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Article

Knowledge, awareness and barriers to implementing the nursing process among nurses at a tertiary hospital in Dhaka, Bangladesh

Zobaida Khatun[1*] and Mostofa Kamal Chowdhury[2]

[1]Graduate Nursing Department, Bangladesh Medical University, Dhaka-1000, Bangladesh
[2]Department of Palliative Medicine, Bangladesh Medical University, Dhaka-1000, Bangladesh

*Corresponding author: Zobaida Khatun, Graduate Nursing Department, Bangladesh Medical University, Dhaka-1000, Bangladesh. E-mail: zobaida_r@bsmmu.edu.bd

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Abstract: The Nursing Process (NP) is a structured, patient-centered framework essential for delivering systematic and high-quality nursing care. Despite its global acceptance, its implementation remains inconsistent in low-resource settings such as Bangladesh, where a persistent gap exists between theoretical knowledge and clinical practice. This study aimed to assess nurses' knowledge of the nursing process and identify factors influencing its implementation in a tertiary care hospital in Dhaka. A cross-sectional study was conducted among 195 nurses between April and June 2024 using a structured, interviewer-administered questionnaire covering socio-demographic characteristics, knowledge of the nursing process, and perceived barriers to its implementation. Data were analyzed using descriptive statistics and chi-square tests, with statistical significance set at $P < 0.05$. The mean age of participants was 29.62 ± 5.28 years, and most were female (85.60%). More than half held a BSc in Nursing (53.30%), and 83.63% had 1–10 years of experience, while 16.37% had 11–20 years of experience. Although 51.79% reported excellent knowledge of the nursing process and 68.21% gained knowledge during college lectures, only 22.56% received adequate training after qualification, and none (100%) reported implementing the NP in clinical practice. Knowledge was significantly associated with age (χ^2=7.66, P=0.006), education (χ^2=6.27, P=0.012), and experience (χ^2=8.61, P=0.003), but not with gender or religion. Major barriers included lack of specific training for applying the nursing process (81.54%) and absence of a standardized nursing process documentation format (77.95%), followed by inadequate administrative follow-up (72.31%), lack of institutional education (68.72%), and cultural belief influence (69.74%). Additional barriers included inadequate skills (60.51%), insufficient information (54.87%), and insufficient motivation (47.69%). No significant association was found between demographic variables and perceived barriers, although a borderline association was observed with age (χ^2=3.43, P=0.064). The study concludes that despite moderate theoretical knowledge, the nursing process is not implemented in practice due to systemic and organizational barriers. These findings highlight the need for urgent policy-level interventions, including structured nursing process training, standardized documentation systems, and stronger institutional supervision to improve translation of knowledge into practice. Strengthening training and institutional support is essential to bridge the gap and enhance nursing care quality.

Keywords: nursing care; scientific application; barriers to application; personal factors; institutional factors

1. Introduction

The Nursing Process (NP) is a structured, patient-centered framework widely used to guide clinical nursing care across healthcare settings. It provides a systematic approach to identifying, preventing, and managing patient health problems while promoting overall well-being (Mbithi *et al*., 2018; Rajabpoor *et al*., 2018). Conceptually rooted in the work of Ida Jean Orlando, the NP has evolved into a five-step model comprising assessment, diagnosis, planning, implementation, and evaluation, forming the foundation of evidence-based nursing practice (Adraro and Mengistu, 2020; Tamata and Mohammadnezhad, 2023). The World Health Organization recognizes it as a core problem-solving method that enhances care quality and professional accountability in nursing practice (Hants *et al*., 2023; Jamal *et al*., 2023). Despite its global recognition, the consistent implementation of the Nursing Process in clinical practice—its transition from theoretical nursing education—remains inadequate in many healthcare systems, particularly where institutional capacity, staffing adequacy, and professional development opportunities are limited, thereby compromising the continuity and quality of patient care.

