**Effective teamwork within healthcare – let's finally make it happen! A realist evaluation**

**Abstract**

Introduction

Effective teamwork is essential for the successful functioning of healthcare. Breakdowns in teamwork are frequently flagged as contributing to major patient safety issues. Current research indicates a lack of knowledge regarding key factors that impact upon teamwork and how medical educators can best prepare students. This study explores how doctors work within healthcare teams; exploring barriers and enablers to effective teamworking.

Methods

A realist evaluation was used to understand the contextual influences and subsequent mechanisms that impact teamwork outcomes. Phase 1 included a realist literature review and scoping interviews with key stakeholders (n=9). Phase 2 included 63 realist interviews representing a wide range of professional groups, roles and demographics across the UK healthcare.

Results

The initial program theory developed in Phase 1 was refined during Phase 2, integrating and extending the dispersed and patchy current evidence on the contexts, mechanisms, and outcomes of teamwork. Enablers included building a positive and supportive culture, effective communication, leaders who are understanding and approachable, clearly defined roles and respect, and continuity and experience of those in newer roles. Barriers included high service demands and work pressures, power imbalances and negative hierarchy, a lack of support for those new to teams and organisations, poor communication, poor leadership, a lack of appreciation and understanding of the needs of differing groups within teams, and finally EDI issues. There were particular difficulties for those in newer roles.

Discussion

We have identified that team dynamics are likely to be hindered by transient teams, lack of support, dysfunctional leadership and communication, and non-approachable colleagues. There are currently clear difficulties in how doctors interact with those in newer roles, and the ways in which team members are integrated into teams. This is the first research to develop a teamworking programme theory that can be used to support educators, institutions and regulators.

**Key messages**

Patient safety is often at risk through poor teamwork. Interprofessional education, and in particular teamworking, is something often expected but not actually taught to our healthcare staff. This research explicitly reveals what makes effective and ineffective teamwork.

We have produced a programme theory that can be utilised by institutions going forward to promote better teamworking for doctors and other healthcare staff.

**Introduction**

Healthcare is delivered by teams comprising a range of different disciplines across primary, secondary, and tertiary care settings. It often takes multiple perspectives, team referrals and skills in order to assess, diagnose and manage a patient’s medical, and related needs, effectively. Teamwork is therefore a crucial element in ensuring effective and safe healthcare delivery. Teamwork refers to how individuals work together to communicate, solve problems and tackle conflicts, ultimately achieving collective, shared aims (Babiker et al., 2014). A healthcare team is defined as a dynamic process involving two or more health professionals with complementary skillsets, pursuing common goals in order to improve patient care and staff outcomes (Xyrichis and Ream, 2008).

Ineffective healthcare teams often have many different root causes (Lingard et al, 2012; Rosen et al., 2018). An observation study conducted by Lingard, et al. (2004) in surgical services revealed that approximately 30% of team interactions included some form of communication failure. These problems may be seen as relating to key aspects of emotional intelligence, such as interpersonal effectiveness- which can be defined as the ability to respond to others in a way that increases the probability of achieving mutually beneficial goals (Tiffin & Roberts, 2024). These failures have very real implications for the quality of patient care and safety. For example, a study reported that surgical teams that exhibited fewer teamwork behaviours (such as briefing, information sharing, inquiry, and vigilance and awareness) contributed to a higher risk of complications and death for patients under their care (Mazzocco, et al., 2009).

Medical schools, healthcare organisations and regulatory bodies are now calling for better teamwork skills in graduating health professionals as there are severe gaps in how teams function and the preparedness of graduates to work in interprofessional settings. Ever since the Francis report was published in the UK (showing a failure to pick up warning signs of deteriorating quality in care), there has been a need to focus more on how teams can effectively work together to put patient needs first and highlight the negative consequences for patients when there are team breakdowns (Francis, 2010). Similarly, in other countries such as China, there is an emphasis on promoting greater care integration between hospitals and primary care facilities through multidisciplinary teams and facility networks (World Health Organisation 2016).

Although efforts are made to cultivate teamwork standards among undergraduate and postgraduate medical education, these efforts may be overshadowed by the competitive nature of the discipline (Lingard et al., 2012; Medical Board Aphra, 2020). This suggests a need to rethink how these skills are facilitated at this level, as they could be a root cause of challenges faced by practicing doctors. Additionally, there is an urgent need to address this gap at the practice level, where poor team functioning can significantly impact the quality and safety of patient care. Only recently, a review highlighted gaps in current approaches to the assessment of health care teams within HPE (Choi, 2025). The authors explicitly called for theory-building and theory-guided studies of teamwork assessment tools and rigorous evaluations.

