

Relation between Nursing Managers' Care Coordination and Nurses' Perception of Patients' Safety Measures

Marwa Atef Amien Abdella^{1,2}, Reda Abd El-Fattah Abo Gad³,
Maha Eid Shokair⁴

¹Master student of nursing administration, Faculty of Nursing, Tanta University, Egypt.

²Head nurse, Sirs Elaian Main Hospital, Menoufia, Egypt.

³Professor of Nursing Administration, Faculty of Nursing, Tanta University, Egypt.

⁴Assistant Professor of Nursing Administration, Faculty of Nursing, Tanta University, Egypt

Corresponding author: Marwa Atef Amien Abdella

Email: Marwaatef207@gmail.com

Abstract

Background: Patient safety is essential within the healthcare environment, reliant on effective care coordination led by nursing managers. The nursing manager plays a significant role in facilitating healthcare delivery and influencing nurses' perception of safety measures. **Aim:** To identify the relation between nursing managers' care coordination and nurses' perception of patients' safety measures. **Design:** A descriptive correlational design was used. **Setting:** The present study was carried out at Tanta University Main Hospital and Emergency Hospital. **Subjects:** The study included all (N=67) nurse managers and all(n=322) of staff nurses. **Tools:** Two tools were used to collect data; care coordination and nurses' perception of patients' safety measures structured questionnaires. **Results:** more than half (58.2%, 51.5%) of nurse managers and nurses had moderate care coordination perception levels. While the majority (87.6%) of staff nurses had a moderate level of patient safety perception. **Conclusion:** There was a statistically significant positive correlation between staff nurses' care coordination and their perception of patients' safety measures. **Recommendations:** Designing and implementing ongoing education and training programs for promoting and enhancing nurses' knowledge about care coordination and training on patient safety measures, developing strategies that enhance the culture of teamwork and effective communication.

Keywords: Care coordination, Nurse managers, Patient safety, Staff nurses.

Introduction

The nurse managers are in charge of the care coordination and controlling its daily operations. The nurse managers oversee the integration of utilization management and discharge/transition planning functions in order to offer optimal patient-centered care based on outcomes **(Luther, Barra, & Martial, 2019)**.

Also, they assist the director of care management in developing tools, procedures, and systems to optimize the department's and the organization's strategic goals. Nurse managers are well positioned in hospitals to ensure efficient care coordination at the operational level **(Nurmeksla, Kvist, & Suhonen, 2021)**.

The Agency for Healthcare Research and Quality (2020) defines care coordination as the planned coordination of patient care activities between two or more individuals (including the patient) participating in a patient's care in order to support the appropriate delivery of health care services. Care coordination activities are the actions that help nurse managers to promote holistic and patient-centered care to ensure that a patient's needs and goals are understood and shared among care providers, patients, and families as a patient moves from one healthcare setting to another **(AHRQ, 2020; AHRQ, 2023)**.

Care coordination entails the following eight activities: First, establishing accountability or negotiating responsibility is a bilateral agreement between nurse

managers and nurses who specifically specify their obligations in interdependent role behaviors and agree to report on the fulfillment of responsibilities on a regular basis **(Mohammad, Elliothey, & Elzohairy, 2022)**

Second, support self-management goals through goal setting and action planning that are widely employed because they are supposed to help patients change their behavior. It also refers to the assistance provided to those with chronic conditions for managing their health on a daily basis **(Allegante, Wells, & Peterson, 2019)**. Third, create a proactive plan of care, including proactively asking patients about the type of care they prefer if they become critically ill to alleviate their uncertainty as well as their family members **(AHRQ, 2021)**.

Fourth, communication is the act of moving information from one place, person, or group to another and can be one-on-one or between groups of people. It can be face-to-face or through communication technologies **(Möckli et al., (2023)**. Fifth, facilitate transitions mean that transitioning patients from department to a safe community environment that requires protocols and procedures **(AHRQ, 2023)**. Sixth, monitor, follow up and respond to change as monitoring is a continuous or recurring procedure that allows for regular feedback on information that has been consistently collected. Follow up is a systematic and objective feedback of a finished or continuing action aimed at establishing its performance.

Successful change management necessitates the implementation of various phases to enable a smooth transition (**AHRQ, 2023; Al-Amin et al., 2022**). Seventh, link to community resources involves giving information on the availability of necessary integrate services with other community resources that may help support patients' health as needed (**Hughes et al., 2022**). Finally, align resources with patients, which focus on analyzing patients' requirements and allocating health care resources based on these needs in order to operate with fewer resources and achieve better outcomes (**Valentijn et al., 2022; WHO, 2023**).

