Knowledge Sharing, Sustainable Development Behavior, and Patient Safety Culture among Nurses

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Abstract

Background: Knowledge sharing promotes the adoption of sustainable practices among nurses that improve resource efficiency. Additionally, it helps cultivate a robust patient safety culture, as nurses actively exchange information on risk management, safety protocols, and strategies for preventing errors. Aim of the research: This research aimed to explore the relation among knowledge sharing, sustainable development behavior, and patient safety culture among nurses. Research design: A descriptive-correlational design was used. Setting: The research was carried out across all inpatient units within medical and surgical buildings at Benha University Hospital. Sample: A convenient sample consisting of 309 nurses with a minimum of three years of experience. **Tools:** Three tools were utilized for data collection namely; knowledge sharing questionnaire, sustainable development behavior questionnaire, and the hospital survey on patient safety culture questionnaire. Results: These showed that more than half (55.0% & 52.4%) of nurses had high knowledge sharing and sustainable development behavior levels. Also, three-fifths of nurses (60.2%) had a high perception level of patient safety culture. Conclusion: Knowledge sharing, sustainable development behavior, and patient safety culture were all positively correlated in a highly statistically significant way. Recommendations: Nursing managers need to maintain and improve perception of sharing knowledge, sustainable development behavior and patient safety culture by consistently reinforcing protocols, ensuring open communication, educational programs, workshops and regular audits.

Keywords: Knowledge Sharing, Patient Safety Culture, Nurses, Sustainable Development Behavior.

Introduction

In the era of the knowledge economy, the most valuable organizational acknowledged resource is to be knowledge. Since knowledge is innately stored in people's minds, knowledge would have a limited impact organization's on an individual performance unless knowledge is disseminated throughout the organization. As a result, to be successful in todays intensely environment, competitive healthcare organizations' ultimately success depends on their nurses' ability to effectively share knowledge (Fan & Beh, 2024).

Knowledge sharing (KS) is a social interaction culture in which people share their talents, experiences, and information between nurses through an entire department or organization; this establishes a shared foundation for the need for collaboration (Nasiatin et al., 2021; Sa'adah & Rijanti, 2022; Liu et al., 2023). Additionally, KS is a process whereby nurses exchange data, knowledge, know-how. and competence in order to carry out particular duties and organizational objectives (Jin et al., 2025).

Also, knowledge sharing is the process of recognizing, disseminating, and applying existing information to address issues more effectively than in the past; it entails individuals voluntarily interacting with one another based on moral standards, customs and distinguishing characteristics (Hosseini et al., 2025).

Knowledge sharing is a blend of two types of knowledge, namely; explicit and tacit. Explicit KS is formal knowledge of specific content that can be easily captured and stored in databases and documents that are accessible, usable, and transmittable by anyone (Masa'd, 2020; Novitasari et al., 2021). The organization's efforts to make KS explicit typically involve exchanging papers or offering training that imparts knowledge in the form of informational policies and procedures that outline the knowledge that nurses need to be able to function within the organization (Maharani et al., 2020).

While tacit refers KS to the accumulated skills and know-how that a certain person has acquired via personal experience and assimilated via critical comprehension and practice (Kucharska & Erickson, 2023). It is acquired through the learning process of the experience and is embodied in social relations; regardless of the knowledge be to acquired, it emphasizes comprehension of how one gains knowledge (Doğan & Doğan, 2020; Capestro et al., 2024).

In healthcare organizations, KS is crucial and essential since it helps organizations increase productivity, cut expenses, prevent waste, and mitigate other hazards. KS facilitates the interchange of ideas and discussion of different ideas with colleagues,

drawing their attention and allowing employ and implement them to provide workable concepts to a solution to an issue (Nugraha, 2021). Also, KS has a positive impact on market expansion and penetration, human development, resource management-employee relations. individual, team, and organizational performance, as well as the delivery of high-quality services, organizational learning, and healthcare teams' capacity for innovation, all of which improve patient safety (Jamshed & Majeed, 2018; Afshar Jalili & Salemipour, 2020; Abualoush et al., 2022; Truong et al., 2024).

