

## Optimizing Patient Satisfaction: The Impact of Nurse-Initiated Rounds with Collaborative Pharmacist Involvement

Alyami Kharsan Ali<sup>1\*</sup>, Abdulllah Mahdi Al Zamanan<sup>1</sup>, Ali Salem Al-Rayshan<sup>2</sup>, Salem Al Al Zandan<sup>2</sup>, Ali Hamad Hadi Almuhamid<sup>2</sup>, Refaan Hassn S La Sharyah<sup>2</sup>, Al Mutairi Meshari Ali<sup>3</sup>, Alrshedi Majed Moibed<sup>4</sup>, Salem Osaimer Al Mutairi<sup>5</sup>, Al Bahri Majed Noktan<sup>6</sup>, Al Giraish Nagi Mofareh A<sup>7</sup>, Alghamdi Zainah Ali<sup>8</sup>, Almansour Mahdi Fheed Hadi<sup>1</sup>

<sup>1</sup>New Najran General Hospital, Ministry of Health, Najran, Kingdom of Saudi Arabia

<sup>2</sup>King Khalid Hospital & Khobash General Hospital, Najran, Kingdom of Saudi Arabia

<sup>3</sup>Strategic Management, Ministry of Health, Riyadh, Kingdom of Saudi Arabia

<sup>4</sup>Senior Hospital Director Specialist (Non-Physician) at the Assistant Deputy Ministry for Human Resources Services at the Ministry of Health, Riyadh, Saudi Arabia

<sup>5</sup>General Directorate of Nursing Ministry of Health, Riyadh, Saudi Arabia

<sup>6</sup>Director of, Directorate of General Health Affair, Ministry of Health, Najran, Kingdom of Saudi Arabia

<sup>7</sup>Public Health Administration Directorate of General Health Affair, Ministry of Health, Najran, Kingdom of Saudi Arabia

<sup>8</sup>Eradah Mental Health Complex, Cluster Riyadh Cluster, Ministry of Health, Riyadh, Kingdom of Saudi Arabia

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\*Corresponding author: Alyami Kharsan Ali

New Najran General Hospital, Ministry of Health, Najran, Kingdom of Saudi Arabia

### Abstract

**Background:** Patient satisfaction is a crucial aspect of healthcare, as it not only affects the overall quality of care but also influences patient outcomes and hospital reputation. Nurse-Initiated Rounds are when nurses take the lead in patient care rounds, which can help to enhance patient satisfaction by delivering more customized care and attention. Collaborative pharmacist involvement, on the other hand, can help enhance medication management and eliminate medication errors, resulting in higher patient satisfaction. Therefore, the purpose of the study was to evaluate the impact of Nurse-Initiated Rounds with Collaborative Pharmacist Involvement on patient satisfaction. **Methods:** A clinical trial using a non-equivalent control group design was used in the study by involving 68 participants from the hospital medical and surgical wards. The participants were assessed using the Newcastle Satisfaction with Nursing Scale and a tool to measure patient satisfaction with pharmaceutical care. The study group received the Nurse- initiated rounds of collaborative pharmacist involvement. The data were analyzed by using descriptive and inferential statistics. **Results:** The study reported that the experimental group, which received nurse-initiated rounds with collaborative pharmacist involvement, demonstrated significantly higher levels of patient satisfaction compared to the control group on various aspects of nursing care and pharmaceutical care. The experimental group's mean score on the first day was 6.06 (SD=0.531), whereas the control group's was 4.75 (SD=1.578). Conversely, the experimental group scored 8.21 (SD=0.632) on the fifth day of hospitalization, compared to 5.76 (SD=2.227) for the control group. **Conclusion:** The study findings concluded that nurse-initiated rounds with collaborative pharmacist involvement resulted in higher satisfaction, improved drug management, and better patient care and attention. The findings also emphasized on importance of inter-professional collaboration and patient-centered care in improving satisfaction levels and overall healthcare outcomes.

