**	.451**	1	-.654	1.636

** $p < 0.01$

- a. Kaiser-Meyer-Olkin (KMO) measure for sampling adequacy (N=208)

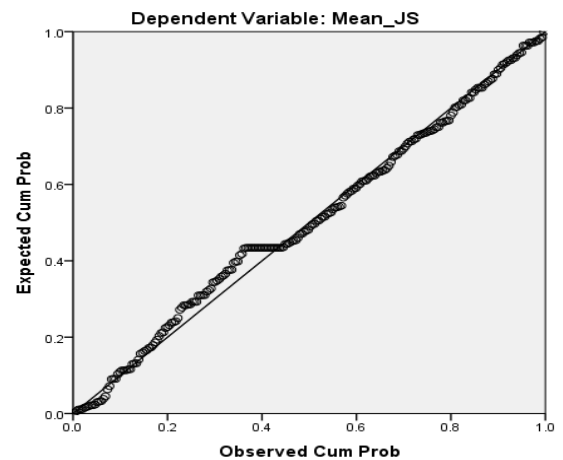
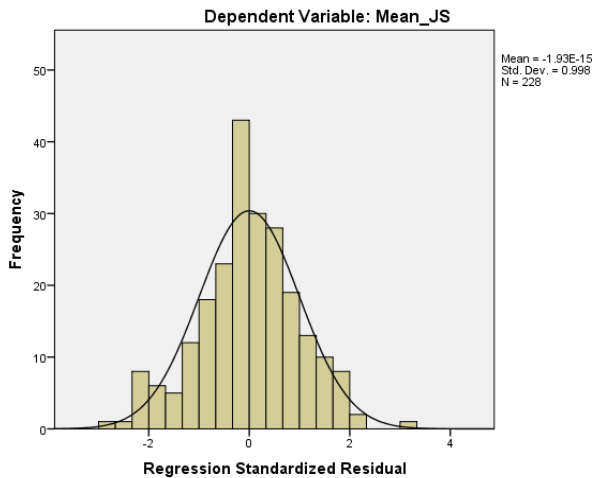
Data Analysis, Results, and Findings

Preliminary Data Analysis

The study deployed statistically robust procedure to analyze the collected data using Statistical Package for Social Sciences (SPSS) version 22. The collected data were prepared for testing of underlying hypotheses by dealing with missing and extreme values (outliers), determining the normality of and multicollinearity among variables. The presence of any of these issues may negatively impact the study findings (Tabachnick and Fidell, 2007). Therefore, to avoid any potential negative effect on study findings, the present study met all the pre-requisite assumptions by replacing the missing values with mean of respective item (suggested by Hair *et al.*, 2006). Further, outliers were examined to evade any increase in variability (Cousineau and Chartier, 2010), and, thus, identified outlying cases were removed by Stem-and-Leaf method (Sekaran, 2003) which results in decreasing of 20 cases that were not useable for further analyses. To determine the normal distribution of data, standardized range of Skewness (± 1) and Kurtosis (± 3) were calculated (Byrne, 2010) and the resulting values of Skewness and Kurtosis of all the variables were in acceptable range. Further, the graphical representation (histogram) of study variables showed that mostly frequencies positioned within the boundary wall of bell-shaped curve that represented a good symmetry in data (Figure 2). P-Plots also observed that all the frequencies were near to regression line which indicated that

the data were normally distributed (Figure 3). Using the suggestions of Hair *et al.* (2006), multicollinearity was examined through bivariate correlation which were well below 0.85 for all study variables (Table I).

Since the study collected data of independent and dependent variables from the same participants, therefore, there may possibly associate the issue of common method bias



(CMB) with the data (Podsakoff *et al.*, 2012). The study thus applied Harman's single factor test (Harman, 1976) and the results extracted 14.77% of the total variance (far less than 50 percent) confirming that there was no threat of CMB in the study's data.

Figure 2. Histogram

Figure 3. Normal P-Plot of Regression Standardized Residual

Demographic Profile of the Respondents

A total of 208 (effective response rate = 69.3%) cases were useable for data analysis after achieving above mentioned criteria. The results showed that mostly

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participants (n = 162, 77.9%) were working in public sector hospitals, while 46 (22.1%) were from private hospitals. Majority of the study participants were female (n = 188, 90.4%);

whereas 20 (9.6 %) were male, of which mostly were working in private sector hospitals. Further, it revealed that majority participants (n = 112, 53.8%) fall in age bracket of up to 30 years, while only 09 (4.3%) were from age of more than 51 years. Mostly participants (n = 143, 68.8%) were designated as *charge nurse* followed by *head nurse* (n = 43, 20.7%), *nursing superintendent* (n = 10, 4.8%), and *nursing supervisor* (n = 06, 2.9%). A total of 109 (52.4%) respondents had experience of up to 5 years as professional nurse, while 41 (19.7%) had professional experience of 6-10 years. Only 10 (4.8%) respondents were mostly experienced having more than 25 years of experience (Table II).

