

CORRELATION BETWEEN CARDIAC NURSES' COMMUNICATION STYLES AND PRE-PROCEDURAL ANXIETY AMONG PATIENTS UNDERGOING CARDIAC CATHETERIZATION

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ABSTRACT

Background: Cardiac catheterization is a common invasive procedure that often induces significant pre-procedural anxiety among patients. Effective nurse-patient communication has been identified as a key factor in reducing anxiety, yet limited research has examined the direct relationship between communication styles and anxiety levels, particularly in cardiac care settings within South Asia.

Aim: This study aimed to assess the correlation between cardiac nurses' communication styles and pre-procedural anxiety among patients undergoing elective cardiac catheterization at the Punjab Institute of Cardiology, Lahore.

Methods: A descriptive correlational study was conducted using convenient sampling. A total of 384 adult patients scheduled for elective cardiac catheterization were enrolled. Data were collected using two validated (adopted) tools: a structured questionnaire assessing patients' perception of nurses' communication styles and the State-Trait Anxiety Inventory (STAI) for measuring anxiety levels. Both instruments were administered during the pre-procedural waiting period, prior to the cardiac catheterization. Communication styles were categorized into four types: supportive, empathetic, directive, and neutral. Data were analyzed using SPSS version 27, with Pearson correlation applied to examine the relationship between variables.

Results: The majority of participants perceived nurses' communication as supportive (34.4%) or empathetic (28.1%). Anxiety levels were moderate in 49.5% of patients and high in 30.7%. A statistically significant moderate negative correlation was found between communication style and anxiety ($r = -0.487$, $p < 0.001$), indicating that supportive and empathetic communication styles were associated with lower anxiety levels.

Conclusion: The study highlights the critical role of effective communication by cardiac nurses in reducing pre-procedural anxiety. Emphasizing empathetic and supportive communication in nursing practice can enhance patient well-being and procedural outcomes.

Keywords: Communication styles, cardiac nurses, pre-procedural anxiety, cardiac catheterization, patient-centered care.

INTRODUCTION

Cardiac catheterization is a type of medical procedure specifically performed to diagnose and treat different

diseases of the heart. It is an invasive procedure involving the insertion of a thin catheter into a blood

vessel to access the heart, which means it is in itself anxiety-inducing to patients (Shoaib, et al., 2022). Communication style, in this context, is the style of verbal and non-verbal behavior that a nurse applies to interact with a patient; it can be of a supportive and empathetic type, informative, or even imperative. By having direct and frequent contact with patients, cardiac nurses have an influence on their pre-procedure experience (Rehman & Sohail, 2023). Pre-procedural anxiety refers to the state of emotional tension or nervousness prior to a medical therapy. The ability to relate the communicative style of a nurse and the degree of anxiety in a patient helps to enhance the quality of care and psychological responses (Dankyi, 2022).

Anxiety before surgery/pre-procedural anxiety where there is a report of 60-80 % prevalence in patients undertaking cardiac catheterization. The fear comes by because of the uncertainty about what is unknown, pain, complications, and potential diagnosis of serious heart conditions (Xing, et al., 2025). The incidence can be even more significant in resource-poor healthcare environments, such as Pakistan, as pre-procedural education is absent and nurse-patient communication is unstable. Untreated anxiety may result in physiological imbalances like elevated heart rate and blood pressure, which may make the procedure more complicated in itself. This highlights the importance of ensuring that healthcare workers, specifically nurses, are engaged in interventional measures that will limit the occurrence of preoperative stress (Najm, 2021).