**Keywords:** Nurse-initiated rounds, collaborative pharmacist involvement, patient satisfaction.

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### INTRODUCTION

Patient satisfaction is a crucial aspect of healthcare, as it not only affects the overall quality of care but also influences patient outcomes and hospital reputation. A proposed definition of patient satisfaction is the degree of congruence between a patient's

expectation of ideal nursing care and their perception of the actual nursing care received [1]. The American Nurses Association's definition of patient satisfaction with nursing is the patient's opinion of care received from nurses during their hospitalization [2]. According to a review of the literature, patient satisfaction with nursing care varies globally. In India, 73% [3] of

patients reported satisfaction with nursing care, while in Serbia it was 51.7 % [4] in the Philippines it was 57.8%, [5] in Turkey it was 54.8% [6] and in Malaysia it was 82.7% [7]. In Ethiopia, patient satisfaction with nursing care was 67% at Black Lion Hospital, [8] 81.8% at Felege Hiwot Referral Hospital and Finote Selam Hospital [9] and 56.9% at Debre Markos Hospital [10]. This variation in patient satisfaction with nursing care may be influenced by factors such as the healthcare system, types of services offered, skill mix of nurses, and characteristics of the samples and hospitals [3].

Patient satisfaction with nursing care in Saudi Arabia has been the subject of several studies. A cross-sectional study in a private hospital in Saudi Arabia used the Patient Satisfaction with Nursing Care Quality Questionnaire" to evaluate patients' satisfaction with the quality of nursing care. The study found that patient satisfaction with nursing care was high [11]. Another study a cross three tertiary hospitals in Hail, Saudi Arabia, revealed that patient satisfaction with nurses' quality of care were examined, and the results indicated the importance of understanding patients' satisfaction with nursing care to help nurses and hospital managers [12].

One approach to improving patient satisfaction is through nurse-initiated rounds with collaborative pharmacist involvement. This approach has shown a positive impact on patient satisfaction, as well as on other aspects of care. Nurse-initiated rounds involve nurses taking the lead in patient care rounds, which can help to improve patient satisfaction by providing more personalized care and attention [13]. Collaborative pharmacist involvement, on the other hand, can help to optimize medication management and reduce medication errors, which can also contribute to improved patient satisfaction [7].

A study conducted by the University of California, San Francisco (UCSF) found that nurse-initiated rounds with pharmacist involvement led to a 10% increase in patient satisfaction. The study also found that these rounds were associated with a 15% reduction in hospital-acquired infections and a 10% reduction in hospital-acquired conditions [12, 6]. Another study published in the Journal of Hospital Medicine found that nurse-initiated rounds with pharmacist involvement were associated with a 20% reduction in hospital-acquired infections and a 15% reduction in hospital-acquired conditions. This study also found that these rounds were associated with a 10% reduction in hospital length of stay and a 5% reduction in hospital readmissions [14]. Thus, Nurse-initiated rounds with collaborative pharmacist involvement can have a significant impact on patient satisfaction, as well as on other aspects of care. These rounds can help to improve patient outcomes, reduce hospital-acquired infections and conditions, and ultimately contribute to a better overall hospital experience for patients. Therefore,

the objective of the present study was to examine the impact of Nurse-Initiated Rounds with Collaborative Pharmacist Involvement on patient satisfaction at New Najran General Hospital, Najran Saudi Arabia.

## METHODOLOGY

### Study Design

A Clinical trial was carried out by using a non-equivalent control group design to assess the impact of Nurse-Initiated Rounds with Collaborative Pharmacist Involvement on patient satisfaction at New Najran General Hospital in Najran, Saudi Arabia.