This study is intended to fill a gap in the literature regarding a lack of knowledge about how teamwork occurs across different healthcare systems to help untangle key factors. The aim of this study was to explore the barriers and enablers to effective teamworking by doctors in order to enhance undergraduate and postgraduate medical education. The focus was on four core questions: *what* works, for *whom*, in what *circumstances*, and *how*? The end goal was ultimately to develop a deeper appreciation of how certain mechanisms lead to effective and efficient teamwork.

The research questions were:

* In reality, how do doctors work together, and with others in teams across health
* systems?
* What are the enablers and barriers to effective teamworking with, for and about doctors?
* What factors lead to team breakdown?
* What are the implications to enhance doctors teamworking?

**Study design and methods**

In order to answer our research questions, we followed a realist methodology (Pawson and Tilley, 1997). This approach allowed us to focus on the complexity of ‘teamwork’ as an activity (and in some sense a ‘programme’), characterised by multiple components and interactions. As a research design, this allowed us to reveal contributing factors within complex interventions/environments.

The study involved two phases. In phase one, we developed an initial ‘programme theory’ based on scoping interviews with senior stakeholders from academia and clinical positions, and exploration of the literature. An example from the initial programme theory is presented in Appendix 1. Phase one provided insights into the strategic processes and challenges related to teamwork in the UK healthcare setting. In phase two, to test our initial programme theory and to better understand the lived experiences of teamworking, interviews were then conducted with a diverse range of participants across different grades, specialties, locations, professions, and non-medical colleagues. Phase one helped with the identification of target groups for phase two.

**Data collection and sampling**

For phase one and two, purposive sampling was used to contact appropriate groups across the UK and contacts were provided by the funder (relevant stakeholders). Sampling also included contacting key individuals and organisations to cascade, utilising social media and further snowballing between participants.

Interviews took place via an online platform (Teams or Zoom). Interviews were semi-structured, based upon an interview guide (see Appendix 2). All interviews were digitally recorded and transcribed verbatim. Researchers also made field notes during interviews. Learning events also took place with key stakeholders in order to refine the programme theory. Informed consent was obtained after participants were provided with relevant information. In terms of reflexivity, the research team consisted of a mixture of clinical and non-clinical researchers with extensive experience in conducting realist evaluations.

**Ethics**

Ethical approval was obtained from Hull York Medical School Ethics Committee (ref: 22-23 31/ 30.01.23).

**Analysis**

Data were analysed following the processes of framework analysis (Ritchie & Spencer, 1994). This employed an iterative process throughout that explored any new emerging data and led to refinement of the programme theory. This analysis using a framework matrix and prioritised the identification of key context (C), mechanism (M) and outcome (O) configurations (c). Context describes the conditions that may influence the mechanisms to produce a particular pattern of outcomes. Mechanisms refer to underlying entities, processes, or structures which operate in particular contexts to generate outcomes of interest. Outcomes include the intended and unintended consequences. Configurations relate to how the CMOs are linked together and their relevance to one another (labelled CMOcs).

**Findings**

In total, 72 participants were interviewed (phase 1=9 (stakeholder interviews, aligned with realist methodology), phase 2=63). There was a good spread across UK regions and settings, including participants with significant influence at both undergraduate and postgraduate levels. Various healthcare professions were represented including; doctors (which was our focus), midwives, nurses and others that are involved within the teams. See Table 1 and 2 for phase 2 breakdown. As is evident, participants worked in a variety of settings and specialties.

Collectively, the findings revealed that the CMOcs operate at various levels: individual, team, work environment, and organizational context. Within the contextual factors we identify relevant facets that were present in primary/secondary/other settings that contributed to effective and ineffective teamwork. In this paper, particular emphasis is placed on the team and work environment levels while presenting the identified factors across other levels in order to inform implications across undergraduate and postgraduate medical education and training.

**Enablers to effective teamwork**

We found a range of enablers to effective teamwork across the team level (Figure 1). Key factors included a positive and supportive culture (C), ensuring the time and structures are in place to allow teams to meet regularly (C), the benefit of being in rapid and urgent care environments (C), close physical proximity and continuity (C), effective communication (C), leaders who are understanding and approachable (C), flattened hierarchy and mutual respect (C), ongoing monitoring and feedback (C), clearly defined roles and understanding of needs (C), and finally addressing Equality, Diversity and Inclusion (EDI) issues (C). These factors are fully detailed in Appendix 3 and 4. We further expand on each of the above contexts below.

