


BMJ Open Healthcare professional perspective on barriers and facilitators of multidisciplinary team working in acute care setting: a systematic review and meta-synthesis

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ABSTRACT

Objective A multidisciplinary team is essential to providing high-quality, patient-centred care. However, its effectiveness can be either hindered or facilitated by various factors, such as the need for rapid decision-making, which may compromise patient outcomes despite individual efforts. The aim of this study is to synthesise the factors that may act as barriers and facilitators to the work of multidisciplinary teams in managing labour within acute care settings.

Design A systematic qualitative review and meta-synthesis was conducted following the five-step methodology proposed by Sandelowski *et al.*

Data source Three databases (Medline, Embase and Scopus) were systematically searched without time restrictions up to 25 May 2024.

Eligibility criteria for selecting studies Qualitative studies exploring perspectives, experiences and other similar factors were included. These studies were assessed for methodological quality using the Critical Appraisal Skills Programme.

Data extraction and synthesis The reviewers independently searched, screened and coded the results of the included studies. Data were synthesised using the method proposed by Thomas and Harden.

Results Seventeen studies were included in the meta-synthesis. Four key dimensions emerged, reflecting both the barriers and the facilitators of multidisciplinary team performances: (1) organisational variables, (2) individual variables, (3) collaborative variables and (4) role variables. A total of 36 variables were identified, which could function as barriers (n=6; eg, high staff turnover), facilitators (n=6; eg, strong listening skills) or both (n=24; eg, team climate), depending on the context.

Conclusions This meta-synthesis identifies specific barriers and facilitators and variables that can act as both. Understanding these factors enables targeted interventions to enhance the performance of multidisciplinary teams in clinical practice, particularly in acute care settings.

PROSPERO registration number CRD42022297395.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This study provides an indepth overview of the determinants of effective teamwork in acute care settings, achieved through a comprehensive meta-synthesis.
- ⇒ This systematic review follows Sandelowski *et al* methodology, allowing for a new interpretation of the original findings from the included studies.
- ⇒ A limitation of the study is that the search strategy did not explicitly include keywords related to individual health professions involved in acute care, potentially leading to the exclusion of relevant studies.
- ⇒ The final database search was conducted on 25 May 2024, which may result in the omission of more recent studies published after this date.

BACKGROUND

In healthcare, a multidisciplinary team is defined as a group of healthcare professionals (HCPs) with diverse areas of expertise who collaborate to provide the best possible patient care.¹ Over the past decade, teamwork has become increasingly central in healthcare, now considered essential to delivering high-quality, patient-centred care.² The WHO, along with several other international institutions, acknowledges the critical importance of multidisciplinary collaboration in healthcare.^{3–6} Several studies^{7–11} have demonstrated that multidisciplinary teamwork offers numerous benefits both to HCPs and to patients. Within such teams, HCPs can work together, combining their skills to improve clinical care and therapy management. This collaboration has been shown to reduce adverse events and promote positive health outcomes,¹² such as shorter hospital stays,¹³ increased patient satisfaction⁹ and decreased hospital mortality rates,¹⁴ particularly within

the first 30 days of admission¹⁵ and in cases involving neurological conditions.¹⁴

In the literature, the term acute care (AC) setting refers to an environment where patients with acute conditions requiring urgent medical attention receive treatment.¹⁶ AC encompasses various healthcare sectors, including emergency care, urgent care, short-term stabilisation, prehospital care, critical care, trauma care and AC surgery.¹⁶ For instance, the emergency department (ED) offers services designed to restore, maintain and promote the health of patients requiring intensive medical or surgical interventions for acute conditions, trauma and emergent obstetric or gynaecological issues.^{16 17} As part of the broader AC setting, the ED highlights how the composition of multidisciplinary teams and the dynamics within them are crucial to achieving positive patient outcomes.^{11 18} The HCPs involved in multidisciplinary teams within AC settings include physicians from various specialties, surgeons, anaesthesiologists, nurses, health assistants, midwives, health technicians¹⁹ or therapists.²⁰ However, there is no universal consensus regarding which professional roles should be included in AC teams given the wide range of healthcare professions involved.¹⁸ Team members are often broadly categorised into clinical roles, non-clinical roles or temporary positions, reflecting the diverse nature of AC teams.²⁰

While multidisciplinary teamwork is a key objective for ensuring quality patient care in AC settings and is recognised as a vital component of effective healthcare delivery,²¹ achieving it remains challenging.²² Factors such as the need for rapid decision-making and the presence of diverse professionals with specialised skills can influence collaboration at all levels of care. These challenges can negatively impact team performance and patient outcomes, even when each individual is highly dedicated to achieving the best possible results.^{23 24} To date, no study has systematically synthesised these influencing factors. A deeper understanding of these elements could improve team organisation and management, while fostering more effective collaboration among HCPs in AC settings.²²

Therefore, the aim of the study is to synthesise the factors that can hinder (barriers) or facilitate (facilitators) multidisciplinary teamwork in AC settings. To achieve this, the research question guiding the study is: 'Which variables can hinder or facilitate multidisciplinary teamwork in AC settings?'

METHODS

To address the research question, a systematic review of the literature was conducted to identify relevant studies, followed by a meta-synthesis using the Sandelowski *et al.*²⁵ This approach was chosen because the research question requires an interpretative analysis of the original findings within a realistic methodological framework.^{25 26} The meta-synthesis process comprised five distinct stages: (1) definition of key concepts, (2) systematic literature

review, (3) quality assessment of the included studies, (4) data analysis and calculation of the effect dimension and (5) synthesis of the results.

The meta-synthesis protocol is published on PROSPERO (protocol ID: CRD42022297395). To ensure transparency in reporting, both the methods and the findings were documented in accordance with the Enhancing Transparency in Reporting the Synthesis of Qualitative Research (ENTREQ),²⁷ as detailed in online supplemental appendix S2.

Eligibility criteria, search strategy, screening, data extraction and quality

The inclusion criteria were focused on the following: (1) the concept of multidisciplinary teams, defined as groups of HCPs with diverse educational and professional backgrounds who collaborate to provide integrated, high-quality patient care¹; (2) HCPs, as defined by the WHO³; (3) teams operating in AC settings, as defined by the Australian Institute of Health and Welfare¹⁷; (4) qualitative study designs, including phenomenological studies, ethnographies, grounded theory research and mixed-method or multimethod studies, provided that qualitative data could be clearly separated from quantitative data^{28 29}; and (5) studies focusing on the experiences of a single professional category in relation to multidisciplinary teamwork. The exclusion criteria were as follows: (1) studies involving students, interns or residents; (2) studies investigating barriers and facilitators related to multiprofessional education rather than clinical teamwork; (3) studies conducted on non-graduate or lay professionals, except when these participants constituted less than 15% of the sample and their findings were considered particularly relevant; (4) studies not published in English or Italian; and (5) theses, dissertations and conference abstracts. Disagreements regarding the inclusion or exclusion of studies were resolved through consensus among the reviewers.

The search strategy was designed following the SPIDER (Sample, Phenomenon of Interest, Design, Evaluation, Research type) tool guidelines.³⁰ Three electronic databases—Medline, Embase and Scopus—were systematically searched to identify all relevant studies. The final search was conducted on 25 May 2024. Tailored search strings were developed for each database to optimise the retrieval of relevant articles, and these are provided in online supplemental appendix S1. Due to the structure of the SPIDER tool,^{30 31} the specific AC setting of interest was identified by the reviewers during the screening process.

After removing duplicate records, the screening process was done, involving two stages: title and abstract screening and full-text screening. Studies were initially screened based on their titles and abstracts. The remaining articles were reviewed in full by five independent reviewers (CR, LP, GB, FM, ES) using the Zotero reference management software.³² To ensure accuracy, one of the authors (GAn) independently verified the entire data extraction process. Additionally, a snowball search (both backward

and forward citation tracking) was conducted at the end of the screening process to identify any relevant studies that may have been missed. These additional studies underwent the same screening procedures. Any disagreements regarding study inclusion were resolved through consensus within the research team.

Data were abstracted using a comprehensive data extraction form, which included the following study characteristics: author's name, country, publication year, study design and method, type of study population, number and profession of the participants, findings and limitations (see [table 1](#)). To minimise bias, two independent reviewers conducted data extraction for each study. LP screened all papers, while GB, FM, CR and ES served as second reviewers. Discrepancies were discussed and resolved through consensus.

The methodological quality of the included studies was independently assessed by the same group of reviewers using the Critical Appraisal Skills Programme (CASP) checklist.³³ While there is no standardised agreement on quality assessment in meta-synthesis, Sandelowski *et al*²⁵ argued that excluding studies based solely on quality is undesirable. Therefore, although the quality of each study was assessed, it was not used as an exclusion criterion. The CASP tool consists of 10 appraisal items evaluating the trustworthiness, relevance and quality of studies. Each question offers three response options—'yes', 'cannot tell' and 'no'—with scores assigned as follows: 1 point for 'yes' and 0 for 'cannot tell' or 'no'.³⁴ Higher total scores indicate higher methodological quality. Any discrepancies in quality assessment were discussed among the authors and resolved through consensus.

