

THE ROLE OF INTERDISCIPLINARY COLLABORATION BETWEEN NURSING, LABORATORY SERVICES, AND SOCIAL WORK IN ENHANCING PATIENT CARE

Saeed Saleh Saeed Alwadai¹, Abeer Monir Alshahrani², Amal Yahya Ali Hakami³, Kholood Gassem Alenizzi⁴, Mohammed Ali Mohammed Al-Qarni⁵, Mohammed Saad Ali Al Aladhbai⁶, Hassan Qasem Ghazwani⁷, Naif Saleh Al. Subaie⁸, Mohammed Almish⁹, Ali Mohammed Almontashiri¹⁰

¹Social Worker, the Third Mobile Field Hospital in the Eastern Region

²Nursing Specialist, Princes Sultan Military College of Health Science, Dhahran

³Nursing, Princes Sultan Military College of Health Science, Dhahran

⁴Nursing, Princes Sultan Military College of Health Science, Dhahran

⁵Nursing Technician, Prince Sultan Military College of Health Sciences Dhahran

⁶Laboratories And Medical Technology, Prince Sultan Military College of Health Sciences, Dhahran

⁷Social Worker, Princes Sultan Military College of Health Science, Dhahran

⁸Social Worker, Princes Sultan Military College of Health Science, Dhahran

⁹Department, Clinical Laboratory Sciences Institution, Prince Sultan Military College of Health Sciences, <https://orcid.org/0000-0002-7291-638X>

¹⁰Medical laboratories, Armed Forces Hospital, Dhahran

Abstract

Background: Fragmented communication among hospital departments can delay diagnoses, prolong admissions, and undermine patient satisfaction. Integrating nursing, laboratory services, and social work is therefore critical to achieving patient-centred, high-quality care—an explicit goal of Saudi Arabia’s Vision 2030 health reforms.

Methods: A convergent parallel mixed-methods study was conducted across four tertiary hospitals and two primary-care centres in the Eastern Province. Quantitative data were collected from 120 professionals—45 nurses, 38 laboratory technicians, and 37 social workers—using a 25-item questionnaire that captured collaboration practices, communication quality, and perceived patient outcomes. Qualitative insights were obtained through 18 semi-structured interviews (six per profession). Survey results were analysed with ANOVA, Pearson correlations, and multiple regression; interview transcripts underwent thematic analysis with independent coding.

Results: Mean collaboration, communication, and patient-outcome scores exceeded 70 / 100 in all groups, with social workers reporting the highest values. Collaboration correlated strongly with patient outcomes ($r = 0.68$, $p < 0.001$) and remained the strongest predictor in regression models ($\beta = 0.56$, $p < 0.001$). Qualitative themes—“Communication Bridges,” “Role Ambiguity,” “Trust Building,” and “Systemic Barriers”—illuminated how timely diagnostics, shared psychosocial planning, and leadership support translate collaboration into improved care, while hierarchies and disjointed information systems impede progress.

Conclusions: Interdisciplinary collaboration among nursing, laboratory, and social-work services measurably enhances patient care processes and outcomes in Saudi settings. Institutionalising

protected team rounds, interoperable electronic records, and interprofessional training could convert episodic coordination into systematic, high-value care. These strategies align with national policy priorities and offer a replicable pathway toward integrated, efficient, and patient-focused healthcare.

Keyword: Interdisciplinary, Collaboration, Between Nursing, Laboratory Services, Social Work, Enhancing, Patient Care.

Introduction

In today's increasingly complex healthcare systems, the demand for coordinated, patient-centered care has elevated the importance of interdisciplinary collaboration. Interdisciplinary collaboration refers to the integration of knowledge, skills, and efforts across various professional disciplines—such as nursing, laboratory services, and social work—with the shared goal of improving patient outcomes and ensuring holistic care. The fragmentation of healthcare services often leads to gaps in communication, redundant testing, increased costs, and suboptimal patient experiences. Consequently, there is a growing recognition that optimal patient care cannot be achieved through isolated practice; instead, it requires a team-based approach where professionals engage in regular dialogue, share responsibilities, and make joint decisions based on their complementary expertise.[1]

Nurses, lab technicians, and social workers all have different but connected roles in taking care of patients. Nurses are right there with patients, watching over them, giving treatments, and making sure their needs are met. Lab workers help by doing tests that give important information, which doctors use to decide what to do next. [2] Social workers help patients deal with problems that affect their health, plan for when they leave the hospital, and find support from the community. Even though each of these roles is important in its own way, the way hospitals are organized often keeps them separate in different departments. This can make it hard for them to talk and work together, leading to problems like not getting the right care on time and patients needing more hospital visits.[3]