Despite its global acceptance, the implementation of the NP remains inconsistent, particularly in low- and middle-income countries. Evidence suggests that both individual and organizational barriers significantly hinder its effective application. Individual-level barriers include inadequate knowledge, limited clinical competence, low motivation, and poor interprofessional collaboration (Rajabpoor *et al*., 2018; Tayyib and Alsolami, 2026). Organizational constraints such as workforce shortages, high staff turnover, lack of standardized documentation systems, insufficient training, and weak policy enforcement further impede implementation (O'Cathain *et al*., 2019; Yilak *et al*., 2022; Hants *et al*., 2023). These organizational issues, compounded by limited managerial enforcement of nursing standards, inadequate supervision, and the absence of structured continuing education programs, collectively widen the gap between nursing theory and clinical practice.

In Bangladesh, the integration of the NP into routine nursing practice remains suboptimal. While some private and corporate healthcare institutions demonstrate partial adoption, public and autonomous hospitals often lag behind due to systemic limitations and resistance to practice change (Jamal *et al*., 2023). This gap between theoretical knowledge and clinical implementation raises concerns about the quality and consistency of patient care. In tertiary healthcare settings, where patient load is high and nursing resources are often constrained, the lack of standardized application of the nursing process results in inconsistent documentation, fragmented care delivery, and reduced adherence to evidence-based nursing practice. Understanding nurses' knowledge of the NP and identifying barriers to its implementation is therefore critical to strengthening nursing practice and improving patient outcomes (Agbonjinmi *et al*., 2022; Smith, 2022).

Although the NP is fundamental to delivering standardized and high-quality nursing care, its implementation in tertiary healthcare settings in Bangladesh remains inconsistent and inadequately explored. There is limited empirical evidence assessing nurses' knowledge and the multifaceted barriers to NP implementation in this context, which restricts evidence-based policy and practice improvements. This represents a critical evidence gap in understanding how individual competencies, institutional readiness, and organizational support systems collectively influence the adoption of the nursing process in real clinical environments.

The study is guided by the following research questions, what is the level of nurses' knowledge regarding the nursing process in a tertiary hospital in Dhaka; what are the key individual, organizational, and institutional factors influencing its implementation; whether there is any significant association between nurses' socio-demographic characteristics and their knowledge of the nursing process; and whether there is any significant association between socio-demographic characteristics and perceived barriers to the implementation of the nursing process among nurses. The study is guided by the following hypotheses, there is no statistically significant association between nurses' socio-demographic characteristics and their knowledge of the nursing process in a tertiary hospital setting; and there is no statistically significant association between nurses' socio-demographic characteristics and perceived barriers to the implementation of the nursing process in the same setting.

The main objective of this study is to assess nurses' knowledge of the nursing process and identify factors influencing its implementation in a tertiary hospital in Dhaka. The specific objectives are to describe nurses' socio-demographic characteristics, evaluate their level of knowledge regarding the nursing process, identify key barriers to its implementation, and examine the associations between socio-demographic characteristics, knowledge level, and perceived barriers among nurses.

2. Materials and Methods

2.1. Ethical approval

Ethical approval for this study was obtained from the Institutional Review Board (IRB) of Bangladesh Medical University (approval No.: BSMMU/2023/4331; Date: 28.03.2023). Administrative permission was also secured from the hospital authority prior to data collection. Participants provided written informed consent after a full explanation of the study's purpose, procedures, risks, and benefits. Participation was voluntary, and confidentiality, anonymity, and the right to withdraw at any stage were ensured, in accordance with the principles of the Declaration of Helsinki.

2.2. Study area, period, design, and participants

This descriptive cross-sectional study was conducted at Bangladesh Medical University Hospital, a tertiary-level teaching hospital in Dhaka, Bangladesh (Figure 1). Between April and June 2024, a total of 195 nurses working in Blocks C, D, and the Cabin wards were recruited using a convenience sampling technique. Data were collected from eligible nurses who were present during the study period and directly involved in patient care.

