Relationship between Nurses' Knowledge Management and their Structural Empowerment.

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Abstract

Background: Knowledge management (KM) is a critical issue determining the success of organizations. In the healthcare industry knowledge management is of strategic value and can assume a key role in turning learning skill and basic competencies of health organizations into sustainable competitive advantage. Furthermore, the quality of the services produced by healthcare organizations depends on properly implemented knowledge management techniques. **Aim**: To investigate the relationship between nurses' knowledge management and structural empowerment. **Design**: A descriptive correlational research design was utilized to conduct this study. **Setting**: This study was conducted at all in-patient care units at Damanhour Chest Hospital. **Subjects**: All staff nurses who were working in the previously mentioned setting(n=252). **Tools:** two tools were used. Tool one: "Knowledge management tool". Tool two: "Structural empowerment tool". **Results:** The results of this study revealed that total levels of knowledge management were moderate (50.8%). Also, total levels of structural empowerment were moderate (42.9%). Regarding relationship between levels of knowledge management and structural empowerment there were highly statistical significant differences between all levels of knowledge management and all levels of structural empowerment (p=0.000). **Conclusion:** The finding of this study concluded that, there were positive, highly statistical significant correlations between total knowledge management and structural empowerment (p=0.000, r=0.669)**. Recommendations:** Conduct frequents training programs and a series of workshops on knowledge management for staff nurses and creates a culture of knowledge sharing.

Keywords: Knowledge management, Structural empowerment.

Introduction

Knowledge is considered a vital resource in health care organizations and should be applied in an effective way to overcome challenges, as rising health care cost and increasing demands for high quality health care **(Ayatollahi & Zeraatkar, 2020)**. In health care knowledge management (KM) includes creation, use, reuse and transfer of information. Health care delivery relies on knowledge and evidence- based medicine, **(Fleurissaint, Altindis, & Ugan,2020).** KM in today's advanced communities is considered one of the tools for progress, which can lead to high efficiency in manpower, skilled and efficient human resources. **(Asadollahzadeh, 2018)**

According to **Farooq & vij (2020)** KM is defined as**: "**the organizational capability to create a learning culture, to facilitate knowledge sharing, and use of information". While, **Nakash & Bouhnik (2021 or 2023)** defined KM as **"**an organizational function, which incorporates the set of practices that support the achievement of strategic organizational goals". Moreover, it is viewed by **Edeh et al., (2022)** as "human resource nomenclature that is concerned with knowledge acquisition, knowledge storage, and knowledge sharing or distribution among coworkers to achieve formulated goals".

Health care system depends on health managers' knowledge and abilities to ensure

system resilience. However, a lack of readiness and support in leading and managing health related matters can have severe consequences, **(Kosklin, Lammintakanen, & Kivinen, 2023)**. Information Communication Technology (ICT) in a healthcare organization provides complex channels of knowledge flow between stakeholders at each stage of the health-care process, **(Fletcher-Brown et al., 2021)**. Most of nurses use ICT and the internet as part of their daily work, **(Koivunen et al., 2015)**.

Knowledge management and empowerment of human resources were on of the new subjects in the past two eras in successful organizations. One of the issues that will lead to empowerment is knowledge, **(Haghighi, Tabarsa, &Kameli, 2014)**. If there is context in which individuals can share knowledge within organizations and collaboratively work together, this will lead to empowerment of human resources, **(Akbari& Ghaffari, 2017).** when KM increases, staff becomes more empowered to perform their duties, **(Seifollahi & Rahimi, 2018)**. Empowerment and frequent improvement in human resources require information and knowledge sharing (KS) with staff in the organization, **(Sohrabi et al., 2013)**.

According to **Orlowska & Laguna (2016),** structural empowerment (SE) is defined as: "a principal strategy to manage the organization by engaging the employees with opportunities, support, resources, and information for the effective and remarkable performance of work duties". Furthermore, it was viewed by **RashidAzar, Alimohammadzadeh, & Akhyani (2018)** as **"**the activities that the organization uses to involve employees in power sources and decision making". Moreover, SE was defined by **Lewis, Brown, & Sutton (2019)** as "a continuum of approaches ranging from pure control or a production line approach to a highly involved orientation focused on problem-solving and decision-making".

Knowledge management implies three dimensions namely: knowledge conversion, knowledge transfer and knowledge application. knowledge conversion refers to discovering and acquiring new knowledge from numerous sources, that are vital for effective organizations' operations and improving individual and organizational performance; knowledge transfer refers to gathering, sharing and communicating knowledge between staff members to enhance the organization's processes; and finally knowledge application refers to the assimilation of already reached knowledge in designing and delivering finished products to improve all operations and performance. **(Shahzad, Qu, & Zafar, 2021)**.

