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Nurses' Knowledge and Attitude Toward Quality Improvement: Implication for Health Care Outcomes

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Abstract:
Background: Nurses' knowledge and attitudes toward quality improvement (QI) is essential for a dynamic clinical environment. QI for nurses significantly improves health care outcomes such as reduced hospital readmissions and length of stay **Aim:** Assess nurse's knowledge and attitude toward QI and it is implication on health care outcome. **Design:** Descriptive correlational research design. **Setting:** The study was conducted at Main Assiut University Hospital. **Subject:** A simple random sample of 285 nurses were selected. **Tools:** includes: Personal characteristics data, QI questionnaire, and length of stay, for care facility index (LSCFI). **Results:** Majority of nurses had satisfactory knowledge level regarding QI (86%), more than half 59.3% reported satisfactory level regarding QI tools and methods, nearly two thirds of nurses 66.3% perceived a positive attitude toward QI, and more than three quarters of nurses, 75.4% achieved a high level of LSCFI reflecting effective discharge planning, structured follow-up, and strong care coordination practices to minimizing readmission risks. **Conclusion:** There is a positive correlation with statistical significance relation between all QI dimensions and LSCFI dimensions P ≤0.05. **Recommendation:** Further researches to assess nurses' quality improvement knowledge and attitude on cost reduction.

Keywords: Nurses, Health care outcomes & Quality Improvement

Introduction:
Quality improvement (QI) in healthcare are systematic efforts aimed at enhancing health care outcomes. These can be done through data analysis, patient feedback, staff input, or benchmarking against best practice, establish clear, measurable objectives for what the QI aims to achieve**.** QI has become a cornerstone of health care operations as organizations strive to meet evolving regulatory requirements, and address patient expectations **(Ente & Ukpe, 2022)**.
For the success of QI in healthcare, employing clear and transparent communication strategies. Creating open forums and discussions enable healthcare professionals to share valuable insights, and contribute innovative ideas, fostering a collaborative environment. Additionally, utilizing a diverse range of communication channels, such as newsletters, electronic platforms, and team meetings, ensures that information is effectively disseminated to all relevant stakeholders, promoting commitment to QI goals **(Bayram et al., 2021; Nantsupawat et al., 2021)**.
Team collaboration is encouraged by promoting interdisciplinary cooperation, allowing professionals from different specialties to contribute diverse perspectives and expertise to the QI process**.** QI can be measured through measuring the staff knowledge and attitude toward QI, also knowledge about QI tools and methods (**Seostianin et al., 2020 & Brickman et al., 2020).**
Health care outcomes are the result of care in terms of the patient's health over time. Advancing patient outcomes should be the ultimate goal for patient care. Health care outcomes are a true measure of quality. In business, quality should always be measured from the customer's perception and not the supplier's point of view. Health care outcomes must be centered on the patient and not on the individual units or specialty services providing the care **(Pantaleon, 2019).**
Health care outcome as hospital readmissions occurring within 30 days of patient discharge are often used as a key indicator in evaluating hospital performance, Hospitals readmission rates for specific conditions as a part of QI activities, feedback from patients regarding their care experience can highlight areas that may lead to readmissions. Reducing hospital readmissions is a priority for healthcare systems, it associated with better health care outcome and lowering healthcare costs. Strategies to address this issue includes improving discharge planning, enhancing patient education, and ensuring adequate follow-up care which can be considered as a core areas for QI **(Torhild & June, 2022).**
Health care outcome also includes assessing the average length of hospital stays for various conditions and indicates care efficiency. Hospitals should implement care pathways and protocols that optimize

patient flow and resource allocation. Regular performance reviews and process improvement activities can help streamline care delivery and reduce unnecessary delays in patient discharge **(Amritphale et al., 2021).**

Length of stay, for care facility index (LSCFI) used to assess health care outcome related to hospital readmissions, how factors like the length of stay and the quality of care impact the likelihood of readmission, it includes seven dimensions described as follows; length of stay for care facility(LOS) and quality of care (QC), discharge planning and coordination (DPC), post-discharge follow-up and support (PDFS), risk assessment and patient education(RAE), social determinants of health (SDH), and hospital readmission risk and data monitoring (HRRDM) **(Walraven et al., 2020)**.

