

Knowledge, attitude, and perception of nurses, physicians, and patients regarding nurse prescribing role in Pakistan

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*Altaf Hussain¹, Shaista Parveen², Kanwal Fida Hussain², Aneesa Ubedullah², Kiran Murad², Sharmeela Malha², Mehtab³

¹Faculty of Nursing, Prince of Songkla University, Hat Yai, Thailand

²College of Nursing Female, Sukkur, Pakistan

³Dow University of Health Sciences, Karachi, Pakistan



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Abstract

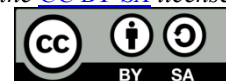
Background: Nurse prescribing roles are increasingly adopted by global healthcare systems to address workforce shortages and enhance patient access. However, the potential for implementing such roles in Pakistan has not been thoroughly investigated. This study examined the knowledge, attitudes, and perceptions of nurses, physicians, and patients regarding nurse prescribing in Pakistan.

Methods: This descriptive cross-sectional study was conducted at a tertiary care hospital in Sukkur, Pakistan. A quota-based non-random sampling approach was used to recruit 200 participants, including registered nurses, physicians, and patients. Data were collected using a validated questionnaire (Cronbach's $\alpha=0.75$) and analyzed with descriptive statistics, Chi-square tests, and ANOVA ($p<0.05$).

Results: Awareness of nurse prescribing was reported by 82.9% of nurses and 70.0% of physicians. Despite this, support for independent prescribing remained limited; 80.0% of patients, 68.6% of physicians, and 48.6% of nurses preferred the role to remain strictly under physician supervision. Nurses demonstrated the most positive attitudes toward nurse prescribing (38.1%), while physicians achieved the highest knowledge scores (4.91 ± 2.21). Statistically significant differences were observed among the groups in both knowledge ($F=24.27$, $p<0.001$) and attitudes ($F=34.72$, $p<0.001$).

Conclusion: Although Pakistani nurses exhibit readiness and positive attitudes toward prescribing, significant barriers persist, such as physician resistance and limited patient trust. Effective integration of nurse prescribing roles will require strengthened nursing curricula, the establishment of clear regulatory frameworks, and improved interprofessional collaboration.

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*Corresponding Author:

Altaf Hussain

Faculty of Nursing, Prince of Songkla University, Hat Yai, Thailand

Email: altafh3526@gmail.com

Introduction

Globally, healthcare systems are experiencing unprecedented problems, including an aging population, a growing burden of chronic diseases, and significant shortages of healthcare personnel ([Hammarberg et al., 2024](#); [Luan, 2024](#); [Ivanenko, 2025](#)). In response to the need for

accessible and affordable healthcare, many countries have gone beyond traditional clinical boundaries, for example, by implementing novel workforce models, such as delegating medical prescribing to nurses. As of now, Advanced Nurse Practitioners (ANPs) are independent prescribers of medication in over 40 countries, including Australia, New Zealand, the United Kingdom (UK), and the United States of America (USA) ([Htay & Whitehead, 2021](#); [Nylund et al., 2026](#); [Smigorowsky et al., 2020](#)). For example, nurse prescribing rights have been gradually extended in the UK and USA over decades, resulting in improved access to healthcare, shorter waiting times, better continuity of care, and greater patient satisfaction ([Jiao et al., 2018](#); [Laurant et al., 2018](#); [Wang et al., 2022](#); [Yang et al., 2021](#)).

Nurses are well-positioned to detect treatment needs promptly through their direct involvement in patient assessment, monitoring, and chronic illness management ([Fong et al., 2015](#); [Alruwaili et al., 2024](#); [Mohammed et al., 2024](#)). The integration of a nurse prescribing role is cost-effective, particularly in primary care, emergency settings, and rural areas, and contributes significantly to universal health coverage ([Maier et al., 2018](#); [Alhazmi et al., 2024](#); [Mohammed et al., 2024](#)). In addition, granting prescribing authority increases nurses' professional autonomy and job satisfaction by publicly recognizing their superior clinical skills.