Significance of the study

Knowledge management in today's advanced communities is considered one of the tools for progress, which can lead to high efficiency in manpower, skilled and efficient human resources. Knowledge sharing leads to increase the ability of individuals to make decisions, and take responsibility of decision outcomes. Following a study conducted in Indonesia about knowledge management – based nursing care educational training, **Ahsan et al., (2021)** represented that knowledge management –based nursing care training improved infection prevention behavior at the high care unit. Furthermore, a prior study conducted in Iran by **Rafieian-Isfahani, Peikari, & Rafieyan-Isfahani (2020**) to investigate the relationship between motivations and nurses' intention to share knowledge revealed that the enhancement of nurses' self- confidence through verbal or financial praises can play a major role in promoting confidence and their contribution in sharing knowledge. Moreover, a study was done in Jordan by **Abuhammad et al., (2020)** about knowledge and practice of patients' data sharing and confidentiality among nurses in Jordan. The study showed that most nurses have good reasonable knowledge as well as positive perceptions regarding security and confidentiality issues, besides, individuals with good and reasonable knowledge and perception tend to engage more in suitable practice compared to those who need improvement. In addition to, another study was done in Iran by **Tehranineshat & Rakhshan (2018)** to

investigate the relationship between knowledge management and creativity in bachelor degree compared to master degree nursing students. This study concluded that there was a direct and significant relationship between KM and creativity in the bachelor and master degree students. While the mean scores of some aspects of KM and score of creativity were higher in the master degree students. The scores of both groups of students on the level of KM were in a moderate level and in relation to creativity were lower than the average level.

Aim of the Study

This study aims to investigate the relationship between nurses' knowledge management and their structural empowerment at Damanhour Chest Hospital.

Research question

What is the relationship between nurses' knowledge management and their structural empowerment at Damanhour Chest Hospital?

Materials and Methods

Design: A descriptive, correlation research design was used to conduct this study.

Setting: This study was conducted at Damanhour Chest Hospital at El-Beheira Governorate. This hospital is affiliated to the Ministry of Health and Population. This hospital was selected because it has a large number of bed capacity (149 beds), with different educational qualifications of staff nurses as there are Secondary Nursing School diploma degree, Technical Nursing Institute Diploma degree, and Bachelor Science in Nursing (BScN) degree. The study was included all units (N=11), namely: intensive care unit (ICU) (n=3), inpatient units (n=2) namely: emergency unit and endoscopy unit, internal units (n=3) namely: two female isolation units and one male isolation unit and finally outpatient (n=3).

Subjects: The subjects of this study included:

All staff nurses who were working in the previously mentioned setting (N=252): Professional nurses (N=65) and staff nurses (N=187), regardless age, sex, educational qualifications, and willing to participate in the study.

Tools: The study used two tools for data collection:

Tool I: Knowledge Management Questionnaire.

It was developed by Kinyua (2015). It was adapted by the researcher to assess KM among nurses. It consists of three main dimensions with 26 items as follows; Knowledge conversion (14 items), such as: interaction with patients is encouraged; Knowledge transfer (6 items), such as: there is a process of information evaluation; and knowledge application (6 items), such as: organization leadership has pioneered and driven KM adoption and use. Responses were measured using five- point Likert Scale for each item ranging from totally disagree (1) to totally agree (5). The overall score ranged from 26 to 130. The scoring was reported as: low (26-77); moderate (78-103); and high (104-130). In addition to 3 closed ended questions related to importance of knowledge conversion, open channels of information flow, and critical role of knowledge application. Responses for closed ended questions were measured into Yes (1) and No (0).

Tool II: Structural Empowerment Questionnaire. It was developed by Laschinger (2012). It was adapted by the researcher to measure SE among nurses. It consists of six main dimensions with 58 items as follows: access to opportunity (7 items), such as: access to training programs for learning new things; access to information (8 items), such as: the current state of the hospital; access to support (9 items), such as: specific comments about things you could improve; access to resources (7 items), such as: having supplies necessary for the job; job activities scale (JAS) (9 items), such as: the rewards for unusual performance on the job; organizational relationship scale (ORS) (18 items), such as: collaborating on patient care with

physicians . Responses were measured using five- point Likert Scale for each item ranged from none (1) to a lot (5). The overall score ranged from 58-290. The scoring was reported as: low (58-173); moderate (174-231); and high (232-290). In addition to, demographic characteristics sheet was developed by the researcher, it included questions about; age, gender, educational qualifications, working unit, marital status, years of nursing experience, and years of unit experience.

Methods

1. An official permission was obtained from the Dean, Faculty of Nursing, Damanhour University and the responsible authorities of the study setting after explanation of purpose of study.
2. The two tools were translated into Arabic by the researcher and were submitted into both Arabic and English languages to a jury of five experts in the field of the study to test its content validity and translation. Accordingly, the necessary modifications were done based on their opinions.
3. A pilot study was carried out on (10 %) of total sample size (N=25), rather than study subjects, in order to check and ensure the clarity of the tools, applicability, feasibility, identify obstacles and problem that may be encountered during data collection, and no modifications were done
4. Reliability analysis: The two tools were tested for their reliability by using Cronbach's alpha correlation coefficient test to measure the internal consistency of items. The two tools were proved to be reliable where r=0.963 for tool I (knowledge Management Questionnaire) and r=0.894 for tool II (Structural Empowerment Questionnaire).