Besides, KS fosters a culture of cooperation and synergy, gives nurses sense of ownership and a accountability, and acts as a foundation well-informed for and successful decision-making. Organizations can therefore improve their agility, resilience. and adaptability in navigating volatile and chaotic settings by giving priority to KS, which will eventually promote sustained success and competitiveness (Rezaei et al., 2024).

Sustainable development (SD) behavior in health care refers to the planning and provision of healthcare in a way that does not negatively impact the health and well-being of the population in the future. Therefore, the main challenge of sustainability is the ability of healthcare providers to effectively treat patients in the face of resource scarcity (**Cruz et al., 2018; Chae, 2021; Smaniotto et al., 2022; Na-Nan et al., 2024**).

SD is a dynamic state that requires a connection between three dimensions namely, social, economic, and environmental systems to preserve environmental balance and stop the loss of natural resources (**Rodríguez et al., 2020; Leppänen et al., 2021; Ukamaka, 2024**).

Social SD prioritizes security, human rights, gender equity, peace, cultural diversity, intercultural understanding, and good health in addition to equity between and within people and between current and future generations (Gericke et al., 2019; Elshall et al., 2022). Achieving economic sustainability means providing highwhile quality care balancing affordability and equitable access to care. It entails developing strategies and policies that increase the value of services rendered. streamline operations, open up new markets, and produce long-term financial returns on investments (Abdelrahman et al., 2023; Al-Shahrani et al., 2024).

Environmental sustainability includes natural resources preservation, sustainable urbanization, the use of renewable energy sources, expanding green areas, reducing resource consumption and pollution through waste recycling, minimizing ecological footprints, and halting global warming (Atmaca et al., 2019; Saleh & Elsabahy, 2022).

Implementing sustainability reduces cost, contributes to a development that preserves an environment that doesn't negatively impact the chances for social change, safety concerns, and excellent health for present and future generations (**Aronsson et al., 2021**; **Čiarnienė et al., 2023**).

Patient safety is the capacity of a patient to avoid injury and other hazards that can be considered unnecessary associated with health care (Al Harbi et al., 2022). A healthcare organization's patient safety culture is made up of a variety of values, attitudes, perceptions, beliefs, competences, and behaviors that encourage people to do their activities safely (Mohamed, 2023; YAVUZ et al., 2023).

Patient safety culture shapes nurses' opinions of what constitutes appropriate and inappropriate behavior in relation to delivering safe patient care within the framework of routine practice. Negative occurrences and results, as well as lower-quality care, could arise from a failure to recognize and address the undesirable behaviors (**Temkin-Greener et al., 2020**).

Creating a patient safety culture requires a committed and attentive management team that can successfully convey the organization's patient safety vision, as well as respect for one another, cooperation in the workplace, and the individual assistance of physicians, and managers, nurses delivery across the care system (Camacho-Rodríguez et al., 2022; Edrees et al., 2024).

Additionally, promoting teamwork, identifying possible hazards. implementing systems for reporting and analyzing adverse events, praising nurses who contribute to patient safety, fostering a favorable work atmosphere, nurses' educational attainment, and information sharing among nurses are important elements that influence patient outcomes and are linked to a greater perception of patient safety (Hossain et al., 2018; Dawa et al., 2024).

Sharing experiences, lessons. and knowledge from various teams and organizations has immense potential to bring positive outcomes such as fostering creativity, improving team performance, and competitive advantage, supporting, motivating, benchmarking, and sustaining people and groups in their continuous endeavors to provide safe and effective healthcare (Chaman et al., 2021; Macleod & Greenfield, 2024).

Significance of the study

Healthcare organizations face many challenges, such as globalization, innovations, competitiveness both

domestically and internationally, and a diverse workforce. Since medical technologies are developing quickly and require specialized knowledge and capital, hospitals are knowledge-based environments. Therefore, it calls for a competent nurse who is proactive and open to new ideas. As a result, knowledge sharing is crucial and has a significant impact on innovation, which leads to new knowledge, creative sustainable behavior. and organizational success (Asurakkody & Kim, 2020; Takhsha et al., 2020; Elsayed et al., 2022).