However, despite these known benefits, there are major challenges to nurse prescription in novel settings. The main concerns are patient safety, prescription competency, and legal responsibility ([Haririan et al., 2022](#); [Lim et al., 2014](#); [Zakary et al., 2024](#)). Resistance is often from doctors who consider prescribing as their own turf, and some nurses report feeling ill-equipped for the pharmaceutical responsibilities ([Rony et al., 2024](#)). Additionally, cultural views, previous experiences, and an innate faith in the nursing profession are significant factors influencing patient acceptance ([Fazal & Ul-Haq, 2023](#)). Together, these systemic and professional constraints are usually obstacles to implementing the ANP paradigm in developing countries.

It is important to understand stakeholder viewpoints when developing and implementing successful nurse prescribing policies. Nurses' expertise and attitudes determine their readiness; physician support is necessary for interdisciplinary teamwork; and patients' perceptions determine final acceptance. However, there is inadequate research in Pakistan on the preparedness and acceptance of this position by major healthcare stakeholders. Therefore, the purpose of this study was to analyze the knowledge, attitudes, and perspectives of nurses, physicians, and patients regarding the adoption of the nurse prescription role in Pakistan.

Methods

Research Design

A cross-sectional descriptive study was conducted to explore the perceptions, knowledge, and attitudes regarding the nurse prescribing role among nurses, physicians, and patients in Pakistan.

Study setting and Population.

The study was conducted at Ghulam Muhammad Mahar Medical College Hospital, a tertiary care hospital in Sukkur, Pakistan. The study population included physicians (general practitioners, specialists, consultants, postgraduate trainees, and house officers), registered nurses, and patients currently receiving treatment in the hospital. Inclusion criteria for physicians and nurses were a minimum of 6 months' registration with the PMDC/PNMC,

willingness to participate, and age 18 years or above. The criteria for patients were willingness to participate in the study and age 18 years or above. Participants were excluded from the study if they were undergraduate medical and nursing students, technicians, or those unwilling to participate. A quota-based non-random sampling technique was employed to ensure adequate representation of study participants. The required sample size was calculated using G*Power version 3.1.9.4 with an effect size of 0.50, a significance level (α) of 0.05, and a statistical power of 0.80. The required sample size was 200 participants.

Measurement and data collection

A structured questionnaire was used to collect data. The questionnaire was developed following a review of the literature of previous studies about nurses' prescribing roles, perceptions, attitudes, and knowledge among healthcare providers and patients ([Haririan et al., 2022](#); [Stenner & Courtenay, 2008](#)). Some items were modified to align with the Pakistani healthcare context and study objectives.

The questionnaire were consist of four sections: (1) demographic characteristics, including age, gender, occupation, and work experience; (2) perception about nurse prescription role and its potential benefits; (3) knowledge assessment, which included ten true/false questions related to nurse prescribing rights and responsibilities, score range 0-10; and (4) attitude questions, which contained ten items measured on a five-point Likert scale ranging from strongly agree (1) to strongly disagree (5), with total score ranged between 10-50. A higher score indicated a more positive attitude toward nurse prescribing and interprofessional collaboration.

The questionnaire was reviewed by experts in nursing education, clinical nursing practice, and health research methodology to ensure clarity, relevance, and appropriateness before data collection, for content validity. Internal consistency reliability of the final instrument was assessed using Cronbach's alpha coefficient, which yielded an acceptable reliability value of 0.75. A pilot study was not conducted due to time and resource limitations. This has been acknowledged as a methodological limitation.

Ethical considerations

Ethical approval was obtained from the Ethical Review Committee (IRC) of the College of Nursing Female, Sukkur. After the approval of the committee, researchers visited the different wards of the hospital to collect data. Participants were briefed on the research objectives and procedure of the study. If they showed willingness, written informed consent was obtained from each participant, then questionnaires were distributed to study participants, and they were given 30-45 minutes to fill in the questionnaires.