Data collection:

- Data were collected from the staff nurses through distribution of self-administered questionnaire after explaining the aim of the study at the work setting using the previously mentioned tools. Instructions were given after obtaining informed consent from the study subjects before the distribution of the questionnaires.
- The questionnaire was completed in the presence of the researcher to ensure the objectivity of staff nurses' responses, non-contamination of their opinions, and to check that all items were answered.
- Answering the questionnaires took approximately from 25-30 minutes. Data collection took a period of three months starting from first of November 2022 to the end of January 2023. All questions were answered and explanations were given accordingly.

Ethical considerations:

- The research approval was obtained from the Research Ethics Committee (REC) at the Faculty of Nursing- Damanhour University prior to the start of the study.
- A written informed consent was obtained from the study subjects after an explanation of the aim of the study.
- Study subjects had the right to refuse to participate or withdraw from the study at any time.
- Privacy, confidentiality of the collected data was maintained and assured in this study.
- Anonymity of the study subject was considered.

Statistical Analysis:

Suitable statistical analysis tests were used to identify significant relations and to answer the research question. The collected data were coded and entered in special format to be suitable for computer feeding. Following data entry, checking and verification process were carried out to avoid any errors. Data were analyzed using Statistical Package for the Social Sciences SPSS (version 25). Quantitative data were described using numbers, percentage and the range, arithmetic mean, standard deviation. Qualitative data were described using number and percent. Significance of the obtained results was judged at the 5% level. Data were classified into numerical or categorical as appropriate.

Descriptive statistical measures used, which included: numbers, percentages, and averages (Minimum, Maximum, Arithmetic mean ($\bar{x}$), Standard deviation (SD). Statistical

analysis tests, which included: Chi square, student T test, and Monto Carlo test. Associations between categorical variables were tested using Chi-Square test. The F test was used to test the significant differences between more than two means. Graphical presentation included: Bar graphs were done for data visualization. Reliability coefficient of knowledge management scale was (0.963). Reliability coefficient of structural empowerment scale was (0.894).

Results

Table 1 shows that slightly more than half (56.4%) of the studied staff nurses were in the age group ranged from 20 to less than 30 years old, less than one-third (32.9%) of them were in the age group ranged from 30 to less than 40 years old, meanwhile 0.8% were in the age group ranged from 50 years old and more. The majority of the studied nurses (71%) were female. With respect to educational qualifications, more than half (63.9%) of the studied staff nurses had a Technical Nursing Institute diploma degree, while less than one-quarter (22.2%) of them had a Bachelor Science in Nursing (BScN) degree, while, 10.3% of them had Secondary Nursing School diploma and 3.6% had Postgraduate degree. In relation to their marital status, it was found that nearly two-thirds (64.6%) of them were married and above one quarter (27.4%) were single. Regarding years of experience in nursing, it was noticed that slightly more than one-third of the studied staff nurses (34.5%) had from 5 to less than 10 years of nursing experience, meanwhile 19% had more than 15 years. In relation to years of experience in working unit, slightly more than one-third (37.7%) had less than 5 years of experience, and more than one-third (36.5%) had from 5 to less than 10 years of unit experience.

Table 2 displays that total levels of knowledge management were moderate (50.8%). According to dimensions of knowledge management, the highest percentage was related to the knowledge application dimension (48.4%), while near half of the studied staff nurses (48%) had a moderate level of knowledge transfer, in addition near half of them (45.2%) had a moderate level of knowledge conversion.

Table 3 displays that total levels of structural empowerment were moderate (42.9%). According to dimensions of structural empowerment, nearly half of the studied staff nurses had a moderate level of access to opportunity, access to information, and access to resources (42.1%, 41.3%, and 40.5%), respectively. While nearly half of the studied nurses had high level of access to support and organizational relationships (41.3%, 39.7%), respectively. Meanwhile, more than one third (36.5%) of the studied staff nurses had a low level of job activities.

Table 4 illustrates that there were highly statistical significant differences between levels of knowledge management and studied staff nurses' age, educational qualifications, years of experience in nursing, marital status and working unit experience (p=0.000, 0.000, 0.001, 0.022, and 0.029), respectively.

Table 5 shows that there were highly statistical significant differences between levels of structural empowerment and studied staff nurses' age, marital status, educational qualifications and gender (p=0.000, 0.005, 0.031, and 0.032), respectively.

Table 6 illustrates that there were positive, highly statistical significant correlations between total knowledge management and structural empowerment (p=0.000, r=0.669). As regarding knowledge management as an independent variable, knowledge conversion dimension with structural empowerment was significant (p=0.000, r=0.571), also knowledge transfer dimension with structural empowerment was significant (p=0.000, r=0.424), as well as knowledge application with structural empowerment was significant (p=0.000, r=0.803).