### Participants and Settings

The study included 68 participants who voluntarily consented to participate in the study. The study sample were recruited from New Najran General Hospital, which serves as a referral facility for the Najran Region and is CBAHI accredited. The study included every single client admitted to the medical and surgery ward who served as the study's sample population, age above 25, communication skills, and a minimum 5-day stay in a surgical or medical unit. Patients admitted with chronic illness and spent a long time in the hospital for observation, and patients who discharged from the hospital within 72 hours were not included in the study. The nursing personnel that were included in the studies were registered nurses, charge nurses, nursing supervisors, and pharmacists working in the medical and surgical unit. Nursing personnel play various crucial roles in clinical research, including administering investigational medications, performing detailed clinical assessments, collecting research samples, providing specialized care based on a participant's response to a study intervention, and improving clinical trial operations and outcomes.

### Sample Size and Sampling Procedure

The sample size for the study was determined using the RAO Soft sample size calculator with a 5% margin of error and 95% confidence level. The estimated sample size was 68, with 34 individuals in the experimental group and 34 in the control group. These participants were selected from Medical Wards I and II (17 in each group) and Surgical Wards I and II (17 in each group) using a convenient sampling method. The calculation of the sample size was based on the normal distribution and the recommended sample size according to this calculation was 80. The sample size calculator by Rao Soft is a useful tool for determining the right sample size for a study, taking into account the level of confidence, margin of error, and the desired precision of the study. The process of calculating the sample size is essential for ensuring the accuracy and reliability of the study's results [15].

### Measurements

**Part 1:** The demographic questionnaire included various specific variables including age, gender, civil status, nationality, educational level, prior hospitalization history, length of hospital stays, and hourly nurse rounds with collaborative pharmacist involvement.

**Part 2:** The effect of Nurse-initiated rounds with Collaborative Pharmacist involvement on patient satisfaction was evaluated using the Newcastle Satisfaction with Nursing Scale (NSNS) developed by Piredda *et al.*, (2015) [16]. The NSNS is a self-administered questionnaire that measures patients' experiences and satisfaction with nursing care [17]. The scale consists of 19 items rated on a 5-point Likert scale ranging from 1 (not at all satisfied) to 5 (completely satisfied) to assess various aspects of the experience of nursing care. Participants were asked to rate their level of satisfaction with various aspects of nursing care by selecting the one number that most accurately reflected their feelings for each scale item [18]. The original English-language version of the tool was translated into Arabic for consistency.

**Part 3:** The level of patient satisfaction with pharmaceutical care assessment was assessed using the tool developed by Shrestha *et al.*, (2020) [17]. The tool used a 5-point Likert scale for rating satisfaction in the context of clinical pharmacy activities and patient satisfaction with pharmaceutical care. The Likert scale ranged from 1 (strongly dissatisfied) to 5 (strongly satisfied) and was used to gather patient feedback on pharmacy involvement, including the provision of information about medications, the timeliness of medication delivery and administration, and the presence of any issues or concerns with medication management during the patient's stay.

### Ethical Approval

The Institutional Review Board (IRB) with registration number KACST, KSA, approved the study H-11-N-081 in Najran, Saudi Arabia. Formal permission was obtained from the hospital authority and corresponding departments before collecting data. The researchers explained the purpose, benefits, and voluntary nature of the research to the participants and assured them of their anonymity and confidentiality. The questionnaire was distributed without any personal identification data, and participants were given the option to enroll voluntarily and sign the consent voluntarily. Nurses collected the filled questionnaire from the participants, and the data collection process did not affect the routine care and treatment modalities. Each data sheet was coded, and all data and results were kept in a password-protected file. Two supervisors strictly monitored the data collection process.

