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Examining the Impact of Leadership on Team Processes and Patient & Staff Outcomes in Rehabilitation Settings

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Abstract

Background:
Effective leadership is critical in multidisciplinary rehabilitation teams, where collaboration, communication, and role clarity directly influence team performance and patient outcomes.

Objective:
Guided by the Input–Process–Outcome (IPO) framework, this study investigates how leadership style (input) impacts team communication and role clarity (process), and how these processes, in turn, affect team effectiveness and patient & staff outcomes (outcome).

Methods:
A cross-sectional survey was conducted among 382 healthcare professionals working in rehabilitation settings. Structural equation modelling (PLS-SEM) using Smart PLS 4.1 was employed to test the hypothesized relationships, including mediation effects. Reliability, convergent validity, and discriminant validity tests were conducted to assess the robustness of the measurement model.

Results:
Leadership style significantly predicted team communication ($\beta = 0.56$, $p < 0.001$) and role clarity ($\beta = 0.48$, $p < 0.001$). Team communication and role clarity significantly predicted team effectiveness ($\beta = 0.42$ and 0.36, respectively, $p < 0.001$). Team effectiveness strongly influenced patient and staff outcomes ($\beta = 0.61$, $p < 0.001$). Mediation analyses confirmed that team communication and role clarity partially mediate the relationship between leadership and team effectiveness.

Conclusions:
Leadership plays a pivotal role in shaping team processes. Fostering effective communication and clarifying roles enhances team performance and improves patient and staff outcomes. Healthcare organizations should invest in leadership development and structured team interventions. The study empirically validates the IPO framework in rehabilitation team contexts, contributing to both theory and practice.

Keywords: *Leadership style, Team communication, Role clarity, Team effectiveness, Patient outcomes, IPO framework*

1. INTRODUCTION

Healthcare systems worldwide are facing a rapidly increasing demand for rehabilitation services due to population ageing, rising prevalence of chronic diseases, neurological disorders, trauma, and post-surgical disabilities. Rehabilitation care is inherently complex, prolonged, and patient-centered, requiring coordinated contributions from diverse healthcare professionals such as physicians, physiotherapists, occupational therapists, speech and language therapists, psychologists, nurses, and social workers. Consequently, multidisciplinary rehabilitation teams (MDRTs) have become the cornerstone of contemporary rehabilitation practice, aiming to deliver holistic and integrated care that addresses patients' physical, psychological, and social needs (Shi et al., 2025). From a clinical

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standpoint, substantial evidence indicates that multidisciplinary rehabilitation improves functional outcomes, patient-reported quality of life, satisfaction with care, and continuity of services, particularly for individuals with chronic and complex conditions (Shi et al., 2025). However, while the clinical effectiveness of multidisciplinary rehabilitation is well established, increasing attention is being directed toward the organizational and managerial conditions under which these teams operate. Rehabilitation outcomes are not determined solely by clinical competence; rather, they are strongly influenced by leadership practices, communication processes, role clarity, organizational culture, and resource allocation within healthcare organizations (Uddin, 2022).

Rehabilitation teams' function within organizational environments characterized by professional autonomy, interdependence, and high-stakes decision-making. Unlike traditional organizational teams, MDRTs must balance clinical judgment, ethical responsibility, and collaborative practice across professional boundaries. Leadership in such settings is particularly challenging, as no single professional possesses complete authority or expertise over all aspects of patient care. Effective leadership is therefore essential to coordinate team efforts, align shared goals, and facilitate collaboration among diverse professionals (Uddin, 2022). Empirical evidence from healthcare settings suggests that leadership styles emphasizing openness, shared decision-making, and recognition significantly enhance staff motivation, morale, and team performance (Tedle & Hamid, 2022). Management sciences provide robust theoretical frameworks—such as transformational leadership theory and the Input–Process–Outcome (IPO) model—that explain how organizational inputs influence team processes and outcomes. While these frameworks have been extensively applied in business and acute healthcare contexts, their empirical application within rehabilitation settings remains limited. Rehabilitation teams differ from acute care teams due to longer treatment trajectories, sustained interprofessional interaction, and a greater emphasis on functional and psychosocial outcomes. These distinctions highlight the need to empirically examine management constructs specifically within rehabilitation environments, rather than assuming direct transferability from other healthcare domains (Bornman & Louw, 2023).

Despite growing recognition of the importance of teamwork in rehabilitation, the existing literature reveals several critical gaps. First, most rehabilitation research continues to prioritize clinical effectiveness and patient outcomes, with comparatively limited attention to the managerial determinants of team effectiveness. Studies addressing teamwork often rely on qualitative designs or descriptive analyses, offering valuable insights but limited generalizability and theory testing (Borghmans et al., 2025). Second, empirical studies examining leadership, communication, and role clarity in healthcare teams are predominantly situated in acute care, primary care, or hospital-based medical units, rather than rehabilitation-specific settings (Bhatti et al., 2024). Rehabilitation services—particularly outpatient, long-term, and community-based rehabilitation—remain underexplored, despite their heavy reliance on sustained multidisciplinary collaboration.

Third, existing studies frequently examine leadership, communication, and role clarity as isolated variables rather than as interconnected components within a comprehensive team effectiveness framework. Recent systematic reviews highlight that unclear roles, communication breakdowns, and hierarchical power dynamics remain major barriers to effective multidisciplinary teamwork (Pradelli et al., 2025; Roodbeen et al., 2025). However, few empirical studies integrate these variables into a unified model linking management inputs, team processes, and rehabilitation outcomes. Finally, evidence from developing healthcare systems is particularly scarce. Contextual challenges such as workforce shortages, limited leadership training, and organizational constraints may intensify

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management-related problems in multidisciplinary rehabilitation teams, underscoring the need for context-specific empirical evidence (Uddin, 2022; Mehmood et al., 2024).