According the researchers' to perspectives, knowledge sharing enables the exchange of critical information. best practices, and expertise, which is fundamental to creating a strong patient safety culture. In such a culture, healthcare workers are empowered to communicate openly about safety concerns, leading to reduced errors, better patient outcomes, and a more supportive environment. Simultaneously, embracing sustainable development behavior ensures that healthcare systems operate in an environmentally responsible and socially equitable manner, ensuring long-term benefits for both patients and the planet. So, this study aimed to explore the relation among knowledge sharing. sustainable development behavior, and patient safety culture among nurses

Aim of the research:

This research aimed to explore the relation among knowledge sharing, sustainable development behavior, and patient safety culture among nurses.

Research questions:

- 1- What are the levels of knowledge sharing among nurses?
- 2- What are the levels of sustainable development behavior among nurses?
- 3- What are the levels of patient safety culture as perceived by nurses?
- 4- What are the relations among knowledge sharing, sustainable development behavior, and patient safety culture among nurses?

Subjects and method:

Research Design:

A descriptive-correlational design was utilized for carrying out this research.

Setting:

The research was carried out across all inpatient units within medical and surgical buildings at Benha University Hospital, which is affiliated with the Ministry of Higher Education and Scientific Research. The hospital is in located Qalyubia Governorate, Egypt, and is divided into three separate buildings, which were arranged as follows: The medical building includes 34 units and can accommodate 478 beds, while the surgical building contains 21 units and a bed capacity of 384, and the ophthalmology building has 18 beds.

Sampling:

A convenient sample consisting of 309 out of 1358 nurses with at least three years of experience working in the previously indicated study settings who were available at the time of data collection and who had consented to participate in the study was included. The following sample size equation was used to determine the sample size. (Adam, 2020).

 $n = \frac{N}{1 + N(e)^2}$

 $n \rightarrow$ The required sample size $N \rightarrow$ Total number of nurses $e \rightarrow$ is coefficient factor/Error tolerance (0.05)

Tools of data collection: The data for this study was gathered using three instruments, specifically:

First tool: Knowledge Sharing Questionnaire: It consisted of two parts:-

First Part: It included the personal characteristics of studied nurses, such as age, sex, marital status, educational qualification, and years of work experience.

Second Part: A self-report questionnaire was developed by the researchers after reviewing the related literatures (Wang & Wang, 2012; Xiao et al., 2017; Doğan & Doğan, 2020). It includes 16 different items divided into two dimensions, namely explicit knowledge sharing (7 items) and tacit knowledge sharing (9 items), to assess the level of knowledge sharing among nurses.

Scoring system:

Subjects' responses were scored on a three-point Likert Scale as follows: (3) for agree, (2) for neutral and (1) for disagree. Scores of each dimension summed up and converted into percent scores as following: low level <60% of total score that equals less than 28 scores, moderate level \rightarrow 60-75 % of total score that equals 28-36 scores and high level \rightarrow >75 % of total score that equals more than 36 scores.

Secondtool:SustainableDevelopmentBehaviorQuestionnaire:

A questionnaire was developed by the researchers based on reviewing the related literatures (**Dumitru et al., 2015; Temminck et al., 2015; Gericke et al., 2019**) to assess level of sustainable development behavior among nurses. It contains 22 items categorized into three dimensions; economic (5 items), environmental (10 items), and social (7 items).

Scoring system:

Responses of the nurses were measured by using a three-point Likert Scale as follows: Always = (3). Sometimes = (2) and Never = (1). The scores of each dimension summed up and converted into percent scores as following: low level <60% of total score that equals less than 39 scores, moderate level \rightarrow 60-75 % of total score that equals 39-49 scores and high level $\rightarrow >75$ % of total score that equals more than 49 scores.

Third Tool: Hospital Survey on Patient Safety Culture (HSOPSC):

The questionnaire was developed by Sorra & Nieva, (2004), and made available in the Agency for Healthcare Research and Quality (AHRQ), it included 42 items that covering 12 dimensions: safety culture Communication openness (3 items), teamwork within units (4 items), units teamwork across (4 items). supervisor/manager expectations & actions promoting safety (4 items), organizational learning & continuous improvement (3 items), management support for patient safety (3 items), feedback and communication about error (3 items), frequency of events items). reported (3 handoffs and transitions (4 items), overall perceptions of patient safety (4 items), staffing (4 items), and non-punitive response to error (3 items). It aimed to safety assess patient culture as perceived by nurses.