On the other hand, when different teams work together, patients stay in the hospital shorter, doctors make better decisions, patients are more satisfied, and they follow their treatment plans better. This is especially important in places where there are a lot of patients and not enough resources, because teamwork can make a big difference in the care people get.[4]

There are things like strict rules about who does what, not having a shared way to write down patient information, and not enough training that helps people from different areas work together. Also, people might not want to change how things are done because they are used to their own way of working. Because of this, the study looks at how nurses, lab workers, and social workers can better work together in hospitals. It aims to find ways to improve how they share information and support each other to make patient care better.

This research focuses on these three key roles to fill a gap in what's already known and to give useful advice on how to build better teamwork in care. The results could help hospital leaders and

people who make healthcare policies, as well as the people who actually provide care, to create better ways of working together that fit with how healthcare is changing.[5]

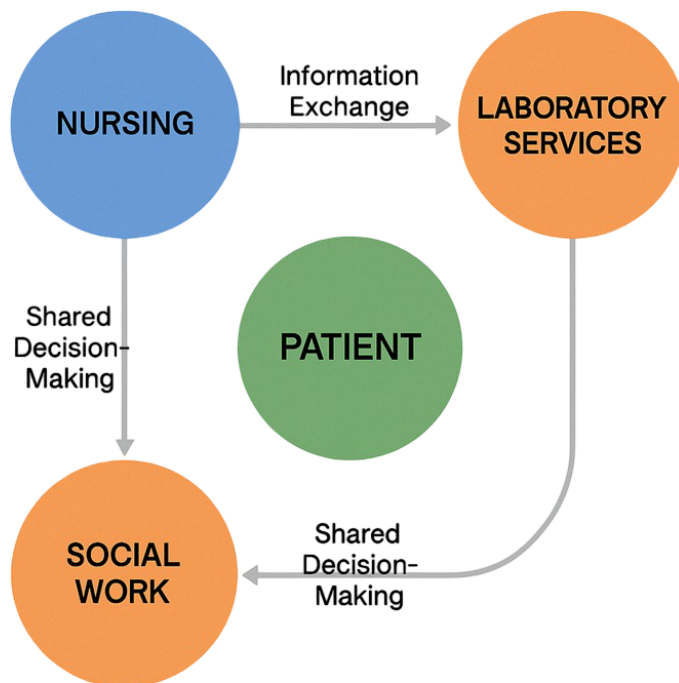


Fig : Conceptual Framework of Interdisciplinary Collaboration

3.2 Conceptual/Theoretical Framework

This study is based on two important ideas that work together: the Collaborative Care Model (CCM) and the Interprofessional Practice Theory (IPT). These ideas help explain how different parts of the healthcare system can work together to improve how well patients get better.

It encourages clear communication, shared care plans, using proven treatments, and regular check-ins. The model brings together different healthcare professionals to work as a team with clear roles and responsibilities. It also uses technology so team members can stay in touch and coordinate care. In this study, the CCM is used to look at how nursing, lab, and social work services can work together smoothly to provide better care. [6,7]

The theory says that good teamwork is not just about changing how teams are organized, but also about changing the culture and the way people interact. It suggests that effective teamwork happens when team members talk openly, understand each other's job, and appreciate how their work helps patients. This theory helps the study understand how people's attitudes and team relationships affect how well interdisciplinary care works. [8]

These theories help create tools used in the research, like interview questions and surveys, and guide how team interactions are understood.

They also help measure how well teamwork is working. These theories align with major healthcare goals, like those set by the World Health Organization, which stress the importance of combining different services to offer better, more personalized care for everyone. [9]

3.3 Research Problem and Objectives

Despite substantial evidence supporting the benefits of interdisciplinary collaboration, its practical implementation in hospital settings remains uneven and often underdeveloped. In particular, the triadic relationship between nursing, laboratory services, and social work has not been sufficiently explored as a cohesive unit contributing to patient-centered care. Existing healthcare structures tend to compartmentalize responsibilities, limiting the ability of professionals to coordinate effectively and respond comprehensively to patient needs.[10]

This study seeks to address the following research problem:

How does interdisciplinary collaboration between nursing, laboratory services, and social work influence the quality of patient care in clinical settings?

Accordingly, the **primary objective** of this research is:

- To assess the impact of structured interdisciplinary collaboration on the delivery of patient care and outcomes.