Table 7 reveals that the R2 value was 0.585, which means that 58.5% of the variability in the outcome (knowledge management of the nurses) is explained by the studied variables\ characteristics in the

model. It was found that the gender of nurses, years of experience in nursing and in the current work unit were predictors of the nurses' good knowledge management (p = 0.046, p = 0.009, and p = 0.030), respectively.

Table 8 reveals that the R2 value was 0.694, which means that 69.4% of the variability in the outcome (structural empowerment of the nurses) is explained by the studied variables\ characteristics in the model. It was found that the level of education of nurses, marital status, years of experience in nursing and in the current work unit were predictors of the nurses' good structural empowerment (p= 0.007, p=0.002, p=0.032, and p=0.043), respectively.

Discussion

Modern healthcare practices require extensive use of knowledge management. KM provides benefits to healthcare delivery via reducing medical error, collaboration, innovation, quality of care, cost reduction, organizing knowledge and organizational learning. Nurses must be particularly knowledgeable as primary professional healthcare providers. To enhance nurses' productivity, nursing departments tried to implement effective KM in current patient assessments and technical nursing care as well as in a lot of professional guidelines and protocols. Knowledge is created through the interaction between the nurse and the patient and it is stored by the nurse in the Knowledge management system. The nurse shares this clinical knowledge in numerous ways with other clinical specialists and patients, **(Lee, Kim, &Kim, 2014; Khammarnia et al., 2015; Sengottuvel, 2019; Almansoori et al., 2020)**

Therefore, there is a positive effect of knowledge on empowering and enriching human resources. Using knowledge systems, organizations can have more competent human resources. Managers can empower individuals in the organization by providing them with available information, so they become more committed to meet organization's challenges, **(Akbari& Ghaffari, 2017).** The empowerment of nurses leads to greater job satisfaction, decreasing burnout rate, increasing autonomy and organizational commitment **(Moura et al., 2020)**

Regarding levels of KM, the result of the current study revealed that the total levels of KM as perceived by staff nurses were moderate. Also, it revealed that the highest percentage was related to knowledge application dimension in KM. This result may be attributed to the fact that knowledge and experiences are shared through the interaction among nurses, physicians, and other health care providers. Knowledge is organized and integrated through reports, and other methods may be through simulations as well as actual doing. Furthermore, organization leadership has pioneered and driven KM adoption and use.

The result of this study is supported by a study done in Egypt by **Elsayed, Gaber, & Mohamed (2022)** about innovative work behavior and its relation to knowledge sharing among nurses who stated that more than half of staff nurses had a moderate level of KM and KS **&** a study done in Iran by **Harandi, Torkzadeharani, & Bita (2019)** about determining structural relationship between knowledge management and creativity with the mediating role of psychological empowerment who reported that levels of KM were moderate. Furthermore, it is consistent with the study done in Iran by **Rezaei et al., (2024)** about relationship between knowledge management and social value among Iranian nurses who stated that staff nurses had greatest contribution to knowledge application relative to dimensions of KM. Moreover, a study done in Canada by **Limoges, Acom, & Osborne (2015)** about the scholarship of application: recognizing and promoting nurses' contribution to knowledge development who showed that knowledge application has the greatest contribution relative to knowledge conversion, and transfer, as the dynamicity of hospitals depends mainly on the organization's knowledge and application of knowledge in the today's knowledge-based world. On the other hand, the result of this study is contradicted by a study done in Egypt by

Yehia, Mostafa, & Elgendy (2023) about relationship between knowledge management and leadership practice among nursing managers who found that nurses' level of KM was low.

Moreover, the present study showed that nearly half of the studied nurses reported that they had a moderate level of SE. This result could be rationalized by the assumption that staff nurses had a highest access to SE factors as; opportunity, information, and resources. This result is supported by a study done in Jordan by **Albasal et al., (2022)** about structural and psychological empowerment and organizational commitment who stated that staff nurses' perception of structural empowerment was moderate. Moreover, a study was done in Jordan by **Rababah, Al-Hammouri, & Wafa'a (2021)** about a study of the relationship between nurses' experience, structural empowerment, and attitudes toward computer use who stated that nurses' overall levels of SE were moderate and the access to opportunity structure had the highest level. On the other hand, this study is contradicted with a study done in South Africa by **Roji & Jooste, (2020)** about perceptions of nurses on access to structural empowerment in a hospital in the Western Cape who mentioned that staff nurses had low perception of SE. Moreover, a study done in Egypt by **Hussein (2013)** about relationship between structural empowerment, work engagement, and job satisfaction among nursing staff at Zagazig University Hospitals who revealed that staff nurses had low perception of SE.

In relation to dimensions of SE this study indicated that nearly half of the studied nurses had a moderate level of access to opportunity followed by access to information and resources, this result could be rationalized by the assumption that head nurses give their staff nurses chances for combination of skills and knowledge required for their advancement and progress, and contributing to give them a sense of competence and the confidence in their work.