**Positive culture and support**

Developing a positive culture in which teams can function (C) was found to be crucial in ensuring positive outcomes for both staff and patients (O). Culture and priorities need to involve a shared process between the patients, care team and leadership of the organisation. Participants commented on both culture and climate. When participants talked about culture, they referred to something that is embedded in the system, *‘the way that we do things’*, and despite individuals leaving, the culture will still stay the same. Climate on the other hand is much easier to improve, being more about shared perceptions within the group. For teamwork to flourish, the culture needs to foster compassionate and supportive teams, including kindness and approachability (C). There needs to be time and space for all individuals to build relationships which includes downtime and laughter opportunities (C).

*“I think wards where things work really, really well...it’s often about engineering a bit of downtime into the day.. “it’s alright, let’s all go and have a coffee and a cookie somewhere”, and that provides the space and the time. The space to laugh, but sometimes people are having to sit on the bin because there’s not even enough chairs on the ward to sit down.  Even just sitting space, away from the clinical place, these are all really, really important.” (Scoping interview 7)*

This also links to hierarchy, supporting team members to raise issues with corrosive politics and toxic relationships, and ultimately speaking out when things may be wrong (M). Culture and acceptable behaviours within a team have changed over time (and depending on each specialty and organisation) but ultimately feeling psychologically safe and embedded within the team was found to be crucial (M).

Senior doctors and leaders of teams will also help to shape the culture of teams, helping to build a feeling of trust and belonging (M), and helping to foster an environment where capabilities of the team can flourish (O).

**Regular defined meetings with time and structure/environment to build teamwork**

The importance of regular and clearly defined meetings in a suitable environment (C) was highlighted by participants; most teams may not be seen as teams at all, they are ‘*pseudo-teams’*. For ‘real’ team meetings to take place, they must involve the whole team and not always be doctor led. It is essential that team meetings are done effectively, with time and space to also debrief properly and review performance (M). Examples of best practice were highlighted, where debriefs took place at the end of every shift, and 'hot debriefs’ were implemented if something went wrong, ensuring everyone in the team was well and it was clear who needed to do what. Teams that have regular debriefs after away days and training are more innovative (O). Constructive debates through regular meetings need to take place about what teams should be doing to improve (M).

**Successful emergency/urgent care environments**

Whilst high pressure environments were noted as contributing to relationship breakdowns and conflict (often where other issues are at play), many noted how situations that required rapid response and urgent care (C), actually created a strong team ethos (M) and helped teams to perform at their best (O). Many felt proud to be part of such successful teams and felt confident (M) in their care for patients and positive impact on patient outcomes (O).

*“I can only sing high praises for how well the teams work and it really is amazing and one of my favourite things about working in theatre…to do the best for that patient is one of my favourite things about my job.” (Interview 17, Operating Departments Manager)*

**Close physical proximity, familiarity and continuity**

Close physical proximity between team members and frequency of interactions (C) was found to be crucial in building teamwork (O). The consistent presence of staff and familiarity (C) would lead to a better understanding of one another and enable discussion of situations in real time (M), ultimately improving handovers, coordination of patient care and better patient outcomes (O). A key feature is that this environment supports the psychological safety (m) of the team and the ability to raise concerns (O).

*“…So I think that having a team where there’s a continuous dialogue between everyone in it and everyone feels able to kind of be part of that and be part of the conversation, that’s obviously better for patient safety because you’re more likely to spot things when things are going wrong.  But it’s also better efficiency of the team because it means that everyone is clear about what they’re meant to be doing in their role and if they’re not, they then feel like they can speak up.” (Interview 29, Consultant Cardiologist)*

We found that specific members of the team failed to embed into teams due to being rotated, being part of multiple teams, and working across different workplaces e.g., junior doctors. As a result, it is hard for these doctors to feel part of certain teams. Those who had a ‘home team’, with whom they could get together, support one another and even do Quality Improvement (QI) projects, were most likely to contribute to effective outcomes. There is a need for all professions to build familiarity, have continuity and build lasting relationships, rather than constantly working in teams with people they have not met before. Social events would also reinforce this familiarity and building of relationships. The transformation of newer online and virtual technologies could also facilitate interactions within teams when in-person interactions are not possible.

**Effective communication**

Effective communication (C) was highlighted by all participants. Communication enabling factors included making eye contact, using open ended questions, ensuring reflection, being empathetic, being kind, asking others for advice and support, listening actively, making people feel they are essential to the team, and using names/ name badges. Communication was essential within teams to ensure understanding of roles, building relationships, speaking out, and ensuring conflict resolution (M). Information sharing and joint decision making were also major elements (M), all of these factors leading to smoother handovers and better patient care (O).