Synthesis and data analysis

Data analysis was conducted using inductive thematic analysis, following the method proposed by Thomas and Harden.³⁵ The results from each included study were entered into Microsoft Excel and organised within an ad-hoc data extraction template. The data were then read in full and analysed through line-by-line coding. Text segments that lacked relevant content were not coded. The reviewers extracted only the findings directly related to the research question. During the coding process, new codes were generated and continuously integrated with existing ones. These codes were then grouped into a hierarchical structure, allowing for the synthesis of similar data and the development of new themes.³⁵ The final set of themes was further refined and combined, following the recommendations of Sandelowski *et al*.²⁵ Each theme represents a distinct conceptual area relevant to multidisciplinary teamwork in AC settings. The thematic synthesis was conducted manually by the same five authors, with constant and ongoing comparison of results to ensure consistency and reliability. To assess the relative magnitude of the findings, two types of effect sizes were calculated. The intrastudy intensity effect size was calculated as: (number of studies containing the outcome/total number of outcomes among studies)×100.^{25 36} This metric

reflects how prominently an outcome appeared across different studies. The interstudy frequency effect size was calculated as: (number of outcomes in each study/total number of outcomes among studies)×100.^{25 36} This measures the frequency of specific outcomes within individual studies relative to the total pool.

To maintain the trustworthiness and rigour of the analysis, several strategies were employed: (1) a systematic literature search strategy was used to ensure comprehensive coverage; (2) the research team was multidisciplinary, providing diverse perspectives; (3) multiple reviewers were engaged at different stages of the review to minimise bias; and (4) frequent meetings were held to discuss challenges, align strategies and ensure consistency throughout the process.

Patient and public involvement

Patients and/or the public were not involved in the design, conduct, reporting or dissemination plans of this review.

RESULTS

Database searches yielded a total of 16097 studies. After removing duplicates and screening titles and abstracts, 244 studies remained for full-text reviews. Of these, 15 studies met the inclusion criteria. Additionally, the snowball searching process (backward and forward citation tracking) identified two more studies, bringing the total number of included studies to 17. The study selection process is illustrated in a Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow chart.³⁷ For further details, refer to [figure 1](#).

Characteristics of the studies

All included studies were published between 2004 and 2022 (see [table 1](#)). Approximately 35% of the studies were conducted in Europe.^{7 38–42} Nearly half (47%) of the studies were conducted in the Americas, specifically in the USA,^{43–46} Canada^{23 47} and South America.^{48 49} The remaining studies were carried out in Oceania^{50 51} and in the Middle East.⁵²

Most of the included studies explored the experiences, feelings and perceptions of members of multidisciplinary teams working in AC settings. Approximately one-third of the studies specifically focused on identifying barriers and facilitators of effective teamwork. All studies employed a qualitative research design, with the exception of three mixed-method studies.^{38 47 48} Among the qualitative studies, eight studies used a descriptive qualitative method,^{23 40 44–49} two adopted a phenomenological methodology,^{43 50} and two employed an ethnographic approach.^{41 42} The remaining five studies did not specify their qualitative methodology. However, this lack of detail was not considered a source of bias, as the studies still provided valuable insights relevant to the research phenomenon and were therefore included. Regarding data collection methods, the majority of studies relied

Table 1 Characteristics of the included studies

| Author, year | Country | Aim | Design | Population and participants (n) | Setting | Findings | Limitations |
|-----------------------------------|-------------|---|--|--|--|--|--|
| Atwal and Caldwell ³⁸ | UK | Nurses' perceptions of working in teams | Mixed-methods study | n=19 (nurses) | Acute care and orthopaedic centre | The relationships during teamwork | Low generalisability |
| Baxter and Brumfit ³⁹ | UK | Perceptions of teamwork practices | Qualitative study with multiple case studies | n=37 (nurses, rehabilitation therapists, professionals with other specialisations, unqualified participants) | Specialty unit and rehabilitation unit for stroke | Staff perceptions of teamwork | Limited number of participants |
| Baxter and Brumfit ⁷ | UK | Joint work between professionals | Qualitative study | n=37 (nurses, rehabilitation therapists, professionals with other specialisations) | Hospital and community stroke services | The nature of teamwork practice | Limitations not declared |
| Bogdanovic et al ⁴⁰ | Switzerland | Feelings and needs of the surgical team | Qualitative descriptive study | n=33 (physicians, nurses) | Plastic surgery operating room in a university hospital | The behaviours and adaptive strategies in critical events | Reporting of behaviours of critical events; low generalisability; only interviews |
| Cioffi and Ferguson ⁵⁰ | Australia | Experiences of team nurses | Phenomenological qualitative study | n=20 (nurses) | Multicentre hospitals ICU | The relationships described by nurses towards the multidisciplinary team | Unique optics of the health professionals involved; only adult patients |
| Ediger et al ⁴⁷ | Canada | How NICU team members conceptualise teamwork | Descriptive qualitative method study | n=10 (neonatologists, nurses, respiratory therapists) | NICU | Facilitators and barriers to teamwork | A single-centre study; unique professional roles not present in other units |
| Goulart et al ⁴⁸ | Brazil | Aspects that foster and hinder teamwork | Mixed-methods descriptive study | n=45 (nurses, physicians, physical therapists, psychologists) | Coronary care unit | Situations, behaviours and consequences concerning the multidisciplinary work team | Public hospital; hospital under renovation |
| Khademian et al ⁵² | Iran | Interprofessional team and its strategies for improvement | Qualitative study | n=17 (nurses, supervisors) | Emergency trauma centre (triage area, ED and resuscitation room) | Multidisciplinary team attributes and improvement strategies | Low participant experience in trauma centres; only nurses and supervisors involved; only interviews and focus groups |
| Lapierre et al ²³ | Canada | Factors that facilitate and hinder interprofessional teams | Exploratory/descriptive qualitative study | n=7 (nurses, physicians, respiratory therapists, orderly, paramedics) | Second-level trauma centre in the emergency department | Factors affecting collaboration | Principal investigator internal to the trauma unit; numerically limited sample |
| Liberati et al ⁴¹ | Italy | Multidisciplinary work affected by disciplinary boundaries | Qualitative ethnographic study | n=42 (neurologists, intensivists, neurosurgeons, nurses) | Newly created unit | Collaboration between doctors, between nurses and between doctors and nurses | Generalisability; framework may not apply to teams in non-early stages of development |
| Noce et al ⁴⁹ | Brazil | Perceptions of professionals working in an adult ICU regarding teamwork | Descriptive study with qualitative approach | n=38 (nurses, physicians, physical therapists) | Intensive care | Perceptions of the work performed and teamwork | Single ICU taken into consideration |

Continued

Table 1 Continued

| Author, year | Country | Aim | Design | Population and participants (n) | Setting | Findings | Limitations |
|---|-------------|--|------------------------------------|--|--|---|--|
| Paige <i>et al</i> ⁴³ | USA | Determine key teamwork characteristics from professionals | Phenomenological qualitative study | n=15 (surgeons, anaesthesiologists, nurse anaesthetists, circulatory nurses, surgical technologists) | Level 1 trauma centre in an academic medical centre | Relationships among operating room team members | Recruitment in only one institution; disproportion of participants; different hierarchy in the same focus groups |
| Salih and Draucker ⁴⁴ | USA | Facilitators and barriers to successful teamwork in a NICU | Qualitative methodology | n=54 (neonatologists, nurses, neonatal nurses, respiratory therapists) | A 55-bed, level 4 NICU in a teaching hospital for children | Interrelated processes that were essential for successful teamwork | Restricted findings from the data collection group; attribution of findings to simulation/real setting |
| Simmons and Sherwood ⁴⁵ | USA | Experience in high-performance teamwork | Descriptive qualitative study | n=19 (ICU nurses, department nurses) | Large teaching hospital (500 beds) | Nurses' descriptions of working together | Single-centre, single-professional study |
| Thomas <i>et al</i> ⁴⁶ | USA | Perceptions of working as a team in a NICU | Descriptive qualitative study | n=35 (physicians, nurses) | NICU | Elicitations of health workers regarding 'how to work in teams' | Concerns about participants' age; low generalisability |
| Weller <i>et al</i> ⁵¹ | New Zealand | Perspectives on team interactions and functioning | Comparative qualitative study | n=20 (anaesthesiologists, nurses, randomly selected anaesthesia assistants) | Multicentric (two tertiary hospitals) | Interactions among different health professionals and influences on team function | Exploration limited to team interactions only |
| Wolf <i>et al</i> ⁴² | Sweden | How routines, structures and the physical design of the environment influence teamwork | Ethnographic study | n=135 (nurses, nursing assistants, cardiologists) | Cardiac intensive care in coronary care unit | The relationships and actions of healthcare providers in a limited care environment | Study in one department |
| ICU, intensive care unit; NICU, neonatal intensive care unit. | | | | | | | |

