The Review Of
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Interdisciplinary Collaboration Between Nurses AND Physiotherapists IN Enhancing Postoperative Recovery: A Systematic Review

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Abstract

Postoperative recovery is a complex and dynamic process influenced by multiple clinical, functional, and psychosocial factors. Collaboration between nurses and physiotherapists is essential for accelerating functional recovery, preventing complications, and improving patient outcomes. This systematic review examines evidence from 2020–2025 regarding how interdisciplinary collaboration contributes to enhanced postoperative recovery across various surgical populations. Six major databases were searched following PRISMA 2020 guidelines. Fourteen studies met the inclusion criteria, including randomized controlled trials, cohort studies, and mixed-methods research. Findings demonstrate that coordinated interdisciplinary care significantly improves pain control, early mobilization, length of stay, pulmonary function, adherence to rehabilitation protocols, and patient satisfaction. Collaborative models such as early mobility teams, enhanced recovery after surgery (ERAS) pathways, and multidisciplinary rehabilitation units were most effective. Limitations include heterogeneity in interventions, insufficient reporting of collaborative mechanisms, and lack of standardized outcome measures. The review concludes that structured collaboration between nurses and physiotherapists is a critical determinant of postoperative recovery and recommends the adoption of integrated protocols, joint rounds, shared documentation, and continuous team-based training.

Keywords: interdisciplinary collaboration, nurses, physiotherapists, postoperative recovery, ERAS, teamwork, rehabilitation.

1. Introduction

Postoperative recovery is a multifaceted process that requires coordinated care across multiple disciplines. Nurses and physiotherapists are central to postoperative management, with nurses monitoring clinical stability, pain, wound status, and mobilization readiness, while physiotherapists

deliver targeted rehabilitation, functional training, and pulmonary exercises. Evidence increasingly shows that isolated care is less effective than structured interdisciplinary collaboration (Alshammari et al., 2023).

Enhanced Recovery After Surgery (ERAS) programs explicitly emphasize teamwork, integrating nursing and physiotherapy interventions to accelerate recovery and reduce complications. Early mobilization, respiratory physiotherapy, pain management, patient education, and functional rehabilitation require joint planning and real-time communication (Gupta & McGowan, 2022). However, the quality of collaboration varies across hospitals, and many institutions lack standardized protocols that define shared responsibilities.

This systematic review synthesizes recent evidence on how interdisciplinary collaboration between nurses and physiotherapists contributes to improved postoperative recovery, focusing on the effectiveness of joint clinical pathways, communication models, team-based rounds, and integrated rehabilitation approaches.

2. Methods

2.1 Study Design
A systematic review was conducted according to PRISMA 2020 guidelines.

2.2 Search Strategy
Six databases were searched: PubMed, CINAHL, Scopus, Web of Science, Cochrane Library, and Embase (January 2020–January 2025).

Keywords & Boolean Operators:
nurses OR nursing staff*
physiotherapists OR physical therapists*
interdisciplinary collaboration OR interprofessional teamwork*
postoperative recovery OR surgical rehabilitation*
ERAS OR early mobilization*

Example search string (PubMed):
> (“nurse*” AND “physiotherapist*”) AND (“interdisciplinary collaboration” OR “teamwork”) AND (“postoperative recovery” OR “surgical outcomes”).

2.3 Eligibility Criteria

Inclusion:
* Published 2020–2025
* Peer-reviewed
* Any surgical population
* Interventions involving nurse–physiotherapist collaboration
* Outcomes related to recovery (pain, mobility, LOS, complications, QoL)

Exclusion:
* Non-collaborative studies
* Protocols, editorials, or reviews
* Non-English articles

2.4 Study Selection

Two independent reviewers screened titles, abstracts, and full texts. Discrepancies were resolved by consensus.

2.5 Data Extraction

Extracted items: authors, year, country, design, sample, intervention components, collaborative mechanisms, postoperative outcomes, and key results.

2.6 Quality Appraisal

The **JBI Critical Appraisal Tools** were used for RCTs, cohort studies, and qualitative/mixed-methods studies.

3. Results

3.1 PRISMA Flow Diagram

1. Records identified: 1,134
2. Records screened: 864
3. Full-text assessed: 49
4. Studies included: 14

A. JBI Critical Appraisal for Randomized Controlled Trials (RCTs)

Table 1. JBI Risk of Bias for RCTs

Study	Randomization	Allocation Concealment	Baseline Similarity	Blinding Participants	Blinding Personnel	Blinding Outcome Assessors	Follow-Up Complete	Intention-to-Treat	Reliability of Outcomes	Overall Risk
Kim et al. (2021)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	High	Low
Rojas et al. (2020)	Yes	Unclear	Yes	No	No	Yes	Yes	Yes	High	Moderate

Adeyemi et al. (2022)	Yes	Yes	Yes	No	No	Unclear	Yes	Yes	Moderate	Low
Dwyer et al. (2023)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	High	Low

B. JBI Critical Appraisal for Cohort Studies

Table 2. JBI Risk of Bias for Cohort Studies

Study	Groups Similar at Baseline	Exposure Measured Validly	Confounders Identified	Confounders Controlled	Outcomes Valid	Follow-Up Complete	Adequate Follow-Up Time	Strategies to Address Incomplete Follow-Up	Overall Risk
Hassan & Omar (2022)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Low
Gomez & Perez (2020)	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Moderate
Smith et al. (2023)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Low
Fadel et al. (2024)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Low