Nurse managers enhance care coordination activities by fostering an interactive management environment and the development of collegial connections among nursing staff and others. Otherwise, inadequate coordination of care leads to medical issues, unnecessary hospitalization, lower functional status, patient noncompliance with care plans, and increased dependency, as well as having an impact on patients' safety (**Anderson et al., 2021; Ma et al., 2023**).

Patient safety is a healthcare discipline that arose as a result of the increasing complexity of healthcare systems and the rise in patient harm in healthcare institutions. Its goal is to prevent and decrease risks, errors, and harm to patients while providing health care (**WHO, 2021**). Patients' safety has twelve dimensions, which are as follows: First, communication openness, which is defined as

encouraging a culture of openness. It entails explaining what happened to patients who were harmed as a result of their medical care (**AHRQ, 2022**). Second, feedback and communication about error mean ineffective or sufficient communication among team members is a primary contributing cause to unfavorable outcomes, according to error prevention. Communication breakdowns in the acute care setting result in increased patient harm, length of stay, and resource utilization, as well as increased career dissatisfaction and turnover (**Vermeir et al., 2023**). Third, frequency of events reported involves reporting patient safety events that are a beneficial method for improving patient safety (**Lim et al., 2022**). fourth, handoffs and transitions refer to the structured exchange of essential patient information during transitions between healthcare providers or settings (**Segall et al., 2023**).

Fifth, management support for patient safety through prioritizing safety, allocating resources, and cultivating a work climate that encourages safe practices and reporting (**Huang et al., 2024; Murray et al., 2024**). Sixth, a non-punitive response to error assures staff nurses that mistakes won't be punished but instead treated as opportunities for learning and improvement (**Bashir et al., 2024**). Seventh, organizational learning and continuous improvement involve systematically reviewing errors, near misses, and failures to drive

corrective actions (**Mistri et al., 2023**).

Eighth, staffing refers to ensuring that nurse numbers, skill mix, and workloads are appropriate to deliver safe, high-quality care (**Alabdullah et al., 2024**). Ninth, manager expectations and actions promoting patient safety describe leaders seeking input from staff on safety improvements, acknowledging contributions, and acting on suggestions (**Bashir et al., 2024**). Tenth, teamwork across units involves different hospital units coordinating and collaborating effectively to ensure seamless patient care and reduce fragmentation (**Alsobou et al., 2025; Mistri et al., 2023**).

Eleventh, teamwork within units means that nurses within the same unit actively support each other, share workload, and trust one another in the shared goal of safe patient care (**Mistri et al., 2023; Alabdullah et al., 2024**). Finally, overall perceptions of patient safety capture how staff evaluate the effectiveness of systems, procedures, and leadership in preventing harm (**Murray et al., 2024; Huang et al., 2024**).

Significance of Study

Successful care coordination can reduce clinical error and guarantee safer patient care through teamwork and communication among healthcare practitioners. A lack of nurse managers' care coordination caused by a lack of education, training, communication, contact, and trust among nurses may result in an increase in hospital stay length, as

well as, patients' unhappiness, poor patient treatment, and poor patient safety, in addition to rising hospital expenditures, according to studies (**AHRQ, 2023; Song et al., 2022; Shrank et al., 2023**). In the US, one estimated cost of waste resulting from poorly coordinated care is between 25 and 45 billion dollars. Analysis of nine million Medicaid and dual Medicaid/Medicare claims concluded that the cost of patients with poorly coordinated care was 75 percent higher than patients with properly coordinated care (**Bates et al., 2023**). So, this study was addressed to assess the relation between nursing managers' care coordination and nurses' perception about patients' safety.

Aim of the study:

Identify the relation between nursing managers' care coordination and nurses' perception about patients' safety measures.

Research Questions

- What are the levels of nurse managers' care coordination as perceived themselves and their nurses?
- What are the levels of nurses' perception of patient safety measures?
- What is the relation between nurse managers' care coordination as perceived by nurses and their perception about patients' safety measures?

Operational definition:

Nurse managers are operationalized as supervisors, head nurses and nurses who are in charge of organizing the nursing care instead of head nurse at the unit level on

afternoon and night shifts.

Subject and Methods

Research Design

A descriptive correlational research design was used to identify the relation between nursing managers' care coordination and nurses' perception of patients' safety measures. This design is appropriate for the kind of the subject being studied and used questionnaires to determine variables and relations between them when sufficient data was available (**Edmondson & McManus, 2020**).