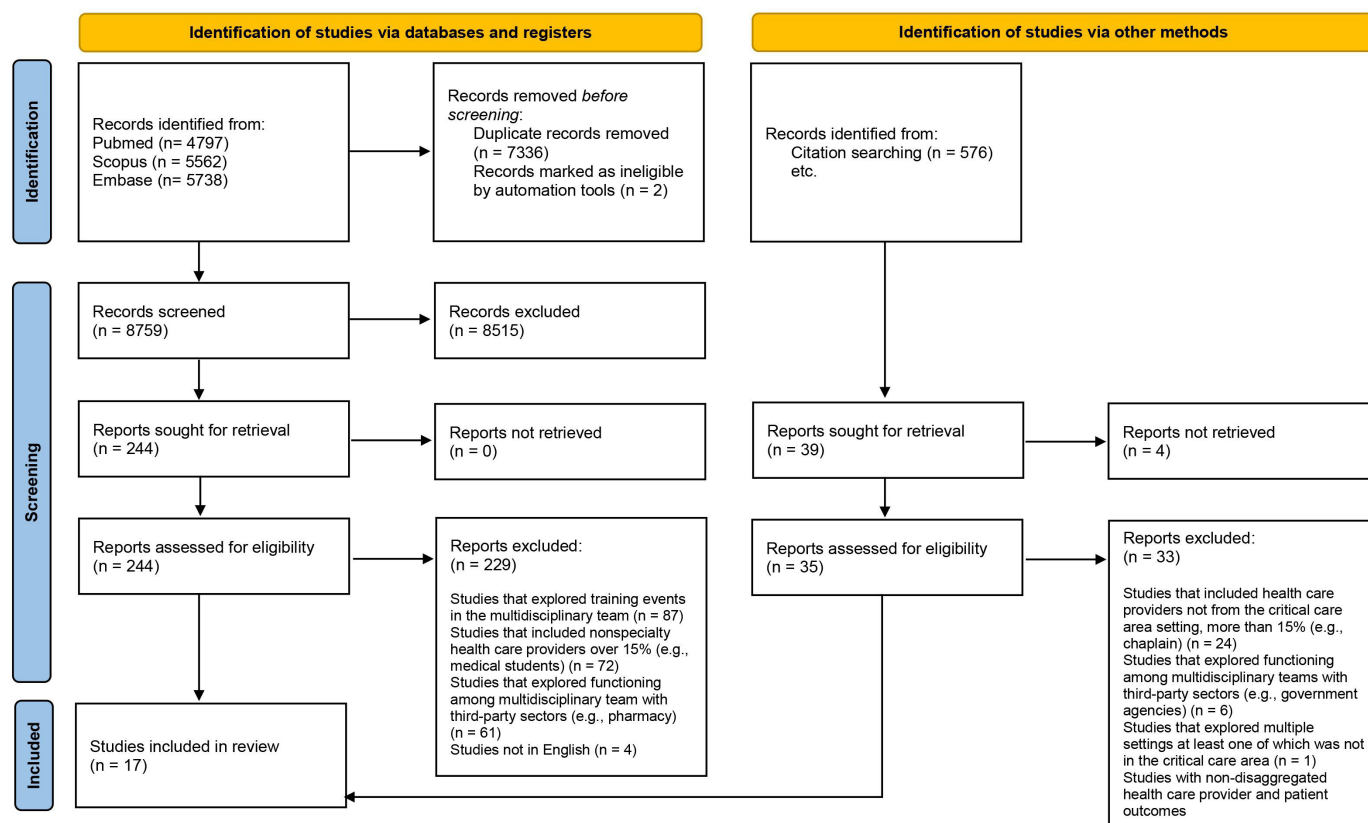


Figure 1 Flow chart of the search strategy and results.

on a single method, with 47% using semistructured interviews as the primary tool^{38–40 47–49 51} and 11% employing focus groups.^{45 50} The remaining studies used a combination of two different data collection methods, enriching the depth of the qualitative data.

The participants across the included studies consisted of nurses (n=354), doctors (n=140), rehabilitation technicians (n=58) and other HCPs (n=30). All studies were multiprofessional, with the exception of three studies that focused on a single professional group.^{38 45 50} The work experience of the professionals ranged from a minimum of 2 months⁴⁴ to a maximum of 38 years.^{43 47} Four studies did not report the participants' years of work experience. In studies where the average years of work experience were provided,^{23 44–47 49 52} the average was generally less than 11 years, except for two studies reporting averages of 15 years⁴⁰ and 16 years.⁵⁰ Most studies described the experiences of professionals from a minimum of two^{46 52} to a maximum of six different healthcare roles working within AC settings.³⁹ The most frequently reported AC settings included general (n=2) and neonatal (n=3) intensive or subintensive care units, polytrauma units (n=4), stroke units (n=3) and cardiac care units (n=2). Some AC settings were located within specialised facilities classified as level 2,²³ level 3^{47 51} and level 4 centres,⁴⁴ while others were based in general teaching hospitals.^{40 43 45} The patient populations treated in these settings varied widely, encompassing individuals from neonatal to geriatric age groups.

For additional details not included in [table 1](#), refer to online supplemental appendix S3.

Quality appraisal of the included studies

The methodological quality of the included studies was generally high, as detailed in [table 2](#). However, only four studies achieved the highest quality scores, reflecting strong methodological rigour.^{41 42 47 49} The analysis revealed that most studies demonstrated adequate goal setting, employed appropriate data collection methods, maintained rigour in data analysis and presented their results clearly ([table 2](#)). Nonetheless, the research design was found to be insufficiently detailed in seven studies,^{23 38 43 46 50–52} which limited the transparency and replicability of their methodologies. Additionally, studies published before 2010 often provided limited attention to ethical considerations by either omitting ethical discussions or addressing them superficially.^{39 43 45 46 51} Furthermore, several studies failed to adequately acknowledge or address potential biases arising from the researcher-participant relationship,^{7 39 44 46 50 52} which could influence data interpretation. These issues are discussed in detail in [table 2](#).

The data abstraction and synthesis process identified four distinct main themes, each representing a conceptual area that encapsulates the barriers and facilitators of multidisciplinary teamwork in AC settings. The main themes are (1) organisational variables, (2) individual variables, (3) collaborative variables and (4) role variables. These

Table 2 Quality assessment of the included studies using the Critical Appraisal Skills Programme (CASP)

| CASP item | Atwal and Caldwell ³⁸ | Baxter and Brumfitt ³⁹ | Baxter and Brumfitt ⁷ | Bogdanovic et al ⁴⁰ | Cioffi and Ferguson ⁵⁰ | Ediger et al ⁴⁷ | Goulart et al ⁴⁸ | Khademian et al ⁶² | Lapierre et al ²³ | Liberati et al ⁴¹ | Noce et al ⁴⁹ | Paige et al ⁴³ | Salih and Draucker ⁴⁴ | Simmons and Sherwood ⁴⁵ | Thomas et al ⁴⁶ | Weller et al ⁵¹ | Wolf et al ⁴² |
|--|----------------------------------|-----------------------------------|----------------------------------|--------------------------------|-----------------------------------|----------------------------|-----------------------------|-------------------------------|------------------------------|------------------------------|--------------------------|---------------------------|----------------------------------|------------------------------------|----------------------------|----------------------------|--------------------------|
| Was there a clear statement of the objectives of the research? | Y | Y | Y | U | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Is qualitative methodology appropriate? | Y | Y | U | Y | Y | Y | U | Y | Y | Y | Y | Y | Y | Y | U | U | Y |
| Was the research design appropriate to address the objectives of the research? | U | Y | Y | Y | U | Y | Y | U | U | Y | Y | U | Y | Y | N | U | Y |
| Was the recruitment strategy appropriate for the purposes of the research? | Y | Y | Y | N | Y | Y | Y | Y | N | Y | Y | Y | N | Y | Y | Y | Y |
| Have the data been collected in a way that addresses the research problem? | U | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Has the relationship between researcher and participants been adequately considered? | Y | U | U | Y | N | Y | Y | U | Y | Y | Y | Y | U | Y | U | Y | Y |
| Have ethical issues been taken into consideration? | Y | U | Y | Y | Y | Y | Y | Y | Y | Y | Y | N | Y | U | U | N | Y |
| Was the data analysis sufficiently rigorous? | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | U | Y | Y | U | Y | Y |
| Is there a clear statement of results? | Y | Y | U | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| How valuable is the research? | Y | Y | Y | U | Y | Y | Y | U | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Total score | 9 | 9 | 8.5 | 8 | 8.5 | 10 | 9.5 | 8.5 | 8.5 | 10 | 10 | 8 | 8.5 | 9.5 | 7 | 8 | 10 |
| N (No)=0; U (Unclear)=0.5; Y (Yes)=1. | | | | | | | | | | | | | | | | | |

