

International Journal of Art, Social, and Managerial Sciences (IJASMS)

2024: Volume (1) Issue (1)

Nursing Students' Perception Regarding Effective Teamwork

Doi: 10.5281/zenodo.13364557

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Keywords: Team Effectiveness, Nursing Students, Communication, TeamSTEPPS

Abstract

Background: Teamwork and collaboration are vital components of interprofessional development in healthcare, significantly contributing to the prevention of medical errors and the delivery of high-quality patient care. Nurses play a critical role in these teams, working closely with physicians and other healthcare professionals to ensure coordinated care.

Purpose: This study aimed to assess nursing students' perceptions of effective teamwork and identify areas for improvement in their preparation for collaborative healthcare work, particularly in critical care environments.

Methods: A descriptive research design was employed, involving 206 nursing students from various colleges in Riyadh, Saudi Arabia. Participants were selected using random sampling. The TeamSTEPPS Teamwork Perceptions Questionnaire was used to collect data, measuring perceptions across five domains: team structure, leadership, situational monitoring, mutual support, and communication. Data were analyzed using SPSS, with ethical considerations ensuring participant confidentiality and study integrity.

Results: Communication was perceived as the most effective domain, with a mean score of 3.14 (SD = 1.72), followed by leadership with a mean score of 3.13 (SD = 1.72). However, team structure (mean = 2.93, SD = 0.41) and mutual support (mean = 2.93, SD = 0.40) were identified as areas needing improvement. The study also found significant differences in perceptions based on institutional accreditation, particularly concerning academic performance and prior work experience.

Conclusion: The findings underscore the importance of communication and leadership in fostering effective teamwork among nursing students. However, improvements in team structure and mutual support are necessary. The study highlights the need for enhanced training in these areas and emphasizes the role of accreditation in shaping students' educational experiences and teamwork perceptions.

Introduction

Teamwork and collaboration are essential components of interprofessional development that enable healthcare workers to perform exceptional, quality-based work. In healthcare settings, effective teamwork is particularly crucial as it plays a significant role in preventing human and medical errors. According to Krueger, Ernstmeyer, and Kirking (2017), the primary objective of teamwork

in healthcare is to deliver high-quality patient care. Nurses, as integral members of healthcare teams, collaborate closely with physicians and other staff members. Their roles are multifaceted, encompassing the evaluation of patients' health, coordination of care, conflict management, and providing leadership or mentorship to new team members (Al-Ruzzieh & Ayaad, 2021; Gleddie, Stahlke, & Paul, 2018).

The critical care environment presents a unique set of challenges where teamwork is indispensable. These settings often involve complex patient care situations that require quick decision-making, advanced problem-solving skills, and the ability to work under pressure. For nursing students, developing the necessary skills to manage such critical cases effectively is vital. These students rely on comprehensive explanations from healthcare professionals and require opportunities to offer solution-based opinions (Visser, Ket, Croiset, & Kusurkar, 2017). Research has shown that nursing students' perceptions of teamwork range from moderate to effective; however, these perceptions can be influenced by various factors, including the organizational structure, culture, and the educational institution they attend (Majed et al., 2024; Kakemam et al., 2021). As such, the results may differ significantly depending on the institution and geographical location. High-risk environments, such as emergency care units, exacerbate the need for effective teamwork. These settings demand not only attention and swift action plans from healthcare workers but also impeccable collaboration to prevent conflicts and errors. Poor communication and issues in interdependent tasks are common sources of mistakes in these environments (Liu et al., 2021). Therefore, fostering teamwork and communication through interprofessional education becomes crucial. However, interprofessional education is not widely implemented in Saudi Arabia, suggesting that the development of effective teamwork perceptions among nursing and medical students may be limited (Abuseif & Ayaad, 2019; Abuseif et al., 2019; Algahtani et al., 2021). Despite these challenges, studies have shown that nursing students in Riyadh exhibit readiness to engage in interprofessional education, indicating their potential for learning and developing these essential skills (Alruwaili, Mumenah, Alharthy, & Othman, 2020; Sánchez Expósito et al., 2018).