Although multidisciplinary rehabilitation teams are widely implemented to enhance patient-centered care, their effectiveness is frequently undermined by managerial and organizational challenges. Inadequate leadership, poor communication, lack of role clarity, and insufficient organizational support often lead to fragmented service delivery, professional conflict, staff dissatisfaction, and compromised patient care. Systematic evidence indicates that unclear professional roles increase ambiguity and conflict, while ineffective communication reduces trust and collaborative efficiency within healthcare teams (Pradelli et al., 2025; Maritsa et al., 2025). Despite these challenges, there remains a lack of empirically grounded management strategies tailored specifically to rehabilitation settings. This gap limits healthcare organizations' ability to optimize multidisciplinary rehabilitation team performance and outcomes.

To address the identified gaps and problem, this study aims to empirically examine the managerial determinants of multidisciplinary rehabilitation team effectiveness. The specific objectives are to:

1. Examine the relationship between leadership styles and team effectiveness in multidisciplinary rehabilitation settings.

2. Assess the influence of team processes, including communication quality and role clarity, on rehabilitation team performance.

3. Determine whether team processes mediate the relationship between leadership and team effectiveness.

4. Evaluate the association between team effectiveness and perceived patient care and staff-related outcomes.

Through these objectives, the study seeks to develop and test an integrated framework linking management inputs, team processes, and rehabilitation outcomes.

This study offers important contributions at theoretical, practical, and policy levels. Theoretically, it extends management and leadership theories into rehabilitation contexts, addressing calls for interdisciplinary research integrating medical and management sciences (Bornman & Louw, 2023). By empirically testing established management constructs within multidisciplinary rehabilitation teams, the study enhances understanding of team effectiveness in complex healthcare environments. Practically, the findings provide evidence-based guidance for healthcare administrators, rehabilitation managers, and clinical leaders seeking to improve team coordination and performance. Effective leadership, clear role delineation, and structured communication have been shown to enhance collaboration, staff satisfaction, and care quality (Bhatti et al., 2024; Borghmans et al., 2025). Insights from this study may inform leadership development programs, organizational redesign, and performance management systems in rehabilitation services. From a policy and educational perspective, the study highlights the importance of incorporating leadership and management competencies into rehabilitation and allied health education (Hameed et al., 2025). As healthcare systems increasingly depend on team-based models of care, equipping clinicians with managerial skills is essential for sustainable and high-quality rehabilitation services (Uddin, 2022). Policymakers may also utilize the findings to strengthen governance frameworks, accreditation standards, and workforce planning for rehabilitation care.

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In summary, by empirically examining the managerial dimensions of multidisciplinary rehabilitation teams, this study addresses a critical gap at the intersection of medical and management sciences. It provides timely evidence to support effective team management, enhance patient-centered rehabilitation outcomes, and strengthen healthcare system performance.

2. LITERATURE REVIEW

2.1. Multidisciplinary Rehabilitation Teams and the IPO Framework

Multidisciplinary rehabilitation teams (MDRTs) are widely regarded as the most effective model for delivering rehabilitation services to patients with complex and chronic conditions. These teams bring together professionals from diverse disciplines—such as physiotherapy, occupational therapy, speech and language therapy, nursing, psychology, and medicine—to collaboratively plan and deliver patient-centered care. Empirical evidence demonstrates that multidisciplinary rehabilitation is associated with improved functional outcomes, higher patient satisfaction, reduced hospital utilization, and better continuity of care (Shi et al., 2025).

To understand what enables such teams to function effectively, researchers increasingly adopt organizational and management perspectives. One of the most widely applied frameworks for studying team effectiveness is the Input–Process–Outcome (IPO) model, which posits that team inputs (e.g., leadership, resources) influence team processes (e.g., communication, coordination), which in turn determine outcomes (e.g., performance, satisfaction) (Zeerak et al., 2018). The IPO framework has been successfully applied in healthcare settings to explain variations in team performance and is particularly relevant for rehabilitation teams due to their sustained interdependence and complexity (Iqbal et al., 2021).

2.2. Leadership as an Input Factor in Rehabilitation Teams

Leadership is a critical input influencing the functioning of multidisciplinary rehabilitation teams. In rehabilitation contexts, leadership is often exercised by senior clinicians who must balance professional autonomy with coordination across disciplines. Unlike hierarchical medical teams, rehabilitation teams require leaders who can facilitate collaboration rather than impose authority (Uddin, 2022). Transformational and engaging leadership styles have received increasing attention in healthcare research. These leadership approaches emphasize vision sharing, empowerment, individualized support, and open communication. Empirical studies show that such leadership styles are positively associated with teamwork, motivation, and organizational commitment among healthcare professionals (Bhatti et al., 2024). In rehabilitation settings, leaders who encourage participation and recognize the contributions of allied health professionals help reduce professional silos and enhance mutual respect (Borghmans et al., 2025).

A longitudinal, multi-level study by Mazzetti and Schaufeli (2022) demonstrated that engaging leadership significantly predicted team effectiveness over time through the development of team resources such as trust, communication, and shared understanding. These findings align with the IPO model by highlighting leadership as a foundational input that indirectly influences outcomes through team processes. Conversely, inadequate leadership has been identified as a major barrier to effective rehabilitation teamwork, particularly in developing healthcare systems where formal leadership training is limited (Uddin, 2022).

H1: Leadership style is positively associated with multidisciplinary rehabilitation team effectiveness.