Significance of the Study:

During researcher's clinical supervision for fourth-year students, it was observed that a noticeable percentage of patients were readmitted to the hospital after discharge. According to statistics obtained from the Patient Admission Office at Assiut University Main Hospital, the readmission rate was 16% during the period from the beginning of January to the end of December 2020. Hospital chain of activities is cyclic and needs QI to seek a higher level of performance.

There are two international studies were identified in the websites and scientific journal. The first titled "The impact of post discharge follow-up calls on 30-day hospital readmissions in neurosurgery "by **Mwachiro et al., (2019)**. The second by **Alfeil et al., (2021)** was titled using internet led QI to reduce readmissions for specialty service patients within an academic medical center. Until now there is no national studies have been specifically examined nurses knowledge and attitude toward QI and it is implication on health care outcomes. All the previous reasons were the motives for the researchers to conduct this study.

Aim of the Study: This study aimed at assessing nurses' knowledge and attitude toward QI and it's implication for health care outcome.

Specific Objectives:

1. Assess nurses' knowledge levels toward QI.
2. Assess nurses' attitude toward QI.
3. Assess nurses' knowledge levels toward QI tools and methods.
4. Explore the relationship between nurses' knowledge and attitude on implication of health care outcome (hospital readmission).

Research Questions:

Q1: What are the levels of nurses' knowledge regarding QI?

Q2: What are nurses' attitude toward QI?

Q3: What are the levels of nurses' knowledge regarding QI tools and methods?

Q4: Is there a relationship between nurses' knowledge and attitude toward QI and health care outcome?

Subject and Method

Research Design: A descriptive correlational design was utilized.

Setting: This study was carried out at Main Assiut University Hospital.

Subject: The subject included in the present study were (285) nurses, selected using simple random sample technique and the sample size was estimated using formula developed by **Thompson equation (2006):**

$$n= x2Np (1-p)/e2(N-1)+x2p(1-p)$$

where

n= sample size N= population size e= acceptable sampling error x2= chi-square of degree of freedom1and confidence level 95%=3.841 p= proportion of population.

Data collection tools:

Tool (I). Quality Improvement Questionnaire

Part 1: Personal Characteristics Data: includes data related to age, gender, marital status, department, and years of experience.

Part (2):- Quality Improvement Questionnaire: Which developed by **Governor & Haveman, (2012)** and modified by the researchers to assess levels of nurses' QI knowledge and attitude. It consists of 56 items, divided into three dimensions; knowledge about QI (12 items), attitude about QI (23 items), knowledge about QI tools and methods (21 items).

Nurses' Knowledge Regarding QI. The nurses responses were measured by three points Likert scale ranged from always = 3, to rarely = 1. Total score was summed up and giving maximum score 36, then it converted to percentage score; if the nurses obtain > 60 % achieve satisfactory knowledge level, if the nurses obtain < 60% achieve unsatisfactory knowledge level

Nurses' Attitude Regarding QI: Nurses responses were measured on three points Likert scale, ranged from disagree = 1 to agree = 3. Total score was summed up and giving maximum score 69, then it converted to percentage score; If the nurses obtain > 60 % have positive attitude, and if the nurses obtain < 60% have negative attitude

Nurses' Knowledge about QI Tools and Methods Scale: Nurses responses were measured on three points Likert scale, ranged from disagree = 1 to agree = 3. Total score was summed up and giving maximum score of 63, then it converted to percentage score, if the nurses obtain > 60 % achieve satisfactory

knowledge level, and if the nurses obtain < 60% achieve unsatisfactory knowledge level.

Tool (II): Length of Stay for Care Facility Index (LSCFI): It developed by **Walraven et al., (2020)** and modified by the researchers to assess health care outcome related to hospital readmissions, particularly in how factors like the length of stay and the quality of care impact the likelihood of readmission. This tool consisted of 35 items, categorize into seven dimensions; length of stay (LOS) (5 items), quality of care (5 items), discharge planning and coordination (5 items), post-discharge follow-up and support (5 items), risk assessment and patient education (5 items), social determinants of health (5 items), and hospital readmission risk and data monitoring (5 items).

Scoring system: This instrument was measured on a 5-point Likert scale ranged from strongly disagree = 1 to strongly agree =5. The grades for each item were summed up and then converted into a percent score. Total grade (175) classified as follows; from 100-175 points: high level in managing patient discharge, follow-up, and care processes to reduce readmission risks. From 70-99 points: moderate with significant gaps in some key areas. The discharge process and follow-up care need improvement, particularly in risk assessment and managing social determinants of health. Moreover, below 70 points: low level with many critical issues related to discharge planning, care quality, and follow-up of care.