Descriptive Statistics, Internal Consistency Reliability, KMO, and Correlation Matrix

Table I showed descriptive analysis (mean and SD), internal consistency reliability of, inter correlation between the study variables, and KMO measure for sampling adequacy. The results of descriptive statistics revealed that participants agreed on sharing their knowledge with others (M = 3.70, SD = .557) and being innovative at work place (M = 3.69, SD = .609), however, their feelings were weak. About the extent of satisfaction towards their job, their opinion was neutral (M = 3.30, SD = .319). Pearson's Moment Correlation was applied to test the association between the study variables (KS, JS, and IB) and results showed that KS was positively correlated with

Table II: Respondents' profile

SN	Demographic Variables	Frequency	Percent (%)
1	<i>Hospital type</i>		
	Public sector	162	77.9
	Private sector	46	22.1
2	<i>Gender</i>		
	Male	20	9.6
	Female	188	90.4
3	<i>Age</i>		
	Up to 30 years	112	53.8
	31-40	52	25.0
	41-50	35	16.8
	51 years and above	9	4.3
4	<i>Designation</i>		
	Charge nurse	143	68.8
	Head nurse	43	20.7
	Deputy nursing superintendent	1	.5
	Nursing superintendent	10	4.8
	Nursing supervisor	6	2.9
	Assistant director nursing	4	1.9
	Deputy chief nursing superintendent	1	.5
5	<i>Experience as a professional nurse</i>		
	Up to 5 years	109	52.4
	6-10 years	41	19.7
	11-15 years	14	6.7
	16-20 years	18	8.7
	21-25 years	16	7.7
	26 years and above	10	4.8
	Total	208	100

JS ($r = .219^{**}$) and IB ($r = .379^{**}$) at $p < 0.01$, whereas JS was also significantly associated with IB ($r = .451^{**}$) at the same significant level. Cohen's criterion (1988) was used to determine the strength of association (correlation effect size) between these variables. The criterion is: 0.10 = small, 0.30 = medium, and 0.50 = large. Hence, it can be concluded that all the variables in this study were positively correlated with

each other, however, their strength of association was medium.

Principal Component Analysis (PCA) was run with varimax rotation and results confirmed the uni-dimensionality of all three scales used in this study. One of the principal components of KS explained more than 39% of the total variance explained, and similarly, for JS and IB, its values were 21% and 53% respectively. Kaiser-Meyer-Olkin (KMO) measure was applied to determine whether sample was adequate and the resulting values for each variable showed that the sample size for the present study was sufficient (acceptable $> .50$) (Table 1). Bartlett's Test of Sphericity based on correlation was also significant at $p < .001$ for all scales in this study.

Hypotheses Testing

The proposed hypotheses were tested determining the direct and indirect effect (with the mediating role of IB) of KS on JS. For direct effects analysis, simple linear regression was run considering KS as independent while JS and IB as dependent variables. The results indicated that KS had significant and positive effect on JS ($\beta=.125, p=.001$) and IB ($\beta=.414, p=.000$). Thus, H1 and H2 are supported. Whereas, IB also influenced JS significantly well ($\beta=.236, p=.000$) supporting H3 (Table III).

Table III: *Path Coefficient among variables*

Hypothetical relationship	β	p -value	Results
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KS → JS	.125	.001	Supported
IB → JS	.236	.000	Supported
KS → IB	.414	.000	Supported

Test of Mediating Effect. To test the mediating effect of IB between the relationship of KS and JS, three steps hierarchical regression method was applied by Baron and Kenny (1986). However, before applying this technique, it's all three prerequisites were fulfilled. These prerequisites are: "a). Predictor should have a significant association with predictand; b). Predictor should have a significant association with the mediating variable; and c).