Data Analysis

The statistical analysis of the data was performed through SPSS V26. Descriptive statistics were analyzed for demographic data. ANOVA was used to compare the mean differences of knowledge, attitude, and perception. Significance level of the test was p-value <0.05.

Results

Participant Characteristics

A total of 200 individuals participated in the study, comprising nurses (n = 70), physicians (n = 70), and patients (n = 60). The mean age of participants was 35.91±8.09 for

nurses, 28.37 ± 5.71 for physicians, and 38.95 ± 12.82 for patients. More than half of the nurses and patients were male, 62.9% and 61.7% respectively. Most of the nurses and physicians were aware of nurse prescribing regulations (82.9%) and (70%) respectively, while 50% of the patients were aware of nurse prescribing regulations.

Most physicians (68.6%) and patients (80.0%) supported nurse prescribing authority under physicians' supervision, whereas less than half of the nurses reported nurse prescribing allowed under physicians' supervision. Only a few participants from three groups supported independent nurse prescriptions. Most nurses reported that the perceived benefits of nurse prescribing enhanced autonomy and professional growth (40%) were the main benefits, while physicians reported that it would reduce physician's workload (35.7%). Half of the patients perceived improved in-patient care services (50%). Furthermore, most of the nurses and patients reported strongly disagreeing with allowing nurses to prescribe lifesaving medications (78.6%) and (76.7%) respectively. While 38.6% of physicians disagreed with allowing nurses to prescribe lifesaving medications (Table 1).

Table 1. Demographic characteristics of participants (n = 200)

Variable	Category	Nurses n (%)	Physicians n (%)	Patients n (%)
Age		35.91 ± 8.09	28.37 ± 5.71	38.95 ± 12.82
Gender	Male	44 (62.9)	26 (37.1)	37 (61.7)
	Female	26 (37.1)	44 (62.9)	23 (38.3)
Awareness of Nurse Prescribing Regulations	Yes	58 (82.9)	49 (70.0)	30 (50.0)
	No	12 (17.1)	21 (30.0)	30 (50.0)
Perceived Impact on Healthcare Access	Increases significantly	0 (0.0)	2 (2.9)	2 (3.3)
	Somewhat increases	1 (1.4)	4 (5.7)	2 (3.3)
	No impact	1 (1.4)	12 (17.1)	4 (6.7)
	Somewhat decreases	14 (20.0)	23 (32.9)	22 (36.7)
Preferred Prescribing Authority	Significantly decreases	54 (77.1)	29 (41.4)	30 (50.0)
	Independently	2 (2.9)	16 (22.9)	1 (1.7)
	Under supervision	34 (48.6)	48 (68.6)	48 (80.0)
	Should not prescribe	34 (48.6)	6 (8.6)	11 (18.3)
	Reduces physicians' workload	6 (8.6)	25 (35.7)	10 (16.7)
Perceived Benefits	Improves patients care	14 (20.0)	12 (17.1)	30 (50.0)
	Improves access to medication	9 (12.9)	13 (18.6)	11 (18.3)
	Saves healthcare costs	13 (18.6)	4 (5.7)	2 (3.3)
Lifesaving Medication Prescribing	Enhances nurse autonomy	28 (40.0)	16 (22.9)	7 (11.7)
	Strongly agree	0 (0.0)	2 (2.9)	1 (1.7)
	Agree	0 (0.0)	12 (17.1)	3 (5.0)

Variable	Category	Nurses n (%)	Physicians n (%)	Patients n (%)
	Neutral	4 (5.7)	19 (27.1)	0 (0.0)
	Disagree	11 (15.7)	27 (38.6)	10 (16.7)
	Strongly disagree	55 (78.6)	10 (14.3)	46 (76.7)

Knowledge about the nurse prescribing role

Most nurses reported good knowledge of the nurse prescribing role (95.5%) compared to physicians (83.3%) and patients (62.3%). Moreover, physicians, nurses and patients had moderate knowledge (24.6%), (4.5%), (16.7%) respectively. While only 13% of the patients reported poor knowledge (Table 2).