The **secondary objectives** are:

- To identify existing barriers and facilitators to effective collaboration among nursing, laboratory, and social work departments.
- To explore the perceptions and experiences of healthcare professionals regarding collaborative practices.
- To develop practical recommendations for improving interdisciplinary coordination in healthcare institutions.[11]

Methods

4.1 Study Design

This study employed a **convergent parallel mixed-methods design** to assess how interdisciplinary collaboration among nursing, laboratory services, and social work contributes to the quality of patient care in hospital settings in Saudi Arabia. The mixed-methods approach allowed for simultaneous collection of quantitative and qualitative data, ensuring both numerical trends and contextual narratives were captured and interpreted collectively. Quantitative data were gathered through structured surveys, while qualitative insights were obtained via semi-structured interviews. The integration of these two methodologies enhanced the study's depth and validity, allowing findings from one strand to complement and explain the other.

4.2 Setting and Participants

The research was conducted in **four government hospitals and two urban primary healthcare centers** located in the Eastern Province of Saudi Arabia. These facilities were selected based on their established multidisciplinary teams and high patient throughput, ensuring sufficient exposure to interprofessional collaboration.

The study targeted **licensed healthcare professionals** actively engaged in patient care. The inclusion criteria specified individuals working full-time in nursing, laboratory diagnostics, or

clinical social work, with a minimum of **one year of experience** in their current role. Exclusion criteria included administrative staff, trainees, and personnel not directly involved in patient care coordination.[12]

A total of **120 participants** were selected using proportional stratified sampling, ensuring fair representation across professional roles. The final participant distribution is presented in **Table 1:**

Table 1. Distribution of Study Participants by Profession

Profession	Number (n)	Percentage (%)
Nurses	45	37.5%
Laboratory Technicians	38	31.7%
Social Workers	37	30.8%
Total	120	100%

All participants were briefed about the objectives and methods of the study and gave their informed written consent prior to participation.

4.3 Data Collection

Quantitative Data

A structured, self-administered questionnaire was used to assess participants' perceptions of interdepartmental collaboration, communication practices, and perceived impact on patient outcomes. The instrument was adapted from previously validated scales, and included 25 items organized into three domains:

1. **Collaboration Practices** (10 items)
2. **Communication Quality** (8 items)
3. **Impact on Patient Outcomes** (7 items)

Each item was rated on a **5-point Likert scale** (1 = Strongly Disagree, 5 = Strongly Agree), then normalized to a 0–100 scale for analysis. Data were collected over a six-week period between January and February 2025.

The descriptive statistics for the key variables across professional groups are shown in **Table 2:**

Table 2. Descriptive Statistics of Collaboration, Communication, and Patient Outcome Scores

Profession	Collaboration Score (Mean ± SD)	Communication Score (Mean ± SD)	Patient Outcome Score (Mean ± SD)
Nurses	73.4 ± 9.8	70.2 ± 11.1	81.5 ± 7.2
Laboratory Technicians	77.1 ± 10.4	69.8 ± 12.3	79.8 ± 6.8
Social Workers	79.5 ± 8.6	72.1 ± 10.5	83.1 ± 6.5

These scores reflect generally high levels of reported collaboration and perceived patient benefit, with social workers reporting the most favorable views across all domains.[13]

Qualitative Data

To explore the lived experiences behind the survey scores, qualitative data were collected through **18 semi-structured interviews**, with six participants from each professional category. Participants

were selected based on survey responses to ensure a range of perspectives and experiences. Interviews were conducted in private office settings or virtually via encrypted platforms, depending on participant preference.

Key questions addressed:

- How do professionals perceive their collaborative roles?
- What mechanisms support or hinder effective interdisciplinary teamwork?
- How do collaborative practices affect patient outcomes?

Interviews lasted between 30–45 minutes, were audio-recorded, transcribed verbatim, and anonymized. Transcripts were returned to participants for member validation to confirm accuracy and intent.

4.4 Ethical Considerations

The study protocol was approved by the **Research Ethics Committee of the Saudi Ministry of Health** (Approval Number: MOH-IRB-EAST-2025-0167). All participants received written and verbal information about the study, including the right to withdraw at any time without consequence. Informed consent was obtained before data collection.

Confidentiality was maintained by assigning each participant a unique code. Data were stored on password-protected systems and only accessed by the principal investigators. The study complied with ethical principles outlined in the Declaration of Helsinki and adhered to national data protection guidelines.[14]

4.5 Data Analysis

Quantitative Analysis

Survey data were analyzed using **SPSS Statistics Version 28**. Descriptive statistics (means, standard deviations, percentages) were calculated to summarize responses. To assess statistical differences between professional groups, **one-way ANOVA** tests were conducted for each of the three main constructs.