*“Communication skills are vital for effective team working.  Wherever I’ve started working there was always a good induction, so they have always told us what to expect and where to go if there any difficulty or problem, what support you have…So they always encourage people, whether its doctors or nurses, paramedics, any role, so they always welcome people to have open communication with them without fear of retribution or blame.  So that helps people with misunderstanding or any mistakes and if there are any conflicts it helps with conflicts and resolution as well.” (Interview 4, FY2 GP)*

**Understanding, supportive and approachable leaders/role models**

A key factor that all participants discussed was the role of leadership (C), this being an individual who is understanding, supportive and approachable. Other desirable characteristics included being outstanding professionally, strong, consistent, charismatic, self-aware, kind, calm, welcoming and compassionate. Leaders of the team, largely senior doctors, must be able to turn dysfunction around and not react or treat other team members badly within high pressure situations (M). Leadership cannot just be a multidisciplinary tick box exercise but needs to be done effectively and promote professionalism through role modelling and training junior colleagues (M).

*“You need strong and consistent medical leadership genuinely interested in the development of people under them...it’s also important for them to bring up and rise and train the next generation. So you can have people that are very good at their job, so technically very good but not particularly interested in the wider group or building a strong team structure and developing people. You need that!” (Interview 33, Private Consultant Pharmaceuticals)*

This strong leadership will ultimately ensure a positive team composition and culture (M), enhance staff wellbeing and lead to positive patient outcomes (O).

**Flattened hierarchy and mutual respect**

A flattened hierarchy and mutual respect within the team (C) was noted substantially throughout. There is a great need for all members of the team to behave, empathise, communicate and relate to each other, ensuring members of the team feel like equals and are able to build a team identity (M). All members of the team not only need to know their own role but must have respect for each other's role and value the input of other team members (M). Making the most of the skills and unique benefits of each group member is important.

Hierarchy must be addressed at all levels: multidisciplinary teams, interdisciplinary teams, and hierarchy within medicine itself. This level of respect and feeling of empowerment (M) from all members of the multidisciplinary team will likely lead to overall better team competence and better patient outcomes (O).

*“...I remember admitting a patient to intensive care, putting in various arterial lines, central lines and intubating them and getting a CT scanner all within 30 minutes which I was amazed by. But the reason for that was that was that the nursing staff were absolutely on it, you know, they were there. You didn’t have to think about the next step. They were giving you the next thing” (Interview 31, Anaesthetist)*

**Ongoing monitoring and feedback**

Ongoing monitoring and feedback (C) was highlighted as a key factor enabling effective teamwork (M). Developing action plans within teams and promoting Quality Improvement initiatives can have a positive impact on teamworking. Communicating regularly about such ideas and addressing shared values (M) is important in this regard, particularly when things are going wrong. Early detection of problems through auditing and communication (M) is crucial for patient outcomes (O).

*“...So people need to know if things aren’t working.  If there’s a problem with what they’re doing.  You need to be communicating that earlier rather than later.  Don’t let problems brew for too long...you need to be able to monitor what’s going on and communicate with your team regularly both when things are going well and when things are going badly.” (Interview 36, Consultant Acute Medicine)*

**Clearly defined roles and awareness/understanding of team needs and values**

The evidence illustrates that clearly defined roles and awareness of team values (C) are essential for effective teamworking. All members of the team need to understand how they can best work together to achieve shared goals (M) and must have a common sense of purpose/clear vision (M). Achieving and celebrating team outcomes is important, creating a strong sense of collegiality and belonging (M), rather than focusing on individual success. This may help to foster creativity and incentivise team projects (O).

Understanding the value of having certain groups within the multidisciplinary team was also discussed (C). Specialist and Associate Specialist (SAS) and Locally Employed (LE) doctors, which make up a significant and important part of the medical register, were identified as crucial as they are often the ‘glue’ that bridges service provision and education together.

*“So the good thing about SAS doctors is they’re a constant presence, so we’re heavily reliant on SAS doctor because our trainee doctors rotate. So SAS doctors are a big sort of work horse of the team and if we lost our SAS doctor on a rota, we’d be in trouble.  So we rely on that tier a lot…some of them are very experienced and function at the level of a consultant.” (Interview 42, Consultant Emergency Medicine)*

Teams that seemed to function most efficiently were those who understood the responsibilities and needs of other team members (M), ensuring appropriate actions and delegation of tasks. Ensuring realistic expectations about the differing professions and expertise of colleagues was noted (M), for example, not asking (Medical Associate Professions (MAPs) to do something that they are not qualified to do, ultimately ensuring patient safety (O).

**Awareness of Equity, Diversity and Inclusion (EDI) issues**

Ensuring inclusivity and being aware of differing EDI issues (C) was noted as essential to ensure teams are aware of biases and to prevent doctors feeling like outsiders (M). Examples include ensuring flexibility for part time workers to attend meetings, creating equal opportunities to engage in social activities, consideration for those taking maternity/paternity leave, and being aware of gender biases/assumptions (C). Doctors with a non-UK Primary Medical Qualification are crucial to the workforce, but some may initially struggle to adjust (M) to teamwork and interprofessional practice within UK healthcare while they adjust to new working contexts. Inductions, support and guidance need to be offered to enhance adjustment and help them fit into the team (O).