Administrative design: Official approval to carry out this study was obtained from the Dean of Faculty of Nursing-Assiut University, Directors of Main Assiut University Hospital both medical and nursing.

Ethical Considerations: Research proposal was approved from the Ethical Committee, Faculty of Nursing, Assuit University, the study would follow common ethical principles in clinical research, the researchers explained the aim, and nature of the study to the nurses before starting the study, oral consent was obtained from nurses after explaining the purpose of the study, study participants have the right to refuse to participate or withdraw from the study without any rational at any time , and confidentiality and anonymity were assured.

Operational Design: The study was conducted throughout three main phases: Preparatory, pilot study, and fieldwork.

Preparatory Phase: A comprehensive review of relevant literature pertaining to the study topic was conducted. The study tools were translated into Arabic to ensure clarity and cultural appropriateness it took about one months was done in September 2021.

Face Validity: Was ascertained by a panel of experts (jury) 6 professors and assistant professors from Nursing Administration department Faculty of Nursing Assuit University who reviewed the comprehension of the study tools.

Content Validity was conducted using the confirmatory factor analysis test (CFA) to assess study tools (clearness, importance, relevance, and accountability). Each one of the tools statement achieved more than 1.9, so all of items were confirmed. No items were rejected.

Table (I): Cronbach's Alpha Co- efficient Test for Study Tools

Tool	Reliability
Knowledge about quality improvement	**0.87**
Attitude about quality improvement	**0.83**
Knowledge about quality improvement tools & methods	**0. 91**
Total Quality Improvement	**0.87**
Length of stay (LOS)	**0.82**
Acute care facility quality of care	**0.85**
Discharge planning and coordination	**0. 93**
Post-discharge follow-up and support	**0.88**
Risk assessment and patient education	**0.96**
Social determinants of health	**0.85**
Hospital readmission risk and data monitoring	**0. 89**
Total LSCFI	**0.88**

Cronbach's Alpha Co- efficient test

Table (I): Presents the reliability of Cronbach's alpha coefficients for the tools assessing knowledge, attitude regarding quality improvement, QI tools and methods and LSCFI. All tools demonstrated very good to excellent internal consistency, values ranging from 0.82 to 0.96.

Pilot Study:

A pilot study was done on 10% of the total participants (29 nurses) to test the clarity, feasibility, and applicability of the study tools, to determine the time required to fill out the questionnaire form, and to explore any obstacles that might be encountered the researchers during the data collection phase. No changes were done so, nurses in pilot study were included in the total sample.

Field work:

The researchers held individual meetings with each nurse to clarify the aim of the study and obtain their voluntary consent to participate. Upon receiving informed consent, each participant was provided with the study questionnaire and asked to complete it independently. Completing the self-administered questionnaire took approximately 30 minutes. The data collection process spanned four months, from the beginning of October 2021to the end of January 2022. All data collection occurs in the morning shift.

Statistical design:

Data analyzed using the Statistical Package for the Social Sciences (SPSS) version 20. Descriptive statistics—including frequencies and percentages—used to summarize categorical variables such as gender, marital status, department, and years of experience. Means and standard deviations, calculated for continuous quantitative variables. To assess the internal consistency and reliability of the study instruments, Cronbach's alpha coefficient was calculated .For inferential analysis, Pearson's correlation coefficient, employed to explore the relationships among continuous variables statistical significant p-value of < 0.05.

Results

Table (1): Frequency Distribution of Nurses According to their Personal Characteristics (n=285).

Personal Characteristics data		No	%
Age (years)	Less than 25 year	96	33.7
	From 25-35 year	124	**43.5**
	From 35 and more	65	22.8
	Mean+SD	**30.63+8.15**	
Gender	Male	92	32.3
	Female	193	**67.7**
Marital status	Ever Married	165	**57.9**
	Single	120	42.1
Department	ICU	84	29.5
	Internal medicine department	116	**40.7**
	Internal Surgical department	85	29.8
Experience year	Less than 5 year	165	**57.9**
	From 5-10 year	51	17.9
	From 10-15 year	30	10.5
	More than 15 year	39	13.7
	Mean+SD	**37.49+7.57**	

Table (2): Mean Score of QI Dimension for Nurses (n=285)

QI Dimensions	Mean+SD
Knowledge about QI	**25.24+3.63**
Attitude about QI	**36.35+3.85**
Knowledge about QI tool and method	32.22+3.01
Total	93.81+8.09