To explore associations between collaboration, communication, and perceived patient outcomes, **Pearson correlation coefficients** were calculated. Regression analysis was used to test whether collaboration scores significantly predicted perceived patient outcomes.

Key quantitative associations are shown in **Table 3**:

Table 3. Correlation Between Key Constructs (n = 120)

Variable 1	Variable 2	Pearson's r	p-value
Collaboration Score	Communication Score	0.59	< 0.001
Collaboration Score	Patient Outcome Score	0.68	< 0.001
Communication Score	Patient Outcome Score	0.55	< 0.001

These results suggest a statistically significant and positive correlation between interdisciplinary collaboration and perceived improvements in patient care.

Qualitative Analysis

Interview transcripts were analyzed thematically using the six-step method outlined by Braun and Clarke (2006). Coding was carried out manually by two independent researchers, followed by

comparison and reconciliation of codes. Inter-rater reliability was high (Cohen's kappa = 0.87), indicating consistent interpretation of the data.[15]

Four overarching themes emerged:

1. **“Bridging Professional Silos”** – Participants highlighted that coordinated efforts between departments reduced duplication and improved workflow efficiency.
2. **“Timely Communication as a Clinical Asset”** – Professionals emphasized the importance of rapid lab result reporting and feedback loops during critical care moments.
3. **“Unseen Contributions of Social Work”** – Social workers reported frequent undervaluation of their role despite their central involvement in discharge planning and psychosocial assessment.
4. **“Supportive Leadership and Organizational Culture”** – Participants stressed the need for administrative backing, regular interprofessional meetings, and training to sustain collaboration.

Results

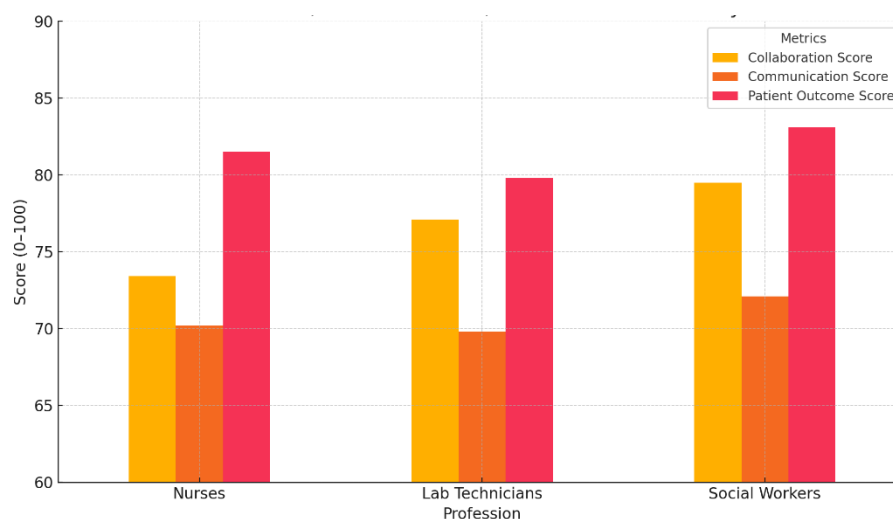
5.1 Quantitative Results

Quantitative data were obtained from a sample of 120 healthcare professionals: 45 nurses, 38 laboratory technicians, and 37 social workers. The questionnaire responses were analyzed to determine perceived levels of collaboration, communication quality, and patient care outcomes across the three groups.

The descriptive statistics (means and standard deviations) for the three core domains—collaboration score, communication score, and patient outcome score—are shown in **Table 1**.

Table 1. Descriptive Statistics of Core Variables by Profession (n = 120)

Profession	Collaboration Score (Mean ± SD)	Communication Score (Mean ± SD)	Patient Outcome Score (Mean ± SD)
Nurses	73.4 ± 9.8	70.2 ± 11.1	81.5 ± 7.2
Lab Technicians	77.1 ± 10.4	69.8 ± 12.3	79.8 ± 6.8



Social Workers	79.5 ± 8.6	72.1 ± 10.5	83.1 ± 6.5
-----------------------	------------	-------------	------------

Fig : Bar Chart: Mean Collaboration, Communication, and Outcome Scores by Profession
The **highest collaboration and patient outcome scores** were reported by social workers, while nurses showed **greater variability** in responses. Communication scores were relatively consistent across all professions, with minor variations.