Communication is a key component of quality nursing practice, as evidenced in a high-stress department such as a cardiac unit. Pre-procedural anxiety can largely be mitigated by empathetic, clear, and active conversation with patients, communicating concerns and their concerns to nurses (Large, 2021). Conversely, ineffective communication, which involves hurried directions, medical terms or disengagement, can worsen patient fear and confusion. Cardiac nurses, being the main communicators during the pre-catheterization period, can shape patient comprehension and emotional preparation towards the procedure via their style of interaction (Al-Beltagi, et al., 2025)

Working with cardiac nurses is not a mere technical process but involves psychological and emotional assistance. They frequently address patient education in the procedure, the mindset preparation, and reassurance through the waiting time (Almukhlifi et al., 2024). The capacity of a nurse to evaluate the

emotional status of a patient and re-modify communication can prove instrumental. An example might be a patient who is new to the medical world will be best served with a more detailed and patient-centered approach, whereas another might just require a cool head reassurance. In both examples, the communication style used by the respective nurses turns into a treatment instrument (Asgari et al., 2022). Preprocedural anxiety that is not managed can adversely affect procedural and recovery outcomes. Physiological effects of anxiety can cause difficulties during the intervention, such as vasovagal symptoms or cardiac rhythm disorders (Hassan & Elsayed, 2025). Moreover, extreme anxiety can have disproportionate effects such as impeding pre-procedural instructional recall, post-procedural distress, and satisfaction with care. Considering these implications, reducing pre-procedural anxiety is not simply a good practice to support patient well-being but indeed, procedural efficiencies and success (Ramezani et al., 2022).

Although the importance of nurse-patient communication in helping to diminish anxiety is empirically evidenced, studies on this correlation in the relationship of cardiac catheterization are lacking (Wang et al., 2022). The majority of the literature focuses on physician interactions or generic healthcare settings without paying attention to very specific nurse-based communication in cardiology. In addition, few data exist within the South Asian contexts in which cultural expectations and health literacy rates might potentially mediate the communication-anxiety association. This is a gap that presents an opportunity to examine how cardiac nurses in particular communicate styles influence the anxiety of patients in such contexts (Weisfeld et al., 2021).

To fill this gap, the current research aims to test the correlation between pre-procedural anxiety and the communication style of cardiac nurses in patients undergoing cardiac catheterization. The results, by determining which methods of communication work best to decrease the patient anxiety, can be used to inform both nursing education and in-service training courses. Finally, improving nurse-patient communication within cardiac units may result in the promotion of the psychological preparedness of the cardiac unit patients and the facilitation of these patients experiences with the procedures and their results after the procedures.

Methodology

The research was carried out at Punjab Institute of Cardiology, Lahore, which is a top tertiary care

hospital focused on providing heart care. The study used a descriptive correlational research study design to evaluate the connection between the styles of communication and pre-procedural anxiety in cardiac patients having a cardiac catheterization procedure performed. The population was focused on adult patients to undergo elective cardiac catheterization procedures.

The Raosoft sample size calculator was used with a confidence level (C) of 95 %, margin of error (E) of 5 %, and estimated response distribution (R) of 50 %, and it returned a 384-participant sample size. The participants included in the study were recruited based on the inclusion criteria through a convenient sampling method consisting of patients aged 18 years and above, mentally sound, and willing to participate. Patients with diagnosed psychiatric illnesses or patients with emergency procedures were not included in the study.

Data Collection Procedure

Two validated instruments were used to collect data: a structured questionnaire to determine what cardiac nurses believed their communication style to be, and the State-Trait Anxiety Inventory (STAI) to determine the amount of pre-procedural anxiety in patients. Both instruments were adopted (CVI 0.92 and Cronbach alpha 0.84) administered during the pre-procedural waiting period, prior to the cardiac catheterization. Four different types of communication styles that were

identified are supportive, directive, empathetic, and neutral.

The Institutional Review Board of the Punjab Institute of Cardiology granted ethical approval. All participants were informed of their consent before any data was collected. Participants could be assured of confidentiality and anonymity in the entire research process.

Data Analysis Procedure

Data were analyzed using SPSS version 27. The demographic characteristics and variables were described with the use of descriptive statistics including frequencies, percentages, means, and standard deviations. The Pearson correlation coefficient was used to determine the correlation between the levels of anxiety in patients and their communication styles with nurses. P-value < 0.05 was defined as a statistically significant result.

Results and Analysis

Demographic Characteristics of Participants

The majority of participants were male (60.4%), while females constituted 39.6% of the sample. Most respondents were aged between 31–45 years (38%), followed by those aged 46–60 years (25.5%). In terms of education, the highest proportion had higher secondary education (31.8%), and 30.7% had primary to secondary education. A smaller group had no formal education (13%) or were graduates and above (24.5%) [Table 1].