Scoring system:

Participants responded to the HSOPSC using a 5-point Likert scale; some of the questions in this questionnaire have Likert scale which has a 5-point scale as (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree). Other questions are measured on 5-points as (1 = never, 2 = rarely, 3 = sometimes, 4)= most of the time, and 5 = always). The score was reversed for negative items. Reverse items are; 3, 24, 25, 28, 40, and 41. The total perception level patient safety culture of was determined as the following: low perception level <60% (equals less than 126 scores), moderate perception level \rightarrow 60-75 % (equals 126-157 scores), and high perception level \rightarrow >75 % (equals more than 157 scores).

Validity of the tools

The three tools were translated into Arabic in order to improve comprehension, and evaluated for translation. content validity, and relevance. The tools were then distributed to a panel of five experts in the field of nursing administration, which included five professors: two from Tanta University, one from Zagazig University, and two from Benha University. The completed questionnaires were then reviewed by jury members to ensure accuracy and minimize any potential threats to the validity of the study.

Reliability of the tools

Reliability of the tools was applied by using Cronbach's Alpha Coefficient test to measure the internal consistency of the items composing each dimension of the three tools, knowledge sharing was α =0.938, sustainable development behavior was α =0.834 and patient safety culture was α =0.892.

Ethical considerations The study was approved by the Scientific Research **Ethics** Committee at Damietta University No: Du Rec no113), (Approval which is the Subcommittee for the Medical Sector-Faculty of Medicine and Faculty of Nursing. Before the study began, an informed consent form explaining the the objectives of research. possible conflicts of interest, expected benefits. and potential risks was given to each participant. Confidentiality and anonymity were guaranteed for the study. **Participants** were informed that they might leave at any moment without incurring any penalties.

Procedure

The current study lasted for six months which started from the beginning of October, 2024 to the end of March, 2025. It included the following: the preparatory phase, pilot study, and field of work.

Preparatory phase

The preparatory phase of this research is essential for establishing a solid foundation before the actual study begins. It took four months from the beginning of October, 2024 to the end of January, 2025. It starts with clearly defining the research problem and conducting a comprehensive literature review of different sources including textbooks, papers, journals, and the internet as well as a review of national, international, recent, and historical related literature to identify gaps and become familiar with the study's topic, subjects, techniques, and a timeline for the entire process.

Pilot study

From the beginning to the mid of February, 2025, a pilot study was conducted to determine the study tools' applicability, feasibility, and clarity. The pilot study included 31 nurses, which represents 10% of the total study participants. It has also been useful in calculating how long it will take to fill the tools. No modification was needed. So, the pilot was included in the study.

Field of work

The field work for this study was conducted at Benha University Hospital from mid of February to the end of March, 2025. During this period, the researchers utilized various data collection methods, including questionnaire, knowledge sharing development sustainable behavior questionnaire, and hospital survey on patient safety culture to gather the necessary information from nurses. The nurses were asked to complete the questionnaire in the time that had been previously agreed upon with the head of each department. This nurse arrangement ensured that the data collection process was conducted in a

systematic and organized manner. The study involved close interaction with the participants, and all individuals were informed about the purpose of the research, the procedures involved, how to complete the questionnaire and their right to confidentiality and voluntary participation. Oral consent was obtained from all participants prior to their involvement in the study. Three days a week, during the morning and afternoon shifts, data was gathered. 38 Between and 45 sheets of questionnaires were collected from It took each week. the nurses participants twenty to thirty five minutes to finish the tools.