Setting

This study was conducted in two hospitals at Tanta University Main Hospital and Emergency Hospital. The first hospital called Tanta University Main Hospital affiliated to Ministry of High education and research with bed capacity 285 beds, and 7 departments. It includes: (Gynecology and Obstetrics, Cardiac, Neurology, Tropical, Blood bank, Central laboratory and Oncology departments).

The second hospital is called Emergency Hospital with bed capacity 222 beds and 8 department including; (General surgery department, Recovery unit, Neurosurgery department, vascular surgery department, Orthopedic department, Toxicology department, Radiology department and Burn department).

Subjects

The subjects of this study included two groups

- All (N=67) nurse managers at the previously mentioned setting of

Emergency Hospital (n=32) and Tanta University Main Hospitals (n=35).

- A convenience sampling (n=322) of staff nurses who are involved in patients' care with at least one year of experience was included from the total number of nurses (N=1948).
- The sample size and power analysis was calculated using Epi-info software statistical package to ensure that a suitable and representative size is obtained. The criteria used for sample size calculation were as follows; Z=confidence level at 95% (1.96) & d=Error proportion (0.05).

Tools of data collection

To fulfill the aim of this study, two tools were used.

Tool I: Care Coordination Structured Questionnaire It consisted of two parts as follow;

Part (1): subjects' personal and work-related data including age, department, years of experience, training course, position, and educational level.

Part (2): care coordination structured questionnaire. This part was developed by the researcher based on **McDonald et al., (2014)**, and **Johnson & Johnston (2017)**. It was used to collect data about care coordination from nurse managers' and nurses' viewpoints. It was divided into eight scales, which consisted of 61 items as follow;

- Establish accountability or negotiate responsibility
- Support self-management goals
- Create proactive plans of care
- Communication

- Facilitate transition
- Monitor, follow up and respond to change
- Link to community resources
- Align resources with patients' needs

Scoring system

Subjects' responses were measured on three points Likert Scale ranging from 3-1 where (3) perfectly coordinated, (2) coordinated care, (1) uncertainly coordinated.

The total scores were calculated by summing scores of all categories. The total scores represented in varying levels according to statistical cutoff point as follow;

- **High coordination level** ($\geq 80\%$ from the total score).
- **Moderate coordination level** ($60\% < 80\%$ from the total score)
- **Low coordination level** ($< 60\%$ from the total score).

Tool II: Nurses' perception of patients' safety structured questionnaire

This tool was developed by the researcher based on **Sorra *et al.*, (2016)**, and **Radwan (2019)**. It was used to assess nurses' perception about patients' safety and included

Part (1): Patients' safety structured questionnaire. It was divided into twelve dimensions with 43 items as follow;

- Communication openness
- Feedback and communication about error
- Frequency of events reported

Nurses' responses for these dimensions were measured on five points Likert Scale ranging from (1-5) where (1) never, (2) rarely, (3)

sometimes, (4) most of the times and (5) always.

- Handoffs and transitions
- Management support for patient safety
- Non-punitive response to error
- Organizational learning and continuous improvement
- Staffing
- Manager expectation and actions promoting safety
- Teamwork across units
- Teamwork within units
- Overall perceptions of patients' safety

Scoring system

Nurses' responses for these dimensions were measured on five points Likert Scale ranging from (1-5) where (1) strongly agree, (2) agree, (3) uncertainly agree, (4) disagree and (5) strongly disagree.

The total scores were summed up and classified into levels according to statistical cut off points as follow;

- **High level of patients' safety perception** ($\geq 80\%$ from the total score).
- **Moderate level of patients' safety perception** ($60\% - < 80\%$ from the total score)
- **Low level of patients' safety perception** ($< 60\%$ from the total score).

Method

1. An official permission was obtained from the Dean of Faculty of nursing, Tanta Main University Hospitals and Emergency Hospital to responsible authorities of hospital to conduct the study.