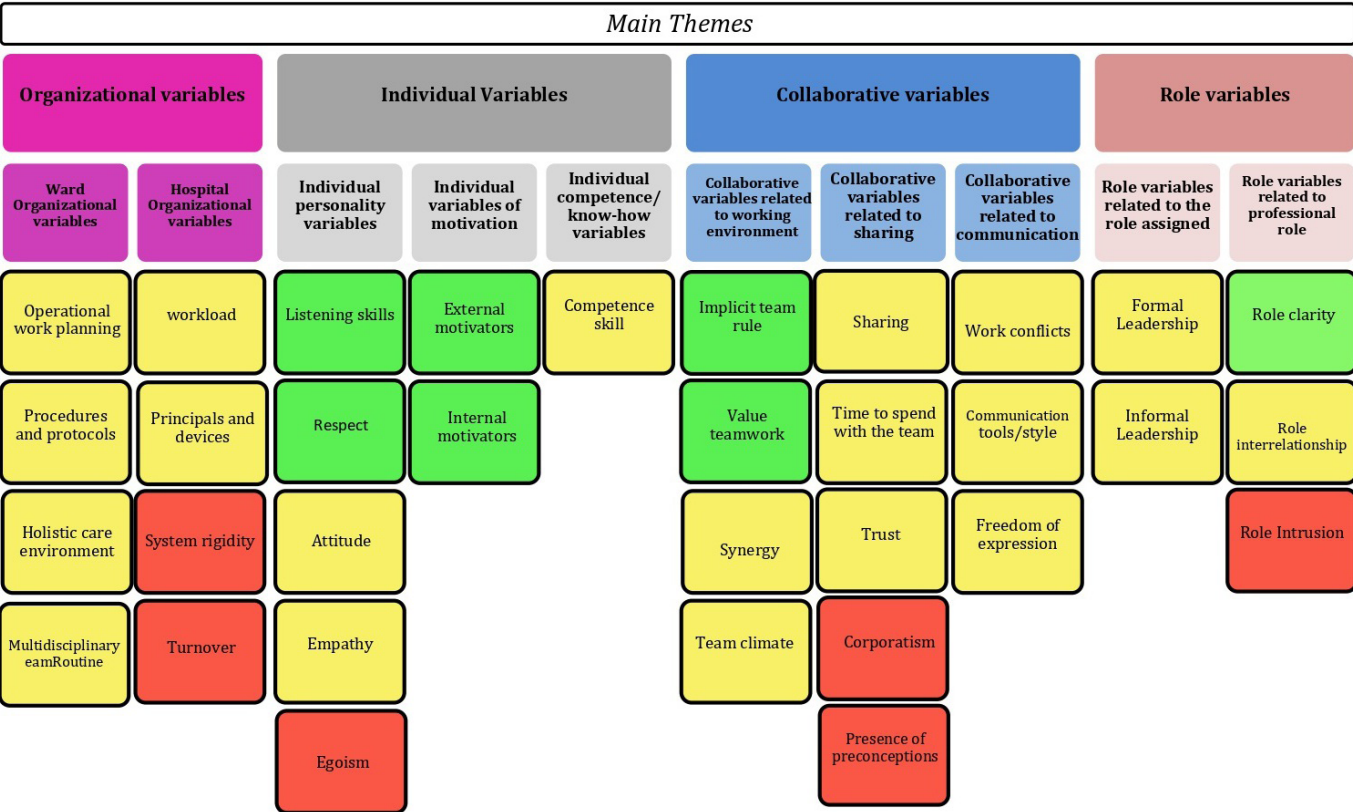


Figure 2 Tree diagram of the results. Red cells indicate the barriers, green cells indicate the facilitators and yellow cells indicate variables that are both facilitators and barriers.

themes are graphically depicted in [figure 2](#). Each main theme was further divided into subthemes, grouping variables that operate within the same action domain influencing the functioning of the multidisciplinary teams. Within each subtheme, the variables were categorised based on their potential to act as barriers, facilitators or neutral variables (with a dual connotation, functioning as either barriers or facilitators depending on the specific context analysed). The highest intrastudy intensity was observed in the studies by Khademian *et al*⁵² and Lapi-erre *et al*,²³ both reporting 100% intensity. Notably, both studies were conducted in trauma centres, where multidisciplinary collaboration is often critical. In contrast, the lowest intrastudy intensity was reported by Simmon and Sherwood⁴⁵ and Atwal and Caldwell,³⁸ with an intensity of 50%. These studies focused on the perceptions of a single professional group, which may have limited the breadth of perspectives on multidisciplinary teamwork.

Organisational variables

The organisational variables identified in the synthesis were categorised into two subthemes: (1) ward organisational variables and (2) hospital organisational variables. The ward organisational variables refer to elements related to the day-to-day management of multidisciplinary teams within AC settings. These include factors such as workflow processes, communication practices, staffing levels, resource allocation and coordination of daily activities that directly influence team dynamics and patient

care. In contrast, the hospital organisational variables pertain to broader clinical governance decisions that shape the operational framework within which multidisciplinary teams function. This includes institutional policies, leadership styles, strategic planning, administrative support and the overall healthcare system structure that can either facilitate or hinder effective teamwork.

Ward organisational variables

This subtheme encompasses four neutral variables: (1) operational work planning, (2) existence of procedures and protocols, (3) holistic care environment and (4) presence of a multidisciplinary team routine. This subtheme demonstrated an interstudy frequency of 65% ([table 3](#)).

Operational work planning meant effective integration of activities and the sharing of common strategies, such as conducting a presurgical briefing, facilitated teamwork and improved care coordination.^{23 47 52} Conversely, disorganised activities⁴⁶ and unclear task arrangements⁵⁰ acted as barriers, leading to fragmented workflows and communication breakdowns within the team. The existence of clear procedures and protocols facilitated the internalisation of appropriate care behaviours,⁴⁹ which is particularly critical in AC settings, where rapid decision-making is essential.^{23 40 46} Standardised protocols help streamline processes, reduce ambiguity and promote consistency in patient care.

A holistic care environment acted as a facilitator when HCPs in the multidisciplinary team were motivated to

Table 3 Intrastudy intensity and frequency of subthemes

| | Ward organisational variables | Hospital organisational variables | Individual personality variables | Individual variables of motivation | Individual know-how variables | Collaborative variables related to working environment | Collaborative variables related to sharing | Collaborative variables related to communication | Role assigned | Professional role | Intrastudy intensity effect size (A), % (n/N) |
|---|-------------------------------|-----------------------------------|----------------------------------|------------------------------------|-------------------------------|--|--|--|---------------|-------------------|---|
| Atwal and Caldwell ³⁸ | X | | X | | | | X | X | | X | 50 |
| Baxter and Brumfit ³⁹ | | X | | | X | X | X | X | | X | 60 |
| Baxter and Brumfit ⁷ | | X | X | | X | | X | X | X | X | 70 |
| Bogdanovic et al ⁴⁰ | X | | | | X | | X | X | X | X | 60 |
| Cioffi and Ferguson ⁵⁰ | X | | | X | X | X | X | X | | | 60 |
| Ediger et al ⁴⁷ | | X | X | X | | X | X | X | X | X | 80 |
| Goulart et al ⁴⁸ | X | X | X | | | X | | X | | X | 60 |
| Khademian et al ⁵² | X | X | X | X | X | X | X | X | X | X | 100 |
| Lapierre et al ²³ | X | X | X | X | X | X | X | X | X | X | 100 |
| Liberati et al ⁴¹ | X | X | X | | X | X | X | X | X | X | 90 |
| Paige et al ⁴⁹ | | X | X | | X | X | X | X | | X | 70 |
| Salih and Draucker ⁴³ | X | X | X | | X | X | | X | X | X | 80 |
| Thomas et al ⁴⁶ | | X | X | X | X | X | X | X | X | X | 90 |
| Weller et al ⁵¹ | | | X | | X | X | X | X | X | X | 70 |
| Wolf et al ⁴² | X | X | X | X | X | X | X | X | | X | 90 |
| Interstudy frequency effect size (B), % (n/N) | 65 | 71 | 76 | 35 | 82 | 82 | 82 | 100 | 53 | 88 | |

A: individual study's contribution to subthemes (number of studies containing the outcome/total number of outcomes among studies). B: representation of subthemes in individual studies (number of outcomes in each study/total number of outcomes among studies).

enhance the quality of patient care⁴⁶ and improve the effectiveness of treatment outcomes.^{48 52} This approach fosters a patient-centred culture that values comprehensive care beyond isolated clinical interventions. A predefined, consolidated, stable and shared multidisciplinary team routine facilitated the management of at-risk interventions by promoting coordinated actions and clear role delineation.^{40 42 49} However, when such routines became overly rigid, they led to work fragmentation between different professional groups, making care practices mechanical and superficial, thus acting as a barrier to effective teamwork.^{42 49}

Hospital organisational variables

This subtheme consists of four variables, with the first two identified as neutral variables and the other two as barriers: (1) workload, (2) resources (principals and devices), (3) system rigidity and (4) staff turnover. This subtheme had an interstudy frequency of 71% (table 3).