Statistical analysis

Prior to computerized entry, data were validated. For that, data analysis and tabulation were performed using the Statistical Package for Social Sciences 25.0). (SPSS version Descriptive statistics, which included quantitative data in the form of mean, standard deviation (SD). frequency, and percentage distribution, were used to present the data. Analytical statistics are used to determine whether the variables under study are related. The chi-square (x2) test was employed to determine the relationship between two qualitative variables and the association between dependent and independent variables, among other significance tests. Additionally, the closest link between variables was

estimated using Pearson Correlation coefficient (r) test. A significance level value was considered when p-value \leq 0.05 and a highly significance level was considered when p-value < 0.001, while p-value > 0.05 indicated nonsignificance results.

Results

Table (1): Shows that 51.5 % of nurses were aged between 20 to less than 30 years with a mean score of 31.42 ± 6.88 . The majority (87.1% & 84.5%) of nurses were females and married, respectively. As far as educational levels, more than half (51.5%) of nurses had a bachelor's degree in nursing science. Concerning years of work experience, more than two-fifths (42.7%) of nurses had less than 10 years with Mean \pm SD = 12.14 \pm 8.37).

Figure (1): Displays that 55.0% of nurses had a high knowledge sharing level. While only 2.6% had a low knowledge sharing level.

Table (2): Illustrates that the total mean and standard deviation of total knowledge sharing was 38.01±6.90 that represents 79.1% of total scores. the first ranking with the highest mean score was related to the explicit knowledge sharing dimension with mean \pm SD (16.64 \pm 3.34) that represents 79.2%. While the last ranking was related to tacit knowledge sharing dimension with mean ±SD (21.20 ± 3.98) that represents 78.5%.

Figure (2): Shows that 52.4% of nurses had a high sustainable development behavior level. While only 4.5% had a low sustainable development behavior level.

Table (3): Illustrates that the total mean and standard deviation of total sustainable development behavior was 48.33 ± 6.49 that represents 73.2% of total scores. The highest mean score (16.08 ± 3.36) was related to social dimension that represents 76.5%. The lowest mean score (10.71 ± 1.81) was related to economic dimension that represents 71.4%.

Figure (3): Displays that 60.2% of nurses had a high perception level of patient safety culture. While only 11.0% had a low perception level of patient safety culture.

Table (4): Reveals that the total mean and standard deviation of total patient safety culture was 149.40 ± 16.63 that represents 71.1% of total scores. The first ranking with the highest mean score was related to non-punitive response to error dimension with mean \pm SD (12.33 \pm 3.20) that represents 82.2%. While the last ranking was related to frequency of events reported dimension with mean \pm SD (9.41 \pm 1.49) that represents 62.7%.

Table (5): Illustrates that there was a high statistical significant positive correlation between knowledge sharing and sustainable development behavior $(r = .608^{**}, P < .001)$ and between knowledge sharing and patient safety culture at work (r = $.633^{**}$, P < .001), and there was positive correlation between sustainable development behavior and patient safety culture at(r = $.644^{**}$, P < .001).

Personal Characteristics		No	%			
Age	20-< 30 years	159	51.5			
	30-< 40 years	101	32.7			
	40 and more years	49	15.8			
	Mean ±SD 31.42±6.88					
Sex	Female	269	87.1			
	Male	40	12.9			
Marital status	Married	261	84.5			
	Unmarried	48	15.5			
Educational	Diploma in Nursing	19	6.1			
qualification	Associate Degree in Nursing	115	37.2			
	Bachelor's Degree in Nursing Science	159	51.5			
	Post graduate studies	16	5.2			
work experience	3< 10 years	132	42.7			
	10-< 20 years	117	37.9			
	20 -< 30 years	47	15.2			
	More than 30 years	13	4.2			
	Mean ±SD 12.14±8.3	7				

Table (1): Distribution of studied nurses' personal data (n=309)





Table (2): Mean scores and ranking of knowledge sharing dimensions am	ong
nurses	

Dimensions	No of	Total	Minimum	Maximum	Mean ±SD	Mean %	Ranking
	items	score					
Explicit knowledge	7	21	9	21	16.64±3.34	79.2%	1
sharing							
Tacit knowledge	9	27	11	27	21.20±3.98	78.5%	2
sharing							
Total	16	48	21	48	38.01±6.90	79.1%	