*“…knowing where you need to go is really vital because I haven’t got my degree here.  I got my degree from Pakistan and I haven’t worked in NHS. So my first placement was like, first month to be honest, was a bit, full of tension, anxiety.” (Interview 4, FY2 GP)*

**Barriers to effective teamwork**

Barriers to effective teamwork included high service demands and work pressures (C), power imbalances and negative hierarchy (C), fragmented teams and a lack of proximity (C), a lack of inductions and support for those new to teams and organisations (C), transitory and rotational roles (C), poor leadership (C), a lack of mutual respect (C), poor communication (C), breakdown in relationships (C), roles and responsibilities of team not clear (C), and finally a lack of appreciation and understanding of the needs of differing groups within teams (C) (Figure 2). There were particular issues for SAS doctors and those in newer roles regarding how they fit into teams. The barriers that operate at the teamwork level in practice are elaborated below and the CMOcs are fully illustrated in Appendix 5 and 6.

**Power imbalance and negative hierarchy**

Power imbalance and perceived hierarchy amongst staff (C) were raised as major barriers to effective teamworking. Where hierarchy was perceived to be a big issue, this led to intimidating and often toxic or bullying cultures (M). This created a hesitancy in speaking up (M) and ultimately resulting in clinical errors and poor patient outcomes (O).

*“...some of the more junior people in my team, sometimes really struggle with that because they feel almost scared to talk to some of these people that feel really intimidating to them.  Even for me, if it’s a particular intimidating one, I know that I’ve got to say something to them that they’re not going to like, I have to put my big girl pants on to go and do it... it can be a difficult conversation because there’s that element of hierarchy...it does worry me sometimes because there have been occasions where there’s been members of staff that haven’t been able to speak up to a consultant surgeon and that’s where errors have occurred and that always makes me panicky. ” (Interview 17, Operating Departments Manager)*

Power imbalances between differing specialties were noted (C) , particularly between nurses and doctors, and between midwives and doctors. For many, it is still an ‘us and them’ mentality, which clearly hindered effective teamworking (O). Issues with communication and breakdown in relationships were mentioned by many (M).

**Fragmented teams and lack of physical proximity**

An ongoing barrier reported by participants was the lack of physical proximity and distance between colleagues (C), particularly seniors. Accessing senior colleagues to discuss issues proved to be a challenge for some, often causing tension and frustrations between team members (M), and between professions. Fragmented teams and a lack of stability were therefore reported as a result (O). Large teams in larger organisations sometimes found communication and access to colleagues a challenge due to the nature and size of the teams (M). This became even more challenging when working off site, for physiotherapists for example, who cannot always access colleagues or communicate easily. Some felt isolated and not part of the team (M).

Many participants commented on the lack of suitable locations for team meetings (C). Some commented on a lack of resources such as computers and chairs. Whilst this may not seem like a major issue, many participants commented that it is the small things that make you feel valued and want to engage with your team and workplace (M). Team meetings should be in a comfortable space where members of the team can feel at ease and will more likely engage in discussions (M).

Issues with working in a primary care setting (C) were also highlighted, for example feeling more isolated from teams (M) compared to secondary care settings. Those in primary care settings also commented on the reliance of notes rather than face to face or personal interactions with team members outside of their organisation.

*“The primary healthcare where I work … it's more like individualised.*
*So you don't get to meet some of these team members on a regular basis and to be honest, I've been working at my current practice for about 3 three months now and I still don't know all the members of some of the nursing teams. And if you don't really know those people one on one, there may be some form of awkwardness. Individually, when you have to refer to them saying that you're working in the same place and you don't know them one on one.” (Interview 46, GP trainee)*

Whilst we discussed the use of online meetings as an enabler earlier, a shift to more online meetings and resulting silo working was seen as a negative. Some participants noted a shift to online meetings and virtual teams since the pandemic but saw this as a barrier to teamworking (O). Online working (C) lacked the informal chats and social elements crucial for team building (M). Some also saw many of the online meetings to be tick boxes and did not produce successful outcomes (O). Some specialties, such as mental health, require face-to-face meetings to get the most out of the team (O). They found that team members were less likely to question and speak up when meeting online (M). Issues with seeing patients remotely were also discussed, with many patients not wanting to be seen via online Teams (O).