A high workload is often attributed to patient overflow to AC services,^{49 52} compelling HCPs to prioritise certain tasks while potentially neglecting others.⁴² High workloads are frequently associated with chronic understaffing or unplanned staff absences, which strain team dynamics and reduce the quality of care.^{7 23 48 52} Conversely, a manageable workload allows sufficient time for completing tasks, thus facilitating collaboration and improving team efficiency. The availability of essential clinical resources, such as medical devices, equipment and adequate spaces, acts as a facilitator of effective multidisciplinary teamwork in AC settings.^{23 52} However, the lack of necessary apparatus and inadequate workspaces can create barriers, often triggering conflicts within the team due to resource scarcity and operational inefficiencies.⁴⁷

Excessive organisational system rigidity, characterised by inflexible procedures and strict hierarchical structures, was identified as a barrier to multidisciplinary teamwork.^{7 23 42 46} Such rigidity limits the autonomy of HCPs, discourages open communication and hinders adaptive, patient-centred care practices essential in dynamic AC environments. High staff turnover negatively impacts multidisciplinary teamwork by disrupting team cohesion, impeding the development of professional skills and creating instability in work relationships.⁴³ It can lead to feelings of inadequacy among new recruits and strain existing team dynamics, resulting in a loss of institutional knowledge and reduced overall performance.^{42 45 52}

Individual variables

The individual variables identified in the synthesis were categorised into three subthemes: (1) individual personality variables, (2) individual variables of motivation and (3) individual know-how variables. The first were linked to personal characteristics of the team members, such as traits related to communication style, adaptability, emotional intelligence and interpersonal skills. These characteristics can influence how effectively team members interact, collaborate and respond to the challenges of working in

AC settings. Individual motivation variables represent motivational factors that drive each HCP to work towards shared goals within the multidisciplinary team. These variables include intrinsic motivations such as professional commitment, sense of responsibility and desire to improve patient outcomes, as well as extrinsic motivators such as recognition, career advancement opportunities and organisational support. Individual know-how variables refer to the technical competencies and clinical expertise that HCPs must possess to perform effectively in AC settings. These include both specialised medical knowledge and practical skills necessary for managing complex clinical situations, ensuring patient safety and contributing to effective decision-making within the team.

Individual personality variables

This subtheme includes five variables, categorised as facilitators, neutral variables and a barrier: (1) listening skills (facilitator), (2) respect (facilitator), (3) attitude (neutral variable), (4) empathy (neutral variable) and (5) egoism (barrier). The interstudy frequency effect size for personality variables was 76% (table 3).

Effective listening skills are essential to fostering reciprocal communication, allowing team members to exchange feedback constructively.⁵¹ This two-way dynamic promotes better understanding, reduces misunderstandings and strengthens team collaboration. Respect within the team is demonstrated through simple gestures such as greeting colleagues and expressing appreciation for their contributions.^{42–44} This fosters a positive work environment, enhances mutual trust and encourages open communication. Attitude serves as a neutral variable, functioning as either a facilitator or a barrier depending on the context. A proactive attitude enhances teamwork by promoting engagement and responsibility.^{43 52} However, it can be influenced by the emotional state and stress levels of HCPs, potentially hindering performance under adverse conditions.²³ Empathy facilitates positive relationships among HCPs, fostering emotional connections and understanding within the team.⁴² Conversely, the absence of empathy can hinder teamwork, leading to detachment and poor interpersonal dynamics.^{50 52} Egoism is a clear barrier to effective multidisciplinary teamwork, as it occurs when HCPs prioritise personal interests over the common goals of the team.^{45 50}

Individual variables of motivation

This subtheme includes two variables, both identified as facilitators for multidisciplinary teamwork: (1) external motivators and (b) internal motivators. The interstudy frequency effect size for motivation variables was 35% (table 3).

External motivators include factors such as recognition, professional development opportunities, financial incentives and organisational support. These elements can enhance job satisfaction and encourage active participation in multidisciplinary teams.^{23 52}

Internal motivators are intrinsic factors that drive HCPs to contribute effectively, such as a sense of professional duty, personal growth, commitment to patient care and a desire to achieve common goals within the team.⁵² These motivators promote self-driven engagement and resilience, especially in high-pressure AC environments.^{47 50}

Individual know-how variables

This subtheme consists of a single neutral variable: competence skill. The interstudy frequency effect size for this variable was 82% (table 3).

Competence skill refers to the technical knowledge and clinical expertise that HCPs possess, which are essential for effective performance within multidisciplinary teams. When team members are competent and confident in their skills, the multidisciplinary team tends to be more relaxed, fostering a sense of security and readiness to manage emergencies efficiently.⁵¹ Conversely, a lack of competence can lead to anxiety, frustration and reduced team effectiveness, potentially compromising patient care.

Collaborative variables

The collaborative variables identified in the synthesis were categorised into three subthemes: (1) working environment, (2) sharing and (3) communication.

Collaborative variables related to the working environment

This subtheme includes four variables, classified as facilitators and neutral variables: (1) implicit team rules (facilitators), (2) value of teamwork (facilitators), (3) synergy (neutral variable) and (4) team climate (neutral variable). The interstudy frequency effect size for this subtheme was 82% (table 3).

Implicit team rule refers to a set of self-determined, informal guidelines developed within the team to promote cohesion of intentions and activities.³⁹ These rules facilitate the fluidity of care delivery, ensuring that team members align their efforts seamlessly in dynamic AC environments.^{43 49} The recognition of the value of teamwork strengthens the sense of belonging among HCPs, fostering mutual respect and preventing conflicts within the team.²³ This shared appreciation enhances collaboration, accountability and team resilience. Synergy acts as a neutral variable, with its impact depending on the team's dynamics. When present, it promotes a willingness to collaborate, where team members function like pieces of a puzzle, each essential to achieving the 'complete picture'.³⁹ Conversely, the absence of synergy can create an 'invisible wall' between HCPs,⁴¹ leading to fragmented care, with individuals focusing solely on their own tasks rather than on shared goals.⁵¹ Team climate influences the overall work environment. A positive climate, characterised by a relaxed and pleasant atmosphere, facilitates effective teamwork, improving morale and communication.^{39 40} However, a negative climate, often driven by factors such as high staff turnover or excessive workload,

creates a stressful environment that hinders collaboration and reduces team efficiency.⁵²

Collaborative variables related to sharing

This subtheme includes five variables, classified as neutral variables and barriers: (1) sharing (neutral variable), (2) time for the team (neutral variable), (3) trust (neutral variable), (4) corporatism (barrier) and (5) preconceptions (barrier). The interstudy frequency effect size for this subtheme was 82% (table 3).

Sharing of objectives, experiences and knowledge facilitates effective teamwork in AC settings.^{40 47} It fosters a sense of unity, as if the team functions as a 'single, collective mind',⁴⁶ creating a 'smooth flow' akin to a machine with well-lubricated gears.⁴³ In contrast, the absence of sharing leads to feelings of inadequacy among HCPs who feel excluded from decision-making processes, thereby diminishing team cohesion and performance.^{41 46} Allocating dedicated time for the team is crucial to fostering collaboration, as it allows HCPs to anticipate colleagues' needs and coordinate more effectively.^{43 49} When HCPs lack time to engage with their team, it results in fragmented communication and prevents the team from functioning cohesively.³⁹

Trust is fundamental for building strong interpersonal relationships within multidisciplinary teams, fostering open communication and effective delegation of responsibilities.⁴³ Conversely, the lack of trust hinders teamwork, as it creates doubts about colleagues' competence, leading to a reluctance to delegate tasks and causing team members to feel undervalued.⁴¹ Corporatism acts as a barrier when HCPs from the same professional category tend to form exclusive groups, thereby excluding colleagues from other specialties.⁵¹ This behaviour fosters 'siloes' thinking, limits interdisciplinary collaboration and undermines the principles of integrated patient care. Preconceptions manifest as assumptions, role stereotypes and biases based on personal sympathies or 'second-hand' information.⁵¹ These preconceived notions, often shaped by generalisations or informal judgments (eg, based on 'what everyone says'), obscure the true competencies of colleagues, limiting opportunities for effective collaboration and mutual respect.⁴⁶

Collaborative variables related to communication

This subtheme includes three neutral variables: (1) work conflicts, (2) communication tools and styles and (3) freedom of expression. The interstudy frequency effect size for this subtheme was 100% (table 3), highlighting its central role in multidisciplinary teamwork within AC settings.