SD= Standard Deviation



Figure (2): Percentage distribution of total levels of sustainable development behavior among nurses

unitensions among nul ses									
Dimensions	No of	Total	Minimum	Maximum	Mean ±SD	Mean %	Ranking		
	items	score							
Environmental	10	30	14	27	21.50±4.13	71.6%	2		
Social	7	21	8	21	16.08±3.36	76.5%	1		
Economic	5	15	6	15	10.71±1.81	71.4%	3		
Total	22	66	31	63	48.33±6.49	73.2%			

 Table (3): Mean scores and ranking of sustainable development behaviour

 dimensions among nurses

SD= Standard Deviation



Figure (3): Percentage distribution of total perception levels of patient safety culture among nurses

Dimensions	No of	Total	Minimum	Maximum	Mean ±SD	Mean %	Ranking
	items	score					
Communication openness	3	15	3	14	11.21±1.65	74.7%	3
Teamwork within units	4	20	6	17	14.24±2.68	71.2%	7
Supervisor/Manager	4	20	8	18	14.56±1.39	72.8%	5
expectations							
Organizational learning-	3	15	6	15	11.06 ± 1.71	73.7%	4
continuous improvement							
Management support for	3	15	6	13	10.08 ± 1.33	67.2%	9
patient safety							
Feedback & communication	3	15	3	12	10.25 ± 1.94	68.3%	8
about Error							
Frequency of events	3	15	3	13	9.41±1.49	62.7%	12
reported							
Overall perceptions of	4	20	4	17	15.21 ± 1.80	76.1%	2
patient safety							
Teamwork across units	4	20	7	18	14.44±2.18	72.2%	6
Staffing	4	20	5	18	13.34±1.82	66.7%	10
Handoffs & transitions	4	20	4	18	12.61±2.43	63.0%	11
Non-punitive response to error	3	15	3	15	12.33±3.20	82.2%	1
Total	42	210	84	169	149.40±16.63	71.1%	

Table (4): Mean	scores and	ranking of]	patient safety	culture	dimensions	among
nurses						

Table (5): Correlation between study variables among nurses

Variables		Knowledge Sharing	Sustainable Development Behavior	Patient Safety Culture	
Knowledge Shering	r	1	.608**	.633**	
Knowledge Sharing	Р		.000	.000	
Sustainable Development Rehavior	r	.608**	1	.644**	
Sustainable Development Benavior	Р	.000		.000	
Patient Safety Culture	r	.633**	.644**	1	
rationt barciy Culture	Р	.000	.000		

r= Pearson Correlation, ** Correlation is highly significant at the 0.01 level (2-tailed)

Discussion

Nurses in any health-care organization competitive get a edge when knowledge is shared since it improves an organization's capacity to meet demands and generate efficiency. Information exchange increases organizational performance and decreases duplicate learning attempts (Capatina et al., 2024).

Knowledge sharing encourages nurses to adopt sustainable practices that improve resource efficiency and longhealthcare outcomes. term Furthermore, a strong patient safety culture is fostered when healthcare personnel actively share knowledge of risk management, safety regulations, and error avoidance measures. The combination of knowledge sharing with sustainable development behavior guarantees that hospitals and healthcare organizations function in an ecologically responsible manner while providing high-quality patient care (Aimoldina et al., 2025).

The present study aimed to explore the relation among knowledge sharing, sustainable development behavior, and patient safety culture among nurses.

The findings of the present study showed that more than half of nurses had a high knowledge sharing level. Consequently, according to the researchers of this study, nurses discussed current trends and practices with their colleagues and shared their knowledge acquired via education and other training, communicated clearly with colleagues and saw knowledge as a source of attaining authority and prestige.

Similarly, **Rafique and Mahmood**, (2021) who examined that the majority of respondents establish rapport, get ready for new learning possibilities and exchange knowledge and expertise with their peers. Furthermore, the current study's findings were consistent with **Elsaid et al.**, (2020), who discovered that the majority of staff nurses had a high level of knowledge sharing overall when they studied the relationship between organizational commitment and knowledge sharing.