2. Ethical considerations:

- Nature of the study was not causing any harm to the entire sample.
 - Nurses consent assuring the nurses about the privacy and confidentiality of the collected data and explain that it was used for the study purpose only.
 - Confidentiality and privacy were taken into consideration regarding data collection. code number was used instead of names.
3. The research tools were translated to Arabic language and amended by a panel of five experts of nursing administration specialists who reviewed the content of the tools for clarity, relevance, comprehensiveness, comprehension, application, and simplicity of use. Experts' opinions and suggestions were taken into consideration and modifications of tools were done accordingly.
- The five experts were three professors of nursing administrator and two assistant professors of nursing administrator from Faculty of Nursing Tanta University (Appendix IV).
 - The experts were asked for some modifications related to grammatical language and rephrasing of some sentences related to their answers and the necessary modification were done based on their opinions
 - The experts' responses were represented in four points rating scale ranged from (1 – 4) where 1= not relevant, 2= little relevant, 3=relevant, 4= strongly relevant.
- The face validity value of tool I: Care coordination structured Questionnaire were 98.6% and tool II: Patients' safety structured questionnaire was 98% (Appendix IV).
4. A pilot study was conducted on 10% of the selected subjects (7 nurse managers and 32 nurses) who were convenient at the time of data collection and excluded from sample size in order to ensure the clarity of questions, applicability of the tools, the time needed to complete the sheet. Also, to identify obstacles and problems that might be encountered during data collection.
5. Reliability of the tools tested using Cronbach's Coefficient Alpha Test where $r=0.929$ of nurses, $r=0.992$ of nurse managers for tool I, and $r=0.803$ of nurses for tool II (Appendix IV).
6. **Data collection phase:** The data was collected from nurse managers and nurses. The researcher met the respondents in small group consisting of one to four subjects' study during their work shifts morning, or afternoon, to distribute the questionnaires. The subjects recorded the answer in the presence of the researcher to clarify any questions needed.
7. The appropriate time for data collection varied according to the type of work and workload for each department; sometimes it was done in the middle of shift and in the other times before the end of the shift. The time needed to complete the questionnaires

items from the subjects was between 20-30 minutes for two tools.

8. The data was collected over a period of six months from the beginning of May2022 to the end October 2022

Statistical analysis of the data

Data was fed to the computer and analyzed using IBM SPSS Software package version 20.0. (Armonk, NY: IBM Corp). Qualitative data were described using number and percentage. The **Kolmogorov-Smirnov** test was used to verify the normality of distribution Quantitative data were described using range (Minimum and maximum), mean, standard deviation and median Significance of the obtained results was judged at the 5% level. **The used tests were Chi-square test** used for categorical variables, to compare between different groups, **Monte Carlo correction** for Correction for chi-square when more than 20% of the cells have expected count less than 5, **Mann Whitney test:** for abnormally distributed quantitative variables, to compare between two studied groups , **Spearman coefficient** To correlate between two distributed abnormally quantitative variables and **Cronbach's Alpha** as reliability Statistics was assessed using Cronbach's Alpha test

Results

Table (1): represents distribution of nursing staff (nurse managers and nurses) according to personal and work-related characteristics. There was a statistically significant difference between nurse managers

and nurses in all items of personal characteristics except department, and training. This table showed that about two-thirds (64.2%) of nurse managers aged 30-40years while 35.8% of nurse manager aged 40-50 years. On the other hand, total nurses (36.3%) aged was 40-50 years while 5.3% of nurses aged <30years. Regarding years of experience, more than half (56.7%) of nurse manager had 10-20 years of experience and 4.5% of them had 20-30 years of experience with mean experience 10.91 ± 4.63 , while more than one third (36.4%) of nurses had 20-30 years of experience and 5% of them had <10 years of experience with mean experience 23.20 ± 8.60 . 79.2% of nurses, and 80.6% of nurse managers attended training course. Regarding educational level, the majority (92.5%) was bachelor of nursing, while total (100%) of nurses was from nursing institute

Figure (1): this figure shows that more than half (58.2%, 51.5%) of nurse manager and nurses had moderate care coordination perception levels. While more than one third (34.3%) of nurse manager, and about half (48.4%) of nurses had a high coordination perception level.

Figure (2): this figure indicates that the majority (87.6%) of nurses had a moderate level of patient safety perception, while the only (1.8%) of staff nurses had a high level of overall patient safety perception.

Figure (3): this figure shows there was statistically significant, positive correlation between nurses' care coordination and their perception of

patients' safety measures ($p=0.004$, $r=0.161$)).

Table (2): illustrates that there was no statistically significant relation between overall perception levels of care coordination among nurse managers and their personal data except their years of experience, and as regard nurses, no statistically significant relation between nurses'

overall perception levels of care coordination and their personal data except age.

Table (3): illustrates that there was statistically significant relation between nurses' perception of patients' safety measures and all personal data except their attending training course (at $p=$ (0.870)

Table (1) Distribution and frequency of nurses according to their personal and work-related characteristic