Table (3): Mean score of LSCFI Dimensions for Nurses (n=285)

LSCFI Dimensions	Mean+SD
Length of Stay (LOS)	15.31+3.75
Acute Care Facility	15.64+3.67
Discharge Planning and Coordination	15.69+3.92
Post-Discharge Follow-Up and Support	15.48+3.59
Risk Assessment and Patient Education	15.68+3.62
Social Determinants of Health	**15.79+3.62**
Hospital Readmission Risk and Data Monitoring	**15.01+3.49**
Total	108.59+16.36

Table (4): Distribution of Nurses Knowledge and Attitude Regarding QI Dimensions Levels (n=285)

QI Dimensions		No	%
Knowledge regarding to QI	Satisfactory	245	**86**
	Unsatisfactory	40	14
Attitude regarding QI	Positive	189	**66.3**
	Negative	96	**33.7**
Knowledge regarding to QI Tool & Methods	Satisfactory	168	**59.3**
	Unsatisfactory	116	40.7

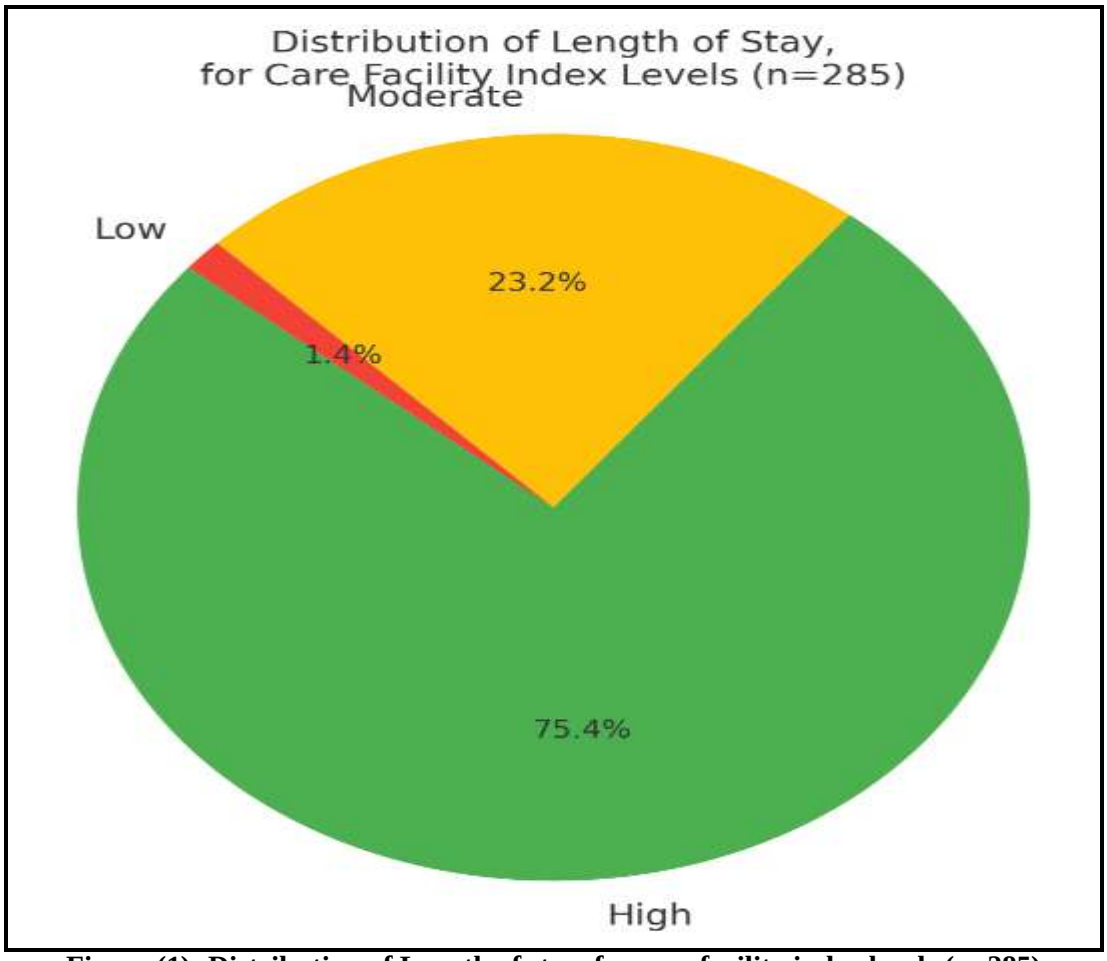

Figure (1): Distribution of Length of stay, for care facility index levels (n=285)