Furthermore, the study's findings were conflicting with those of **Basiony &** Ghonem, (2023), who found that the majority of study subjects had a moderate knowledge-sharing level when they assess relationship between knowledge sharing, job crafting, and career resilience among nurses. Additionally, Adam et al., (2020) contrasted the findings of current study, which revealed that before the program was put into place; nurse teachers had a poor comprehension of knowledge sharing elements. the Additionally, awareness mean scores increased dramatically during the posttraining and follow-up periods.

Concerning to ranking, mean scores and standard deviation of knowledge sharing, the findings of the current study indicated that the highest mean score was related to explicit knowledge sharing dimension. While, the last ranking was related to tacit knowledge sharing dimension. From the researchers' point of view, to ensure that all nurses deliver a fundamental level of care, explicit knowledge sharing saves lives by reducing assumptions and misconceptions and lays the groundwork for clarity and accountability.

Similarly, Ismail et al.. (2022)examined the relationship between knowledge sharing and organizational citizenship practices. They reported that the highest mean score for staff knowledge nurses' sharing was associated with explicit knowledge sharing, followed by tacit knowledge sharing. Conversely, these results are in contrast with the study conducted by Gumus et al., (2024) who investigated how communication affects knowledge sharing within an organization, and the results showed that knowledge donation is at a higher level.

However, the current study's findings contradicted with **Demsash et al.**, (2021), who indicated that more than two-thirds of participants lacked opportunity, supporting leadership, and resource allocation for knowledge sharing practice.

The current study findings found that nearly half of nurses had a high sustainable development behavior level. According to the researchers, this result may be explained by the attitudes, behaviors, and knowledge of nurses toward health promotion and sickness prevention give them a sense of unique duty to their patients and the community, which supports sustainable development practices.

The study by Alvarez-Nieto et al., (2022) supported this study result by showing that participants were aware of sustainable development behavior as an opportunity to apply sustainability principles from their personal to professional lives. In this regard, Benton et al., (2020) affirmed that the nursing profession is well-positioned to impact the sustainable development behavior because of the breadth of its influence and care, including those with the greatest health inequalities and from the most remote places.

In contrast to this result **Taie**, (2023), observed a lack of knowledge of sustainable development principles among perioperative nurses, which was justified by high-quality patient care models that did not include elements of sustainable development; and **Fields & Cunningham-Williams**, (2021), implied that nurses were unaware of many of the goals or even the existence of sustainable development behavior.

The present study's findings showed that the greatest mean score is associated with the social dimension. In contrast, the lowest mean score was associated with the economic dimension of sustainable development. These findings may be due to that nurses' act as link а between communities and healthcare institutions. **Sustainable** practices require collaboration and trust, both of which are fostered by the social dimension.

The study findings were corroborated by Algabar et al., (2023), who found that the highest mean score was associated with the social dimension of development sustainable behavior levels. However, the lowest average score related to the economic dimension. Furthermore. Borges, (2019) highlighted that the results obtained suggested the existence of positive awareness and attitudes toward sustainable development. This finding was consistent with results of Idris et al., (2020), which indicated that the Malaysian undergraduates had positive perceptions and attitudes towards sustainable development.

In contrast, the current study finding was not consistent with Kamal et al., (2024) ,who demonstrated that the social sustainable dimension had the lowest percentage among the other dimensions at the pre-program phase, which improved after the program implementation. In addition, economic and environmental knowledge levels were increased at immediate post followed by follow up educational intervention. Also, Sorour & Elkholy, (2021) confirmed that the majority of staff nurses expressed a moderate regard for sustainable development behavior.

The current study showed that threefifths of nurses had a high perception level of patient safety culture, which the researchers attribute to nurses being particularly alert to any safety issues because they are the patient's primary caregivers and the first to discover changes in their condition. Additionally, nurses receive frequent training in risk management, evidencebased practices, and patient safety standards, all of which enhance their understanding and implementation of safety measures.

The current study's findings were consistent with those of **Ramos & Calidgid, (2018),** who conducted a study to estimate the patient safety culture among nurses at a government hospital and discovered that the majority of nurses still deemed the hospital has in some way developed a strong safety culture, since patient safety is a crucial aspect of the quality of medical care.

contrast, previous In the result contradicted the findings of Albaalharith & A'aqoulah, (2023), who investigated the level of patient safetv culture awareness among healthcare professionals and discovered that nurse staff members' perceptions of patient safety culture dimensions were generally low, with the exception of three work. areas: team organizational learning. continuous improvement communication and about error, where awareness was moderate.