Part (1): Personal characteristic data	Nurse Managers (n = 67)		Nurse (n = 322)		P
	No.	%	No.	%	
Age					
<30	0	0.0	17	5.3	<0.001*
30-40	43	64.2	104	32.3	
40-50	24	35.8	117	36.3	
≥50	0	0.0	84	26.1	
Min. – Max.	49.0–30.0		59.0–25.0		<0.001*
Mean ± SD.	4.84±37.90		8.45±43.11		
Median	37.0		43.0		
Years of experience					
<10	26	38.8	16	5.0	<0.001*
10-20	38	56.7	99	30.7	
20-30	3	4.5	117	36.4	
≥30	0	0.0	90	28.0	
Min. – Max.	24.0–2.0		42.0–5.0		<0.001*
Mean ± SD.	4.63±10.91		23.20 ± 8.60		
Median	10.0		23.0		
Are you attending any training course?					
No	13	19.4	67	20.8	0.796
Yes	54	80.6	255	79.2	
Number of training course	(n = 54)		(n = 255)		
1	7	13.0	28	11.0	<0.001*
2	10	18.5	190	74.5	
3	21	38.9	27	10.6	
4+	16	29.6	10	3.9	
Educational Level					
BSc in nursing	62	92.5	0	0.0	
Post graduate diploma	5	7.5	0	0.0	
Nursing Institute	0	0.0	322	100.0	
Position					
Charge nurse	0	0.0	0	0.0	—
Nurse supervisor	67	100.0	0	0.0	
Bed Side Nurse	0	0.0	322	100.0	