Table 1: Demographic Characteristics of Participants

Variable	Frequency (n)	Percentage (%)
Gender		
Male	232	60.4
Female	152	39.6
Age Group (years)		
18–30	94	24.5
31–45	146	38.0
46–60	98	25.5
>60	46	12.0
Educational Level		
No formal education	50	13.0
Primary to Secondary	118	30.7
Higher Secondary	122	31.8
Graduate and above	94	24.5

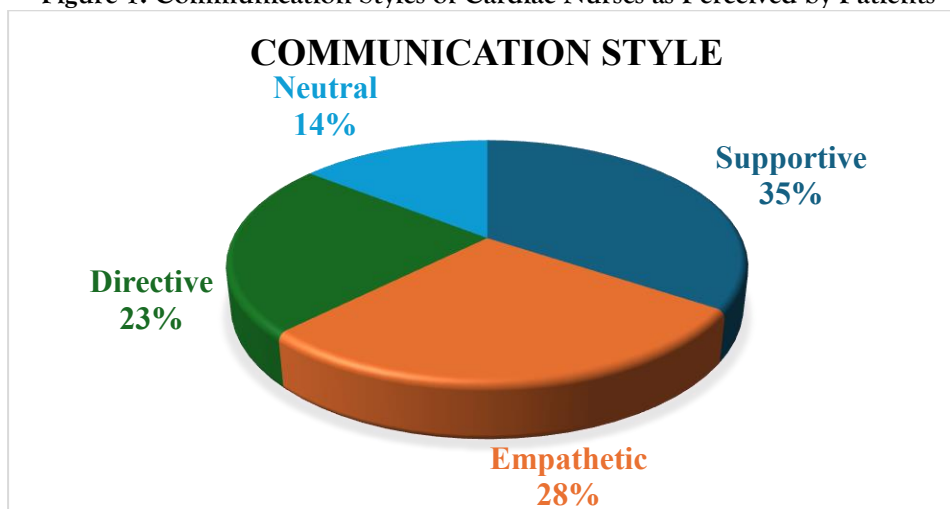
Communication Styles of Cardiac Nurses

Among the participants, the most commonly perceived communication style of cardiac nurses was supportive (34.4%), followed by empathetic (28.1%).

Directive communication style was reported by 23.2% of patients, while only 14.3% perceived the nurses' style as neutral. This indicates a higher preference for

positive and patient-centered communication approaches [Figure 1].