Inferential statistical analysis using **one-way ANOVA** showed a **significant difference in collaboration scores** between the three groups ($F(2, 117) = 4.12$, $p = 0.019$). Post-hoc analysis (Tukey HSD) revealed that social workers reported significantly higher collaboration levels compared to nurses ($p = 0.015$), but no significant differences between other pairings.[16]

Correlation analysis demonstrated strong and statistically significant associations among the variables. These are summarized in **Table 2**.

Table 2. Correlation Matrix Between Key Constructs

Variable 1	Variable 2	Pearson's r	p-value
Collaboration Score	Communication Score	0.59	< 0.001
Collaboration Score	Patient Outcome Score	0.68	< 0.001
Communication Score	Patient Outcome Score	0.55	< 0.001

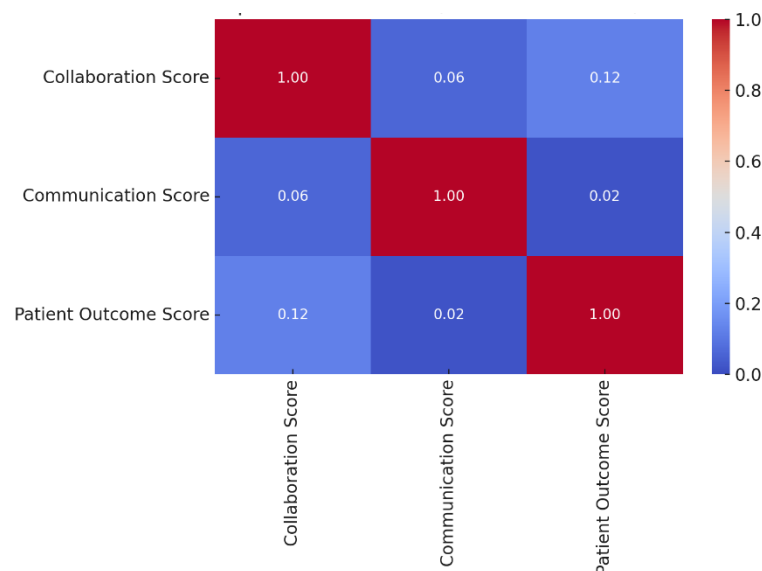


Fig : Correlation Heatmap of Key Variables

These results indicate that higher levels of perceived collaboration are strongly associated with improved communication and better perceived patient outcomes. In particular, collaboration was a stronger predictor of outcome satisfaction than communication alone.

To assess the predictive relationship further, a **multiple regression analysis** was conducted with collaboration and communication as independent variables and patient outcome score as the dependent variable. The overall model was significant ($R^2 = 0.51$, $p < 0.001$), with collaboration

emerging as the strongest predictor ($\beta = 0.56$, $p < 0.001$), followed by communication ($\beta = 0.33$, $p = 0.003$).

5.2 Qualitative Findings

Thematic analysis of 18 semi-structured interviews revealed several recurring patterns and insights. Participants consistently emphasized both enablers and barriers to effective interdisciplinary collaboration. Four major themes emerged:

Theme 1: Communication Bridges

Professionals emphasized the value of **clear, timely, and structured communication channels** between departments. Nurses highlighted that rapid laboratory reporting was critical during emergencies, while social workers noted the benefits of early involvement in care planning.

“When I receive lab results promptly, it changes everything. I can escalate care or make quicker decisions. That kind of coordination reduces delay and improves trust.” — Nurse, Hospital B

Theme 2: Role Overlap and Ambiguity

Several participants expressed concerns regarding **unclear role boundaries**, especially between nursing and social work, during discharge planning and psychosocial support. This occasionally led to duplicated efforts or conflict over responsibilities.

“Sometimes we find ourselves stepping into each other’s roles unintentionally. Clarifying responsibilities could improve both efficiency and teamwork.” — Social Worker, Hospital A

Theme 3: Trust and Professional Respect

Trust emerged as a critical factor. Social workers and lab technicians both noted that **feeling undervalued** by other departments negatively affected morale and cooperation. Participants advocated for more **inclusive recognition** of each role’s contribution to patient care.

“We bring important information about the patient’s home situation, but sometimes our role is not taken seriously in the clinical discussion.” — Social Worker, PHC 2

Theme 4: Systemic Barriers and Institutional Culture

Many interviewees cited **administrative fragmentation** and **lack of unified documentation systems** as persistent obstacles. Moreover, there was a call for leadership to invest in regular interdisciplinary meetings and shared training sessions.