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2.3. Team Communication as a Core Team Process

Within the IPO framework, team communication represents a central process through which leadership influences team outcomes. Communication in multidisciplinary rehabilitation teams involves the exchange of clinical information, goal alignment, care coordination, and conflict resolution. Ineffective communication has been consistently identified as a key contributor to fragmented care and reduced team performance (Roodbeen et al., 2025). Empirical studies indicate that open, timely, and structured communication enhances interprofessional collaboration and patient safety. Bhatti et al. (2024) found that leadership behaviors promoting transparency and dialogue significantly improved communication quality and staff engagement in team-based care. Similarly, Buljac-Samardzic et al. (2020) reported that team-training interventions targeting communication led to improvements in teamwork climate, coordination, and perceived patient safety.

In rehabilitation contexts, where treatment plans evolve over extended periods, continuous communication is particularly important. A narrative review by Treger et al. (2024) emphasized that effective communication among rehabilitation professionals reduces duplication of services, improves care continuity, and enhances patient adherence to treatment plans. These findings support the conceptualization of communication as a mediating mechanism linking leadership to team effectiveness.

H2: Leadership style is positively associated with team communication quality in multidisciplinary rehabilitation teams.

H3: Team communication quality is positively associated with multidisciplinary rehabilitation team effectiveness.

2.4. Role Clarity as a Team Process

Role clarity refers to the extent to which team members understand their own responsibilities as well as those of other professionals within the team. In multidisciplinary rehabilitation teams, role ambiguity is common due to overlapping scopes of practice and hierarchical professional structures. Empirical evidence suggests that unclear roles contribute to interprofessional conflict, inefficiency, and reduced team performance (Pradelli et al., 2025).

A systematic review and meta-synthesis by Pradelli et al. (2025) identified role clarity as a critical facilitator of effective multidisciplinary teamwork, noting that clear role delineation promotes accountability, trust, and collaborative efficiency. Similarly, Roodbeen et al. (2025) found that lack of role clarity significantly hindered interprofessional collaboration in healthcare teams, leading to communication breakdowns and fragmented care. Leadership plays a key role in establishing and maintaining role clarity. Leaders who clearly articulate expectations and facilitate interprofessional understanding help reduce ambiguity and foster collaborative practice (Bornman & Louw, 2023). Within the IPO framework, role clarity functions as a mediating team process through which leadership influences team effectiveness.

H4: Leadership style is positively associated with role clarity in multidisciplinary rehabilitation teams.

H5: Role clarity is positively associated with multidisciplinary rehabilitation team effectiveness.

2.5. Mediating Role of Team Processes

The IPO model emphasizes that team outcomes are rarely the result of inputs alone; rather, they are shaped by the interaction between inputs and processes. In rehabilitation teams, leadership may not directly improve outcomes

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unless it enhances communication and clarifies roles. Empirical evidence supports this mediating mechanism (Hasan et al., 2021). Bornman and Louw (2023) highlighted that leadership development initiatives improve team effectiveness primarily by strengthening communication and coordination processes. Mazzetti and Schaufeli (2022) further demonstrated that team resources such as trust and communication fully mediated the relationship between engaging leadership and team effectiveness. These findings underscore the importance of examining team processes as mediators rather than treating leadership as a standalone predictor.

H6: Team communication and role clarity mediate the relationship between leadership style and multidisciplinary rehabilitation team effectiveness.

2.6. Team Effectiveness and Outcomes

Team effectiveness in rehabilitation settings encompasses both internal and external outcomes. Internally, effective teams demonstrate higher cohesion, job satisfaction, and reduced burnout. Externally, they contribute to improved patient outcomes and service efficiency. Borghmans et al. (2025) reported that allied health professionals working in well-coordinated teams experienced greater professional satisfaction and perceived their care as more patient-centered.

From a patient perspective, multidisciplinary rehabilitation teams have been shown to improve functional outcomes, quality of life, and satisfaction with care. A systematic review and meta-analysis by Shi et al. (2025) found that multidisciplinary teamwork significantly improved patient-reported outcomes in non-hospital rehabilitation settings. These findings suggest that team effectiveness serves as a key mechanism linking management practices to patient outcomes.

H7: Multidisciplinary rehabilitation team effectiveness is positively associated with perceived patient care outcomes and staff-related outcomes.