Table 2: Knowledge about nurse prescribing role

Variable	Category	Nurses n (%)	Physicians n (%)	Patients n (%)
Knowledge Level	Good	64 (95.5)	43 (62.3)	50 (83.3)
	Moderate	3 (4.5)	17 (24.6)	10 (16.7)
	Poor	0 (0.0)	0 (0.0)	9 (13.0)

Association of Attitude with Demographic Characteristics

Nurses (38.1%) and patients (33.3%) were more likely to report a positive attitude compared to physicians (28.6%), whereas most physicians (68.8%) showed a negative attitude compared to nurses (18.8%) and patients (12.5%). A statistically significant association was found between occupation and attitude ($\chi^2 = 19.16$, $df = 2$, $p < 0.001$). There was a similar distribution of attitudes among male (54.2%) and female (45.8%) participants, with no statistically significant association between gender and attitude ($\chi^2 = 0.19$, $df = 1$, $p = 0.665$). Age was significantly associated with attitude ($\chi^2 = 9.31$, $df = 3$, $p = 0.02$), indicating that attitudes differed across age groups, with participants aged 26–35 years (48.8%) showing relatively more positive attitudes (Table 3).

Table 3: Association of Attitude with Demographic Characteristics

Variable	Category	Positive Attitude n (%)	Negative Attitude n (%)	χ^2	df	p-value
Occupation	Nurses	64 (38.1)	6 (18.8)	19.16	2	<0.01
	Physicians	48 (28.6)	22 (68.8)			
	Patients	56 (33.3)	4 (12.5)			
Gender	Male	91 (54.2)	16 (50.0)	0.19	1	0.66
	Female	77 (45.8)	16 (50.0)			
Age	18–25 years	25 (14.9)	7 (21.9)	9.31	3	0.25
	26–35 years	82 (48.8)	22 (68.8)			
	36–45 years	38 (22.6)	1 (3.1)			
	> 45 years	23 (13.7)	2 (6.3)			

Compare the mean knowledge and attitude scores among nurses, physicians and patients.

For attitude, nurses reported the highest mean score (38.91 ± 7.23), followed by patients (36.72 ± 6.00), whereas physicians reported the lowest mean score (28.69 ± 9.07). There was a statistically significant difference in attitude score among the three groups ($F = 34.72$, $p < 0.001$). In contrast, physicians reported the highest mean knowledge score (4.91 ± 2.21), followed by nurses 3.52 ± 1.72 , while patients had the lowest mean score (2.81 ± 1.41). There was also a statistically significant difference in knowledge score among the three groups ($F = 24.27$, $p < 0.001$).

Table 4: Compare the mean knowledge and attitude scores among nurses, physicians and patients.

Items	Group	n	Mean \pm SD	F-value	p-value
Attitude Score	Nurses	70	38.91 \pm 7.23	34.72	<0.001
	Physicians	70	28.69 \pm 9.07		
	Patients	60	36.72 \pm 6.00		
Knowledge Score	Nurses	70	3.52 \pm 1.72	24.27	<0.001
	Physicians	70	4.91 \pm 2.21		
	Patients	60	2.81 \pm 1.41		

Discussion

The study aimed to examine the knowledge, attitudes, and perceptions regarding the nurse prescribing role of nurses, physicians, and patients in a healthcare setting in Pakistan. The results showed significant differences in knowledge and attitudes among nurses, physicians, and patients regarding nurse prescribing roles. Physicians have a high level of knowledge about the nurse prescribing role, while most nurses have a positive attitude towards the nurse prescribing role, and patients report moderate understanding and mixed perceptions. These findings are partially consistent with previous research. [Haririan et al. \(2021\)](#) reported that nursing students have a positive attitude regarding the nurse prescribing role and also reported some benefits, including enhancement of safety, good nurse-patient relationship, and increased treatment efficiency ([Haririan et al., 2021](#)). Stenner and Courtenay's study (2008) reported that nurses were aware of the nurse prescribing role and reported various benefits, including improved nurse-patient outcomes, access to treatment, improved quality of care, and proper prescribing of drugs ([Stenner & Courtenay, 2008](#)).