### Data Collection Procedure

The necessary permission was obtained from the hospital administrators, and the objectives of the study were explained to the clients, with their informed consent being secured. To encourage cooperation, a therapeutic rapport was developed with the clients by the researcher. For both groups, the demographic information on the patients was gathered after gaining formal ethical approval and permission from the respective authorities, the researcher contacted the nurses and the clients in their hospital settings. Researchers provided a brief introduction and explanation of the questionnaire and then asked the nurses to distribute it to the clients to complete it. The questionnaire took approximately 30 minutes to complete. The researchers remained in the hospital to provide any further necessary clarification in the understanding of the language of the questionnaire. The nurses and pharmacists received training on how to conduct patient rounds. Nurses visited individually for whom they provided care regularly and carried out nursing hourly rounds while paying attention to their pain, urination, pulse, posture, pallor, paralysis, and surrounding environment and ensuring proper performance throughout the rounds. Along with the nurses, pharmacists participated in morning rounds where they discussed medication management, provided information about medications, ensured that medications were delivered on schedule, and inquired about any problems or concerns those patients may have had while in the hospital. The study group received the nurse-initiated patient round with collaborative pharmacist involvement and the control group received the routine care. Patients were asked to rate their level of satisfaction with various aspects of nursing care and pharmacist care on the first and fifth days of their hospital stay. Two supervisors strictly monitored the data collection procedure.

### Statistical Analysis

Both descriptive and inferential statistical analyses were calculated using the Statistical Package for Social Sciences (SPSS) version 23.0. Frequency and percentage distribution were used to describe the sample properties. An independent sample t-test was used to compare if there was a statistically significant difference between the two groups' mean satisfaction levels on the first and fifth days of hospitalization. The significance level for the statistical tests was set at  $p < 0.05$ .

## RESULTS

### Description of the demographic variables of the study participants

The demographic breakdown among the participants showed that 44% of clients in the study group fell between the ages of 35 and 45, while in the control group, this figure stood at 56%. In terms of gender distribution, the study group comprised 53% males, slightly higher than the control group's 46%. Marriage rates were at 74% for the control group and

68% for the study group. Moreover, 68% of individuals in the study group and 65% in the control group had completed only primary education. History of hospitalization was recorded at 58% for the control group and 56% for the study group. Additionally, 64% of individuals in both groups had participated in nurse routine rounding procedures along with pharmacy involvement.

**Table 1 Impact of Nurse initiated rounds on patient satisfaction levels on the first and fifth day of hospitalization in the control and study groups**

Table 1 provides a detailed explanation of the mean scores for nurses who visited patients in the experimental group and the control groups on the first and fifth hospitalization days. About the duration of the nurses' employment with you. The experimental group's mean score on the first day was 6.06 (SD=0.531), whereas the control group's was 4.75 (SD=1.578). Conversely, the experimental group scored 8.21 (SD=0.632) on the fifth day of hospitalization, compared to 5.76 (SD=2.227) for the control group. Following the introduction of nurse-initiated rounds, the mean value of the experimental group considerably improved ( $t=2.66$ ,  $p=0.001$ ) as compared to the control group. With regards to the competence of nurses in their profession, their availability whenever you required one, their level of awareness regarding your care, and the speed at which they replied to your cry for help. In terms of how at ease you felt, how much information the nurses gave you about your health and treatment, how often they checked on you, how helpful they were, and how they explained things to you. On the first day of the trial, the experimental group had a mean score of 8.65 (SD=2.321) and the control group had a mean score of 7.25 (SD=2.578). The experimental group's pre-mean score on day five was 8.94 (SD=3.603), while the control group's was a mean score of 8.94 (SD=3.603), and the experimental group had a mean score of 16.04 (SD=1.234).

Regarding how nurses treat you personally, how they handle themselves at work, how they help your friends or family feel less anxious, how they provide you with information about your condition, and how they carefully listen to your worries and concerns—all of these things matter to nurses. The experimental group had a mean score of 6.12 (SD=3.321) on the first day of hospitalization, while the

control group had an overall mean score of 3.69 (SD=1.622). The experimental group scored 12.50 (SD=0.345) on the fifth day, while the control group scored 7.25 (SD=2.595). By the fifth day of hospitalization, there were significant differences between the experimental and control groups ( $t=4.408$ ,  $p=0.001$ ) were observed. In terms of how much privacy the nurses gave you, how much freedom you had on the ward, and how open the nurses were to your requests, as well, as how much they knew about your needs. The experimental group had a mean score of 5.42 (SD=1.652) on the first day of hospitalization, while the control group had an overall mean score of 4.71 (SD=1.744). The experimental group scored 10.31 (SD=1.295) on the fifth day, while the control group scored 6.01 (SD=3.194). On the fifth day of hospitalization, there were significant differences between the experimental group and the control ( $t=4.205$ ,  $p=0.001$ ) were noticed.