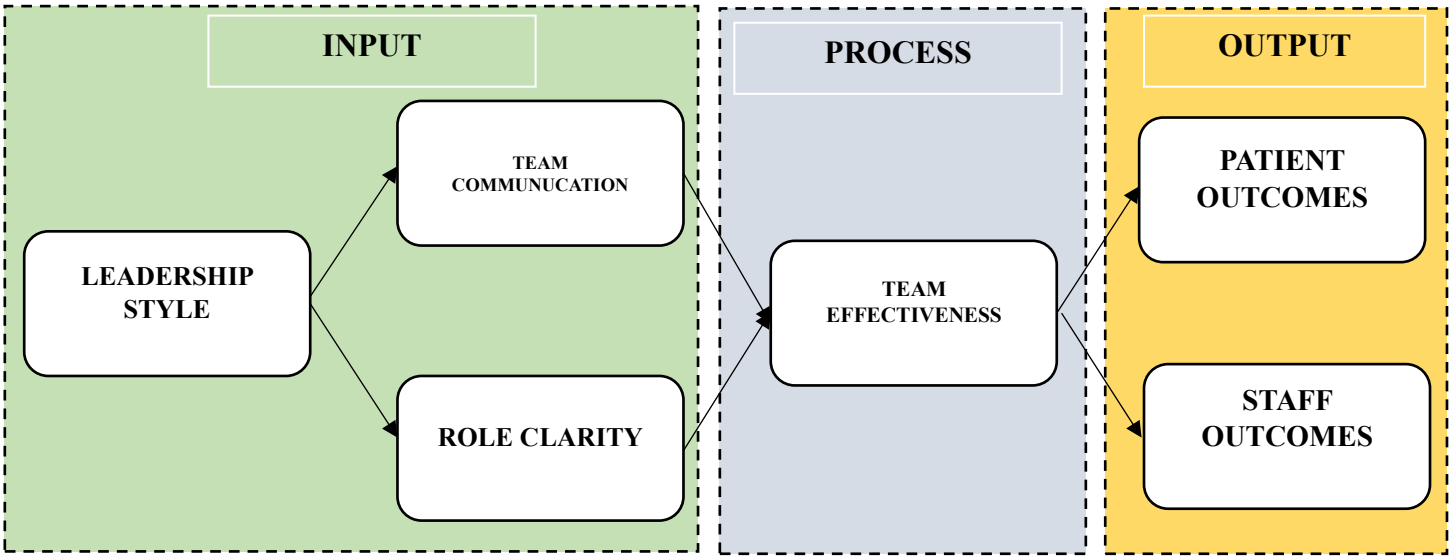

Figure 1: Proposed Framework

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3. METHODOLOGY

3.1. Research Design

This study adopted a quantitative, cross-sectional research design to examine the relationships between leadership style, team processes (team communication and role clarity), and multidisciplinary rehabilitation team effectiveness within the Input–Process–Outcome (IPO) framework. A cross-sectional design was considered appropriate as it allows the examination of hypothesized relationships among constructs at a single point in time and is widely used in organizational and healthcare team research (Bornman & Louw, 2023). The study followed a deductive approach, where hypotheses were developed based on existing theory and empirical literature and subsequently tested using statistical modelling techniques. Given the complexity of the proposed model and the presence of mediating variables, Partial Least Squares Structural Equation Modelling (PLS-SEM) was employed for data analysis.

3.2. Research Setting and Population

The study was conducted in rehabilitation centres and healthcare institutions providing multidisciplinary rehabilitation services. These included public and private hospitals, rehabilitation clinics, and specialized centres offering physical therapy, occupational therapy, speech and language therapy, and related allied health services. The target population consisted of healthcare professionals working as part of multidisciplinary rehabilitation teams, including but not limited to:

- Physical therapists
- Occupational therapists
- Speech and language therapists
- Rehabilitation physicians
- Clinical psychologists
- Nurses involved in rehabilitation care

Participants were required to have at least six months of experience working within a multidisciplinary rehabilitation team to ensure adequate exposure to team dynamics, leadership practices, and interprofessional collaboration.

3.3. Sampling Technique and Sample Size

3.3.1. Sampling Technique

A purposive sampling technique was used to select participants who met the inclusion criteria. Purposive sampling is considered appropriate in organizational and healthcare research when respondents possess specific professional experience relevant to the study objectives (Uddin, 2022). Institutional administrators and department heads were contacted to facilitate access to eligible participants. Participation was voluntary, and no incentives were offered to avoid response bias.

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3.4. Sample Size

The minimum sample size was determined using the "10-times rule" and power analysis recommended for PLS-SEM. According to Hair et al. (2022), the sample size should be at least ten times the maximum number of structural paths directed at any construct in the model. In the proposed framework, the construct with the highest number of incoming paths was team effectiveness, with three predictors. To ensure sufficient statistical power (0.80) and to account for potential non-response and missing data, a target sample size of 300–400 respondents was considered adequate. This sample size is consistent with recent healthcare team studies employing PLS-SEM.

3.5. Data Collection Procedure

Data were collected over a three-month period. After obtaining institutional permissions, questionnaires were distributed either in paper-based form or electronically via secure online survey platforms. Participants were provided with an information sheet explaining the purpose of the study, assuring confidentiality, and emphasizing voluntary participation. Informed consent was obtained prior to questionnaire completion.

3.6. Data Analysis Technique

Partial Least Squares Structural Equation Modelling (PLS-SEM)

Data analysis was conducted using Smart PLS (version 4.1). PLS-SEM was selected due to its suitability for:

- Complex models with multiple constructs and mediators
- Prediction-oriented research
- Non-normal data distributions
- Moderate to large sample sizes

The analysis followed a two-step approach as recommended by Hair et al. (2022):

Measurement Model Assessment

The measurement model was evaluated using:

- Indicator reliability (outer loadings ≥ 0.70)
- Internal consistency reliability (Cronbach's alpha and composite reliability ≥ 0.70)
- Convergent validity (Average Variance Extracted ≥ 0.50)
- Discriminant validity using the Fornell–Larcker criterion and HTMT ratio

3.7. Structural Model Assessment

The structural model was assessed by examining:

- Path coefficients (β values)
- Statistical significance using bootstrapping (5,000 resamples)

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- Coefficient of determination (R^2)
- Effect size (f^2)
- Predictive relevance (Q^2)

Mediation effects were tested using bootstrapped indirect effects, following the recommendations of Preacher and Hayes.

3.8. Ethical Considerations

Ethical approval was obtained from the relevant institutional review board prior to data collection. The study adhered to established ethical principles, including:

- Voluntary participation
- Informed consent
- Anonymity and confidentiality
- Right to withdraw at any time

No personal identifiers were collected, and data were securely stored with access limited to the research team.