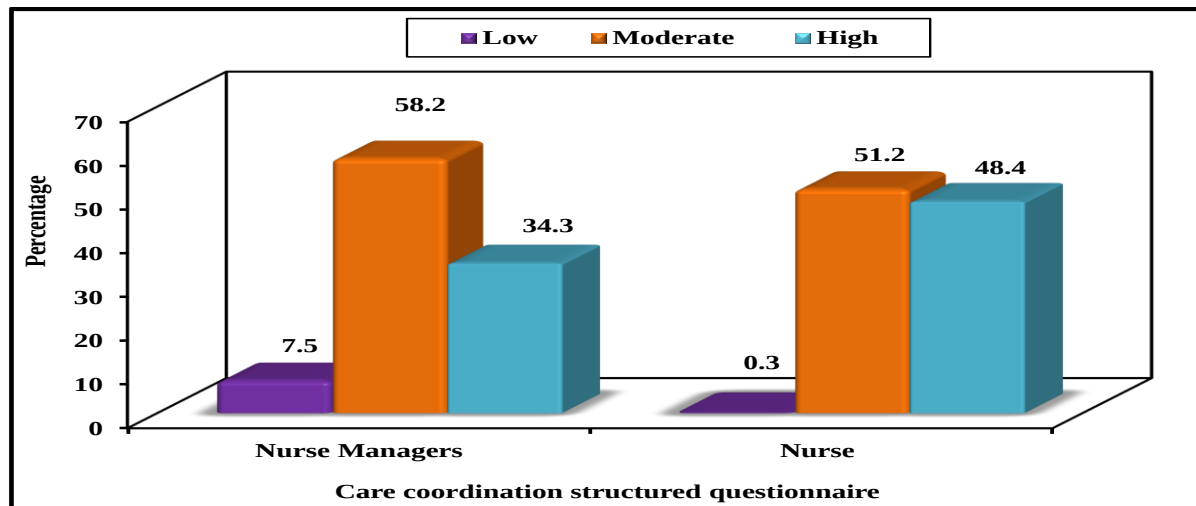


Figure (1): Nurse managers' and nurses' perception levels of care coordination

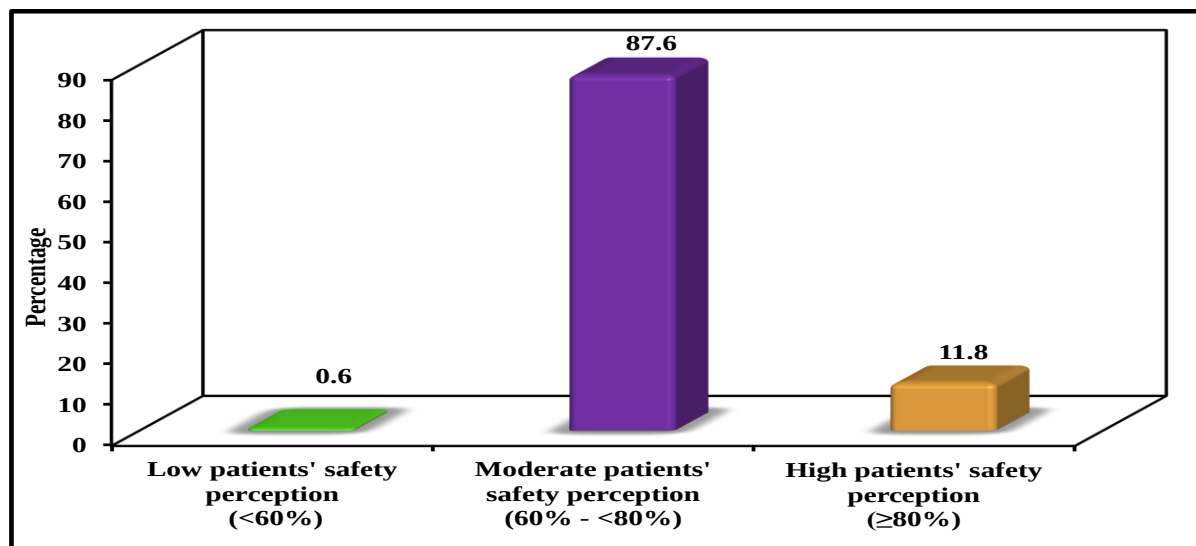


Figure (2): Levels of nurses' perception regarding overall patients' safety (n = 322)

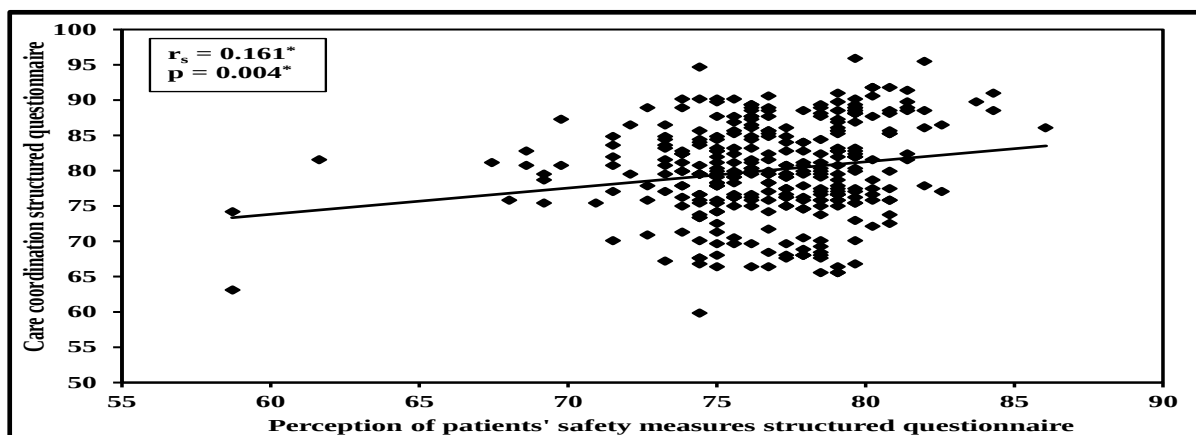


Figure (3): Correlation between nurses' care coordination and their perception of patients' safety measures (n = 322)

Table (2): Relation between (nurses' and nurse managers') overall care coordination and their personal characteristic data

Variable	%Score overall Care coordination	
	Nurse Managers (n = 67)	Nurse (n = 322)
	Mean $\pm$ SD.	Mean $\pm$ SD.
Age		
<30	–	80.62 $\pm$ 7.16
30-40	78.17 $\pm$ 8.74	80.97 $\pm$ 6.62
40-50	77.75 $\pm$ 9.19	78.79 $\pm$ 6.83
$\geq$ 50	–	80.50 $\pm$ 6.08
Test of sig. (p)	U=471.0 (0.556)	H=7.732 (0.052) *
Years of experience		
<10	5.32 $\pm$ 78.86	6.83 $\pm$ 81.28
10-20	9.58 $\pm$ 76.45	6.53 $\pm$ 80.68
20-30	15.03 $\pm$ 90.71	6.99 $\pm$ 78.93
$\geq$ 30	–	6.16 $\pm$ 80.54
H(p)	7.197* (0.027*)	6.446 (0.092)
Are you attending any training course?		
No	10.60 $\pm$ 81.40	6.01 $\pm$ 79.91
Yes	8.27 $\pm$ 77.21	6.80 $\pm$ 80.08
U(p)	340.0 (0.861)	8217.0 (0.631)
Number of training course		
1	2.46 $\pm$ 76.76	8.77 $\pm$ 81.22
2	8.44 $\pm$ 80.0	6.16 $\pm$ 79.66
3	9.03 $\pm$ 78.22	8.25 $\pm$ 80.36
4+	8.48 $\pm$ 74.33	7.27 $\pm$ 84.06
H(p)	3.663 (0.300)	6.546 (0.088)

Table (3): Relation between staff nurses ' overall perception of patients' safety measures and their personal characteristic (n = 322)