Table (5): Correlation Coefficient between QI Dimensions and Length of Stay, for Care Facility Index Dimensions (n=285)

Variables		KQI	AQI	QITM	LOS	ACF	DPC	PDF	RAPE	SDH	HRR
KQI	r	1									
	P										
A QI	r	.469**	1								
	P	0.000									
QITM	r	.384**	.291**	1							
	P	0.000	0.000								
LOS	r	.148*	.217**	.122*	1						
	P	0.013	0.000	0.039							
ACF	r	.100	.143*	.204**	.349**	1					
	P	0.092	0.016	0.001	0.000						
DPC	r	.158**	.300**	.163**	.349**	.392**	1				
	P	0.008	0.000	0.006	0.000	0.000					
PDF	r	.070	.186**	.086	.294**	.344**	.315**	1			
	P	0.237	0.002	0.150	0.000	0.000	0.000				
RAPE	r	.132*	.306**	.102	.271**	.343**	.290**	.313**	1		
	P	0.026	0.000	0.087	0.000	0.000	0.000	0.000			
SDH	r	.023	.138*	.107	.321**	.349**	.298**	.244**	.310**	1	
	P	0.699	0.020	0.071	0.000	0.000	0.000	0.000	0.000		
H RRDM	r	.118*	.181**	.138*	.202**	.241**	.273**	.342**	.266**	.331**	1
	P	0.047	0.002	0.020	0.001	0.000	0.000	0.000	0.000	0.000	

Table (1): Illustrates that more than two thirds of nurses were female (67.7%), aged between 25–35 years (43.5%). More than half of nurses had less than 5 years of experience and ever married (57.9%), the highest percentage of nurses' works at Internal Medical Department (40.7%).

Table (2): Reveals the highest mean score regarding QI dimension related to attitude about quality improvement (36.35+3.85) and the lowest mean score regarding knowledge about quality improvement dimension (25.24+3.63)

Table (3): Illustrates the highest mean score regarding LSCFI dimensions is related to social determinants of health (15.79+ 3.62) and the lowest mean score regarding LSCFI dimensions is related to Hospital readmission risk and data monitoring (15.01+3.49)

Table (4): Presents the distribution of nurses' knowledge and attitudes regarding QI dimensions. The majority of participants (86%) demonstrated satisfactory overall knowledge level regarding QI, However, only 59.3% reported satisfactory knowledge level toward QI tools & methods. Additionally, nearly two thirds of nurses 66.3% of perceived a positive attitude toward QI, a significant portion (33.7%) held negative attitudes.

Figure (1): Displays the pie chart demonstrates that more than three quarters of nurses **75.4%** achieved a **high level**, reflecting effective discharge planning, structured follow-up, and strong care coordination practices aimed at minimizing readmission risks. Meanwhile, **23.2%** fell within the **moderate level**, indicating notable gaps in discharge efficiency, especially in risk assessment and management of social determinants of health. Only **1.4%** scored **low level**, suggesting critical deficiencies in post-discharge planning and care continuity.

Table (5): Illustrates that there is positive correlation with positive statistical significance relation between all QI dimensions and LSCFI dimensions $P \leq 0.05$

Discussion

Quality improvement knowledge and positive attitudes among nurses play a critical role in enhancing healthcare outcomes. Nurses who possess a strong understanding of QI methodologies are more likely to implement evidence-based practices that lead to decrease readmission rate and length of stay **(Melnyk et al., 2018).** Knowledge of QI tools and methods—such as Plan-Do-Study-Act (PDSA)**.** Studies have shown that higher QI competency among healthcare staff is significantly associated with reduced hospital readmissions, shorter length of stay, and better discharge planning outcomes **(Jones et al., 2020 and Sherwood & Barnsteiner, 2021).**

Reducing hospital readmissions has become a global priority in modern healthcare systems, as it was directly linked to patient safety, care quality, and healthcare costs. Quality improvement (QI) knowledge and attitude of nursing professionals are increasingly recognized as essential strategies in minimizing avoidable readmissions and enhancing continuity of care **(Naylor et al., 2018)**. Nurses play a pivotal role in assessing patient needs, planning discharges, and coordinating post-discharge follow-up.