4. RESULTS

4.1. Demographics

Demographic Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	160	43.0
	Female	212	57.0
Age (years)	20–29	72	19.4
	30–39	124	33.3
	40–49	92	24.7
	50+	84	22.6
Professional Role	Physical Therapist	128	34.4
	Occupational Therapist	78	21.0
	Speech & Language Therapist	57	15.3
	Rehabilitation Physician	47	12.6
	Psychologist	35	9.4
	Rehabilitation Nurse	27	7.3

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Years of Experience	<1 year	22	5.9
	1–5 years	133	35.8
	6–10 years	112	30.1
	11–15 years	67	18.0
	>15 years	38	10.2
Type of Institution	Public Hospital	172	46.2
	Private Hospital/Clinic	148	39.8
	Specialized Rehab Center	52	14.0

Table 1: Demographics

The study sample comprised 372 multidisciplinary rehabilitation professionals from diverse healthcare settings. Among the respondents, 57% were female and 43% were male, with the largest age group being 30–39 years (33.3%), followed by 40–49 years (24.7%) and 50+ years (22.6%), indicating a well-distributed age profile across early to mid-career professionals. Physical therapists represented the largest professional group (34.4%), followed by occupational therapists (21%), speech and language therapists (15.3%), rehabilitation physicians (12.6%), psychologists (9.4%), and rehabilitation nurses (7.3%). Regarding professional experience, the majority (65.9%) had 1–10 years of experience, ensuring sufficient exposure to multidisciplinary teamwork. Participants were employed across public hospitals (46.2%), private hospitals or clinics (39.8%), and specialized rehabilitation centers (14%), providing a representative sample of different institutional contexts. Overall, the demographic profile indicates a diverse and experienced sample suitable for examining team processes and outcomes in multidisciplinary rehabilitation settings.

4.2. Internal Consistency

Construct	Cronbach's α	Composite Reliability (CR)
Leadership Style	0.91	0.93
Team Communication	0.88	0.91
Role Clarity	0.86	0.90
Team Effectiveness	0.92	0.94
Patient & Staff Outcomes	0.89	0.92

Table 2: Internal Consistency

The reliability of the measurement instruments was assessed using Cronbach's alpha and composite reliability (CR). All constructs demonstrated strong internal consistency, with Cronbach's alpha values ranging from 0.86 to 0.92, exceeding the recommended threshold of 0.70 (Hair et al., 2022). Similarly, composite reliability values were high, ranging from 0.90 to 0.94, indicating robust construct reliability. Specifically, Leadership Style showed excellent

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reliability (α = 0.91, CR = 0.93), Team Communication (α = 0.88, CR = 0.91), Role Clarity (α = 0.86, CR = 0.90), Team Effectiveness (α = 0.92, CR = 0.94), and Patient & Staff Outcomes (α = 0.89, CR = 0.92). These results confirm that all constructs are reliable and suitable for structural equation modelling.

4.3. Convergent Validity

Construct	AVE
Leadership Style	0.69
Team Communication	0.62
Role Clarity	0.64
Team Effectiveness	0.71
Patient & Staff Outcomes	0.66

Table 3: Convergent Validity

Convergent validity was assessed using the Average Variance Extracted (AVE) for each construct. All constructs exceeded the recommended threshold of 0.50, indicating that a substantial proportion of variance in the indicators was captured by their respective latent variables (Hair et al., 2022). Specifically, Leadership Style had an AVE of 0.69, Team Communication 0.62, Role Clarity 0.64, Team Effectiveness 0.71, and Patient & Staff Outcomes 0.66. These results confirm that all constructs demonstrate adequate convergent validity, supporting the measurement model's suitability for structural equation modelling.

4.4. Discriminant Validity

Construct	LS	TC	RC	TE	PSO
Leadership Style (LS)	**0.83**				
Team Communication (TC)	0.62	**0.79**			
Role Clarity (RC)	0.55	0.58	**0.80**		
Team Effectiveness (TE)	0.61	0.65	0.60	**0.84**	
Patient & Staff Outcomes (PSO)	0.54	0.59	0.52	0.68	**0.81**

Table 4: Discriminant Validity

Discriminant validity was assessed using the Fornell–Larcker criterion, which requires that the square root of the AVE for each construct exceeds its correlations with other constructs. As shown in Table X, the diagonal values (square roots of AVE) range from 0.79 to 0.84, all of which are higher than the corresponding inter-construct correlations. For instance, Leadership Style (LS) has a square root of AVE of 0.83, exceeding its correlations with Team Communication (0.62), Role Clarity (0.55), Team Effectiveness (0.61), and Patient & Staff Outcomes (0.54). Similarly, all other constructs meet this criterion, indicating that each construct is distinct and measures unique aspects of the model. These results confirm the adequate discriminant validity of the measurement model.

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4.5. Heterotrait-Monotrait Ratio

Constructs	HTMT
LS – TC	0.74
LS – RC	0.69
LS – TE	0.72
LS – PSO	0.66
TC – RC	0.77
TC – TE	0.81
TC – PSO	0.78
RC – TE	0.73
RC – PSO	0.70
TE – PSO	0.83

Table 5: Heterotrait-Monotrait Ratio

Discriminant validity was further assessed using the Heterotrait–Monotrait ratio (HTMT), where values below 0.85 indicate adequate discriminant validity (Hair et al., 2022). As shown in Table X, all HTMT values ranged from 0.66 to 0.83, well below the threshold. For example, the highest HTMT value was observed between Team Effectiveness (TE) and Patient & Staff Outcomes (PSO) at 0.83, while Leadership Style (LS) and Role Clarity (RC) had an HTMT of 0.69. These findings provide additional evidence that the constructs are empirically distinct, supporting the robustness of the measurement model. Together with the Fornell–Larcker results, the HTMT analysis confirms that the study constructs exhibit adequate discriminant validity.