Variable	%Score overall Perception of patients' safety measures
	Mean $\pm$ SD.
Age	
<30	7.12 $\pm$ 75.68
30-40	2.76 $\pm$ 77.43
40-50	3.16 $\pm$ 76.65
$\geq$ 50	3.03 $\pm$ 76.21
H (p)	7.617 (0.055) *
Years of experience	
<10	7.52 $\pm$ 75.94
10-20	2.59 $\pm$ 77.46
20-30	3.21 $\pm$ 76.58
$\geq$ 30	3.04 $\pm$ 76.28
H (p)	9.251* (0.026*)
Are you attending any training course?	
No	3.79 $\pm$ 76.71
Yes	3.24 $\pm$ 76.75
U(p)	8431.50 (0.870)
Number of training course	
1	3.03 $\pm$ 77.39
2	3.08 $\pm$ 76.54
3	4.56 $\pm$ 77.15
4+	2.0 $\pm$ 77.85
H (p)	8.575* (0.036*)

Discussion

Nurse managers play a critical role in coordinating care and promoting teamwork across different units. (World Health Organization (WHO). 2021). Care coordination is recognized as a cornerstone of safe and effective healthcare delivery. It refers to the deliberate organization of patient care activities and the exchange of information among healthcare professionals to ensure quality, continuity, and safety.

Nurse managers are central to this process as they oversee communication, allocate resources, and encourage collaboration across disciplines. Their ability to coordinate care effectively not only improves patient outcomes but also influences how nurses perceive and apply patient safety measures. Understanding this relationship is essential for strengthening the culture of safety and enhancing the overall quality of care. (Manojlovich, & Ketfian. (2022). Accordingly, the present study was conducted aiming to identify the relation between nurse managers' care coordination and nurses' perception of patients' safety measures.

Nursing staff care coordination

Concerning the nursing staff care coordination, the findings of this study demonstrated that the overall care coordination scores were significantly higher among nurses compared with nurse managers. Also, more than half of both nurse managers and nurses reported a moderate level of care coordination. This result suggested that nurses, who are directly involved in bedside

care, may perceive themselves as more engaged in coordination tasks, reflecting their continuous interaction with patients and multidisciplinary teams. As well as while the nursing staff in the hospitals studied were generally aware of and engaged in care coordination activities, there remain challenges in achieving consistently high levels of coordination across teams reflecting the complexity of healthcare delivery.

There were statistically significant differences observed between the two groups in specific dimensions such as establishing accountability or negotiating responsibility, supporting self-management goals, linking to community resources, and aligning resources with patients' needs. These findings suggested that nurses generally perceived higher effectiveness in several care coordination domains compared to nurse managers. Higher scores among nurses may be explained by their direct and continuous contact with patients. In contrast, nurse managers' responsibilities are more administrative and supervisory, which may reduce their engagement in hands-on coordination activities. The results of current study align with the work of **Toles et al. (2022)**, who reported that frontline nurses were more likely to recognize the practical aspects of care coordination, particularly in areas related to patient transitions and resource allocation, while nurse leaders focused more on strategic planning. Similarly, **McDonald et al. (2021)**, emphasized that accountability, resource

alignment, and patient-centered goal setting are crucial but often variably perceived by different professional groups within healthcare systems. Conversely, studies conducted by **Van Houdt et al. (2020)** in highly integrated systems, reported higher performance in community linkage and resource alignment due to stronger interprofessional networks and community-based models of care.

Staff nurses' perception of patients' safety measures

As regard to the nurses' perception of patients' safety measures. The finding of the current study revealed that the majority of nurses reported a moderate perception of overall patient safety. These findings indicated that although awareness of patient safety is present, it remains at a moderate level for most and reflected the nurses' recognition of the importance of continuous system improvement and collaborative communication in promoting safety. In contrast, the lowest scores were observed in staffing, followed by communication openness that may be due to workload pressure and limited open dialogue remain barriers to safety culture.

These findings align with **El-Jardali et al. (2020)** and **Aiken et al. (2021)** who found that higher scores for organizational learning and continuous improvement, On the other hand, **Halligan & Zecevic (2021)** found higher scores for communication openness. This result in difference with the results of a study conducted in Cairo in 2021 which revealed that the domain with

the highest positive responses was teamwork within units while the lowest positive response was the domain non-punitive response to error (**Abdel-Elkader, and Abdel-megeed, 2021**).

Correlation between staff nurses' care coordination and their perception of patient safety measures

The present study demonstrated a statistically significant positive correlation between staff nurses' care coordination and their perception of patient safety measures. This finding may be explained by nurses engage in more effective care coordination that reflected in awareness about their perception of patient safety improves.