The present study aimed to assess nurse's knowledge and attitude toward QI and it's implication for health care outcome at Main Assiut University Hospital. This could be achieved through studying 285 nurses works at Main Assiut University Hospital. As revealed from the current study more than two thirds of nurses were female, aged between 25–35 years. More than half of nurses had less than 5 years of experience, the highest percentage of nurses' works at internal medical department.

This finding was consistent with **Aiken et al., (2012)**, who found that in hospital settings, especially in teaching hospitals, the nursing workforce is predominantly female and younger, which can positively affect adaptability and responsiveness to quality improvement activities. The present study result goes in the same line with **Twigg & McCullough (2014)** who highlighted that young nurses, especially those in high-dependency units like ICUs, are more likely to be engaged in. quality improvement activities.

Meanwhile, **Spetz et al., (2013)** was consistent with the present study findings as they found that while younger nurses are more technologically adept, the lack of deep clinical experience may negatively impact their ability to implement quality improvement tools effectively without continuous training.

From the findings of the current, study the highest mean score among QI dimensions for nurses' attitude toward QI**.** This might be attributed to nurses have intrinsic motivation to improve care delivery and their positive beliefs that QI contributes to patient safety.

Study findings concordant with **Grol & Grimshaw, (2013)**, who stated that attitude plays a pivotal role in adopting new practices in healthcare settings. They emphasized that nurses who believe in the value of QI are more likely to initiate changes even before mastering the technical skills. Also **Boonyasai et al., (2017)** agreed with the present study finding as they found that in hospitals with limited infrastructure, attitude is often the first barrier to fall before behavior or structural reforms can follow. They identified that healthcare providers' belief in QI leads to progressive adoption of tools and training.

Moreover, the study findings demonstrated that the highest mean score among the LSCFI dimensions related to social determinants of health**.** This might be attributed to nurses' awareness of the impact of social factors such as housing, income, and family support on health care outcomes and readmissions. These determinants are often more visible in patient histories, making them easier for nurses to identify and document during discharge planning.

This finding was consistent with **Andermann, (2016)** who highlighted that addressing social determinants reduce preventable readmissions. Additionally, finding concordant with **Naylor et al., (2018)** who emphasized that social context, particularly in older adults, significantly influences care transitions and readmission risk. They found that effective discharge planning must incorporate social support and community resource linkage. Also the current study concurrent with the study done by **Alderwick & Gottlieb, (2019)** who found that frontline providers increasingly recognize social determinants as crucial drivers of patient recovery and long-term outcomes.

From the findings of the current study, it was found that the highest percentage of the studied nurses had satisfactory knowledge levels regarding QI. This might be attributed to the fact that many nurses are still early in their careers. Most of their exposure likely comes from general orientation or in-service training rather than structured academic instruction.

This finding was consistent with **Berwick, (2019)** who indicated that awareness of QI concepts is often present among healthcare staff, but It rarely translates into detailed knowledge without active, case-based training and mentorship. This finding was inconsistent with **Garside, (2020)** who reported that recent updates in nursing education curricula across many developed countries have significantly improved student competence in QI methods and tools.

From the findings of the current study, less than two-thirds of the studied nurses demonstrated a positive attitude toward QI. This could be attributed to increased hospital focus on accreditation and safety programs, which emphasize the importance of QI in improving health care outcomes.

This finding was consistent with **Boonyasai et al., (2017)** who found that positive attitudes among staff were strongly associated with higher rates of engagement in QI training programs, particularly in hospitals seeking international accreditation or those undergoing internal transformation. Also the present study finding was consistent with **Patel et al., (2021)** who emphasized that a strong positive attitude among healthcare providers is one of the most important precursors to successful QI implementation, especially in settings where change requires active frontline participation

This finding was inconsistent with **Kaplan et al., (2012)** who argued that while attitude is a key enabler, it does not guarantee improvement unless accompanied by institutional support, leadership commitment, and the availability of appropriate tools and training infrastructure.

Moreover, the present study findings it appear that more than half of the nurses demonstrated satisfactory knowledge levels regarding QI tools and methods. This might be attributed to their exposure to hospital accreditation programs and participation in clinical audits, which familiarize them with essential QI instruments like root cause analysis and performance dashboards.