The generalizability of these findings, however, is limited due to the focus on a single university in previous studies. To address this gap, the present study was conducted across various nursing colleges in Riyadh to gather a broader understanding of nursing students' perceptions of effective teamwork and coordination in healthcare settings.

The aim of this study is to assess these perceptions and identify areas for improvement to better prepare nursing students for the collaborative nature of healthcare work.

Research Method

Design

This study utilized a descriptive research design to explore nursing students' perceptions of effective teamwork. The research was conducted across different nursing colleges in Riyadh, Saudi Arabia. A descriptive

design was chosen for its ability to provide a detailed and accurate portrayal of students' perceptions within their natural settings.

Sampling and Sample Size

The study employed random sampling during participant recruitment to ensure that the sample was representative of the larger population of nursing students. A total of 206 students participated in the study. This sample size was deemed sufficient for achieving the research objectives and for providing reliable statistical analysis. Only nursing students from various colleges in Riyadh were considered eligible for participation. Autonomy was emphasized during recruitment, ensuring that participation was voluntary and without coercion. Students from other healthcare fields were excluded to maintain the focus on nursing students' specific experiences and perceptions.

Instrument:

The primary tool used for data collection was the TeamSTEPPS Teamwork Perceptions Questionnaire, a well-established instrument developed by Battles and King (2010). This questionnaire was chosen for its comprehensive approach to assessing attitudes toward teamwork across multiple domains. The instrument covers five key domains:

- Team structure (7 items)
- Leadership (7 items)
- Situational monitoring (7 items)
- Mutual support (7 items)
- Communication (7 items)

Participants responded to the questionnaire using a five-point Likert scale, with scores ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The scores for each domain, as well as overall teamwork perception, were averaged to provide a clear measure of students' perceptions.

Data Collection Method

Before data collection commenced, official permission was obtained from Inaya College to ensure the study's ethical integrity. An expert panel confirmed the questionnaire's content validity, and its reliability was tested using Cronbach's alpha to ensure consistent results. The data collection was conducted online, with the questionnaire distributed via electronic links such as WhatsApp, making it accessible to all participants.

score of 3.14 (SD = 1.7217). This suggests that students generally felt that communication within their teams

Data Analysis

Data analysis was performed using SPSS (Statistical Package for the Social Sciences), a robust and widely used statistical software. Predefined responses from the questionnaire were entered into SPSS, where relationships and variances were analyzed to identify nursing students' perceptions of teamwork. The reliability of SPSS in handling variable-based data made it an ideal choice for this study, allowing for a comprehensive assessment of the data and ensuring that the results were both accurate and meaningful.

Ethical Considerations

The study was conducted with strict adherence to ethical standards. The questionnaire's accuracy was verified by experts to ensure the validity of the findings. Participants were granted complete autonomy and assured of their confidentiality throughout the study. Ethical approval was obtained from the appropriate authorities at the well known College, and the research proceeded only after receiving IRB approval from the Ethical Committee. This process ensured that the study was conducted with the highest ethical standards, minimizing the risk of discrepancies or falsification in the research design and execution.

Results

Demographic Characteristics

Table 1 presents the demographic characteristics of the nursing students who participated in the study. The mean age of participants was 21 years (SD = 1.2). The majority of participants were female (61.2%) and had at least a "very good" academic grade. Approximately 63.1% of the participants were in their third year of education. Most participants lived with their family (82.5%) and did not have previous work experience (93.2%).

Description of the Study Variables

The study's results indicate that nursing students' perceptions of team effectiveness varied across different domains. Communication was perceived as the most compelling aspect of teamwork, with the highest mean

Table (1) Distribution of critical care nurses according to their demographic data