The study findings showed that nurses identified professional autonomy and professional growth as perceived benefits. They reported that the role expansion is closely related to professional empowerment. Similar findings have been reported by Roney et al. (2024), where nurses reported strong support for nurse prescribing roles due to perceived improvement in patients care and workflow efficiency ([Rony et al., 2024](#)).

In contrast, physicians demonstrated a negative attitude toward the nurse's prescribing role despite having good knowledge of it. This finding suggests that knowledge alone does not necessarily translate into acceptance. Negative attitude of physicians may decrease from patients' safety issues, legal accountability, and professional boundaries. Similar findings were reported in previous studies ([Barreto et al., 2022](#); [Piot et al., 2022](#); [Rony et al., 2024](#)). Furthermore, Nurse prescribing under physicians' supervision is observed, which indicates that a collaborative or supplementary prescribing model would be more acceptable in Pakistan than independent nurse prescribing. These findings are similar to those of other studies, which found that physicians' oversight is often considered essential during the early stages of implementing this model ([Bandi et al., 2024](#); [Malik & Shankar, 2023](#); [Short et al., 2024](#)).

Another main finding of the study is a negative perception towards the impact of nurse prescribing on healthcare access. Most participants in the study reported that nurse prescribing could decrease access to healthcare services; these findings are the opposite of previous studies, which reported that nurse prescribing improved healthcare access, reduced waiting times, and enhanced efficiency ([Laurant et al., 2018](#); [Wang et al., 2022](#)). These findings suggest that perceptions in Pakistan are more influenced by uncertainty and a lack of experience than by empirical evidence. It also highlights systemic challenges, including limited interprofessional

collaboration and concerns about nursing competencies for prescribing medication independently.

Implication and limitations

Findings of the study have important implications for the policy and practice of developing countries, including Pakistan, where nurses are not allowed to prescribe medication independently. Firstly, there is a need to strengthen nursing education, particularly in pharmacology and clinical decision-making, to develop confidence in medication prescribing roles. Secondly, the development of regulatory frameworks, license examination, and competency standards to address safety and accountability. Thirdly, interprofessional collaboration should be promoted to have mutual understanding between nurses and physicians. Finally, public awareness initiatives are important for improving patients' trust and acceptance of nurses, which, in turn, influences prescribing practices.

However, several limitations should be considered when interpreting the study's findings. The study was conducted at a single tertiary care hospital in Sukkur, Pakistan, which may limit representation from other healthcare settings, such as primary healthcare centers, rural hospitals, and private institutions. Furthermore, a quota sampling technique was used, which may introduce selection bias and reduce the ability to generalize the findings to all nurses, physicians, and Pakistan. In addition, a cross-sectional study is one point in time and does not establish causal relationships. Therefore, future studies should include multi-center settings and probability sampling methods to improve the external validity and generalizability of the findings.

Conclusion

The study found that nurses in Pakistan demonstrate readiness and positive attitudes toward nurse prescribing, while significant challenges remain in physicians' acceptance, patients' trust, and systemic readiness. Addressing these challenges through education, policy development, and collaborative implementation strategies will be important for the successful integration of nurses' prescribing practices and for improving healthcare access, efficiency, and quality of healthcare delivery, particularly in rural areas and primary healthcare settings in Pakistan.

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Author contribution

A.H., S.P., and K.H. contributed to the study conception and research design. A.U., K.M., and S.M. were responsible for data collection. A.H. and M. conducted the data analysis. K.H. and S.P. prepared the initial draft of the manuscript. A.H. contributed to the research design, data analysis, and critical revision of the manuscript. All authors reviewed and approved the final version of the manuscript.

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Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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