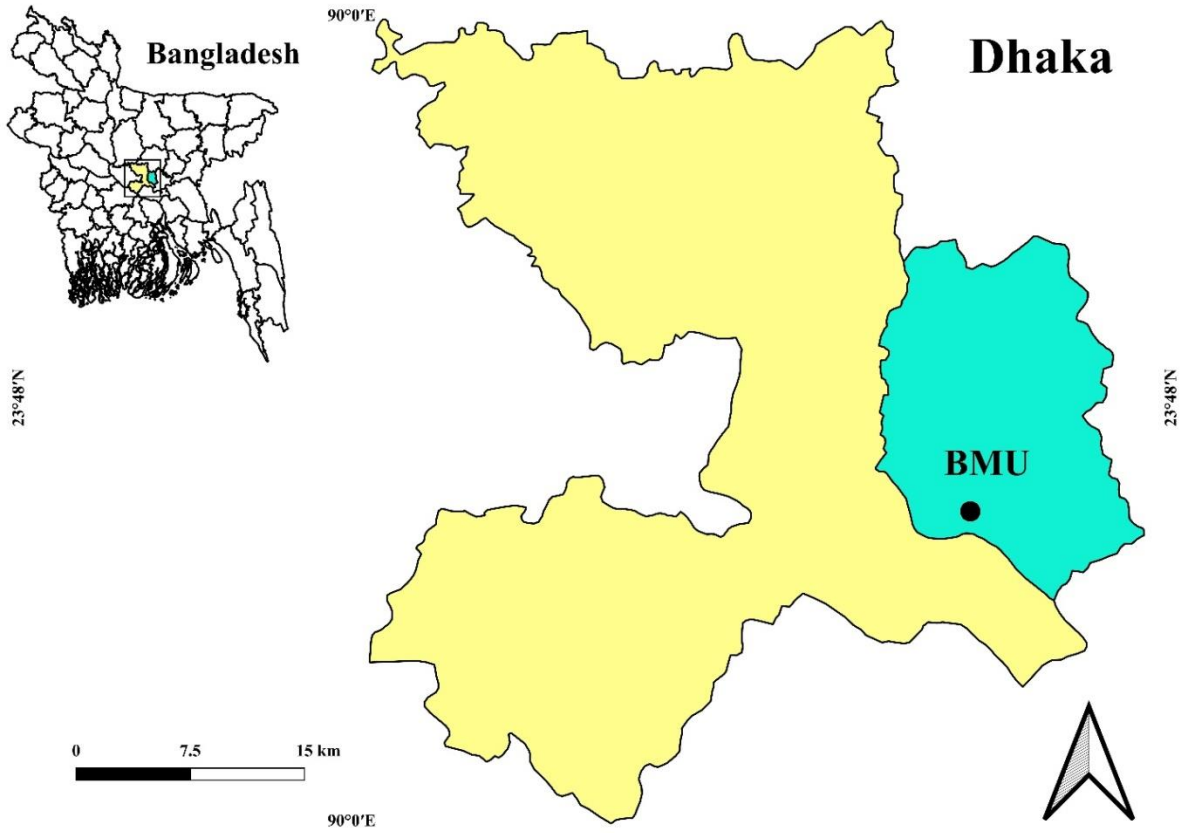

Figure 1. Study site (BMU=Bangladesh Medical University).

2.3. Inclusion criteria

Nurses were included in the study if they were currently directly involved in patient care, present during the data collection period, and willing to provide informed consent; those on leave during the study period were excluded.

2.4. Instruments of the study

Data were collected using a semi-structured, interviewer-administered questionnaire, which was adapted from previously validated tools used in similar studies assessing nursing process knowledge and implementation barriers (Rajabpoor *et al*., 2018; Yilak *et al*., 2022; Jamal *et al*., 2023). The instrument was reviewed for content validity and contextual relevance prior to data collection. The questionnaire consisted of three sections: (i) Socio-demographic characteristics (age, gender, working area, educational level, years of experience, and implementation status of the nursing process), (ii) Knowledge of the nursing process, and (iii) Factors affecting the implementation of the nursing process.

2.5. Study variables and measurement procedures

2.5.1. Knowledge of the nursing process

Knowledge was measured using a structured questionnaire comprising 13 dichotomous items (Yes = 1, No = 2). To ensure scoring consistency, two negatively worded items were reverse-coded during data analysis. The total possible score ranged from 13 to 26, with higher scores indicating poorer knowledge of the nursing process. Participants were then categorized based on their mean score: those scoring below the mean were classified as having good knowledge, while those scoring at or above the mean were classified as having average or poor knowledge.