Table IV: Hierarchical regression analysis

Variables	Model 1		Model 2		Model 3	
	β	<i>p</i> -value	β	<i>p</i> -value	β	<i>p</i> -value
<i>Control variables</i>						
Hospital type	.161	.002	.132	.009	.075	.125
Gender	-.139	.053	-.192	.008	-.139	.043
Age	.045	.218	.066	.070	.048	.158
Designation	-.038	.046	-.034	.069	-.013	.490
Experience	.023	.290	.009	.671	-.004	.856
R^2	.102					
<i>Independent variable</i>						
KS			.132	.000	.058	.132
R^2			.151			
ΔR^2			.049			
<i>Mediating variable</i>						
IB					.185	.000
R^2					.240	
ΔR^2					.089	

The mediating variable should have a significant association with the predictand". In the present study, IB mediates the relationship between KS and JS, and hence it fulfills above stated all three conditions given by Baron and Kenny (1986).

In the first model, using three steps hierarchical regression analysis, all the demographic variables (hospital type, gender, age, designation, and experience) are dealt as control variables to control their effect. In the second model, a significant positive effect of KS was observed on JS ($\beta = .132, p = .000$). While in the third model, when IB was introduced as a mediating variable, the effect of KS on JS decreased from 0.132 to 0.058. This effect was observed insignificant ($p = .132 > .05$) after adding IB as mediator (Table IV). However, the coefficient value of IB in third model noted as significant ($\beta = .185, p < .001$). This showed that IB of Pakistani nurses fully mediated the relationship between KS and JS. Hence, H4 was accepted.

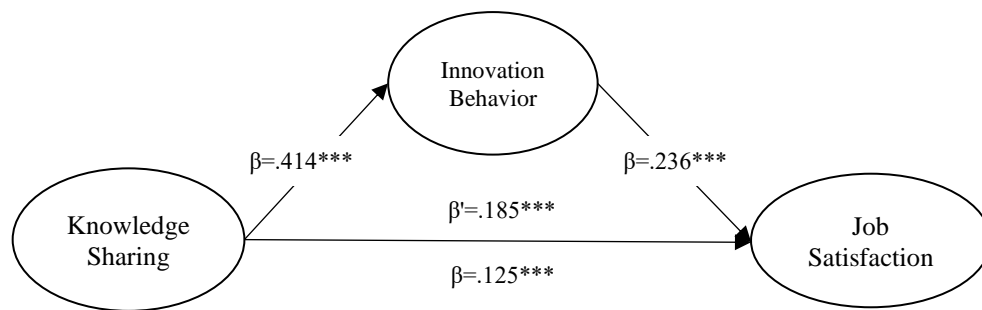


Figure 4. Hypothesized conceptual framework

Discussion

Probably, to the best of researchers' knowledge, this is the first study of its kind till now that determined the effect of KS on Pakistani nurses' JS with the

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mediating role of IB. This study makes significant contributions to the theories of KS, JS and IB. In a systematic review, Rafique and Mahmood (2018) pointed out that KS was a key antecedent impacting employees' JS. KS-JS relationship in healthcare sector has received a

little attention from researchers, therefore, the present study proposed a model (Figure 1) linking KS and JS with IB.

The findings supported all proposed hypotheses (H1-H4). The results revealed that KS impacted IB positively. These findings are aligned with the findings of Li-Ying *et al.* (2016) and Waha *et al.* (2018) who concluded that KS among employees lead towards their IB. Thus, this study supplements the empirical evidence to verify that KS among employees within and/or across the organization(s) is an important component for employees' creativity and innovation. Shaari *et al.* (2015) opined that the elements of KS created a cohesive environment where employees shared their field related experience, novel ideas, and job-related knowledge with each other. They learnt a lot from one another and consequently became innovative. KS helps healthcare professionals develop various innovative approaches during patient care, and enhance their innovative capabilities and hence their work performance improves. Particularly in healthcare setting, para-medical staff like nurses need to share best and novel clinical practices with colleagues for delivery of quality services to the patient, which leads them towards innovation. Also, due to increased pressure on nurses to provide high quality care to patients (Flaatten, 2012), they engage themselves in better communication and in several KS activities such as chatting in

the coffee room and canteen, sharing experiences that may benefit the group on nurse meetings and other informal occasions, and/or communicating on professional online communities (Li-Ying *et al.*, 2016). It results in solving several issues that they face during routine clinical practice (Rangachari, 2008). Further, Rafique (2020) also confirmed that KS impacted IB of Pakistani nurses positively. He found that professional nurses involved in KS

activities could create innovative ideas; develop and schedule adequate plans for the implementation of new ideas; and use new technologies, products, processes, and techniques.