Work conflicts can facilitate multidisciplinary teamwork when they are successfully identified and resolved, fostering opportunities for growth, improved communication and strengthened collaboration.⁴⁵ Constructive conflict resolution encourages dialogue, problem-solving and innovation. However, when conflicts remain unresolved, they hinder communication, disrupt team

dynamics and foster feelings of hostility and mistrust, ultimately compromising patient care. The use of effective communication tools and styles acts as a facilitator when interactions are clear, timely and purposeful, ensuring that critical information is accurately shared across the multidisciplinary team.⁴⁶ Effective communication minimises misunderstandings, enhances coordination and supports quick decision-making, which is essential in fast-paced AC environments. Conversely, ineffective communication methods can lead to delays, errors and fragmented care. Freedom of expression within the team enables HCPs to openly share their needs, concerns and divergent points of view without fear of being misunderstood or judged.^{39 40} This openness fosters psychological safety, promotes active participation and enhances team learning. In contrast, the absence of freedom of expression leads to an environment where opinions are imposed,³⁸ and team members experience fear of asking questions and are reluctant to initiate meaningful dialogue, thereby limiting opportunities for collaborative problem-solving.⁵¹

Role variables

The role variables identified in the synthesis were categorised into two subthemes: (1) role assigned, by colleagues, formally and informally; and (2) professional role, related to the profession of the different HCPs within the multidisciplinary team.

Role variables related to the role assigned

This subtheme contains two neutral variables: (1) informal leadership and (2) formal leadership. The interstudy frequency effect size for this subtheme was 53% (table 3).

Informal leadership acted as a facilitator when individuals naturally emerge as leaders in emergency or extraordinary situations, effectively guiding the team through high-stress conditions based on their competence and decision-making skills.⁵¹ However, it can become a liability when leadership roles are assumed based solely on professional seniority⁷ rather than their technical skills or expertise.⁴¹ This can lead to ineffective decision-making and undermine team performance. Formal leadership facilitates multidisciplinary teamwork when the leader is recognised and respected, providing clear direction and ensuring that roles and responsibilities are well defined.⁵² Conversely, it can be an obstacle when the designated leader lacks experience or competence,⁴¹ leading to poor guidance, reduced team cohesion and ineffective coordination.

Role variables related to the professional role

This subtheme includes three variables, classified respectively as a facilitator, a neutral variable and a barrier: (1) role clarity, (2) role interrelationship and (3) role intrusion. The interstudy frequency effect size for this subtheme was 88% (table 3).

Role clarity facilitates multidisciplinary teamwork by promoting mutual respect among colleagues through clearly defined roles,^{44 47} skills and responsibilities. When team members understand their specific functions, it reduces role ambiguity, minimises conflict and enhances collaborative efficiency.^{44 47} The role interrelationship serves as a neutral variable, fostering effective teamwork when based on mutual trust among HCPs.⁴³ In environments where informal hierarchies are minimised and flexible work dynamics are encouraged, multidisciplinary teams can function cohesively with greater adaptability.⁵¹ However, without clear boundaries, role overlaps may occur, potentially leading to confusion. Role intrusion represents a barrier to effective teamwork and occurs when HCPs overstep the boundaries of their specific professional competencies, encroaching on the responsibilities of others.⁵² This often results in breakdown in communication,³⁸ tension among team members and diminished trust, ultimately compromising patient care.

DISCUSSION

This systematic review synthesised the variables that act as barriers and facilitators of multidisciplinary teamwork in AC settings. A total of 8 barriers, 7 facilitators and 24 neutral variables were synthesised. These variables were systematically classified and grouped into themes and subthemes to clarify their nature and influence on team dynamics. The facilitators of multidisciplinary teamwork were primarily linked to individual characteristics, such as respect among team members, presence of internal/external motivators and a strong collaborative background, fostering effective interpersonal relationships and shared goals. In contrast, the barriers were mostly associated with organisational factors, including extreme system rigidity, high staff turnover and the absence of sharing, leading to disrupting team cohesion and continuity of care. Finally, the neutral variables were predominantly related to both individual and organisational characteristics. They encompassed factors connected to the roles of HCPs and the dynamics of collaboration within multidisciplinary teams. Depending on the context, these neutral variables could function as either facilitators or barriers, influencing the effectiveness of teamwork in diverse ways.

Implications for the practice

To synthesise the barriers and facilitators of multidisciplinary teamwork in AC settings, each variable connected to both the collective dynamics of teamwork and the individual characteristics of team members was systematically categorised.^{14 15 18} Some variables emerged more frequently than others during the synthesis, as shown in table 3. When these variables are modifiable, it becomes imperative to address them to enhance the effectiveness of multidisciplinary teams. Organisational culture plays a crucial role in this context. Behruzi *et al*⁵³ emphasised that the loss of a strong organisational culture

negatively impacts the performance of multidisciplinary teams, particularly in terms of care quality. This finding is supported by Weaver *et al*,⁵⁴ who highlighted that attitudes towards organisational norms, policies and procedures significantly influence patient safety in AC settings.

One of the most prominent barriers identified is the excessive turnover of HCPs. High turnover rates create workplace instability, leading to increased stress for existing team members, who must continuously supervise and mentor new colleagues.⁴⁵ The need for ongoing training disrupts team cohesion and reduces efficiency. Furthermore, literature consistently describes high turnover as a hostile factor to the effectiveness of multidisciplinary teamwork. It introduces challenges such as increased workload complications, heightened organisational uncertainty, ambiguity in roles and responsibilities, increased risk of errors and workplace competition.⁵⁵ To mitigate these barriers, healthcare authorities should invest in resources aimed at fostering a stable and continuous working environment. Creating conditions where HCPs can build long-term professional relationships promotes familiarity, enhances collaboration and ultimately improves the quality of patient care.⁵⁶ A supportive work culture that values team stability is essential to optimising multidisciplinary team performance in AC settings.

Similarly, a high workload has been identified as a significant barrier, hindering the ability of multidisciplinary team members to work effectively in synergy.^{7 42 48 50 52} Excessive workload leads to fragmented communication, reduced collaboration and compromised patient care. To address this challenge, Gill *et al*⁵⁷ proposed the implementation of fast-track organisational models as a potential solution. These models are designed to predict recovery times, enable a more homogeneous distribution of workload across the team and reduce bottlenecks in AC settings, enhancing overall efficiency.

Within the realm of collaborative variables, the concept of sharing emerged as a key factor, encompassing both shared experiences and shared objectives. Shared experiences allow team members to navigate daily professional situations together, fostering stronger interpersonal relationships and enhancing trust within the team. Importantly, shared experiences do not have to be limited to real-life clinical situations—they can also be simulated to strengthen team dynamics. This is particularly relevant in the context of trauma care, where the creation and maintenance of effective trauma teams require specific training strategies targeting teamwork and interaction, as well as simulations of critical situations to improve coordination and response under pressure.⁵⁸

The implementation of shared objectives can be facilitated through the introduction of organisational tools, such as multiprofessional audits. Sykes *et al*⁵⁹ highlighted the value of these audits, which can be conducted before an intervention, to clarify roles, objectives and planning (briefing); or after an intervention, to evaluate performance, discuss outcomes and identify areas for

improvement (debriefing).⁶⁰ The audits serve as critical reflection points where the team can assess the situation, identify challenges and critical issues, propose solutions and implement strategies. According to Sykes *et al*,⁵⁹ audits are essential to ensuring the quality of healthcare services, promoting continuous learning and reinforcing team cohesion. However, the effectiveness of audits is influenced by several factors, including the presence of a supervisor to guide the discussion, the documentation of findings through structured reports and the team's perception of the audit's credibility and relevance. Crucially, audits must be conducted in a supportive environment. Sykes *et al*⁵⁹ emphasised that audits involving 'punitive feedback' should be strictly avoided, as they can create a culture of fear, undermine trust and discourage open communication. Instead, audits should focus on constructive feedback, fostering a learning culture that values continuous improvement over blame.

Incorporating shared educational moments represents a strategic approach to support and enhance collaboration within multidisciplinary teams. Eddy *et al*⁶¹ emphasised that all team members should be encouraged by their organisations to participate in teamwork educational programmes, as these initiatives foster a positive learning culture and strengthen interprofessional relationships.