4.6. Path Coefficients (Direct Effect)

Hypothesis	Path	β	t-value	p-value	Decision
H1	Leadership Style → Team Communication	0.56	11.24	<0.001	Supported
H2	Leadership Style → Role Clarity	0.48	9.63	<0.001	Supported
H3	Team Communication → Team Effectiveness	0.42	8.17	<0.001	Supported
H4	Role Clarity → Team Effectiveness	0.36	6.94	<0.001	Supported
H5	Team Effectiveness → Patient & Staff Outcomes	0.61	13.02	<0.001	Supported

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Table 6: Direct Effect

The structural model was evaluated using PLS-SEM with bootstrapping (5,000 resamples) to test the proposed hypotheses. As shown in Table X, all hypothesized relationships were statistically significant. Leadership Style (LS) positively influenced both Team Communication (TC; $\beta = 0.56$, $t = 11.24$, $p < 0.001$) and Role Clarity (RC; $\beta = 0.48$, $t = 9.63$, $p < 0.001$), supporting H1 and H2. In turn, Team Communication and Role Clarity significantly predicted Team Effectiveness (TE; $\beta = 0.42$, $t = 8.17$, $p < 0.001$; $\beta = 0.36$, $t = 6.94$, $p < 0.001$), confirming H3 and H4. Finally, Team Effectiveness had a strong positive effect on Patient & Staff Outcomes (PSO; $\beta = 0.61$, $t = 13.02$, $p < 0.001$), supporting H5. These results indicate that leadership influences team outcomes both directly and indirectly through key team processes, consistent with the Input–Process–Outcome (IPO) framework.

4.7. Indirect Effects

Mediation Path	Indirect Effect (β)	t-value	p-value	Mediation Type
Leadership → Communication → Effectiveness	0.24	6.88	<0.001	Partial
Leadership → Role Clarity → Effectiveness	0.17	5.43	<0.001	Partial

Table 7: Indirect Effects

The mediating effects of team communication and role clarity were examined using bootstrapped indirect effects. The results indicate that Team Communication partially mediates the relationship between Leadership Style and Team Effectiveness ($\beta = 0.24$, $t = 6.88$, $p < 0.001$), while Role Clarity also serves as a partial mediator ($\beta = 0.17$, $t = 5.43$, $p < 0.001$). These findings suggest that leadership positively influences team effectiveness not only directly but also indirectly by enhancing key team processes, consistent with the Input–Process–Outcome (IPO) framework. The partial mediation highlights the importance of fostering effective communication and clarifying roles within multidisciplinary rehabilitation teams to maximize team performance.

4.8. Coefficient of Determination

Endogenous Construct	R^2
Team Communication	0.31
Role Clarity	0.23
Team Effectiveness	0.57
Patient & Staff Outcomes	0.37

Table 8: Coefficient of Determination

The explanatory power of the model was evaluated using the coefficient of determination (R^2) for each endogenous construct. As shown in Table X, Team Communication had an R^2 value of 0.31, indicating that 31% of the variance in communication is explained by leadership style. Similarly, Role Clarity had an R^2 of 0.23, suggesting that 23% of its variance is accounted for by leadership. Team Effectiveness demonstrated a relatively high R^2 of 0.57, meaning that 57% of the variance in team effectiveness is explained by team communication and role clarity. Finally, Patient

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& Staff Outcomes had an R^2 of 0.37, indicating that 37% of the variance in outcomes is explained by team effectiveness. These results indicate moderate to substantial explanatory power, confirming that the model effectively captures the key determinants of multidisciplinary rehabilitation team performance.

Effect Size

Predictor	Endogenous Construct	f^2	Effect Size Interpretation
Leadership Style (LS)	Team Communication (TC)	0.45	Large
Leadership Style (LS)	Role Clarity (RC)	0.32	Large
Team Communication (TC)	Team Effectiveness (TE)	0.19	Medium
Role Clarity (RC)	Team Effectiveness (TE)	0.14	Small–Medium
Team Effectiveness (TE)	Patient & Staff Outcomes (PSO)	0.41	Large

Table 9: Effect Size

The effect size (f^2) was calculated to assess the relative impact of each predictor on its endogenous construct. According to Cohen's guidelines, f^2 values of 0.02, 0.15, and 0.35 indicate small, medium, and large effects, respectively (Hair et al., 2022). As shown in Table X, Leadership Style exerted a large effect on Team Communication (f^2 = 0.45) and Role Clarity (f^2 = 0.32), demonstrating its substantial influence on team processes. Team Communication had a medium effect on Team Effectiveness (f^2 = 0.19), while Role Clarity had a small-to-medium effect (f^2 = 0.14) on team effectiveness. Finally, Team Effectiveness exhibited a large effect on Patient & Staff Outcomes (f^2 = 0.41). These results confirm that leadership and key team processes have meaningful and practical impacts on both team performance and overall outcomes in multidisciplinary rehabilitation settings.

5. Discussion

The primary aim of this study was to investigate how leadership as an organizational input influences key team processes specifically team communication and role clarity—and how these, in turn, affect multidisciplinary rehabilitation team effectiveness and perceived patient and staff outcomes, within an Input–Process–Outcome (IPO) framework. Consistent with our hypotheses, the results demonstrate that leadership style significantly predicts both communication and role clarity, which subsequently influence team effectiveness and downstream outcomes.

The finding that leadership style exerts a significant positive influence on team communication and role clarity aligns with existing research emphasizing the role of leadership in facilitating non-technical skills critical to collaborative healthcare delivery. Leadership has been identified as essential for defining responsibilities, fostering communication, and supporting teamwork in healthcare environments (The role of leadership in enhancing non-technical skills in healthcare, 2025). Similarly, leadership in interprofessional health and social care teams has been highlighted as requiring skills that actively support communication, team building, and role structuring to achieve innovation and collaborative performance (Smith et al., 2018). The strong relationships observed between leadership and team processes support H1 and H2, and reinforce the critical role of leaders in establishing an environment conducive to open information exchange. Clear leadership contributes to transparent communication

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channels and helps mitigate the communication breakdowns often seen in multidisciplinary healthcare teams (Leadership in interprofessional health and social care teams; systematic team leadership literature). In rehabilitation contexts particularly, effective leadership has been noted as essential due to the complex, patient-centered nature of care and the need for coordinated action among multiple professionals (Leadership in Rehabilitation Teamwork, 2022).