This finding was consistent with **Øvretveit, (2015)** who reported that when nurses are included in organizational QI activities and planning, their attitudes toward tools like PDSA cycles and checklists become more favorable over time. Also consistent with **Pisek, (2020**) who found that healthcare professionals working in high-demand environments develop they had satisfactory knowledge levels toward QI tools when these embedded in routine clinical decision-making. This finding was inconsistent with **Dlugacz, (2016)** who emphasized that the majority of studied participants had unsatisfactory knowledge level regarding quality tools and methods without deep technical understanding may result in superficial use of QI tools, often limited to compliance rather than innovation.

Findings of the present study showed that more than three quarters of nurses achieved a high level in managing patient discharge, structured follow-up, and coordinated care, while only a small proportion fell into the low level. From the researcher's perspective, these results may be might be attributed to ongoing investments in nurse training, implementation of standardized discharge protocols, and increased emphasis on patient-centered care within institutional settings. The presence of multidisciplinary care teams may also contribute to the high level of discharge efficiency and reduced readmission risks.

These findings are consistent with prior research. **Almalki et al., (2021)** emphasized the positive impact of nurse involvement in structured discharge processes on patient outcomes and quality of care. Similarly, **Brooten et al., (2012)** demonstrated that nurse-led transitional care significantly reduces hospital readmissions and improves patient satisfaction. **AbuAlRub et al., (2020)** further noted that effective nursing leadership and clear discharge procedures enhance care continuity, reduce service

fragmentation, and reduce hospital readmission and length of stay.

However, some studies report contrasting findings. **Lee & Kim, (2019)** found that many nurses faced challenges in delivering effective discharge planning due to staffing shortages, time constraints, and lack of institutional support. Likewise, **Kang et al., (2018)** identified insufficient training and weak interprofessional communication as barriers to optimal discharge and follow-up care, particularly in resource-limited environments.

This finding was consistent with **Naylor et al., (2018)**, who emphasized the role of nurses in leading effective discharge planning and coordinating follow-up care, both of which are crucial to minimizing avoidable readmissions. Also consistent with **Walraven et al., (2020)**, who noted that consistent nurse-led discharge interventions and patient education strategies significantly reduce hospital readmission rates, especially when nurses actively monitor and guide post-discharge plans.

The present findings demonstrate statistically significant positive correlations between various dimensions of QI including knowledge, attitudes, tools and methods, discharge planning, post-discharge follow-up, and risk assessment—and the Length of Stay Care Facility Index (LSCFI). From the researcher's perspective, this relationship may be attributed to the synergistic role of quality-driven practices in enhancing care transitions, improving discharge efficiency, and reducing unnecessary delays in patient flow.

These results aligned with previous studies. **Grol et al., (2017)** demonstrated that structured transitional care models implemented by trained nursing staff lead to better health care outcomes and efficient use of healthcare resources. Also **O'Connor et al., (2018)** emphasized that targeted QI strategies, including timely discharge planning and follow-up care, significantly reduce hospital stay duration and readmission rates. Similarly, **Goldfield et al., (2020)** found that improvement in data monitoring and patient-centered discharge processes enhances care quality and shortens hospital stays.

Conversely, some studies suggest a more nuanced or even limited effect of QI activities on hospital length of stay. For instance, **Brennan et al., (2015)** reported that although QI makes improvement in care processes, their impact on LOS varies depending on institutional context, resource availability, and the complexity of patient cases. Likewise, **Kansagara et al., (2016)** and **Rosa et al., (2022)** highlighted that without strong leadership and accountability structures, QI tools may have minimal effect on key outcomes such as LOS or readmission rates.

Conclusions:

The majority of nurses demonstrated satisfactory overall knowledge level regarding QI (86%), however, more than half of nurses 59.3% reported satisfactory knowledge level regarding QI tools and methods. Additionally, nearly two thirds of nurses 66.3% perceived a positive attitude toward QI dimensions. More than three quarters of nurses, 75.4% achieved a high level of LSCFI reflecting effective discharge planning, structured follow-up, and strong care coordination practices aimed at minimizing readmission risks. There is a positive correlation with statistical significance relation between all QI dimensions and length of stay, for care facility index dimensions $P \leq 0.005$.

Recommendations

1. Implementing training programs for nurses about quality improvement activities
2. Developing and implementing standardized discharge planning protocols.
3. Establishing clear follow-up care plans
4. Using patient's feedback and readmission rates to identify areas for improvement and adapt practices accordingly.
5. Further researches to assess quality improvement activities on cost reduction

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