Figure 1: Communication Styles of Cardiac Nurses as Perceived by Patients

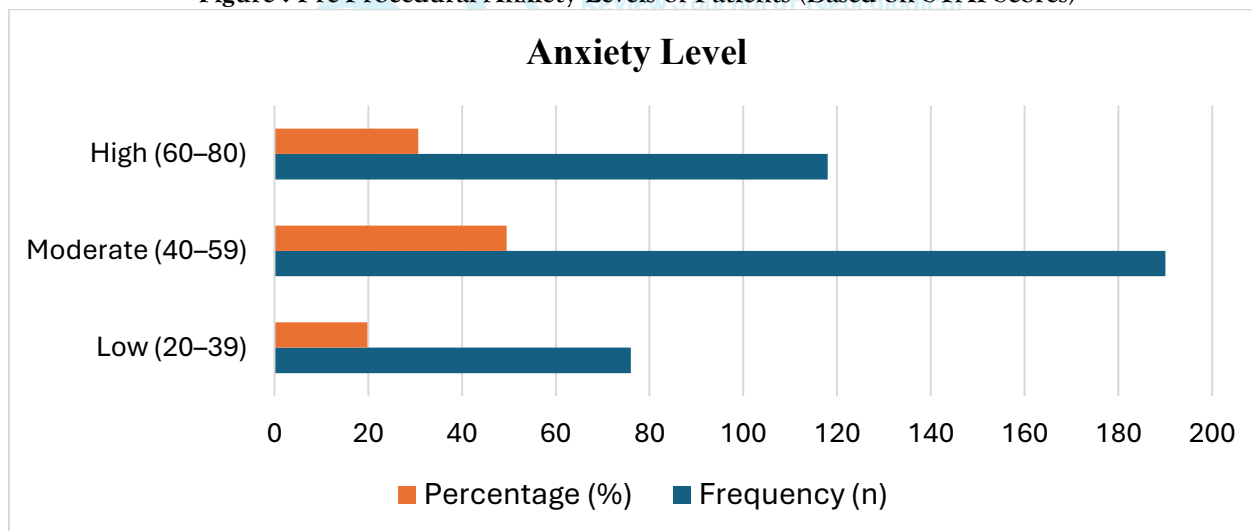


Pre-Procedural Anxiety Levels of Patients

Nearly half of the participants (49.5%) experienced moderate levels of pre-procedural anxiety. High anxiety levels were reported by 30.7% of patients, while only 19.8% exhibited low anxiety. These

findings suggest that pre-procedural anxiety is prevalent among patients undergoing cardiac catheterization, with a significant proportion experiencing moderate to high stress levels [Figure 2].

Figure : Pre-Procedural Anxiety Levels of Patients (Based on STAI Scores)



Mean and Standard Deviation of STAI Scores by Communication Style

Patients who perceived nurses' communication as supportive had the lowest mean anxiety score (38.2), followed closely by those who experienced empathetic communication (40.1). Higher anxiety levels were

associated with directive (55.4) and neutral (60.3) communication styles. This suggests that supportive and empathetic communication styles are linked to reduced pre-procedural anxiety, while directive and neutral styles may contribute to heightened anxiety [Table 2].

Table 2: Mean and Standard Deviation of STAI Scores by Communication Style

Communication Style	Mean STAI Score	Standard Deviation
Supportive	38.2	8.4
Empathetic	40.1	7.9
Directive	55.4	9.2
Neutral	60.3	10.5

Correlation Between Communication Style and Pre-Procedural Anxiety

The Pearson correlation analysis showed a statistically significant moderate negative correlation ($r = -0.487$, $p < 0.001$) between communication style and pre-

procedural anxiety. This indicates that more positive and patient-centered communication styles were associated with lower levels of anxiety among patients undergoing cardiac catheterization [Table 3].

Table 3: Correlation Between Communication Style and Pre-Procedural Anxiety

Variable	Pearson Correlation (r)	p-value	Interpretation
Communication Style vs. Anxiety	-0.487	<0.001	Moderate negative correlation (significant)

Discussion

The present research examined the relationship between the communication styles of cardiac nurses and pre-procedural anxiety in patients who were going through a cardiac catheterization procedure. The results indicate that, there was a significant moderate negative relationship between communication styles on the one hand and anxiety levels on the other hand indicating that more supportive and empathetic communication styles had lower anxiety levels. The latter underlines the importance of the nurse-patient interaction, which influences psychological outcomes prior to the invasive intervention. The outcomes align with the theoretical framework according to which it is possible to understand communication as a therapeutic instrument that can shape perceptions, affect patients, and determine coping strategies.

When compared with previous studies, the study under analysis follows the results of Weisfeld et al. (2021), who stressed the effectiveness of nurses as leaders of supportive communication that greatly improved the level of anxiety among patients awaiting cardiac interventions. In the same way, a study by Yumul (2025) revealed that empathetic interactions with patients by nurses improved their comfort and emotional stability before undergoing heart surgery. Such similarities affirm that communication style is an intra-personal ability that is critical to a clinical care rather than a peripheral skill. The current study contributes to this body of research in that it provides a specific setting in which elective cardiac catheterization occurs: where patients tend to be

uncovered of emotion and conscious in an informed state.