2.5.2. Factors affecting implementation

Barriers to implementing the nursing process were assessed using 18 dichotomous items (Yes = 1, No = 2). Thirteen of these items were negatively worded and reverse-coded during analysis. The total score ranged from 18 to 36, with higher scores reflecting greater perceived barriers. Participants scoring below the mean were categorized as having low barriers, while those scoring at or above the mean were classified as having high barriers.

2.6. Data management and statistical analysis

Data were checked for completeness, coded, and entered into IBM SPSS Statistics (version 26.0) for analysis. Prior to analysis, data cleaning and validation were performed. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize socio-demographic variables, knowledge scores, and factors affecting implementation. Knowledge and barrier scores were treated as continuous variables, and categorical groupings were created where appropriate based on score distributions. Inferential analysis was conducted to examine associations between socio-demographic variables and key outcomes (knowledge level and implementation status). The chi-square (χ^2) test was applied to assess relationships between categorical variables. A *P*-value of <0.05 was considered statistically significant.

3. Results

3.1. Socio-demographic characteristics of the study participants

A total of 195 nurses participated in the study, with a mean age of 29.62 ± 5.28 years, reflecting a relatively young workforce. Most participants were female (85.60%), Muslim (83.10%), and had 1–5 years of experience (56.80%). Educational qualifications included a BSc in Nursing for 53.30% and a Diploma for 41.00%. Notably, none of the nurses (100%) reported implementing the nursing process in patient care, indicating a complete absence of this practice in the study setting (Table 1).

Table 1. Distribution of nurses by socio-demographic characteristics (n=195).

Variables		Percentage (%)	Mean±SD
Age (years)			29.62±5.28
Sex			
	Male	14.40	
	Female	85.60	
Education			
	Diploma in Nursing	41.00	
	BSc in Nursing	53.30	
	MSc/MPH	2.60	
	Others	3.10	
Religion			
	Muslim	83.10	
	Hindu	12.30	
	Christian	4.60	
Working experiences in years			
	1- 5	56.80	
	6- 10	26.83	
	11-15	7.96	
	16 - 20	8.41	

Table 1. Contd.

Variables	Percentage (%)	Mean±SD
Working department		
Surgery	12.20	
Medicine	73.00	
Cabin block	14.80	
Implementation nursing process in patient care		
Yes	0	
No	100	

SD=Standard deviation; BSc=Bachelor of Science; MSc=Master of Science; MPH= Master of Public Health

3.2. Knowledge on the nursing process

Overall, 51.79% of nurses reported excellent knowledge of the nursing process, with 68.21% indicating they gained this knowledge through college lectures. However, only 35.90% reported an increase in knowledge after qualification, and just 22.56% reported adequate knowledge through seminars or training. While 52.30% reported adequate knowledge to implement all steps of the nursing process, knowledge across specific components varied. Specifically, 65.13% knew the assessment step, 57.44% knew the planning and evaluation steps, 54.36% knew the implementation step, and 50.26% knew the nursing diagnosis step. More than half of the nurses (56.41%) reported difficulties in collecting patient data, and 50.26% reported difficulties in formulating nursing diagnoses, although 69.23% knew how to develop nursing care plans (Table 2).

Table 2. Knowledge of the nursing process (NP) among participating nurses (n=195).

Variable (s)	Frequency (%)
Excellent knowledge on NP	
Yes	101 (51.79)
No	94 (48.21)
Knowledge on NP from lecture in college	
Yes	133 (68.21)
No	62 (31.79)
Experienced increased knowledge on NP	
Yes	70 (35.90)
No	125 (64.10)
Seminar/training equipped requisite knowledge on NP	
Yes	44 (22.56)
No	151 (77.44)
Adequate knowledge to implement all steps of NP	
Yes	102 (52.30)
No	93 (47.70)
Only know assessment step of NP	
Yes	127 (65.13)
No	68 (34.87)
Only know use of nursing diagnosis step	
Yes	98 (50.26)
No	97 (49.74)
Only know use of planning step	
Yes	112 (57.44)
No	83 (42.56)
Only know use of implementation step	
Yes	106 (54.36)
No	89 (45.64)
Only know use of evaluation step	
Yes	112 (57.44)
No	83 (42.56)
Difficulties in collection of patient data*	
Yes	110 (56.41)
No	85 (43.59)

Table 2. Contd.