This result is parallel with the study done in Canada by **Blair, (2020)** about exploring the relationships among new graduate nurses' structural empowerment, psychological empowerment, work engagement, and clinical nurse educator leadership as he revealed that the greatest value was obtained in the opportunity dimension followed by access to information and resources. Also, stated that, this access to empowerment factors leads to nurses' growth, mobility and the chance to increase their knowledge and skills, and they may perceive themselves as empowered as they are given the opportunity to gain new skills and experiences.

On the other hand, this result is contradicted with study done in Canada by **Hunter, (2017)** about undergraduate nurse educators' perceived structural empowerment, self-efficacy for teaching, and perceptions of uncivil classroom behaviors in academic settings. Furthermore, this result is antagonized with a study done in South Africa by **Roji & Jooste (2020)** about perceptions of nurses on access to structural empowerment in a hospital in the Western Cape who indicated that the majority of nurses had challenges to access SE through power sources (information, support, opportunity, and resources).

Regarding levels of KM of **staff nurses according to their demographic characteristics,** there were highly statistical significant differences between nurses' demographic characteristics in terms of marital status, educational qualifications, and age with total levels of KM. As well as, the most important predict factors of demographic characteristics with KM were years of experience in nursing and gender. This may be attributed to the fact that nurses describe their families, partners and friends as social support systems and considered them power sources, the majority of the study sample had a Technical Nursing Institute diploma degree, having strived to become more knowledgeable and professional through participation in workshops, attending training programs and completion of nursing courses, as well as younger nurses are competitive, creative and seek to be professional. Moreover, the ability of the studied nurses to learn and concentrate

enhanced with increasing their years of experience as they become more knowledgeable, more interested in continuing their education, have more capacity to learn, and acquire experience. Finally, the vast majority of nurses who graduated are female, and nursing remains a female-dominant profession. As well as, the majority of the study sample was female

This result goes in the same line with a study done in Iran by **Khammarnia et al., (2015)** about relationship between knowledge management and quality of working life in nursing staff of Zahedan teaching hospitals who revealed that KM had a significant association with marital status and stated that married nurses had the ability to change, apply and share knowledge & another study done in Greece by **Karamitri, Kitsios, &Talias (2020)** about development and validation of a knowledge management questionnaire for hospitals and other healthcare organizations who revealed that the educational qualifications of staff nurses significantly related to practice of KM. Also, concluded that nurses with Technical Nursing Institute diploma degree had a higher KM. On the other hand, these results are inconsistent with the study done in Brazil by **Rocha et al., (2012)** about knowledge management in health who stated that there was no association between KM and the educational qualifications. Also, they recommended that KM should increasingly be a part of the hospital organizations' strategies.

Furthermore, the study done in Malaysia by **Ismail & Yusof (2009)** about demographic factors and knowledge sharing quality among Malaysian government officers who showed that there was no significant relationship between age and practice of KM. In addition to a study done in Egypt by **Elkhawas, Mostafa, & Hussein (2021)** about the relationship between emotional intelligence and leadership practice among nursing leaders who stated that there was no statistically significant difference between studied nurses' levels of KM according to their years of experiences.

With respect to levels of structural empowerment of staff nurses according to their demographic characteristics, there were statistical significant differences between the total levels of SE as perceived by staff nurses and their age and gender. As well as, the most important predict factors of demographic characteristics with SE were educational qualifications, marital status, and years of experience in nursing. This may be attributed to the fact that younger nurses are more creative, motivated and strive to access the organizational resources, information, support, and opportunities to provide quality patient care. Besides, the majority of nurses who graduate from Secondary Nursing School diploma, Technical Nursing Institute and Bachelor Nursing degree were female. As well as, nursing is a female-dominant profession, and the majority of the study sample was female. Furthermore, staff nurses who had Technical Nursing Institute diploma degree have more skills in the clinical setting to apply in practice. Moreover, nurses describe their families, partners and friends as social support systems and they considered them power sources. Finally, when nurses' experience increases, they can have knowledge about the organization's resources, support, and opportunities; hence they can have power to access these power factors

This result goes in the same line with the study done in Qatar by **AL-Ghwary et al., (2024)** about the impact of work environment on structural empowerment among nurses in governmental hospitals who stated a statistical relation between staff nurses' age and their perception of SE. Furthermore, the study done in Egypt by **Mohamed, Nabway, & Saleh (2023)** about the correlation between first–line nurse managers′ leadership style and staff nurses´ structural empowerment and work engagement they showed that there was statistically significant difference between studied nurses' level of SE and their gender, they mentioned that while the proportion of men entering the nursing profession has been growing, it remains a female-dominated occupation. In addition to, the study done in Saudi Arabia by **Ibrahim (2023)** about influences of structural empowerment and demographic

factors on nurses' psychological empowerment who stated that the educational qualifications of the studied nurses can significantly impact their SE level. As well as, the study done in Turkey by **Sarıköse & Çelik (2023 or 2024)** about structural and psychological empowerment among newly graduated nurses and related factors who showed that married nurses were more structurally empowered, having a partner or being married as a social support factor may cause an increase in the level of perceived support at work, thereby improving perceptions of SE levels.