In addition to collective educational efforts, the technical skills of HCPs play a pivotal role in determining the efficacy of the multidisciplinary team.⁴³ Teams composed of professionals with strong technical competencies are better prepared to manage emergencies with confidence, minimising anxiety and frustration during high-stress situations.⁵¹ Many health structures actively invest in the continuous professional development of their staff, recognising that ongoing training is essential to maintain high levels of clinical competence, ensure up-to-date knowledge of medical advancements and support the efficient functioning of the healthcare system.^{62 63} However, technical proficiency alone is not sufficient. Good technical skills must be complemented by high-quality communication and strong non-technical skills (eg, leadership, decision-making, situational awareness). These non-technical skills are increasingly recognised as critical components of multidisciplinary teamwork, with evidence showing their strong correlation with improved patient outcomes.⁶⁴

Eliminating corporatism and reducing professional individualism are crucial steps towards fostering a cohesive and efficient multidisciplinary team. Buscemi *et al*⁶⁵ emphasised that the modern healthcare environment demands effective multiprofessional collaboration to improve the quality of patient care. This collaboration becomes more effective when HCPs are able to respect and evaluate each other's perspectives and communicate effectively, sharing a common professional language. To achieve this, interprofessional education should be integrated into both academic curricula and professional development programmes. Practical interventions to promote a *collaborative climate* include multidisciplinary

courses in university programmes, workshops focused on communication tools and regular multiprofessional meetings to encourage interprofessional dialogue and mutual understanding.⁶⁶

The significance of formal leadership emerges clearly, particularly in situations where multidisciplinary teams need a central figure of reference to guide and coordinate their efforts. Effective formal leadership is characterised by a clearly defined role, formally recognised both by the organisation and the team, and the ability to inspire confidence and serve as a guide for the team members.⁶⁷ A formal leader should exhibit active listening skills to understand and address the needs of team members, maintain a system-wide perspective, considering both the immediate and long-term sustainability of team dynamics, and demonstrate commitment to continuous improvement in both team performance and healthcare delivery.^{23 50 52} Labrague *et al*⁶⁷ supported this view, highlighting that authentic leadership is key to creating a healthy work environment and promoting self-efficacy among team leaders. Authentic leaders build trust, encourage open communication and foster professional growth within their teams. Furthermore, Specchia *et al*⁶⁸ emphasised that formal leaders have the responsibility to promote technical and professional competencies among HCPs and actively work to enhance job satisfaction, recognising that motivated, satisfied professionals contribute to better patient outcomes and stronger team cohesion.

Strengths and limitations

The strengths of this research are primarily linked to the quality of the included studies and the methodological rigour applied throughout the synthesis process. All included studies demonstrated high methodological quality, as assessed using the Critical Appraisal Skills Programme. Moreover, the systematic nature of the entire study selection process, ranging from the comprehensive screening of records to the rigorous data analysis, enhances the credibility of the review. The meta-synthesis was conducted following the Thomas and Harden method,³⁵ which is recognised for its robust approach to qualitative data synthesis. This methodological rigour contributes significantly to the validity and consistency of the results. Finally, the application of appropriately selective inclusion criteria ensured that only relevant, high-quality studies were included. This strategic selection process allowed for the synthesis of studies with optimal results, directly addressing the research question and enhancing the relevance and applicability of the review's conclusions.

Despite its strengths, this study has several limitations that should be acknowledged. First, in some of the included studies, the sample size was limited or disproportionate in terms of representing the various healthcare professions. Nurses were often the predominant group, with other HCPs under-represented. This imbalance may affect the generalisability of the findings across all professional categories involved in multidisciplinary teams.

Second, there were instances where the methodological details provided in the studies were unclear. While some studies were broadly classified as employing a 'qualitative' approach, they lacked specific information regarding the qualitative methodology used, such as whether it followed phenomenological, ethnographic or grounded theory principles. This lack of detail may have influenced the depth of analysis in the synthesis. Additionally, this meta-synthesis only included studies published in English, which introduces language bias. It is possible that relevant studies published in other languages were not captured, potentially limiting the comprehensiveness of the review.

Furthermore, due to the challenges in creating an exhaustive search string that could encompass all potential HCPs involved in typical AC settings, some relevant studies may have been inadvertently missed during the search process. This limitation reflects the complexity and variability of multidisciplinary team compositions across different healthcare systems. Finally, the date of the last database search was 25 May 2024. Therefore, any studies published after this date were not included in the analysis, which may affect the timeliness of the findings, particularly in a rapidly evolving field like AC teamwork.

Implication for future research

Future studies should focus on evaluating the effects of the strategies described in this review to further enhance multidisciplinary teamwork in AC settings. Keller *et al*⁶⁹ have recently explored the application of behavioural science to AC teams, identifying key research priorities to guide future investigations. These priorities are structured around six critical topics: (1) interventions to improve team processes, (2) dealing with and implementing new technologies, (3) understanding and measuring team processes, (4) organisational aspects impacting teamwork, (5) training and health professions education and (6) organisational and patient safety culture in healthcare.