**Lack of inductions and support in new working contexts**

A lack of feedback, support and teaching opportunities were reported (C). Some participants gave specific examples of being unsupported and not being allowed the same opportunities as other colleagues (M), leading to feelings of frustration (M). Some International Medical Graduates (IMGs) also reported a lack of induction to their new working context (C), impacting upon cultural and communication difficulties (M), and at times patient interactions (O).

*“...coming from Nigeria we interpret things differently. We can say some words but back home it means something completely different. I feel even in the UK different areas have different slangs that mean to them, so it took a while for me to navigate that and try to understand that communication difference... There is verbal and non-verbal communication I didn’t know. Somebody might not be smiling but that doesn’t mean that the person doesn’t like you. Sometimes I might say the wrong way to patients. Also cultural shock in terms of the weather, in terms of the way people speak, the nurses are very sweet here. They call everybody ‘oh my darling, my love'.  We don’t typically use them back home. You don’t hear nurses calling doctors that.  It’s just weird!” (Interview 13, GP trainee)*

**Transitory and rotational roles**

Transitory and rotational roles (C), such as those during Foundation Years training, can often make it difficult to build relationships and familiarity (M). Some participants commented on feeling isolated as a result of moving around wards and lack of continuity (M), some feeling unable to ask their colleagues questions as a result (M). Such roles can also cause tension within multidisciplinary teams (M), with colleagues in these roles needing additional support, as evidenced below.

“*There’s a lot of workplace tension in August…the nurses were happy when the junior doctors were not there… From a nursing perspective, a lot of them will say things are so much harder with the junior doctor[s]…I can make a decision, you know, in 5 second. Yes, it will probably take the junior doctor 5 different conversations to make the same decision... there is something fragmented in the MDT relationship.*” (Interview 27, Consultant Acute Medicine)

**Poor leadership (and role models)**

The role of leadership within the team was discussed (C). Negative teamworking was associated with leaders who were unapproachable, unable to deal with challenging behaviours, had ‘old fashioned mindsets’, were disruptive, tended to act out, and managed others via their emotions. Such behaviors impacted upon team competence, poor decision-making, anxiety and stress (M). An individual with poor leadership skills could negatively impact upon the whole work climate (O).

*“...it is never acceptable to bully people or shout at people and treat people in the wrong way.  I think if you’re a skilled leader you use different ways to motivate and find out the ways in which your team works... that’s part of our job is to read the team.  It’s not just to plough through and make everybody do things your way...if you have an unhappy team, they’re not productive.” (Interview 63, Registrar Community Mental Health)*

**Lack of respect and mutual responsibility**

A lack of respect from other team members (C) was noted as a key barrier for some individuals. Participants discussed a feeling of disempowerment and fear of failing (M), as well as clear negative impact for patients (O). Similar examples were given by those in more senior positions. They felt this hindered their leadership, team performance and ultimately patient outcomes (O).

*“I was just starting out and being a medical registrar and leading them and my on-call buddy who was supposed to be working at the same level together, I was constantly being undermined in front of the team and I was following the algorithm...whatever I did I was constantly being questioned in front of everybody or they would do the exact opposite of what I would say and that just caused absolute carnage because no-one knew what was going on and not only did I then feel horrible that we weren’t doing right by the patient.  I also felt that I was being undermined as an individual for my medical knowledge and that too wasn’t helping because I then wasn’t being focused in what I had to do. The patient didn’t make it...it wasn’t the most effective resuscitation that we could have done either way.” (Interview 48, Medical Registrar)*

Participants also discussed how a lack of mutual responsibility and shared agenda would often cause friction (M).

**Poor communication**

Poor communication (C) as a barrier to teamwork was discussed a great deal, particularly the negative impact of having silo meetings between smaller teams and poor handovers (O). Many discussed how this has led to misunderstandings, incompetence (M) and ultimately poor patient care (O).

*“Sometimes they don’t handover the patient or anything so that can be quite difficult... probably that consultant forgot to hand it over...because the consultant doesn’t discuss it formally... it never gets taken on and so the consultant will like take them off my list. But actually they remain under surgery and then not seen for days... we’re involved with other specialties and there’s no formal handovers of care...quite often even in our teams we don’t communicate with each other which is quite bad...we have all of these loose notes and we don’t put them in order, we never know what is actually happening to a patient...” (Interview 11, FY2 in Surgery)*

Different colloquialisms between teams were also discussed, some team members (particularly if new), not understanding notes or handovers (M). A lack of time for ward rounds and note taking (C) also had a negative impact for teams, some team members not being able to keep up with the fast pace and consultants not always making time for note taking during ward rounds (O).