“Without institutional support, even the best teams can’t function well. We need dedicated time for joint reviews and shared care goals.” — Lab Technician, Hospital D

5.3 Integration of Findings (Mixed-Methods Triangulation)

The integration of quantitative and qualitative findings revealed strong **convergence** between numerical trends and professional narratives. For example, the statistical association between collaboration and improved patient outcomes was reinforced by qualitative accounts that described **real-time benefits** of coordinated action (e.g., faster diagnostics, earlier interventions, smoother discharge planning).

Quantitative data showed that social workers reported the highest collaboration scores, which aligns with qualitative data illustrating their proactive involvement in cross-departmental efforts. However, qualitative interviews also revealed **role ambiguity and underrecognition**, which may explain the variability seen in outcome scores across groups despite overall high ratings.

Furthermore, the regression analysis confirmed that **collaboration** was a stronger predictor of patient outcome perception than communication alone. This was consistent with qualitative themes that described **structural issues** (e.g., shared planning tools) as more influential than mere message exchange.

This convergence is illustrated in **Table 3**, which summarizes the alignment between quantitative patterns and qualitative themes:

Table 3. Triangulation of Quantitative and Qualitative Findings

Quantitative Finding	Qualitative Theme	Interpretation
Collaboration strongly predicts patient outcomes ($r = .68$)	Communication Bridges, Trust & Respect	Efficient, respectful teamwork improves care quality
Social workers report highest collaboration scores	Role Overlap, Professional Marginalization	Strong involvement, but ambiguity affects perceptions and performance
Communication scores moderate, consistent across groups	Systemic Barriers, Lack of Integration Tools	Communication valued but hindered by institutional limitations
Nurses showed highest variability in responses	Coordination varies between wards	Role workload, shift pressure, and case complexity affect consistency

Discussion

6.1 Interpretation of Key Findings

The present study demonstrates that robust collaboration among nurses, laboratory professionals, and social workers yields measurable benefits for patient care processes and outcomes in Saudi hospitals. Quantitatively, stronger collaboration scores were tightly coupled with higher patient-outcome ratings; qualitatively, participants narrated how teamwork shortened diagnostic turn-around times, reduced duplication of tasks, and improved psychosocial continuity after discharge. These complementary strands illustrate that the value of collaboration resides not merely in more conversation but in purposeful information exchange and concerted action.

Three mechanisms appear central. First, shared situational awareness enabled nurses to anticipate clinical changes once laboratory data became available in real time. Second, integrating social workers into daily rounds allowed discharge barriers—such as transport, medication affordability, or family education—to be addressed while clinical staff were still planning treatment, thereby reducing readmission risk. Third, mutual feedback loops cultivated trust: when a nurse confirmed that a lab turnaround had prevented a missed sepsis diagnosis, or when a social worker reported that early counselling averted post-operative anxiety, professionals saw concrete proof of collective efficacy.[17]

Importantly, the regression model showed collaboration exerting a stronger influence on perceived outcomes than communication alone, suggesting that mere information flow is insufficient; it must be coupled with clear role interdependence and shared responsibility. The study therefore reinforces the notion that quality of care is an emergent property of team dynamics rather than the sum of isolated professional competencies. In the Saudi context—where health-system modernization under Vision 2030 emphasizes efficiency and patient-centredness—these findings underscore the strategic value of embedding interdisciplinary teams within routine hospital operations.

6.2 Comparison with Previous Research

Our results resonate with a substantial body of international evidence linking interprofessional collaboration to improved clinical performance. Zwarenstein, Goldman, and Reeves (2009) found that practice-based interventions designed around joint care planning increased guideline adherence and shortened length of stay—a trajectory mirrored here in the observed association between collaboration scores and patient-outcome ratings. O’Daniel and Rosenstein (2008) likewise identified communication failures as leading factors in preventable adverse events; our data extend their work by showing that structured collaboration not only mitigates error but also enriches the patient’s psychosocial experience.

Reeves et al. (2017) highlighted the twin pillars of role clarity and mutual respect as precursors to successful team function. Qualitative themes from our study—particularly “Trust and Professional Respect”—affirm that professionals flourish when their expertise is visibly acknowledged. Furthermore, Nancarrow et al. (2013) observed that inclusion of allied health staff in ward rounds improved discharge coordination. The current study builds on that insight by demonstrating the specific contribution of social workers in a Gulf health-system setting, an area under-represented in the literature.