Variable (s)	Frequency (%)
Know to develop the nursing care plans	
Yes	135 (69.23)
No	60 (30.77)
Difficulties to formulate of nursing diagnoses∗	
Yes	98 (50.26)
No	97 (49.74)

∗Two of these items were negatively worded and reverse-coded during analysis.

3.3. Factors affecting implementation of nursing process

The study identified multiple barriers to the implementation of the nursing process. Major constraints included a lack of specific training (81.54%), the absence of a standardized documentation format (77.95%), inadequate administrative follow-up (72.31%), and insufficient education from authorities (68.72%). Many nurses also reported cultural beliefs influencing implementation (69.74%), inadequate application skills (60.51%), insufficient information (54.87%), and insufficient motivation (47.69%). Organizational factors such as frequent nurse turnover (42.56%), peer influence (38.50%), and lack of inter-nurse cooperation (31.79%) were additionally reported. In contrast, fewer nurses identified a lack of confidence in nursing process-based patient care (13.33%) or a lack of interest in using the nursing process (18.97%). Furthermore, 64.10% reported that hospital administration did not recognize the nursing process as a framework for nursing care, while 51.28% stated that hospital administration did not support its implementation (Table 3).

Table 3. Distribution of nurses by factors affecting implementation of nursing process (n = 195).

Variable (s)	Frequency (%)
Lack of sufficient information to NP∗	
Yes	107 (54.87)
No	88 (45.13)
Lack of confidence in NP-based patient care∗	
Yes	26 (13.33)
No	169 (86.67)
Insufficient motivation to use NP∗	
Yes	93 (47.69)
No	102 (52.31)
Inadequate skill for NP application∗	
Yes	118 (60.51)
No	77 (39.49)
No interest in using NP∗	
Yes	37 (18.97)
No	158 (81.03)
Lack of cooperation between nurses∗	
Yes	62 (31.79)
No	133 (68.21)
Repetitious replacement of nurses∗	
Yes	83 (42.56)
No	112 (57.44)
Lack of standardized NP documentation format∗	
Yes	152 (77.95)
No	43 (22.05)
No follow-up by authority∗	
Yes	141 (72.31)
No	54 (27.69)
No enough time for applying NP∗	
Yes	70 (35.90)
No	125 (64.10)
No attention to NP importance∗	
Yes	90 (46.15)
No	105 (53.85)

Table 3. Contd.

Variable (s)	Frequency (%)
No specific training for applying NP∗	
Yes	159 (81.54)
No	36 (18.46)
Lack of education about NP by authority∗	
Yes	134 (68.72)
No	61 (31.28)
Peers influence NP implementation	
Yes	75 (38.50)
No	120 (61.50)
Family influence NP implementation	
Yes	45 (23.08)
No	150 (76.92)
Cultural belief influence NP implementation	
Yes	136 (69.74)
No	59 (30.26)
Hospital administration recognize NP as a framework of nursing care	
Yes	70 (35.90)
No	125 (64.10)
Hospital administration support NP implementation	
Yes	95 (48.72)
No	100 (51.28)

∗Thirteen of these items were negatively worded and reverse-coded during analysis.

3.4. Relationship between demographics and knowledge of nursing process

The study found significant associations between nurses' general characteristics and their knowledge of the nursing process. Age was significantly related to knowledge level (χ^2=7.66; *P*=0.006), with older nurses demonstrating relatively better knowledge. Educational qualification also showed a significant association (χ^2=6.27; *P*=0.012); nurses with a BSc degree or higher demonstrated better knowledge than diploma holders. Similarly, working experience was significantly associated with knowledge (χ^2=8.61; *P*=0.003), with those having 11–20 years of experience exhibiting comparatively higher knowledge levels. However, no significant associations were found between knowledge and gender (*P*=0.224) or religion (*P*=0.17). Overall, age, education, and experience were important determinants of nursing process knowledge among the respondents (Table 4).