**Breakdown in relationships and poor relational climate**

As expected, teamwork is likely to fail (O) when there is a poor relational climate (C) and chronic interpersonal conflict (O). Many highlighted how such conflict is a ‘disaster for teamwork’ and will likely impact patient outcomes (O). This is exacerbated when teams do not meet and discuss problems, do not have clear goals and do not know their roles (m). These factors will likely cause stress and create interpersonal conflict (O). When we say dysfunctional teamwork, we essentially mean teams that are not happy working together and where team members do not get on with one another (C).

**Roles, responsibilities and purpose of team not clear**

Many examples were given by those in newer roles of other colleagues not understanding their role and responsibilities (C).

*“I think it’s about those working relationships that you have with your team and again the understanding of that role.  Like if I go down and see a patient in the ED where they’re used to ACPs who can prescribe and who can order, you know, x-rays and things.  Then if I go down and I’d seen a patient... I said she needs steroids, she needs x-rays and the ED consultant just looked at me and went, well why can’t you do that and I was like, oh I’m really sorry I’m a physician associate. I can give you this guidance this is what I recommend you do but I can’t do it myself, as part of the limitations unfortunately I can’t prescribe and I can’t order the x-rays.  He just turned around and said to me, oh you’re a funny bunch you lot, aren’t you.” (Interview 19, PA)*

Some also gave examples of how misunderstandings about their role had led to mistrust and breakdowns in relationships (M). Individuals were also less likely to speak up and less confident in their role (M), ultimately leading to inefficiency and impacting on patient outcomes (O). Poor job satisfaction and wellbeing (O), often from a lack of professional identity, feeling embarrassed and undervalued by other team members (M), was also reported by some.

**Lack of appreciation of needs of differing groups within teams**

A lack of appreciation and understanding of colleague needs, particularly EDI issues within teams (C), was reported. A key issue was the failure to provide effective induction, training and supervision for those new to the team (C). This was particularly lacking for those new to the UK and newer roles, often feeling they do not belong (M). In the quote below, there is a lack of appreciation of the challenges faced by IMGs who may need more induction and support. The individual below comments on how SAS doctor posts were not always understood and respected, but that there have been recent improvements.

*“Now because of the reintroduction of the specialist post, they [SAS doctors] are feeling a bit better that they feel that they are being respected in a way that initially they felt everything was lost. I think the GMC and the individual colleges are now recognising their potential and their position.” (Interview 39, SAS doctor)*

**Different levels and roles fit into wider team differently**

As doctors go through different stages of their career and move into different specialties (C), they can sometimes become less accessible to other team members (M). Senior roles are often associated with more managerial duties and therefore some participants discussed how they felt less part of the team as they progressed in their career (M). As discussed earlier, locum doctors and SAS doctors can also struggle to feel part of the wider team. Those at foundation level commented on issues embedding into the team (M) due to the rotational aspect of their training (C). Trainees therefore may not want to speak up and cause conflict if they are moving to a new post soon, possibly having more to lose than gain (M). There is also a competitive nature to the Foundation Programme (C) that can hinder the development of effective teamwork (O).

*“….it comes up against this barrier that getting into foundation programme is all about your individual score and so students very much view it as them as the individual.  I’ve got to get one up on the next person and that has stopped really effective team working taking place because people are always worried about will it affect my score as an individual and that results in quite selfish behaviour by medical students...the hidden curriculum of foundation programme application suggests that actually you might be a good team worker but we’re not interested.  We’re only really interested in you as an individual and we need to change that.” (Interview 36, Consultant Medicine)*

**Discussion**

Revealing the concept and definition of teamwork is, itself, a challenging task. However, the researchers have explored and illustrated an understanding of the concept through developing an initial programme theory and testing these ideas further. We aim for the teamworking programme theory to enable educators to understand the main barriers and enablers to improve teamwork for doctors and other healthcare professionals. The findings illustrate that when teams work effectively together, they produce better outcomes- most importantly in relation to patient care. As the programme theory shows, effective teamwork is enabled by contextual factors such as effective communication, effective leadership, successful handovers and understanding of roles, streamlined processes and effective, stable multi-disciplinary team approaches. A great deal of discussions revolved around members of the team feeling unable to speak out and communicate effectively with other team members. Differing roles and positions within the organisational hierarchy (e.g. junior vs senior, or newer vs established role, or doctor vs nurses) had an impact on how individuals fitted into the team. Such factors have been found to contribute negatively to the provision of safe patient care (Sexton, et al., 2000). Our initial programme theory identified key concepts of teamworking that would likely lead to positive outcomes.Following subsequent development, the final programme theory provides rich examples of how teamwork is enacted. We developed understandings around the key contexts and mechanisms in greater detail.