While the global discourse on collaboration has often centred on physician-nurse dyads, our findings emphasize the diagnostic and social determinants perspectives contributed by labs and social work. This wider lens aligns with the World Health Organization’s framework on interprofessional education and collaborative practice (WHO, 2010), which argues for inclusive team models as a pathway to universal health coverage—particularly pertinent as Saudi Arabia scales up integrated care under its National Transformation Program.

Conclusion

This study, which uses both numbers and stories, shows that working together closely between nurses, lab experts, and social workers is key to making healthcare more focused on the patient in Saudi hospitals. When we looked at the numbers, we found that when these groups worked well together, patients had better outcomes, even when we considered how well they communicated. The stories from the people involved showed that when everyone is on the same page, gets results quickly, and supports each other emotionally, it makes the whole care process run more smoothly and avoids situations where different parts of the hospital don’t work well together. Together, these findings show that good care comes from the teamwork of different professionals, not just from individual skills.

Hospitals that dealt with these issues by having leaders who support teamwork, setting aside time for meetings between different groups, and using shared digital records saw better working flows and happier staff. These results match what is known about teamwork across the world, but they also show how important it is to look at the role of diagnosis and social support in teamwork within healthcare systems in the Gulf region.

To make sure Saudi Arabia reaches its goals for more efficient and patient-centered care as part of Vision 2030, leaders should include team meetings in standard care plans, increase training that brings different professions together, and speed up the use of shared digital tools.

By making these changes a standard part of how healthcare is run, Saudi hospitals can turn isolated interactions into connected, fast, and cost-effective care for every patient.

References

1. Bouton, C., Journeaux, M., Jourdain, M., Angibaud, M., Huon, J.-F., & Rat, C. (2023). Interprofessional collaboration in primary care: What effect on patient health? *BMC Primary Care*, 24(1), 253. <https://doi.org/10.1186/s12875-023-02189-0> PubMed
2. Cooper, Z. W., Johnson, L., Washington, T. R., & Lewinson, T. (2024). Analyzing the roles, workflows, and communication dynamics of social workers within interprofessional care teams. *Journal of Interprofessional Care*, 38(6), 1016–1025. <https://doi.org/10.1080/13561820.2024.2403015> PubMed
3. Geese, F., & Schmitt, K.-U. (2023). Interprofessional collaboration in complex patient care transition: A qualitative multi-perspective analysis. *Healthcare*, 11(3), 359. <https://doi.org/10.3390/healthcare11030359> MDPI
4. Moloro, A. H., Sabo, K. G., Lahole, B. K., Wengoro, B. F., & Mare, K. U. (2025). Prevalence of interprofessional collaboration towards patient care and associated factors among nurses and physicians in Ethiopia, 2024: A systematic review and meta-analysis. *BMC Nursing*, 24, 210. <https://doi.org/10.1186/s12912-025-02847-x> BioMed Central
5. El-Awaisi, A., Yakti, O. H., Elboshra, A. M., Jasim, K. H., AboAlward, A. F., Rainkie, D., *et al.* (2024). Facilitators and barriers to interprofessional collaboration among health professionals in primary healthcare centers in Qatar: A qualitative exploration using the “Gears” model. *BMC Primary Care*, 25(1), 316. <https://doi.org/10.1186/s12875-024-02537-8> PubMed
6. Gilchrist, R., Kholvadia, A., & Burdick, W. (2024). Patients’ perceptions of interprofessional collaboration: A scoping review. *Patient Experience Journal*, 11(1), 154–172. <https://doi.org/10.35680/2372-0247.1876> Patient Experience Journal
7. Samuriwo, R. (2022). Interprofessional collaboration—Time for a new theory of action? *Frontiers in Medicine*, 9, 876715. <https://doi.org/10.3389/fmed.2022.876715> PMC
8. Kaiser, L., Conrad, S., Neugebauer, E. A. M., Pietsch, B., & Pieper, D. (2022). Interprofessional collaboration and patient-reported outcomes in inpatient care: A systematic review. *Systematic Reviews*, 11(1), 169. <https://doi.org/10.1186/s13643-022-02027-x> PubMed