These results are consistent with the study done in Iran by **Gholami, Saki, & Hossein (2019)** about nurses' perception of empowerment and its relationship with organizational commitment and trust in teaching hospitals in Iran who stated that the educational qualifications of the studied nurses can significantly impact their SE level. On the other hand, the study done in Saudi Arabia by **Mansour et al., (2022)** about socio-demographic predictors of structural empowerment among newly qualified nurses who revealed that gender not found to be significantly associated with reported levels of SE. Moreover, the study done in Qatar by **AL-Ghwary et al., (2024)** about the impact of work environment on structural empowerment among nurses in governmental hospitals who stated that the marital status is not significantly associated with staff nurses' level of SE.

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Regarding Correlation matrix between the dimensions of knowledge management and structural empowerment of staff nurses:

The results of this study indicated that there was a highly statistical significant correlation between all KM dimensions and all SE dimensions among the studied nurses. This result may be due to assumption that when KM increases staff nurses become more empowered to perform their duties. As well as, when providing a context in which individuals can share, apply, and manage knowledge within organizations and collaboratively work together can contribute to empowerment of human resources. This result goes in the same line with the study done in Jordan by **Harb et al., (2021 or 2024)** about the effect of knowledge management practices exploration and exploitation on individual performance and empowerment who revealed that KM practices exploitation has a statistically significant direct positive influence on individual's empowerment. Furthermore, a study done in Indonesia by **Widodo & Gunawan** about analyzing the effect of knowledge management and teaching creativity on innovative work behavior found that SE influences KM. Moreover, a study done in Egypt by **Metwally (2015)** about relationship between structural empowerment, magnet hospital characteristics and patient safety climate among nurses working in intensive care units and showed that there was a significant relationship between total levels of KM and the SE, and stated that all KM aspects positively affect all SE aspects.

On contrary, this study is inconsistent with a study done in Jordan by **Yeganegi (2018)** about the importance of knowledge management in staff empowering in the training complex who stated that there is no direct and significant relationship between the dimensions of KM and staff empowerment in Islamic Azad University of Zanjan unit. Furthermore, a study done in The Netherlands by **Caniëls, Neghina, & Schaetsaert (2017)** about ambidexterity of employees: the role of empowerment and knowledge sharing and concluded that perceived KS culture is having no effect on employee empowerment or intrinsic motivation.

Conclusion

The results of the present study concluded that there was a highly statistically significant positive correlation between nurses' knowledge management and their structural empowerment working at Damanhur Chest Hospital. In addition to that, the majority of the study subjects had moderate levels of

knowledge management and structural empowerment.

Recommendations

Based on the findings of the current study, the following recommendations are suggested:

A. The hospital administrators should:

- Revise short term plan with nursing director for KM such as, organizational culture, civil behaviors, and work place policies which are necessary for KM.
- Promote ICT use for knowledge conveyance and to support professional interactions while capturing knowledge and best practices from clinical work.
- Provide better solutions to knowledge needs and problems across various disciplines and technologies.

B. Head nurses should:

- Assess the level of their nursing staff knowledge for further training and re-evaluation.
- Empower nurses through providing them with available knowledge, so nurses will be more committed to meet the organizational goals.
- Provide rewards for nurses who contribute to the development of KS culture and provision of resources that will help the development of this culture.

C. Nurses should:

- Attend training programs and workshops about KM continuously.
- Share their knowledge with others for quality patient care.
- Learn about ICT for proper application and storage of knowledge.

Table (1): Demographic characteristics of staff nurses (n= 252):

Studied Nurses 'demographic characteristics	Total N=252	
	No.	%
Age (years)		
▪ 20-	142	56.4
▪ 30-	83	32.9
▪ 40-	25	9.9
▪ ≥50	2	0.8
Min- Max 20.0-54.0	Mean ± SD	29.33 ± 7.623
Gender		
▪ Male	73	29.0
▪ Female	179	71.0
Educational qualifications		
▪ Secondary Nursing School diploma	26	10.3
▪ Technical Nursing Institute diploma	161	63.9
▪ Bachelor Nursing degree	56	22.2
▪ Postgraduate Degree	9	3.6
Marital status		
▪ Single	69	27.4
▪ Married	163	64.6
▪ Widowed	7	2.8
▪ Divorced	13	5.2
Years of experience in nursing		
▪ <5	47	18.7
▪ 5-	87	34.5
▪ 10-	70	27.8
▪ ≥15	48	19.0
Min- Max 1.0-30.0	Mean ± SD	9.950 ± 6.433
Years of experience in the work unit		
▪ <5	95	37.7
▪ 5-	92	36.5
▪ 10-	45	17.9
▪ ≥15	20	7.9
Min- Max 1.0-18.0	Mean ± SD	6.480 ± 4.315