Factor	Results	
Age (mean, SD)	21 (1.2)	
Sex (n, %)		
Male	80	(38.8%)
Female	126	(61.2%)
Material Status (n, %)		
Single	150	(72.8%)
Married	44	(21.4%)
Academic Grad (n, %)		
Excellent	90	(43.7%)
Very good	94	(45.6%)
Good	20	(9.7%)
Other	2	(1.0%)
Education Years (n, %)		
1 st Year	6	(2.9%)
2 nd years	40	(19.4%)
3 rd Year	130	(63.1%)
4 th years	30	(14.6%)
Living Arrangement (n, %)		
Living alone	28	(13.6%)
Living with your family	170	(82.5%)
Living with roommate	8	(3.9%)
Previous work experience (n, %)		
No	192	(93.2%)
Yes	14	(6.8%)

was strong, although the high standard deviation indicates that experiences varied significantly among participants. Leadership was also viewed positively, with a mean score of 3.13 (SD = 1.716), ranking second among the domains. However, the variability in responses suggests that while some students perceived leadership to be effective, others had less favorable views (See table 2).

In contrast, team structure and mutual support were perceived as the least effective domains, both with mean scores of 2.93. The low standard deviations for these domains (0.407 and 0.403, respectively) indicate that

students had a consistent view of these aspects of teamwork, suggesting a general consensus that improvements are needed in these areas. Situational monitoring, with a mean score of 3.07 (SD = 1.26), was ranked third, reflecting a moderate perception of its effectiveness. Overall, the total perception of team effectiveness had a mean score of 3.09 (SD = 1.220), indicating a moderate level of satisfaction with teamwork among the nursing students, with certain areas identified as needing further development.

Table 3 provides detailed insights into nursing students' perceptions of various domains related to team effectiveness, highlighting the highest and lowest items within each domain.

Team Structure: The highest-rated item in this domain was "Staff skills overlap sufficiently so that work can be shared when necessary" with a mean score of 3.168 (SD = 1.7094), indicating that students perceive a moderate ability to share workload among staff members. The lowest-rated item was "My unit has clearly articulated goals," with a mean score of 3.129 (SD = 1.7277), suggesting that students find room for improvement in the clarity of unit goals. Overall

Table 2: Study Variables

Domain	Mean	SD	Rank
Team structure	2.93	.407	5
Leadership	3.1345	1.716	2
Situational monitoring	3.07	1.26	3
Mutual Support	2.930	.403	4
Communication	3.138	1.7217	1
Total	3.09	1.220	-

Leadership: In the leadership domain, the item "My supervisor/manager considers staff input when making decisions about patient care" received the highest rating with a mean of 3.168 (SD = 1.7094), reflecting a positive perception of inclusive decision-making. The lowest-rated item was "My supervisor/manager models appropriate team behavior," with a mean score of 3.129 (SD = 1.7277), indicating some variability in how leadership behavior is perceived. The total mean for leadership was 3.1345 (SD = 1.716).

Situational Monitoring: The highest-rated item in situational monitoring was "Staff request assistance

from fellow staff when they feel overwhelmed," with a mean score of 3.147 (SD = 1.7214). This suggests that students feel that staff are generally willing to seek help when needed. The lowest-rated item was "When staff have a concern about patient safety, they challenge others until they are sure the concern has been heard," with a mean of 2.691 (SD = 1.6566), indicating a perceived deficiency in assertiveness regarding patient safety concerns. The total mean for situational monitoring was 3.07 (SD = 1.26).

Mutual Support: "Staff advocate for patients even when their opinion conflicts with that of a senior member of the unit" was the highest-rated item in this domain, with a mean score of 3.147 (SD = 1.7198), indicating strong perceived support for patient advocacy. The lowest-rated item was "Staff resolve their conflicts, even when the conflicts have become personal," with a mean score of 2.662 (SD = 1.6449), suggesting that conflict resolution is an area that needs improvement. The total mean for mutual support was 2.930 (SD = 0.403).

Communication: The highest-rated item within the communication domain was "Staff verbally verify information that they receive from one another," with a mean score of 3.138 (SD = 1.721), indicating a strong emphasis on verification in communication. The lowest-rated item was "Information regarding patient care is explained to patients and their families in lay terms," with a mean score of 3.132 (SD = 1.725), suggesting that there is room for improvement in how information is communicated to patients and their families. The total mean for communication was 3.134 (SD = 1.716).