Nurses always need to improve and develop themselves to deliver quality patient care (Blakeney *et al.*, 2009; Kalisch and Lee, 2009; van Achterberg *et al.*, 2008) by implementing novelties during practice (Baker *et al.*, 2010). KS and innovation are considered basic ingredients of JS, however, empirical evidences on how these variables affect JS of employees are scarce (Anderson *et al.*, 2014; Lei *et al.*, 2019) especially of healthcare individuals. Therefore, this study contributed to fill this theoretical gap in the literature by proposing a research model linking KS and JS with IB. The findings divulged that relationship between KS and JS fully mediated by IB of nurses. Although Pakistani nurses were satisfied with their jobs by sharing their knowledge, but IB contributed considerably in their JS. Hence, JS depended upon KS whereas IB played a mediatory role in between KS and JS. These findings are in line with the study of Seo *et al.* (2004) who confirmed that highly satisfied health care professionals with their job were innovative and provided better medical

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services to their patients. Therefore, building and strengthening the mutual KS trends in health care organizations might be one of the key factors that causes their employees' JS & IB, and reduces turnover.

Practical Contributions

Based on the empirical analyses, this study provides some practical implications for nurses' managers, hospital administrations, and nursing schools' management to better understand the casual relationship among KS, IB, and JS.

The results of this study illustrate that KS strongly affects JS of nurses, therefore, nurses' managers should consider the importance of KS and its allied practices to foster the inter-person and intra-person sharing of information and knowledge across the organization to improve JS level which ultimately causes the improvement in their job performance and wellbeing, as Suhonen and Paasivaara (2011) asserts. Further, Lei *et al.* (2019) have proved that leadership support is very essential to stimulate employees' willingness to share their information, knowledge, and ideas. Therefore, top managers in hospitals must encourage and provide necessary support, help, and even resources to share knowledge among employees because sharing of knowledge and ideas improves innovation behavior and capabilities in firms (Podrug *et al.*, 2017). The hospitals directors, managers, and medical superintendents should play a significant role to nurture KS by establishing a trend of reward and incentive system for those healthcare workers who share their knowledge with their colleagues for mutual benefits and organizational development.

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Second, they must communicate the benefits of KS with employees.

Further, in order to provide better patient care, nurses need to improve their skills, knowledge, and best practices, which can be achieved through innovation. So, hospital administration should encourage the innovativeness and novelties among healthcare professionals during clinical practices, and for the reason, they should provide such platforms that improve their innovation capabilities so that they may able to deliver quality

patient care. The study, therefore, provides targeted implementation of KS practices across the hospitals to boost IB among healthcare employees especially among nurses, one of a core group of health care workers.

Moreover, the top management of nursing schools should focus on developing the critical thinking of nursing students in order to make them more innovative. Asurakkody and Kim (2020) described it as:

Helping nursing students to think differently is needed to increase their creativity and, help them to acquire scientific knowledge and, understand research results. We believe that promoting innovative work behavior among nursing students and nurses may support the development of new treatment strategies, produce exciting future applications for health care, and encourage collaboration with other professionals and improve the quality of patient care. (p. 2)

Limitations

The following certain limitations should be considered while interpreting the study results. First, cross-sectional design has limitation of the change in behaviors and attitudes over time and there is a possibility of emergence of new trends with the

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passage of time. Therefore, a longitudinal study could be an option to overcome this limitation. Second, equal sized convenient sampling technique was used in this study to determine the sample which was supposed to be not representable to whole population. Third, this study explored the mediating effect of only one factor that is IB, further studies should be conducted considering other mediating factors for holistic results, as Li-Ying *et al.* (2016) suggested to focus on *operational excellence* that might increase nurses' KS. Finally, this study selected professional nurses working in public and private sector hospitals in Lahore, Pakistan only as a unit of analysis, therefore, more studies are needed in other cities

of Pakistan choosing other health care workers in order to fully understand the relationship of study variables. As, it also provides a cross-cultural role of KS and IB while impacting JS.

Conclusion

This study provides theoretical and practical implications for knowledge management, organizational behavior, and innovation literature that can be used to determine the relationship between KS, JS, and IB. The findings supported the proposed research hypotheses and concluded that KS and IB had significant and positive effect on JS of professional nurses. Overall, it can be concluded that KS and IB are the driving forces to boost JS level among Pakistani professional nurses. Even though KS impacts JS significantly, but IB also played a mediatory role to enhance JS level of nurses. By considering the importance of KS culture, the health care organizations can enhance IB of employees so that they may satisfy with their job, and could provide better services to the patients.

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