Table (2): Levels of knowledge management of staff nurses (By domains) (n= 252):

Dimensions of knowledge management	Levels of Knowledge Management					
	Low		Moderate		High	
	No.	%	No.	%	No.	%
▪ Knowledge conversion	31	12.3	114	45.2	107	42.5
▪ Knowledge transfer	12	4.8	121	48.0	119	47.2
▪ Knowledge application	54	21.4	122	48.4	76	30.2
Total Knowledge Management	**37**	**14.7**	**128**	**50.8**	**87**	**34.5**

Low level of knowledge management (26-77)
Moderate level of knowledge management (78-103)
High level of knowledge management (104-130)

Table (3): Levels of structural empowerment of staff nurses (By domains) (n= 252):

Dimensions of structural empowerment	Levels of Structural Empowerment					
	Low		Moderate		High	
	No.	%	No.	%	No.	%
▪ **Access to opportunity**	66	26.2	106	42.1	80	31.7
▪ **Access to information**	58	23.0	104	41.3	90	35.7
▪ **Access to support**	60	23.8	88	34.9	104	41.3
▪ **Access to resources**	50	19.8	102	40.5	100	39.7
▪ **Job activities**	92	36.5	91	36.1	69	27.4
▪ **Organizational relationships**	77	30.6	75	29.7	100	39.7
Total Structural Empowerment	**74**	**29.4**	**108**	**42.9**	**70**	**27.7**

Low level of structural empowerment (58-173)
Moderate level of structural empowerment (174-231)
High level of structural empowerment (232-290)

Table (4): Levels of knowledge management of staff nurses according to their demographic characteristics (n= 252):

Studied Nurses 'demographic characteristics	Levels of Knowledge Management						Total N=252		Test of Significance
	Low (N= 37)		Moderate (N= 128)		High (N= 87)				
	No.	%	No.	%	No.		No.	%	
Age (years)									
▪ 20- ▪ 3 ▪]0- ▪ 40- ▪ ≥50	19 14 4 0	13.4 16.9 16.0 0.0	77 39 12 0	54.2 47.0 48.0 0.0	46 30 9 2	32.4 36.1 36.0 100.0	142 83 25 2	56.3 32.9 9.9 0.9	P=0.000*
Gender									
▪ Male ▪ Female	15 22	20.5 12.3	31 97	42.5 54.2	27 60	37.0 33.5	73 179	29.0 71.0	X^2=3.313 P=0.191
Educational qualifications									
▪ Secondary Nursing School diploma ▪ Technical Nursing Institute diploma ▪ Bachelor Nursing degree ▪ Postgraduate Degree	6 19 12 0	23.1 11.8 21.4 0.0	11 83 29 5	42.3 51.6 51.8 55.6	9 59 15 4	34.6 36.6 26.8 44.4	26 161 56 9	10.3 63.9 22.2 3.6	P=0.000*
Marital status									
▪ Single ▪ Married ▪ Widowed ▪ Divorced	8 21 4 4	11.6 12.9 57.1 30.8	35 87 2 4	50.7 53.4 28.6 30.8	26 55 1 5	37.7 33.7 14.3 38.4	69 163 7 13	27.4 64.7 2.8 5.1	X^2=14.732 P=0.022*
Years of experience in nursing									
▪ <5 ▪ 5- ▪ 10- ▪ ≥15	1 10 15 11	2.2 11.5 21.4 22.9	23 55 34 16	48.9 63.2 48.6 33.3	23 22 21 21	48.9 25.3 30.0 43.8	47 87 70 48	18.7 34.5 27.8 19.0	X^2=22.235 P=0.001*
Years of experience in the work unit									
▪ <5 ▪ 5- ▪ 10- ▪ ≥15	7 19 5 6	7.4 20.7 11.1 30.0	55 46 19 8	57.9 50.0 42.2 40.0	33 27 21 6	34.7 29.3 46.7 30.0	95 92 45 20	37.7 36.5 17.9 7.9	X^2=14.101 P=0.029*

$X^{2=}$ Chi Square Test * Statistically significant at p ≤ 0.05 MC = Monto Carlo test

Table (5): Levels of structural empowerment of staff nurses according to their demographic characteristics (n= 252):