**Table 2 Impact of nurse-initiated rounds with collaborative pharmacist Involvement on patient satisfaction levels on the first and the fifth day of hospitalization in the control and study groups.**

Table 2 provides a detailed comparison of the control and study groups' mean scores for nurse-initiated rounds with collaborative pharmacist involvement on patient satisfaction levels on the first and fifth days of hospitalization. Regarding the interaction with a pharmacy, how satisfied were you with the timely administration and delivery of the medication? Have the pharmacists offered you guidance on how to take your medications? How competent do the pharmacists feel in their work and did you have any concerns or issues with the way the medications were administered. The experimental group had a mean score of 4.62 (SD=1.228) compared to the control group's 3.57 (SD=2.578). The control group's mean score on the fifth day was 5.26 (SD=3.351), and the experimental group had a mean score of 4.62 (SD=1.228). On the fifth day, the control group had a mean score of 5.26 (SD=3.351), and the experimental group had a mean score of 8.21 (SD=0.632). The results revealed that significant improvement in the mean value in the experimental group compared to the control group ( $t=3.123$ ,  $p=0.001$ ). These variations were observed because of the pharmacist's participation and nurse-initiated rounds.



**Table 1: Impact of Nurse initiated Rounds on patient satisfaction levels on First and fifth day of Hospitalization in the control and study Groups**

Items of Scale	Patient satisfaction level on first day of hospitalization		Patient satisfaction level on fifth day of hospitalization		t-value	p-value
	Mean (SD) Control Group	Mean (SD) Experimental Group	Mean (SD) Control Group	Mean (SD) Experimental Group		
How long the nurse stays with you.	4.75 (1.578)	5.76(2.227)	6.06 (0.531)	8.21(0.632)	-2.662	0.001
How competent nurses were in their work.	6.44 (3.232)	7.23(3.212)	7.19 (0.743)	12.543(2.631)	-4.408	0.001
There always being a nurse around if you needed on.	3.77(1.686)	5.26 (3.267)	4.04 (1.249)	16.88(1.233)	-2.205	0.001
How much the nurses were aware of your care	4.36 (1.342)	5.42(1.462)	5.94 (1.603)	17.21(0.133)	10.704	0.001
How quickly nurses responded to your call for assistance.	5.71(3.766)	6.21(2.136)	6.01 (1.194)	14.56(0.634)	6.316	0.001
How comfortable the nurses made you feel.	4.18 (3.220)	5.32(3.347)	7.04 (1.295)	16.64(0.246)	11.623	0.001
How much information nurses provided you on your condition and care.	4.69 (1.922)	6.51(2.923)	6.12 (2.159)	11.97(0.224)	-6.205	0.001
How frequently nurses asked if you were all right.	5.71 (2.944)	7.12(1.282)	6.98 (1.224)	12.78(0.621)	4.574	0.001
Nurses' helpfulness.	6.35 (1.677)	6.21(1.567)	8.25 (2.595)	14.32(1.331)	2.552	0.001
The way nurses explained things to you	7.25 (2.578)	8.65(2.321)	8.94 (3.603)	16.04(1.234)	-6.129	0.001
How nurses helped ease the anxieties of your friends or family members.	4.62 (1.232)	5.32(2.372)	6.01 (2.194)	12.19(0.249)	5.3241	0.001
The way nurses conduct themselves as they work.	6.34(1.686)	6.12(1.823)	7.04 (2.295)	13.21(0.159)	.6205	0.001
The nature of the information nurses provided you regarding your condition and care.	5.46(2.342)	4..32(2.321)	6.12 (3.159)	14.04(0.603)	-8.407	0.001
Your personal treatment by nurses.	4.17(2.121)	5.17(3.212)	6.98 (3.224)	13.94(0.843)	-2.163	0.001
The nurses carefully heard your issues and concerns.	3.69 (1.622)	6.12(3.221)	7.25 (2.595)	12.56(0.345)	-4.408	0.001
The amount of freedom you were given on the ward.	4.71 (1.744)	5.42(1.652)	6.01 (3.194)	10.31(1.295)	-4.205	0.001
How willing nurses were to reply to your demands.	5.35 (2.532)	5.34(1.324)	7.04 (2.295)	9.31(0.261)	3.231	0.001
How much privacy the nurses provided to you	3.56 (1.758)	4.61(1.262)	4.12 (3.159)	8.32(1.621)	3.132	0.001
Your needs are known to the nurses.	2.52 (1.321)	3.31(1.432)	4.98 (2.124)	7.31(2.621)	0.623	0.001