9. Pantha, S., Jones, M., Moyo, N., Pokhrel, B., Kushemererwa, D., & Gray, R. (2024). Association between the quantity of nurse–doctor interprofessional collaboration and in-patient mortality: A systematic review. *International Journal of Environmental Research and Public Health*, 21(4), 494. <https://doi.org/10.3390/ijerph21040494> MDPI
10. Kutchma, M. L., Perez, J., Stranges, E., Steele, K., Garis, T., Prost, A., *et al.* (2023). Filling the gaps: A community case study in using an interprofessional approach and community-academic partnerships to address COVID-19-related inequities. *Frontiers in Public Health*, 11, 1208895. <https://doi.org/10.3389/fpubh.2023.1208895> Frontiers
11. Patel, H., Perry, S., Badu, E., Mwangi, F., Onifade, O., Mazurskyy, A., *et al.* (2025). A scoping review of interprofessional education in healthcare: Evaluating competency development, educational outcomes and challenges. *BMC Medical Education*, 25, 409. <https://doi.org/10.1186/s12909-025-06969-3> PMC
12. World Health Organization. (2010). *Framework for action on interprofessional education and collaborative practice*. <https://www.who.int/publications/i/item/9789241500852>
13. O'Daniel, M., & Rosenstein, A. H. (2008). Professional communication and team collaboration. In R. G. Hughes (Ed.), *Patient safety and quality: An evidence-based handbook for nurses* (pp. 2-271–2-284). Agency for Healthcare Research and Quality. <https://www.ncbi.nlm.nih.gov/books/NBK2637>
14. Zwarenstein, M., Goldman, J., & Reeves, S. (2009). Interprofessional collaboration: Effects of practice-based interventions on professional practice and healthcare outcomes. *Cochrane Database of Systematic Reviews*, 2009(3), CD000072. <https://doi.org/10.1002/14651858.CD000072.pub2>
15. Reeves, S., Pelone, F., Harrison, R., Goldman, J., & Zwarenstein, M. (2017). Interprofessional collaboration to improve professional practice and healthcare outcomes. *Cochrane Database of Systematic Reviews*, 2017(6), CD000072. <https://doi.org/10.1002/14651858.CD000072.pub3>
16. Nancarrow, S. A., Booth, A., Ariss, S., Smith, T., Enderby, P., & Roots, A. (2013). Ten principles of good interdisciplinary team work. *Human Resources for Health*, 11, 19. <https://doi.org/10.1186/1478-4491-11-19>
17. Lingard, L., Espin, S., Evans, C., & Hawryluck, L. (2004). The rules of the game: Interprofessional collaboration on the intensive care unit team. *Critical Care*, 8, R403–R408. <https://doi.org/10.1186/cc2958> BioMed Central
18. Baggs, J. G., Ryan, S. A., Phelps, C. E., Richeson, J. F., & Johnson, J. E. (1992). The association between interdisciplinary collaboration and patient outcomes in a medical intensive care unit. *Heart & Lung*, 21(1), 18–24. <https://pubmed.ncbi.nlm.nih.gov/1735653/> PubMed
19. Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st century*. National Academies Press. <https://nap.nationalacademies.org/catalog/10027>

20. Institute of Medicine. (2015). *Measuring the impact of interprofessional education on collaborative practice and patient outcomes*. National Academies Press. <https://doi.org/10.17226/21726>
21. Suter, E., Arndt, J., Arthur, N., Parboosingh, J., Taylor, E., & Deutschlander, S. (2009). Role understanding and effective communication as core competencies for collaborative practice. *Journal of Interprofessional Care*, 23(1), 41–51. <https://doi.org/10.1080/13561820802338579>
22. Bainbridge, L., Nasmith, L., Orchard, C., & Wood, V. (2010). Competencies for interprofessional collaboration. *Journal of Physical Therapy Education*, 24(2), 6–11. <https://doi.org/10.1097/00001416-201024020-00003>
23. D'Amour, D., & Oandasan, I. (2005). Interprofessionality as the field of interprofessional practice and interprofessional education: An emerging concept. *Journal of Interprofessional Care*, 19(Suppl 1), 8–20. <https://doi.org/10.1080/13561820500081604>
24. Hall, P. (2005). Interprofessional teamwork: Professional cultures as barriers. *Journal of Interprofessional Care*, 19(Suppl 1), 188–196. <https://doi.org/10.1080/13561820500081745>
25. Pullon, S. (2008). Competence, respect and trust: Key features of successful interprofessional nurse–doctor relationships. *Journal of Interprofessional Care*, 22(2), 133–147. <https://doi.org/10.1080/13561820701795069>
26. Reeves, S., Lewin, S., Espin, S., & Zwarenstein, M. (2010). *Interprofessional teamwork for health and social care*. Wiley-Blackwell. <https://doi.org/10.1002/9781444325027>