Studied Nurses 'demographic characteristics	Levels of Structural Empowerment						Total N=252		Test of Significance
	Low (N= 74)		Moderate (N= 108)		High (N= 70)				
	No.	%	No.	%	No.		No.	%	
Age (years)									
▪ 20-	40	28.1	61	43.0	41	28.9	142	56.3	
▪ 30-	26	31.3	38	45.8	19	22.9	83	32.9	P =0.000*
▪ 40-	8	32.0	9	36.0	8	32.0	25	9.9	
▪ ≥50	0	0.0	0	0.0	2	100.0	2	0.9	
Gender									
▪ Male	27	37.0	22	30.1	24	32.9	73	29.0	X^2=6.875
▪ Female	47	26.3	86	48.0	46	25.7	179	71.0	P=0.032*
Educational qualifications									
▪ Secondary Nursing School diploma	6	23.1	11	42.3	9	34.6	26	10.3	X^2= 16.947 P=0.031*
▪ Technical Nursing Institute diploma	46	28.6	65	40.4	50	31	161	63.9	
▪ Bachelor Nursing degree	18	32.1	31	55.4	7	12.5	56	22.2	
▪ Postgraduate Studies	4	44.4	1	11.2	4	44.4	9	3.6	
Marital status									
▪ Single	16	23.2	23	33.3	30	43.5	69	27.4	X^2=18.718
▪ Married	48	29.4	81	49.7	34	20.9	163	64.7	P=0.005*
▪ Widowed	4	57.1	1	14.3	2	28.6	7	2.7	
▪ Divorced	6	46.2	3	23.1	4	30.7	13	5.2	
Years of experience in nursing									
▪ <5	14	29.8	18	38.3	15	31.9	47	18.7	X^2=8.095
▪ 5-	19	21.8	40	46.0	28	32.2	87	34.5	P=0.231
▪ 10-	23	32.8	34	48.6	13	18.6	70	27.8	
▪ ≥15	18	37.5	16	33.3	14	29.2	48	19.0	
Years of experience in the work unit									
▪ <5	27	28.4	43	45.3	25	26.3	95	37.7	X^2=5.762
▪ 5-	26	28.3	37	40.2	29	31.5	92	36.5	P=0.450
▪ 10	11	24.4	22	48.9	12	26.7	45	17.9	
▪ -	10	50.0	6	30.0	4	20.0	20	7.9	
▪ ≥15									

$X^{2=}$ Chi Square test * Statistically significant at $p \leq 0.05$ MC = Monto Carlo test

Table (6): Correlation matrix between the dimensions of knowledge management and structural empowerment of staff nurses (n= 252):

		Knowledge Conversion	Knowledge Transfer	Knowledge Application	Knowledge Management
• **Access opportunity**	**R**	0.504	0.426	0.667	0.590
	P	**0.000***	**0.000***	**0.000***	**0.000***
• **Access information**	**R**	0.581	0.456	0.677	0.644
	P	**0.000***	**0.000***	**0.000***	**0.000***
• **Access support**	**R**	0.413	0.331	0.786	0.552
	P	**0.000***	**0.000***	**0.000***	**0.000***
• **Access resources**	**R**	0.447	0.293	0.701	0.536
	P	**0.000***	**0.000***	**0.000***	**0.000***
• **Job activity**	**R**	0.472	0.289	0.685	0.544
	P	**0.000***	**0.000***	**0.000***	**0.000***
• **Organization relation**	**R**	0.583	0.445	0.744[=	0.663
	P	**0.000***	**0.000***	**0.000***	**0.000***
• **Structural empowerment**	**R**	0.571	0.424	0.803	0.669
	P	**0.000***	**0.000***	**0.000***	**0.000***

*Significant p at ≤0.05
r= Pearson correlation
r= < 0.5 low correlation r= 0.5-<0.7 moderate correlation r= 0.7-<0.9 high correlation r= ≥0.9 very high correlation

Table (7): Predictors of knowledge management of staff nurses through regression analysis (n= 252):

Model	Unstandardized Coefficients		Standardized Coefficients	T	P
	B	Std. Error	Beta		
(Constant)	36.440	7.826		4.657	**0.000***
Gender	3.012	1.505	0.095	2.002	**0.046***
Age	1.895	1.716	0.092	1.104	0.271
Educational qualifications	0.312	1.663	0.016	0.187	0.851
Marital status	1.441	1.051	0.070	1.371	0.172
Years of experience in nursing	6.071	2.315	0.394	2.622	**0.009***
Years of experience in the unit	1.081	0.496	0.324	2.182	**0.030***
R Square = 0.585		**F= 15.4444**		**P= 0.000***	

* Statistically significant at p ≤ 0.05

Table (8): Predictors of structural empowerment of staff nurses through regression analysis (n= 252):

Model	Unstandardized Coefficients		Standardized Coefficients	T	P
	B	Std. Error	Beta		
(Constant)	71.007	13.561		5.236	**0.000***
Gender	1.440	3.498	0.016	0.412	0.681
Age	2.251	3.985	0.039	0.565	0.573
Level of education	1.426	3.913	0.025	1.364	**0.007***
Marital status	7.591	2.448	0.130	3.101	**0.002***
Years of experience in nursing	3.700	3.728	0.091	0.992	**0.032***
Years of experience in the unit	2.297	1.131	0.243	2.032	**0.043***
R Square = 0694		**F= 45.124**		**P= 0.000***	

* Statistically significant at $p \leq 0.05$

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