Consistent with H3 and H4, team communication and role clarity were both significant predictors of team effectiveness. This pattern aligns with broader health services research showing that clear communication supports coordinated actions and reduces ambiguity in team tasks, which is fundamental to collaborative performance (Healthcare professional perspective on barriers and facilitators… systematic review, 2025). Moreover, clarity in roles reduces conflict and overlap, enabling professionals to contribute effectively within their scope while respecting the contributions of others—a dynamic that enhances cohesion and operational performance in multidisciplinary settings. The significant predictive effect of team effectiveness on perceived patient and staff outcomes (H5) underscores the practical relevance of team functioning for broader organizational goals. Teams that coordinate effectively and maintain high levels of internal performance are more likely to achieve higher quality patient care and positive staff experiences. This result converges with evidence from multidisciplinary health implementation settings showing that robust team functioning is associated with improved implementation outcomes and enhanced service delivery quality in healthcare teams (Associations between teamwork and implementation outcomes, 2023).

Additionally, the partial mediating roles of communication and role clarity (H6) provide empirical support for the IPO framework, indicating that leadership influences team effectiveness both directly and indirectly through these process variables. Mediation analyses in organizational studies similarly emphasize that positive leadership impacts performance outcomes largely by shaping team processes, such as communication patterns and mutual understanding among members (Mazzetti & Schaufeli, longitudinal leadership study; team process mediation literature).

Collectively, these findings reinforce the theoretical premise that leadership is not just an antecedent but a catalyst for team processes that are essential for effective multidisciplinary collaboration. Previous studies on leadership in healthcare echo this, noting that leaders play a pivotal role in aligning team goals, facilitating information flow, and clarifying expectations, which are preconditions for achieving high-quality outcomes (Literature review on interprofessional leadership). Importantly, the explanatory power observed in this study (e.g., $R^2 = 0.57$ for team effectiveness) suggests that leadership and team processes account for a substantial portion of variation in team performance. This corroborates the view that organizational inputs and internal dynamics significantly shape team effectiveness in complex clinical settings. It also highlights practical implications: leadership development initiatives and communication enhancement interventions may be leveraged to improve team effectiveness and subsequent outcomes in rehabilitation care.

From a practical standpoint, enhancing leadership competencies among team managers and clinicians—especially through targeted training and mentorship—could strengthen communication and clarify professional roles. Studies in diverse healthcare settings indicate that leadership development interventions improve team collaboration and organizational performance, underscoring the potential value of structured leadership programs (Systematic review of leadership interventions among health professionals, 2020). Additionally, role clarification and

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communication strategies (such as regular team briefings and standardized communication protocols) could further support teamwork quality, echoing findings from multidisciplinary practice reviews that emphasize clarity and structured communication as foundations of effective teamwork (Healthcare professional perspective systematic review, 2025).

In conclusion, this study extends existing research by empirically demonstrating the mechanisms through which leadership influences team processes and outcomes in multidisciplinary rehabilitation teams. The results confirm that enhancing leadership style, communication, and role clarity can significantly improve team effectiveness and contribute to better patient and staff perceptions. These insights provide a solid empirical base for organizational strategies aimed at building high-performing rehabilitation teams in diverse healthcare contexts.

6. Future Recommendations

Leadership Development Programs: Organizations should implement targeted leadership training for rehabilitation team managers and senior clinicians to enhance communication, role structuring, and participative decision-making skills. Transformational and supportive leadership styles should be emphasized, as these were shown to significantly influence team communication and role clarity.

Structured Communication Protocols: Regular team meetings, standardized reporting systems, and interprofessional briefings should be adopted to strengthen communication pathways. The study demonstrated that effective communication partially mediates the relationship between leadership and team effectiveness, highlighting its critical role in translating leadership into outcomes.

Role Clarification Interventions: Clear delineation of professional roles and responsibilities should be a focus during onboarding and continuous professional development. Role clarity enhances team performance and reduces conflict, particularly in multidisciplinary settings where overlapping responsibilities are common.

Policy Implications: Healthcare institutions and policymakers should recognize the importance of leadership and team process variables in designing workforce strategies and clinical guidelines. Investments in leadership capacity and structured team processes can improve both staff satisfaction and patient outcomes, making it a cost-effective strategy for quality improvement.

7. Limitations

• Cross-Sectional Design: The study employed a cross-sectional survey, limiting the ability to establish causal relationships between leadership, team processes, and outcomes. Longitudinal or experimental designs could provide stronger evidence for causal inferences.

• Self-Reported Measures: The data on leadership, communication, role clarity, and outcomes were collected via self-report questionnaires, which may introduce social desirability or recall biases. Triangulation with objective performance metrics or peer assessments could enhance validity.

• Generalizability: The study sample was drawn from specific rehabilitation settings and may not fully represent other healthcare contexts or geographical regions. Future studies could include broader, multi-country samples to improve external validity.

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- Other Potential Variables: While the study focused on leadership, communication, and role clarity, other organizational or individual factors (e.g., team cohesion, workload, technological support) could also influence outcomes and should be explored in future research.

8. Conclusion

This study provides robust empirical evidence for the Input–Process–Outcome (IPO) framework in multidisciplinary rehabilitation teams. Leadership style emerged as a key input influencing team process communication and role clarity which, in turn, significantly predicted team effectiveness and patient & staff outcomes. Both team communication and role clarity were found to partially mediate the relationship between leadership and team effectiveness, highlighting the importance of process variables in translating leadership into tangible outcomes. The study underscores that effective leadership and structured team processes are critical for achieving high-performing rehabilitation teams. Practically, healthcare organizations should invest in leadership development, structured communication strategies, and role clarification interventions to enhance both team performance and patient care quality. The findings extend prior research by quantifying the relative contributions of leadership and process variables in multidisciplinary healthcare contexts and offer actionable insights for policymakers, administrators, and practitioners seeking to improve team functioning and healthcare outcomes.