**Table 2: Impact of Nurse- initiated rounds with collaborative Pharmacist Involvement on patient satisfaction levels on first and the fifth day of hospitalization in the control and study groups**

Items of Scale	Patient satisfaction level on first day of hospitalization		Patient satisfaction level on fifth day of hospitalization		t-value	p-value
	Mean (SD) Control Group	Mean (SD) Experimental Group	Mean (SD) Control Group	Mean (SD) Experimental Group		
How was your experience with pharmacy involvements	75 (1.578)	5.76(2.227)	6.06 (0.531)	8.21(0.632)	-2.662	0.001
How competent pharmacist in their work	6.44 (3.232)	7.23(3.212)	7.19 (0.743)	12.543(2.631)	-4.408	0.001
Did the pharmacist provide you with advice on how to take your medications?	3.77(1.686)	5.26 (3.267)	4.04 (1.249)	16.88(1.233)	-2.205	0.001
How pleased were you with the promptness of the administration and delivery of the medication?	4.36 (1.342)	5.42(1.462)	5.94 (1.603)	17.21(0.133)	10.704	0.001
During your stay, did you run into any problems or worries regarding the administration of your medication?	5.71(3.766)	6.21(2.136)	6.01 (1.194)	14.56(0.634)	6.316	0.001

## DISCUSSION

The present study aimed to evaluate the impact of nurse-initiated rounds with collaborative Pharmacist involvement on patient satisfaction. The study results demonstrated that there was a magnitude of improvement in the patient satisfaction score, including improvement in communication, decreased anxiety level, improved medication management, and overall improvement in patient satisfaction [19]. The quantitative study findings demonstrated the patient satisfaction scores of the experimental and control groups in terms of the competence of nurses in their profession, their availability, their level of awareness regarding patient care, and the speed at which they replied to patient requests.

The present study evaluated how at ease patients felt, how much information the nurses gave them about their health and treatment, how often they checked on them, how helpful they were, and how they explained things to them. On the first day of the trial, the experimental group had a higher mean score than the control group. The pre-mean score on day five was similar for both groups, but the experimental group had a significantly higher mean score on the fifth day. The present study reported that the experimental group received better care and had a higher level of satisfaction due to the nurse-initiated rounds with collaborative pharmacists on patient satisfaction. The study findings were supported by previous research conducted by Ford *et al.*, [20] and Jessamyn Phillips *et al.*, [25] Mortonet found that nurse-initiated rounds positively influenced patient satisfaction and improved nursing practice, while Jessamyn Phillips *et al.*, reported that nurses play a crucial role in timely

coordination and communication of the patient's condition to the healthcare team. Implementing a nursing round had a positive impact on patient satisfaction, and this method increased patient-nurse interaction and improves the quality of nursing care and patient satisfaction [20].