Differences in team effectiveness according to staff demographics

The analysis revealed significant differences in several demographic and educational variables based on the accreditation status of the institutions. Specifically, marital status, academic grade, education years, living arrangement, and previous work experience all showed statistically significant differences. For instance, marital status varied significantly ($p < .0011$) with accreditation status, as did academic grades ($p < .001421$), indicating that students from accredited institutions had different academic performance levels. Additionally, the number of years of education ($p < .00001$) and living arrangements ($p < .00001$) also differed notably, suggesting that these factors were influenced by whether the institution was accredited or not (table 4).

Table 3: Description of Perception per Domain Items

Domain/ Item	Mean	SD	Rank
Team structure			
1. Staff skills overlap sufficiently to share work when necessary.	3.168	1.709	1
2. Staff are held accountable for their actions.	3.162	1.706	2
3. Staff within my unit share information that enables timely decision-making by the direct patient care team.	3.155	1.700	3
4. My unit efficiently uses resources (e.g., staff supplies, equipment, information).	3.136	1.722	6
5. Staff understand their roles and responsibilities.	3.140	1.718	4
6. My unit has clearly articulated goals.	3.129	1.727	5
Total	2.93	.407	-
Leadership			
My supervisor/manager considers staff input when making decisions about patient care.	3.168	1.709	1
My supervisor/manager provides opportunities to discuss the unit's performance after an event.	3.162	1.706	2
My supervisor/manager takes time to meet with staff to develop a plan for patient care.	3.155	1.700	3
My supervisor/manager ensures that adequate resources (e.g., staff, supplies, equipment, information) are available.	3.136	1.722	6
My supervisor/manager resolves conflicts successfully.	3.140	1.718	4
My supervisor/manager models appropriate team behavior	3.129	1.727	5
Total	3.134	1.716	-
Situation Monitoring			
Staff request assistance from fellow staff when they feel overwhelmed.	3.134	1.717	3
Staff request assistance from fellow staff when they feel overwhelmed.	3.147	1.721	1
Staff caution each other about potentially dangerous situations.	3.135	1.723	2
Feedback between staff is delivered in a way that promotes positive interactions and future change.	3.131	1.728	5
Staff advocate for patients even when their opinion conflicts with that of a senior member of the unit.	3.132	1.726	4
When staff have a concern about patient safety, they challenge others	2.691	1.656	6

until they are sure the concern has been heard.			
Total	3.07	1.26	-
Mutual Support			
Staff assist fellow staff during high workload.	3.137	1.720	4
Staff request assistance from fellow staff when they feel overwhelmed.	3.140	1.72	2
Staff caution each other about potentially dangerous situations.	3.138	1.721	3
Feedback between staff is delivered in a way that promotes positive interactions and future change.	3.136	1.722	5
Staff advocate for patients even when their opinion conflicts with that of a senior member of the unit.	3.147	1.719	1
Staff resolve their conflicts, even when the conflicts have become personal.	2.662	1.644	6
Total	2.930	.403	-
Communication			
Information regarding patient care is explained to patients and their families in lay terms.	3.132	1.725	6
Staff relay relevant information promptly.	3.133	1.715	5
When communicating with patients, staff allow enough time for questions.	3.137	1.723	2
Staff use common terminology when communicating with each other.	3.135	1.718	4
Staff verbally verify information that they receive from one another.	3.138	1.721	1
Staff follow a standardized method of sharing information when handing off patients	3.137	1.714	3
Total	3.134	1.716	-

On the other hand, age and gender did not show significant differences based on accreditation status, with p-values of .95 and .12, respectively, indicating that these variables were relatively unaffected by accreditation. However, previous work experience significantly differed between accredited and non-accredited institutions ($p = .012$), suggesting that students at accredited institutions were more likely to have differing levels of prior work experience. These findings underscore the impact of accreditation on several key aspects of student's educational and personal backgrounds.