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REFERENCES

- Taberna M, Gil Moncayo F, Jané-Salas E, *et al.* The Multidisciplinary Team (MDT) Approach and Quality of Care. *Front Oncol* 2020;10:85.
- Anderson JE, Ross AJ, Lim R, *et al.* Nursing teamwork in the care of older people: A mixed methods study. *Appl Ergon* 2019;80:119–29.
- World Health Organization. Classifying health workers: mapping occupations to the international standard classification, Available: https://www.who.int/hrh/statistics/Health_workers_classification.pdf
- University of Toronto. Temerty faculty of medicine. home page | centre for interprofessional education, Available: <https://ipe.utoronto.ca/>
- IPEC. Interprofessional Education Collaborative, 2021. Available: <https://www.ipecollaborative.org/>
- Canadian Interprofessional Health Collaborative (CIHC) framework, Available: <https://www.mcgill.ca/ipeoffice/ipe-curriculum/cihc-framework>
- Baxter SK, Brumfitt SM. Professional differences in interprofessional working. *J Interprof Care* 2008;22:239–51.
- Taylor MR, Barton KS, Kingsley JM, *et al.* Defining a “Good Death” in Pediatric Oncology: A Mixed Methods Study of Healthcare Providers. *Children (Basel)* 2020;7:86.
- Will KK, Johnson ML, Lamb G. Team-Based Care and Patient Satisfaction in the Hospital Setting: A Systematic Review. *J Patient Cent Res Rev* 2019;6:158–71.
- Shaw RL, Morrison R, Webb S, *et al.* Challenges to well-being in critical care. *Nurs Crit Care* 2024;29:745–55.
- Srinivas V, Choubey U, Motwani J, *et al.* Synergistic strategies: Optimizing outcomes through a multidisciplinary approach to clinical rounds. *Baylor University Medical Center Proceedings* 2024;37:144–50.
- Sreepathy P, Kim YJ, Ahuja Z, *et al.* The association between implementation of multidisciplinary rounds and clinical outcomes. *Front Cardiovasc Med* 2022;9:1005150.
- Liu J, Masiello I, Ponzer S, *et al.* Can interprofessional teamwork reduce patient throughput times? A longitudinal single-centre study of three different triage processes at a Swedish emergency department. *BMJ Open* 2018;8:e019744.
- Lee JH, Ko RE, Park TK, *et al.* Association between a Multidisciplinary Team Approach and Clinical Outcomes in Patients Undergoing Extracorporeal Cardiopulmonary Resuscitation in the Emergency Department. *Korean Circ J* 2021;51:908.
- Kang XL, Brom HM, Lasater KB, *et al.* The Association of Nurse–Physician Teamwork and Mortality in Surgical Patients. *West J Nurs Res* 2020;42:245–53.
- Hirshon JM, Risko N, Calvillo EJB, *et al.* Health systems and services: the role of acute care. *Bull World Health Organ* 2013;91:386–8.
- Australian Institute of health and welfare Hospital info Acute Care, 2019. Available: <https://www.aihw.gov.au/>
- Ali N, Schierholz E, Reed D, *et al.* Identifying Gaps in Resuscitation Practices Across Level-IV Neonatal Intensive Care Units. *Am J Perinatol* 2024;41:e180–6.
- Australasian College for Emergency Medicine. Emergency department design guidelines, 2014. Available: <https://www.acem.org.au/>
- Ziemek J, Hoge N, Woodward KF, *et al.* Hospital personnel perspectives on factors influencing acute care patient outcomes: a qualitative approach to model refinement. *BMC Health Serv Res* 2024;24:805.
- Dawe J, Cronshaw H, Frerk C. Learning from the multidisciplinary team: advancing patient care through collaboration. *Br J Hosp Med (Lond)* 2024;85:1–4.
- Schilling S, Armaou M, Morrison Z, *et al.* Understanding teamwork in rapidly deployed interprofessional teams in intensive and acute care: A systematic review of reviews. *PLoS One* 2022;17:e0272942.
- Lapierre A, Lefebvre H, Gauvin-Lepage J. Factors Affecting Interprofessional Teamwork in Emergency Department Care of Polytrauma Patients: Results of an Exploratory Study. *J Trauma Nurs* 2019;26:312–22.
- Zajac S, Woods A, Tannenbaum S, *et al.* Overcoming Challenges to Teamwork in Healthcare: A Team Effectiveness Framework and Evidence-Based Guidance. *Front Commun* 2021;6:1–20.
- Sandelowski M, Barroso J, Voils CI. Using qualitative metasummary to synthesize qualitative and quantitative descriptive findings. *Res Nurs Health* 2007;30:99–111.
- Dixon-Woods M, Sutton A, Shaw R, *et al.* Appraising qualitative research for inclusion in systematic reviews: a quantitative and qualitative comparison of three methods. *J Health Serv Res Policy* 2007;12:42–7.
- Tong A, Flemming K, McInnes E, *et al.* Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. *BMC Med Res Methodol* 2012;12:181.
- Paterson BL, Thorne SE, Canam C, *et al.* Meta-study of qualitative health research. A practical guide to meta-analysis and meta-synthesis. Thousand Oaks: Sage, 2001.
- Sandelowski M, Docherty S, Emden C. Focus on qualitative methods. Qualitative metasynthesis: issues and techniques. *Res Nurs Health* 1997;20:365–71.
- Methley AM, Campbell S, Chew-Graham C, *et al.* PICO, PICOS and SPIDER: a comparison study of specificity and sensitivity in three search tools for qualitative systematic reviews. *BMC Health Serv Res* 2014;14:579.
- Cooke A, Smith D, Booth A. Beyond PICO: the SPIDER tool for qualitative evidence synthesis. *Qual Health Res* 2012;22:1435–43.
- Zotero. Your personal research assistant, Available: <https://www.zotero.org/>
- CASP Checklists. Critical Appraisal Skills Programme, 2022. Available: <https://casp-uk.net/casp-tools-checklists/>
- Oh S, Yu M, Ryu YM, *et al.* Changes in Family Dynamics in Caregiving for People With Dementia in South Korea: A Qualitative Meta-Synthesis Study. *Qual Health Res* 2020;30:60–72.
- Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Med Res Methodol* 2008;8:45.
- Onwuegbuzie AJ. Effect Sizes in Qualitative Research: A Prolegomenon. *Quality and Quantity* 2003;37:393–409.
- Page MJ, McKenzie JE, Bossuyt PM, *et al.* The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71.
- Atwal A, Caldwell K. Nurses’ perceptions of multidisciplinary team work in acute health-care. *Int J Nurs Pract* 2006;12:359–65.
- Baxter SK, Brumfitt SM. Benefits and losses: a qualitative study exploring healthcare staff perceptions of teamworking. *Qual Saf Health Care* 2008;17:127–30.
- Bogdanovic J, Perry J, Guggenheim M, *et al.* Adaptive coordination in surgical teams: an interview study. *BMC Health Serv Res* 2015;15:128.
- Liberati EG, Gorli M, Scaratti G. Invisible walls within multidisciplinary teams: Disciplinary boundaries and their effects on integrated care. *Soc Sci Med* 2016;150:31–9.
- Wolf A, Ekman I, Dellenborg L. Everyday practices at the medical ward: a 16-month ethnographic field study. *BMC Health Serv Res* 2012;12:184.
- Paige JT, Garbee DD, Bonanno LS, *et al.* Qualitative Analysis of Effective Teamwork in the Operating Room (OR). *J Surg Educ* 2021;78:967–79.
- Salih ZNI, Draucker CB. Facilitators of and barriers to successful teamwork during resuscitations in a neonatal intensive care unit. *J Perinatol* 2019;39:974–82.
- Simmons D, Sherwood G. Neonatal intensive care unit and emergency department nurses’ descriptions of working together: building team relationships to improve safety. *Crit Care Nurs Clin North Am* 2010;22:253–60.
- Thomas EJ, Sherwood GD, Mulhollem JL, *et al.* Working together in the neonatal intensive care unit: provider perspectives. *J Perinatol* 2004;24:552–9.

- 47 Ediger K, Rashid M, Law BHY. What Is Teamwork? A Mixed Methods Study on the Perception of Teamwork in a Specialized Neonatal Resuscitation Team. *Front Pediatr* 2022;10:845671.
- 48 Goulart BF, Camelo SHH, Simões AL de A, et al. Teamwork in a coronary care unit: facilitating and hindering aspects. *Rev Esc Enferm USP* 2016;50:482–9.
- 49 Noce LG de A, Oliveira TS de, Melo LC, et al. Interprofessional relationships of a patient assistance team in critical care. *Rev Bras Enferm* 2020;73:S0034-71672020000400193.
- 50 Cioffi J, Ferguson L. Team nursing in acute care settings: nurses' experiences. *Contemp Nurse* 2009;33:2–12.
- 51 Weller JM, Janssen AL, Merry AF, et al. Interdisciplinary team interactions: a qualitative study of perceptions of team function in simulated anaesthesia crises. *Med Educ* 2008;42:382–8.
- 52 Khademian Z, Sharif F, Tabei SZ, et al. Teamwork improvement in emergency trauma departments. *Iran J Nurs Midwifery Res* 2013;18:333–9.
- 53 Behruzi R, Klam S, Dehertog M, et al. Understanding factors affecting collaboration between midwives and other health care professionals in a birth center and its affiliated Quebec hospital: a case study. *BMC Pregnancy Childbirth* 2017;17:200.
- 54 Weaver SJ, Lubomksi LH, Wilson RF, et al. Promoting a culture of safety as a patient safety strategy: a systematic review. *Ann Intern Med* 2013;158:369–74.
- 55 Kowalczyk K, Krajewska-Kulak E, Sobolewski M. Factors Determining Work Arduousness Levels among Nurses: Using the Example of Surgical, Medical Treatment, and Emergency Wards. *Biomed Res Int* 2019;2019:6303474.
- 56 Marufu TC, Collins A, Vargas L, et al. Factors influencing retention among hospital nurses: systematic review. *Br J Nurs* 2021;30:302–8.
- 57 Gill SD, Lane SE, Sheridan M, et al. Why do “fast track” patients stay more than four hours in the emergency department? An investigation of factors that predict length of stay. *Emerg Med Australas* 2018;30:641–7.
- 58 Murphy M, McCloughen A, Curtis K. The impact of simulated multidisciplinary Trauma Team Training on team performance: A qualitative study. *Australas Emerg Care* 2019;22:1–7.
- 59 Sykes M, Thomson R, Kolehmainen N, et al. Opportunities to enhance ward audit: a multi-site qualitative study. *BMC Health Serv Res* 2021;21:226.
- 60 Penn J, Voyce C, Nadeau JW, et al. Optimizing Interprofessional Simulation with Intentional Pre-Briefing and Debriefing. *Adv Med Educ Pract* 2023;14:1273–7.
- 61 Eddy K, Jordan Z, Stephenson M. Health professionals' experience of teamwork education in acute hospital settings: a systematic review of qualitative literature. *JBIR Database System Rev Implement Rep* 2016;14:96–137.
- 62 AGENAS. Educazione Continua in Medicina, Available: <https://ape.agenas.it/home.aspx>
- 63 Azienda USL di Piacenza. Carta Dei Servizi, Available: <https://www.ausl.pc.it/it/azienda/carta-dei-servizi>
- 64 Escher C, Rystedt H, Creutzfeldt J, et al. All professions can benefit - a mixed-methods study on simulation-based teamwork training for operating room teams. *Adv Simul (Lond)* 2023;8:18.
- 65 Buscemi J, Steglitz J, Spring B. The impact of team science collaborations in health care: a synopsis and comment on “Interprofessional collaboration: effects of practice-based interventions on professional practice and healthcare outcomes”. *Transl Behav Med* 2012;2:378–9.
- 66 Guraya SY, Barr H. The effectiveness of interprofessional education in healthcare: A systematic review and meta-analysis. *Kaohsiung J Med Sci* 2018;34:160–5.
- 67 Labrague LJ, Al Sabei S, Al Rawajfah O, et al. Authentic leadership and nurses' motivation to engage in leadership roles: The mediating effects of nurse work environment and leadership self-efficacy. *J Nursing Management* 2021;29:2444–52.
- 68 Specchia ML, Cozzolino MR, Carini E, et al. Leadership Styles and Nurses' Job Satisfaction. Results of a Systematic Review. *Int J Environ Res Public Health* 2021;18:1552.
- 69 Keller S, Jelsma JGM, Tschan F, et al. Behavioral sciences applied to acute care teams: a research agenda for the years ahead by a European research network. *BMC Health Serv Res* 2024;24:71.