The present study finding revealed that the greatest mean score associated with non-punitive response to error dimension of patient safety culture. In contrast, the lowest mean score was related to frequency of events reported dimension. These findings are due to nurses are at ease disclosing mistakes without worrying about criticism or repercussions which place more emphasis on growing from errors than placing blame.

Similar to **Muftawu & Aldogan's**, (2020) findings who found that the areas which demand immediate improvement include nonpunitive error response, staffing and work pace, error communication, communication openness, and hospital management support.

This result was incongruent with study conducted in Ethiopia by Atinafu et al., (2024), which indicated that more than half of the participants thought the patient safety culture was unsatisfactory. Therefore. it is necessary to take steps to improve These healthcare safety. activities include methods for reducing workplace stress. It is becoming more and more crucial to identify improved safety cultures in healthcare organizations in order to raise service quality.

According to the current study, there was a high statistically significant positive correlation between knowledge sharing and sustainable development behavior, as well as between knowledge sharing and patient safety culture. These findings demonstrated the vital importance of effective knowledge-sharing techniques in raising hospital safety standards and sustainability initiatives. Additionally, it fosters collaboration, creativity, and moral accountability, all of which improve risk management and decision-making. Because patient safety and sustainability both require knowledgeable and proactive staff.

Along the same lines, another study conducted by Jilani et al., (2020) stated that there is a high statistically significant positive correlation between knowledge sharing and sustainable development behavior, attempting to promote insight into how knowledge directly and indirectly sharing contributes to sustainable performance. Furthermore, it was demonstrated by Wang et al., (2022) that green organizational culture enhances the connection between green organizational innovation and green knowledge management.

In a similar vein, Alboliteeh, et al., discovered (2022)a substantial association knowledge between sustainability management and performance. Furthermore, according to Hossain et al., (2022), contacts with external stakeholders promote information transfer, which benefits organizations through innovation. Research has demonstrated that knowledge transfer has a major impact on business performance, innovative culture. long-term competitive advantage, and sustainability.

Furthermore, Chang et al., (2018) found that nurse' perceptions of trust and shared vision had statistically significant and influence knowledge Furthermore, sharing. knowledge sharing has a large and favorable impact on patient safety. Also. Kabiesz & Tutak, (2024)demonstrated that a high level of safety culture was connected with a high priority put on the health and life of employees, which has an impact on public health.

Conclusion

The conclusions of the present research were that more than half of nurses had a high level of knowledge sharing and sustainable development behavior. Also, three-fifths of nurses had a high perception level of patient safety culture. Moreover, Knowledge sharing, sustainable development behavior, and patient safety culture were all positively correlated in a highly statistically significant way

Recommendations:

In light of the research's findings, several important suggestions can be made to address the identified issues and improve future practices. These recommendations are aimed at enhancing the understanding of the topic, providing practical solutions and guiding further research in the field.

Organizational level:

-Nursing managers need to maintain and improve perception of sharing knowledge, sustainable development behavior and patient safety culture by consistently reinforcing protocols, ensuring open communication, educational programs, workshops and regular audits.

Nursing level

-Encourage continuous improvement in knowledge sharing through strategies like mentorship programs and regular knowledge-sharing sessions.

-Encouraging transparency and reducing fear of punitive actions could improve the reporting of incidents, thus contributing to a safer patient environment.

-Increase staff nurses' awareness of sustainable development behavior through educational programs, workshops, and conferences to improve patient and organizational outcomes.

Educational level

-Integrate the concepts of knowledge sharing, sustainable development, and patient safety culture into nursing curriculum.

Further research

-Exploring the Impact of Technology on Knowledge Sharing and Sustainable Practices

-Investigating the Effectiveness of Training Programs on Enhancing Knowledge Sharing and Patient Safety Culture.

-Exploring the barriers to Tacit Knowledge Sharing.

-Examining the Role of Leadership in Fostering Knowledge Sharing and Safety Culture.

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