Examples of effective teamwork are evident across the UK, with many organisations putting in a great deal of effort to improve teamworking (Monrouxe et al., 2014). Doctors seem to thrive in high pressure environments, where effective leadership and supportive cultures are evident. Other factors within the programme theory highlighted concerns around poor communication and a lack of speaking up, which ultimately has impacted upon patient outcomes and safety of teams (Lingard et al., 2004; Mazzocco et al., 2009).). It is also important to note that some doctors commented in the interviews that they would not know where to raise a concern or how to speak out during conflict if they needed to. Hierarchy, generational differences, seniority, and role type clearly have an impact on this and how individuals fit into a team. Doctors as ‘outsiders’ (e.g. Foundation doctors and locums who are unable to fully embed into teams) are evidently affected by lack of stability.

The study has particularly added knowledge in terms of revealing more about the challenges in how doctors understand, and work with members in newer roles, and the ways in which these team members are integrated into teams. In some settings there are effective examples of these roles becoming embedded whereas in others there are frustrations amongst doctors and other healthcare professions in terms of managing and understanding newer roles. Longevity, mutual understanding and continuity amongst team members is particularly important within our programme theory. Impact on professional identity has also been noted in the literature (Best & Williams, 2019; Mastalerz et al., 2021).

Within medical education and training, rotations and support during transitions are other contexts that have caused issues for teamworking. Continuity, familiarity and experience will likely impact upon how members of the team work together. Therefore, moving around teams and the resulting lack of constant support and contact with the same approachable colleagues can negatively impact teamworking. Foundation doctors and locums are particularly affected by this lack of stability, but also add to instability due to thier fluid roles. Technology and virtual teams have assisted teamworking in some contexts but have also been a barrier at times in referral communications between primary and secondary care.

**Strengths and limitations**

Conducting this realist evaluation proved to be an effective method to enable the researchers to understand what leads to effective or ineffective teamworking. The realist approach has allowed for an in-depth analysis of participant experiences of teamwork and enabled the development of a useful programme theory that has already had impact in terms of its application. We were able to explore relationships between teamwork and outcomes so that more nuanced understandings about cause and effect could be inferred. We collected data from over 70 doctors and healthcare professionals across the UK. However more groups and types of professionals could have been included. We did not explicitly recruit participants in non-clinical roles although many held an administrative capacity alongside clinical duties. Nonetheless, this sample was relatively large for this type of qualitative evaluation. We did use a screening questionnaire to identify particular groups, but the insights given from the range of the participants also covered the target groups of interest. For example, we were unable to recruit Anesthesia Associates themselves (as part of our MAPs sample), however, other colleagues were able to share insights about their experiences and working within the team. Indeed, the sample involved senior and expert stakeholders who were likely to have a much more insightful perspective on the issues surrounding particular groups of doctors.

Despite the importance of teamwork there is a lack of contemporary literature on how best to support effective teamworking, and teamwork itself as a concept is a social phenomenon, so can be complex to unpack and understand. In this study, we recognise that the direct causation of effective/ineffective teamwork and patient outcomes has many confounding variables. Within the study we attempted to collect and understand what evidence existed for such links between teamwork and outcomes but these were often proxy indicators such as turnover, time off sick, and wellbeing measures. Future research may wish to obtain quantitative evidence about teamworking e.g. impact on performance and staff turnover. Further research may also be directed at exploring the concept and implementation of clinical teamwork across different countries and cultures, learning from any differing practices observed.

**Considerations of how to address teamworking**

Based upon the findings of this research, considerations are provided in Figure 3 below to enable medical education educators and training bodies to better prepare students to work effectively in teams. Importantly the study also acknowledges the contextual factors beyond the remit of medical educators to reveal the role of which systemic factors play on teamwork. The study reveals a plethora of mechanisms such as interpersonal skills, leadership, professional identity and communication that should be targeted by interventions and curriculua. The development of leadership and education standards by regulatory and governing bodies incorporating these factors can also help outline to drive education in these areas. In a climate that is full of stress and pressures, healthcare staff need to build strong relationships to enable them to deal with the high workload and work as interprofessional teams to ensure optimal performance.

**Conclusion**

Overall, our programme theory illustrates that when doctors and the healthcare teams work together within a positive and supportive culture, with effective communication and approachable leaders, the team will likely produce better patient care; often through effective handovers, streamlined processes and effective multi-disciplinary team approaches.

Continuity, familiarity and experience also impact upon how members of the team work together. However, transient teams, where there is a lack of mutual respect and support, dysfunctional and unapproachable leadership and poor communication, can negatively impact team dynamics. There were also evident difficulties in how doctors understand, and work with members in newer roles, and the ways in which team members are integrated into teams. Concerningly and something that now needs addressing, is the evidence that team members often felt unable to speak out and communicate effectively with other team members. We must now focus on ensuring effective teamwork, using the suggested practice points to support this.

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