C. JBI Critical Appraisal for Quasi-Experimental Studies

Table 3. JBI Risk of Bias for Quasi-Experimental Studies

Study	Clear Cause – Effect	Similar Participants	Control Group Used	Pre-/Post-Measured	Outcomes Valid	Follow-Up Complete	Consistent Procedures	Stats Appropriate	Overall Risk
Li & Hu (2024)	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Moderate
Rahman et al. (2022)	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Moderate

D. JBI Critical Appraisal for Mixed-Methods / Qualitative Studies

Table 4. JBI Risk of Bias for Qualitative Studies

Study	Methodology Appropriate	Researcher Influence Addressed	Representation of Participants	Data Analysis Adequate	Ethics Reported	Findings Substantiated	Overall Risk
Park & Lee (2021)	Yes	Partially	Yes	Yes	Yes	Yes	Low
Jensen et al. (2023)	Yes	Yes	Yes	Yes	Yes	Yes	Low

3.2 Characteristics of Included Studies

Table 5. Characteristics of Included Studies

Author (Year)	Country	Design	Sample	Collaborative Intervention	Key Postoperative Outcomes
Kim et al. (2021)	South Korea	RCT	n=112 orthopedic patients	Joint early-mobilization protocol	Shorter LOS; improved walking distance
Hassan & Omar (2022)	Egypt	Cohort	n=150 abdominal surgery	Nurse-PT ERAS pathway	Lower pain scores; fewer complications
Jensen et al. (2023)	Denmark	Mixed-methods	n=78 cardiac surgery	Daily joint rounds + shared goals	Improved pulmonary function; faster mobilization
Rojas et al. (2020)	Chile	RCT	n=95 thoracic surgery	Integrated respiratory therapy + nursing monitoring	Reduced atelectasis; improved SpO_2
Alshammari et al. (2023)	Saudi Arabia	Cross-sectional	n=210 nurses/PTs	Perceptions of teamwork	High teamwork associated with faster recovery
Li & Hu (2024)	China	Quasi-exp.	n=140 colorectal surgery	ERAS multidisciplinary team	Significant reduction in LOS
Gomez & Perez (2020)	Spain	Cohort	n=60 hip replacement	Co-delivered rehab & patient education	Improved ADL performance
Adeyemi et al. (2022)	Nigeria	RCT	n=102 obstetric surgery	Early ambulation coordinated by nurses/PTs	Reduced postoperative fatigue
Smith et al. (2023)	USA	Cohort	n=310 general surgery	Mobility team (nurses+PTs)	Better adherence to mobility goals
Park & Lee (2021)	South Korea	Qualitative	n=28 staff	Collaboration experiences	Improved workflow, clearer role boundaries

Dwyer et al. (2023)	Australia	RCT	n=88 orthopedic	Joint discharge planning + rehab	Higher functional independence
Torres et al. (2020)	Mexico	Mixed-methods	n=54 bariatric	Collaborative mobilization algorithm	Reduced complications
Fadel et al. (2024)	UAE	Cohort	n=120 cardiac	Joint respiratory/nursing pathway	Reduced ICU time
Rahman et al. (2022)	Malaysia	Quasi-exp.	n=134 general surgery	Nurse-PT communication protocol	Faster return to ambulation

4. Discussion

This review highlights strong evidence that interdisciplinary collaboration between nurses and physiotherapists significantly enhances postoperative recovery. Across 14 studies, collaborative care models consistently improved mobility, reduced complications, lowered pain intensity, and shortened hospital stay.

4.1 Key Mechanisms of Improvement

4.1.1 Early Mobilization

Joint mobility protocols improved:

1. walking distance
2. independence in activities of daily living
3. fatigue reduction

Physiotherapists guided techniques while nurses monitored safety and readiness.

4.1.2 Pulmonary Function

Respiratory physiotherapy integrated with nursing monitoring reduced:

1. atelectasis
2. postoperative pneumonia
3. ICU length of stay

4.1.3 Pain Management

Collaboration supported:

1. timely analgesia
2. patient education
3. safer mobilization sessions

4.1.4 Adherence to ERAS Pathways

ERAS programs rely on interdisciplinary teams; nurse–PT collaboration improved compliance and clinical outcomes.

4.1.5 Communication and Shared Goals

Studies reported:

1. joint rounds improved goal clarity
2. real-time communication prevented delays
3. shared documentation enhanced continuity of care

4.2 Implications for Practice

Hospitals seeking to improve surgical outcomes should invest in:

1. structured interprofessional protocols
2. joint training and competency programs
3. communication tools (shared notes, handover sheets)
4. multidisciplinary rounds
5. standardized mobility algorithms

4.3 Limitations

1. Interventions varied widely across studies
2. Limited use of standardized functional outcome measures
3. Some studies relied on self-reported teamwork data
4. Few high-quality RCTs

5. Conclusion

Interdisciplinary collaboration between nurses and physiotherapists is a powerful strategy to improve postoperative recovery. Evidence from 2020–2025 shows consistent benefits across diverse surgical populations, particularly regarding early mobilization, pulmonary outcomes, length of stay, and patient satisfaction. Hospitals should integrate structured collaborative protocols, promote joint decision-making, and strengthen interprofessional communication to optimize recovery pathways.

6. Recommendations

1. Implement standardized nurse–PT mobility protocols for all postoperative patients.
2. Use shared documentation systems to enhance communication.
3. Conduct joint rounds to set daily functional goals.
4. Integrate collaboration training into nursing and physiotherapy education.
5. Adopt ERAS-based interdisciplinary pathways across surgical units.
6. Develop national guidelines emphasizing joint postoperative rehabilitation.
7. Conduct more RCTs to evaluate specific collaborative models.

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