On the other hand, communication style has been associated more decisively with anxiety in patients, as found by some studies. In another example, Salmani Mood & Nasiri (2025) discovered that, in time-sensitive hospitals with high traffic, patient anxiety level was hardly affected by the style of communication employed as long as all members of a care team were providing information about the procedure in a consistent manner. The discovery contrasts with those of the present study, potentially because of the associated healthcare environments, the nurses to patient proportions or of the cultural attitude of the nursing role. With nurses establishing a typical role of communicator in the current setting, nurse style is expected to play a bigger role in influencing patient anxiety (Naidu et al., 2021).

Cultural and situational variance in Pakistani healthcare scenario is also represented in the current study. The study was conducted with a large proportion of patients involved, who have low health literacy, and their confidence towards healthcare specialists was associated with the way information was delivered. Here, empathetic and encouraging communication have mitigated helplessness and the fear. The results of this study are similar to those given by Valizadeh et al. (2013) who did the study in Iran and highlighted that cultural sensitivity and nurses being able to express emotions in their communication with patients had a great contribution to the psychological preparedness of patients to endure the procedures (Creasey, 2024).

Surprisingly, patients who found the communication of nurses either directive or independent showed increased anxiety. This conforms to the observations made by El Sayed Khaliel et al. (2022), who indicated that authoritarian type of communication resulted in patient dissatisfaction and enhancement of emotional distress. The current study strengthens this opinion by demonstrating that directive communication could be viewed as impersonal or in a hurry, particularly in such emotionally delicate cases as pre-catheterization. Thus, patient outcomes may be improved through relationship and not transactional communication.

In addition, the connection between communication style and anxiety also carries implications on nursing practice and education. Nurses could be trained in interpersonal communication, emotional intelligence and cultural competence, which should help them to deal with patient anxiety more effectively. As the current research indicates, supportive and empathetic communication does more than providing a boost to patient satisfaction it also aids in overall safety and quality of service. The same is supported by Ibrahim Shalaby et al. (2024) who advocate incorporation of communication skills into clinical competency frameworks.

Conclusively, the study provides a definite and statistically significant relationship between communication style and pre-procedural anxiety in the heart patients. It confirms the significance of the positive interaction between nurses and patients in enhancing psychological readiness preceding invasive plan. Although the findings are consistent with the wide range of literature, the study presents the contextual insights of a South Asian healthcare setting that is unique. In further studies, researchers could build on such results by adding longitudinal data, personal focus, and assessing the effects of communication-based training interventions on patient anxiety levels and subsequent procedure outcomes.

Conclusion and Recommendations

This research study's results proved that the cardiac nurses communication styles and the pre-procedural anxiety of patients in the cardiac cath lab were a statistically significant, moderate negative relationship. Accepting and supporting communication styles were linked to the reduction in the anxiety level, and directive and neutral styles showed an increase in the level of anxiety. The findings indicate the critical role of nurse-patient interaction and its impact to the emotional status of patients undergoing invasive

cardiac action. Within a tertiary care environment such as the Punjab Institute of Cardiology, patients tend to invest heavily in the verbal comfort and emotional consultation of healthcare professionals and, as such, communication quality and style is an essential component in patient-centered care.

According to the results, it is possible to make various recommendations to advance the nursing practice and increase patient outcomes. To begin with, the communication skills training must be incorporated in the undergraduate and in-service nursing education, focusing on the techniques of empathy, active listening to patients, and interacting with the patients. Second, hospitals need to develop rules promoting the respective efforts of their staff members, i.e., the nurses, to spend sufficient time communicating with their patients, particularly within high-stress settings, e.g., cardiac units. And thirdly, a regular measure of the level of anxiety among their patients before the procedures will allow them to see patients who may need a higher level of support so that nurses can make their communication style more appropriate.

Besides, the attitudes held by nurses regarding their communication patterns, and the obstacles in carrying out patient-based care should be investigated in further research. The inclusion of qualitative evidence might give a better insight into the development and implementation of communication strategies in various situations in the clinical setting. Lastly, institutional policies are supposed to encourage the culture of humane treatment, where communication is perceived as a major element of clinical performance and patient satisfaction. Incorporating the efficient communication protocol into the functioning of healthcare institutions will allow healthcare establishments to decrease the level of patient anxiety, develop trust-based relationships, and enhance the quality of the provided cardiac care services.

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