Discussion

The findings from this study underscore the critical role that effective teamwork and collaboration play in nursing education, especially within the high-pressure

environments of critical care settings. In such contexts, where decisions must be made rapidly and accurately, the ability of healthcare teams to work cohesively can

Table 4: Differences In the Results Based On Accreditation Status

Variables	Results	P Value
Age	r=.002	.95
Gender	T test=11.408	.12
Marital Status	T test=31.408	< .0011*
Academic Grad	F=21.29	< .001421*
Education Years	F=51.136	< .00001*
Living Arrangement	F=42.122	< .00001*
Previous work experience	T test=33.102	.012*

*Significant at $p < .05$

significantly impact patient outcomes. This study found that communication was perceived as the most effective domain of teamwork among nursing students, which is

consistent with existing literature that identifies communication as a cornerstone of safe and efficient healthcare delivery (Ayaad et al., 2022; Abuseif et al., 2018; Al-Ruzzieh and Ayaad. 2020; Al-Ruzzieh et al., 2022). Effective communication ensures that all team members are on the same page, reduces the likelihood of errors, and improves patient care quality. However, the high standard deviation in the communication domain suggests variability in how students experience communication within their teams, highlighting that not all students may feel equally confident in their team's communication abilities. This variability could be attributed to differences in team dynamics, individual communication skills, or the specific contexts in which these students have trained (Al-Ruzzieh and Ayaad. 2022; Krueger et al., 2017).

Leadership emerged as another positively perceived domain, with students recognizing the importance of strong leadership in fostering effective teamwork. The high mean scores for leadership-related items, such as considering staff input and providing opportunities for performance discussions, suggest that nursing students value leaders who are inclusive and proactive in managing team dynamics. Effective leadership is crucial in healthcare settings, where the ability to guide, motivate, and resolve conflicts within a team can directly affect patient care outcomes. The positive

perceptions of leadership in this study align with previous research, which has shown that inclusive and supportive leadership practices can enhance team cohesion and improve overall team performance. However, the variability in perceptions, as indicated by the standard deviations, suggests that not all students may experience leadership in the same way, potentially due to differences in leadership styles or the extent to which students have been involved in leadership decision-making processes during their training (AlHarthy et al., 2024; Gleddie et al., 2018).

Despite the generally positive perceptions of communication and leadership, the study identified areas where nursing students felt teamwork was less effective, particularly in the domains of team structure and mutual support. The lower mean scores in these areas indicate that students may perceive gaps in how team roles are defined and how support is provided among team members. This finding is significant as clear team structures and strong mutual support are essential for the efficient functioning of healthcare teams, particularly in high-stakes environments like critical care. When team roles are well-defined, it reduces ambiguity and ensures that all team members know their responsibilities, leading to more coordinated and effective care. Similarly, mutual support among team members helps to distribute the workload, prevent burnout, and maintain high standards of care. The perceived deficiencies in these areas suggest that there may be room for improvement in how nursing education programs prepare students to function within well-structured teams and foster a culture of mutual support. This aligns with other studies that have highlighted the challenges of developing effective teamwork in healthcare, particularly in environments where hierarchical structures and varying levels of experience can complicate team dynamics (AlHarthy et al., 2024; AL-Ruzzieh et al., 2022; Visser et al., 2017; Kakemam et al., 2021).

The study also revealed significant differences in perceptions of team effectiveness based on various demographic and educational factors, particularly concerning the accreditation status of the institutions. The findings that marital status, academic grade, education years, living arrangement, and previous work experience all varied significantly with accreditation status suggest that the quality and nature of education provided by accredited institutions may influence how students perceive and engage in teamwork. For instance, students from accredited institutions were more likely to have higher academic grades and longer years of education, which could reflect more rigorous training and better preparation for teamwork. Moreover, the significant differences in living arrangements and

previous work experience indicate that students from accredited institutions might have more stable personal environments and diverse experiences that contribute to their perceptions of teamwork. This highlights the importance of accreditation in ensuring that educational institutions provide a supportive and high-quality learning environment that prepares students for the collaborative nature of healthcare work (Al-Ruzzieh et al., 2023; Liu et al., 2021).