AUTHOR'S CONTRIBUTION AND DECLARATIONS

Conception or Design: Sumera Afzal

Data Collection and processing, Analysis or Interpretation of Data: Saima Ali, Farhan Mahboob & Arfa Shaikh.

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Furthermore, this research did not involve the use of animals, plants, or any biological specimens requiring ethical approval. Therefore, ethical clearance from an institutional review board, prior informed consent (PIC) from respondents, or animal/plant welfare approvals are not applicable to this study.

The author(s) affirm full compliance with international ethical standards for research and publication.

REFERENCES

Alharbi, H. A., Alawfi, A. M., Altorgmi, H. B., Aljabri, B. N., Alsaedi, A. B., & Alsaedi, N. G. (2025). Impact of leadership styles on patient safety culture: A systematic review. The Review of Diabetic Studies, 21(S2), 620–634. https://doi.org/10.70082/1q683661

Bhatti, S., Bale, S., Muldoon, L., & Rayner, J. (2024). The impact of leadership style in team-based primary care – staff satisfaction and motivation. BJGP Open. https://doi.org/10.3399/BJGPO.2023.0246

Borghmans, F., Fernandes, V., Laletas, S., & Newnham, H. (2025). "You do need each member of the team to bring that next piece of the puzzle": Allied health professionals' experience of interprofessional complex care in hospital settings. PLOS ONE, 20(3), e0317799. https://doi.org/10.1371/journal.pone

Bornman, J., & Louw, B. (2023). Leadership development strategies in interprofessional healthcare collaboration: A rapid review. Journal of Healthcare Leadership, 15, 175–192. https://doi.org/10.2147/JHL

Buljac-Samardzic, M., Doekhie, K. D., & van Wijngaarden, J. D. H. (2020). Interventions to improve team effectiveness within healthcare. Human Resources for Health, 18(1), 2.

Hameed, I., Chatterjee, R. S., Khan, Y., Zainab, B., & Khan, K. (2025). Willing to drive green? Exploring behavioral and policy influences on electric vehicle ownership. International Journal of Energy Sector Management, 1-20.

Hasan, Z., Zehra, N., Ahmed, S., & Wamiq, M. (2021). Factors Influencing Fear and its subsequent effects on Self Confidence: An analysis on HR Perspective. KASBIT Business Journal, 14(3), 142-152.

Hu, S., Välimäki, M., Liu, S., et al. (2024). Coaching to develop leadership of healthcare managers: A mixed-methods systematic review. BMC Medical Education, 24, 1083. https://doi.org/10.1186/s12909-024-06081-y

Iqbal, H., Riaz, K., Khan, K., & Hussainy, S. K. (2021). Impact of workplace spirituality on employee attitudes and engagements. Pakistan Business Review, 23(1), 92-114.

Manser, T. (2009). Teamwork and patient safety in dynamic domains of healthcare: A review of the literature. Acta Anaesthesiologica Scandinavica, 53(2), 143–151.

Maritsa, E., Goula, A., Psychogios, A., & Pierrakos, G. (2022). Leadership development: exploring relational leadership implications in healthcare organizations. International journal of environmental research and public health, 19(23), 15971.

Mazzetti, G., & Schaufeli, W. B. (2022). Engaging leadership and team effectiveness. PLOS ONE, 17(6), e0269433.

ISSN: 3007-2115
Publisher: Allied Nexus Publisher
http://amss.alliednexuspublisher.com/

Mehmood, S., Hasan, Z., Ali, R., Nawaz, S., & Amjad, S. (2024). Social cognitive theory in human resource management: literature review, criticism and research agenda. Bulletin of Business and Economics (BBE), 13(2), 9-13.

Pradelli, L., Risoli, C., Summer, E., Bellini, G., Mozzarelli, F., Anderson, G., Guasconi, M., Artioli, G., Bonacaro, A., & Sarli, L. (2025). Healthcare professional perspective on barriers and facilitators of multidisciplinary team working in acute care settings: A systematic review and meta-synthesis. BMJ Open, 15(3), e087268. https://doi.org/10.1136/bmjopen-2024-087268

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, (6).

Roodbeen, R. T. J., Bruinsma, J., Rozema, A. D., Crutzen, R., & Stutterheim, S. E. (2025). Accessibility, clarity, and organizational opportunities to enhance interprofessional collaboration in alcohol interventions: A qualitative study. BMC Health Services Research, 25, 1384. https://doi.org/10.1186/s12913-025-13552-5

Shi, Y., Li, H., Yuan, B., & Wang, X. (2025). Effects of multidisciplinary teamwork in non-hospital settings on healthcare and patients with chronic conditions: A systematic review and meta-analysis. BMC Primary Care, 26, 110. https://doi.org/10.1186/s12875-025-02814-0

Tedla, B. A., & Hamid, A. S. (2022). Leadership in healthcare organizations: A retrospective study. International Journal of Health Sciences, 6(6), 733-746.

Uddin, T. (2022). Leadership in rehabilitation teamwork: Challenges for developing countries. Frontiers in Rehabilitation Sciences, 3, 1070416. https://doi.org/10.3389/fresc.2022.1070416

Zeerak, S., Kamran, A., Khan, M., & Khan, Q. (2018). Impact of Job Stress on Employee Social Life: A Study to Test Work-Life Balance. Journal of Social Sciences and Media Studies, 2(1), 34-42.