Table 4. Relationship between demographic characteristics and knowledge of nursing process among nurses (n=195).

Variable (s)		Level of knowledge		Chi-square	*P*
		Average	Good		
Age					
	23 – 33 years	110 (73.80%)	39 (26.20%)	7.66	0.006
	34 – 46 years	24 (52.20%)	22 (47.80%)		
Gender					
	Male	22 (78.60%)	6 (21.40%)	1.47	0.224
	Female	112 (67.10%)	55 (32.90%)		
Religion					
	Muslim	108 (66.70%)	54 (33.30%)	1.87	0.171
	Others religion	26 (78.80%)	7 (21.20%)		
Level of education					
	BSc in Nursing and above	47 (58.80%)	33 (41.20%)	6.27	0.012
	Diploma in Nursing	87 (75.70%)	28 (24.30%)		
Working experience					
	1 – 10 years	116 (73.90%)	41 (26.10%)	8.61	0.003
	11 – 20 years	17 (48.60%)	18 (51.40%)		

BSc=Bachelor of Science

3.5. Association between demographics and factors affecting implementation of nursing process of nurses

Overall, none of the examined variables demonstrated a statistically significant association with barriers at the $P < 0.05$ level. Although participants aged 34–46 years, females, Muslims, diploma-educated individuals, and those with 11–20 years of experience tended to report lower barriers compared to their counterparts, these differences were not statistically significant. Similarly, age ($\chi^2 = 3.43$; $P = 0.064$) showed a borderline trend but did not reach significance. This suggests that perceived barriers to implementing the nursing process are relatively consistent across different demographic groups in this study population (Table 5).

Table 5. Association between demographics and factors affecting implementation of nursing process among Participants (n =195).

Variable (s)		Factors (barriers) affecting implementation of nursing process		Chi-square	*P*
		Low barriers	High barriers		
Age				3.43	0.064
	23 – 33 years	114 (76.50%)	35 (23.50%)		
	34 – 46 years	41 (89.10%)	5 (10.90%)		
Gender				2.71	0.100
	Male	19 (67.90%)	9 (32.10%)		
	Female	136 (81.40%)	31 (18.60%)		
Religion				1.11	0.291
	Muslim	131 (80.90%)	31 (19.10%)		
	Others religion	24 (72.70%)	33 (27.30%)		
Level of education				0.76	0.385
	Diploma in Nursing	66 (82.50%)	14 (17.50%)		
	BSc in Nursing and above	89 (77.40%)	26 (22.60%)		
Working experience				1.11	0.292
	1 – 10 years	122 (77.70%)	35 (22.30%)		
	11 – 20 years	30 (85.70%)	5 (14.30%)		

BSc=Bachelor of Science

4. Discussion

The present study revealed a significant disconnect: although a substantial proportion of nurses reported having theoretical knowledge of the nursing process, and many perceived their knowledge as excellent (51.79%) or adequate (52.30%) to implement all steps, this was not reflected in clinical practice, as 0% of participants reported implementing the nursing process in patient care. This perceived knowledge was further inconsistent with practical competency, as 56.41% reported difficulty in collecting patient data and 50.26% faced difficulties in formulating nursing diagnoses. These findings indicate a clear disconnect between perceived theoretical knowledge and practical application, suggesting a major implementation gap in the study setting (Lotfi *et al*., 2019).

A detailed analysis of the knowledge pattern revealed that knowledge was uneven across different components of the nursing process. Specifically, 65.13% of nurses reported knowledge of the assessment step, while 57.44% reported knowledge of both planning and evaluation steps, 54.36% of the implementation step, and 50.26% of nursing diagnosis. Furthermore, only 22.56% reported receiving adequate training through seminars or structured programs, despite 68.21% having gained knowledge during undergraduate education. This indicates that while initial academic exposure is relatively high, there is insufficient post-basic or continuing professional development to reinforce practical application. Similar findings were reported by Victor and Treschuk (2020) and Backzadeh *et al*. (2021), where moderate theoretical knowledge did not translate into effective clinical use, whereas Lotfi *et al*. (2019) observed even lower levels of correct understanding of nursing process steps in other contexts, suggesting variability across health systems and educational environments.