Furthermore, the lack of significant differences in age and gender suggests that these factors may not play a substantial role in how students perceive teamwork, which could indicate that the benefits of teamwork training are broadly applicable across different demographic groups. However, the significant difference in previous work experience between students from accredited and non-accredited institutions suggests that those from accredited institutions may have had more opportunities to engage in real-world teamwork, which could enhance their perceptions of its effectiveness. These findings emphasize the need for nursing education programs to continue focusing on accreditation as a means of ensuring high standards in education and training, particularly in areas that directly impact students' readiness for teamwork in professional settings (Algahtani et al., 2021; Al-Ruzzieh and Ayaad, 2021; Haroun et al., 2022).

Conclusion

This study highlights the critical role of communication and leadership in fostering effective teamwork among nursing students, while also identifying areas for improvement in team structure and mutual support. The significant differences based on accreditation status underscore the impact of institutional quality on students' educational experiences and perceptions of teamwork. These findings suggest that nursing education programs should prioritize the development of communication and leadership skills, ensure clear team structures, and foster a supportive team environment to better prepare students for the collaborative nature of healthcare work. Additionally, maintaining high accreditation standards is crucial in providing students with the necessary skills and experiences to excel in team-based care environments.

Recommendations

Based on the findings of this study, several key recommendations can be made to enhance teamwork effectiveness in nursing education. First, it is crucial to prioritize communication skills training within nursing programs. Although communication was identified as the most effective domain, the significant variability in

responses suggests a need for more standardized practices. Training should emphasize the consistent use of common terminology, effective verification techniques, and other communication strategies to ensure that all team members are aligned in their understanding and approach.

In addition to communication, leadership development should be integrated into nursing curricula. While leadership was generally viewed positively, the variability in perceptions indicates that not all students experience leadership in the same way. Providing opportunities for students to engage in leadership roles and decision-making processes, particularly through simulation-based training, can help strengthen their leadership skills. This training should focus on inclusive decision-making and conflict resolution, which are critical in healthcare settings.

The study also highlighted the need for improvement in the areas of team structure and mutual support, which received lower scores. Educational institutions should focus on clearly defining team roles and responsibilities and fostering a supportive environment where team members feel empowered to assist one another. Incorporating team-based learning activities and interprofessional education that simulates real-world healthcare scenarios can help students better understand and practice effective teamwork.

Finally, the significant differences observed based on accreditation status underscore the importance of maintaining high accreditation standards. Institutions should regularly assess and enhance their accreditation processes to ensure that they provide a supportive and high-quality learning environment that prepares students for the collaborative nature of healthcare work.

Limitations

This study has several limitations that should be considered when interpreting the findings. First, the study was conducted with a specific sample of nursing students from various colleges in Riyadh, Saudi Arabia. While the sample size was sufficient for the study's purposes, the findings may not be generalizable to all nursing students, particularly those in different geographical regions or educational settings. Additionally, the study relied on self-reported data from the participants, which can introduce bias. Participants may have provided socially desirable responses or may have interpreted the survey questions differently, potentially affecting the accuracy of the results.

The cross-sectional design of the study provides a snapshot of students' perceptions at a single point in time, limiting the ability to examine changes in perceptions over time or the long-term impact of

educational interventions on teamwork effectiveness. Moreover, the focus on nursing students specifically limits the applicability of the findings to other healthcare professionals. Future research should aim to include a broader range of healthcare students and professionals to gain a more comprehensive understanding of teamwork dynamics in healthcare settings.

Lastly, the study primarily utilized quantitative methods, which may not fully capture the depth and complexity of students' experiences with teamwork. Including qualitative data, such as interviews or focus groups, in future research could provide richer insights into the factors influencing teamwork perceptions and help identify specific areas for improvement. These limitations highlight the need for further research to explore the complexities of teamwork in nursing education and to test the effectiveness of interventions designed to improve teamwork skills in healthcare settings.

Ethical Declaration

Institutional Review Board (IRB) approval was obtained from the research office at Hacettepe University, Ankara, Turkey.

Conflict of Interest

The authors have no conflicts of interest to disclose

Citation: Alkhazaleh, D (2024). Nursing Students' Perception Regarding Effective Teamwork. *International Journal of Art, Social, and Managerial Sciences (IJASMS)*, 1(1):10-18. <https://doi.org/10.5281/zenodo.13364557>

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