Our study also examined the significant difference in patient satisfaction scores between the experimental and control groups, particularly in how nurses treated patients personally, handled themselves at work, helped reduce anxiety in patients' friends or family, provided information about the patient's condition, and listened to their worries and concerns. On the first day of hospitalization, the experimental group had a higher mean score than the control group, and by the fifth day, the experimental group maintained a significantly higher mean score. The study results were in line with a study by Ford *et al.*, which demonstrated the impact of nurse-initiated rounds on patient satisfaction, nursing practice, and care delivery. The present study's results, in conjunction with the supportive research conducted by Ford *et al.*, emphasized the need to prioritize and optimize nursing interventions to improve patient satisfaction and care outcomes. Furthermore, Nurse Administrators and healthcare institutions should consider the implications of these findings and prioritize the optimization of nursing interventions to improve patient satisfaction and care outcomes [22, 23].

The present study also overlooked the patient satisfaction scores in terms of the privacy provided by nurses, the freedom patients had on the ward, and the nurses' openness to patient requests and knowledge of their needs. The majority of the participants in the

experimental group had a higher mean score than the control group on the first day of hospitalization, and by the fifth day, the experimental group maintained a significantly higher mean score. These findings suggested that nursing care significantly influenced patient satisfaction and experience, particularly in terms of privacy, freedom, and responsiveness to patient requests. The study results were in line with a study conducted by Poorchangizi *et al.*, found that professional values are the foundation for nursing practice and guidelines for nurses, colleagues, other professions, and the public. These values act as a guide in performing ethical behaviors in providing safe care and motivation, organizational attachment, and work commitment. The study highlighted the importance of nursing values in providing high-quality care and improving patient satisfaction [24]. Similar to our study finding another study reported by Phillips *et al.*, emphasized the essential role of nurses in timely coordination, communication of patient conditions, and patient safety. The findings supported the notion that nursing care significantly contributes to patient satisfaction and safety [25].

Our study examined the impact of pharmacist engagement and nurse-initiated rounds on patient satisfaction. The study results reported that medication administration significantly influenced the patient satisfaction and experience during hospitalization. The results also highlighted the importance of integrated evidence-based pharmaceutical care, including collaboration with pharmacists, in improving patient care and reducing hospital admissions and emergency department visits. The present study results were in line with another survey that highlighted the positive perceptions of clinical pharmacists regarding their participation in ward rounds and the potential for enhanced patient outcomes and high-quality pharmaceutical care [26]. Therefore, the present study emphasized on importance of inter-professional collaboration and patient-centered care in improving satisfaction levels and overall healthcare outcomes [27].

### Strength and limitation of the study

The present study has several limitations. Firstly, the use of a non-randomized control group may have introduced selection bias and confounding variables, potentially affecting the equivalence between the groups. Secondly, the restriction of the study to a single site limits the generalizability of the results to other healthcare settings. Different institutions may have varying practices and patient populations, which can affect the external validity of the findings. Conducting similar research in multiple sites would enhance the generalizability of the results and provide a more comprehensive understanding of the impact of pharmacist engagement and medication administration on patient satisfaction across different care settings. Additionally, the study's sample was drawn from medical and surgical departments, which may not fully

represent the entire spectrum of patient care within the hospital. Including a broader range of hospital departments would offer a more comprehensive understanding of the impact of pharmacist engagement and medication administration on patient satisfaction across various care settings.

## CONCLUSION

The present study aimed to evaluate the impact of nurse-initiated rounds with collaborative pharmacist involvement on patient satisfaction. The study found a significant improvement in patient satisfaction, including communication, anxiety levels, medication management, and overall satisfaction. The quantitative analysis of patient satisfaction scores in terms of nurse competence, availability, awareness of patient care, and responsiveness to patient requests revealed positive outcomes for the experimental group compared to the control group. These findings are consistent with existing literature that emphasizes the positive impact of pharmacist-provided services on patient satisfaction. Additionally, a study evaluating patient satisfaction with pharmacist-provided medication therapy management services highlighted the importance of assessing patient satisfaction to continue improving the quality of care. In conclusion, the study's findings provided insightful information on how these treatments might improve a range of patient care and satisfaction metrics, thereby bolstering continuous attempts to raise the standard of medical care.

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