The study further demonstrated that knowledge of the nursing process was significantly associated with age (χ^2=7.66; P=0.006), education (χ^2=6.27; P=0.012), and working experience (χ^2=8.61; P=0.003). Specifically, nurses with higher education levels (BSc and above) showed better knowledge (41.20% good knowledge) compared to diploma holders (24.30% good knowledge). Similarly, nurses with 11–20 years of experience

demonstrated higher knowledge levels (51.40% good knowledge) compared to those with 1–10 years (26.10% good knowledge). These findings suggest that cumulative clinical exposure and higher academic preparation contribute positively to knowledge acquisition and retention. These findings align with those of Liyew *et al*. (2020), who emphasized the role of education and experience in strengthening nursing competencies. In contrast, gender and religion were not significantly associated with knowledge (P=0.224 and P=0.171, respectively), indicating that professional development factors are more influential than personal characteristics.

Despite the presence of moderate knowledge levels, the study identified a complete absence of nursing process implementation, highlighting strong systemic and organizational barriers. The most frequently reported barriers were lack of specific training (81.54%), absence of standardized documentation formats (77.95%), inadequate administrative follow-up (72.31%), lack of institutional education (68.72%), and cultural belief influence (69.74%). Additionally, more than half of the nurses reported insufficient skills (60.51%) and insufficient information (54.87%), while 47.69% reported low motivation. These findings indicate that the problem extends beyond individual competency and reflects structural weaknesses in institutional support systems. Previous studies have reported similar barriers, identifying lack of training, weak supervision, inadequate staffing, and absence of standardized guidelines as major obstacles to implementing the nursing process (Tamata *et al*., 2021; Parvan *et al*., 2021).

Furthermore, the study found no statistically significant association between socio-demographic characteristics and perceived barriers to implementation, although age showed a borderline association (χ^2=3.43; P=0.064). This suggests barriers are experienced consistently across all nurse demographics (age, education, experience, gender, or religion). This reinforces the interpretation that institutional and organizational constraints are the primary determinants of non-implementation rather than individual-level factors (O'Cathain *et al*., 2019).

This study has several limitations. It was conducted in a single tertiary care hospital, which may limit the generalizability of the findings. Self-reported data may introduce response bias, as participants might overestimate their knowledge or underreport barriers. Additionally, the cross-sectional design restricts the ability to establish causal relationships between variables. Finally, the lack of direct observation of nursing practice may not fully reflect the actual implementation of the nursing process in clinical settings. Overall, the findings highlight a critical disconnect between theoretical knowledge and clinical application of the nursing process. While nurses possess a foundational understanding, inadequate institutional support, lack of standardized tools, and insufficient training opportunities significantly hinder its implementation in practice.

5. Conclusions

This study demonstrates that while nurses possess moderate theoretical knowledge of the nursing process, its application in clinical practice is lacking within the study setting. Although higher knowledge levels are associated with increased education and professional experience, this does not translate into practical implementation due to systemic and institutional constraints. The absence of standardized documentation systems, insufficient training opportunities, and lack of administrative support remain key barriers to the effective utilization of the nursing process. These findings highlight a persistent gap between nursing education and clinical practice, which continues to compromise the delivery of structured and quality patient care. Addressing these gaps requires strengthening in-service training programs, introducing standardized nursing documentation formats, and enhancing institutional monitoring and support mechanisms. Future research should focus on intervention-based studies to evaluate strategies that can effectively improve the implementation of the nursing process in clinical settings and bridge the gap between knowledge and practice.

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Data availability

All data generated and analyzed during this study are included within the manuscript. No additional datasets are available.

Conflict of interest

None to declare.

Authors' contribution

Zobaida Khatun: conceptualization, research design, data curation, data acquisition, formal analysis, investigation, methodology, visualization, writing first draft of the manuscript, review and revision of the manuscript; Mostafa Kamal Chowdhury: conceptualization, methodology, project administration, supervision, visualization, review and revision of the manuscript. All authors have read and approved the final manuscript.

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