This result is consistent with the findings by **Manojlovich and DeCicco (2022)**, who emphasized that positive perceptions of patient safety and supportive work environments were associated with better nurse-physician collaboration. Likewise, **Singer et al. (2020)** found that hospitals with stronger safety cultures achieved higher efficiency in coordination across units. However, **Mardon et al. (2020)** is not along with this result and demonstrated that the link between patient safety culture and care coordination is not always strong, particularly in organizations facing staffing shortages and high workloads.

Relation between nurses' overall care coordination and their personal characteristic data

As regard to the overall care coordination and personal characteristic data of staff nurses and

nurse managers shows that there was no statistically significant relation between care coordination scores and most personal characteristics among staff nurses, except for age. Among nurse managers, years of experience showed a statistically significant effect. This implies that more experienced nurse managers are likely to perceive and facilitate better care coordination, possibly due to enhanced leadership and system navigation skills. This result is in line with **Thomas & Peterson (2020)**, who suggested that years of clinical and managerial experience positively influence leaders' ability to coordinate care. For staff nurses, the lack of significant association between training courses and care coordination is consistent with **Wagner et al. (2021)**, who reported that attending isolated training programs did not necessarily translate into improved coordination unless embedded within long-term organizational strategies. In contrast, studies by **Reeves et al. (2020)** demonstrated that targeted interprofessional education programs significantly enhanced care coordination and teamwork, highlighting possible gaps in local training curricula.

Relation between staff nurses' overall perception of patients' safety measures and their personal characteristic

Concerning the overall perception of patients' safety measures and staff nurses' personal characteristic, there was significantly associated with years of experience, age, and number

of training courses attended. These findings suggested that accumulated experience and repeated exposure to training enhance awareness and perception of safety culture. This is supported by **El-Jardali et al. (2020)**, who found that healthcare workers with longer tenure and multiple safety-related training reported more positive safety perceptions, **Farokhzadian et al. (2020)** noted that continuous education and professional maturity contribute to stronger patient safety attitudes.

Conversely, the lack of significant relation with "attending training courses indicated that the quality and continuity of training may matter more than mere participation. This was similarly reported by **Sammer et al. (2021)**, who emphasized that sporadic training does not substantially impact patient safety culture unless integrated into daily practice. The goal of studying the relations between nurse managers' care coordination and nurses' perception of patient safety measures is to improve both patient outcomes and the overall safety culture in healthcare organizations. Exploring this relation can provide insights into how leadership behaviors and coordination strategies may strengthen or hinder nurses' adherence to safety practices. (**Boamah, Read & Spence Laschinger, 2020**).

Conclusion

The present study was conducted to identify the relation between nurse managers' care coordination and nurses' perception of patients' safety

measures. There was statistically significant positive correlation between staff nurses' care coordination and their perception of patients' safety measures. The finding of the present concluded that more than half of nurse managers and staff nurses had moderate overall care coordination perception levels. Specifically, the highest dimension of nurse managers was related to creating proactive plans of care, while the lowest dimension of nurse managers was for link to community resources. The highest dimension of staff nurses was related to facilitating patients' transition. While the lowest dimension was linked to community resources. Majority of staff nurses had moderate level of overall patient safety perception. Specifically, more than two -thirds of staff nurses had high perception of patient safety measures regarding management support for patient safety.

Recommendations

Considering the findings of this study, the following recommendations were proposed:

For administration

- Designing and implementing ongoing education and training programs for promoting and enhancing their knowledge about care coordination and training on patient safety measures.
- Developing strategies that enhance the culture of teamwork and effective communication.
- Updating patients' safety measures.
- Fostering a culture of accountability and responsibility

that enhances the quality of care provided to patients.

- Holding regular meeting with nurse managers and allowing them to discuss their needs and interests.

For nurse managers

- Promoting nurses' active participation in hospital affairs for developing the quality and efficiency of nursing care services and the outcomes of healthcare institutions.
- Guiding and counseling staff nurses to meet their professional needs.
- Using appreciation to encourage better performance and ask how staff nurses prefer to receive recognition for good behaviors.
- Recognizing the importance of sharing power and involving all team members in decision-making processes.

For nurses

- Attending seminars and workshops to be updated that improve their perception about teamwork, enable them to work in teams and improve their performance.
- Building good relationship with their colleagues depend on respect and trust.

For educational level

- Patient care coordination needs to be studied in the curriculum of Faculty of Nursing.

For further research

- Explore longitudinal effects of care coordination initiatives and training, aiming to address identified gaps and strengthen interprofessional collaboration,

ultimately enhancing patient-centered outcomes.

- Additional studies about factors affecting care coordination and patient safety between staff nurses.

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