A scoping review exploring the impact and negotiation of hierarchy in healthcare organisations

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Abstract

Healthcare organisations are hierarchical; almost all are organised around the ranking of individuals by authority or status whether this be based on profession, expertise, gender or ethnicity. Hierarchy is important for several reasons, it shapes the delivery of care, what is prioritised and who receives care. It also has an impact on healthcare workers and how they work and communicate together in organisations. The purpose of this scoping review is to explore the qualitative evidence related to hierarchy in healthcare organisations, defined broadly to address gaps in macro-level healthcare organisational research, specifically focusing on the 1) impact of hierarchy for healthcare workers and 2) how hierarchy is negotiated, sustained and challenged in healthcare organisations. After a search and screening, 32 papers were included in this review. The findings of this review detail the wide-reaching impacts that hierarchy has on healthcare delivery and health workers. The majority of studies spoke to hierarchy's impact on speaking up, that is, how it shaped communication between staff with differential status; not only what was said, but how it had an impact on what was acceptable to say, by whom and at what time. Hierarchy was also noted to have substantial personal costs, impacting on the wellbeing of those in less powerful positions. These findings also provide insight to the complex ways in which hierarchy was negotiated, challenged and reproduced. Studies not only detailed the way that hierarchy was navigated day to day, but spoke to the reasons as to why hierarchy is entrenched and is difficult to shift. A number of studies spoke to the impact that hierarchy had on sustaining gender and ethnic inequalities, maintaining historically discriminatory practices. Importantly, it is clear that hierarchy should not be reduced to differences between or within the professions in localised contexts but should be considered at a broad organisational level.

Introduction

Social hierarchies - the ranking of groups or individuals by some type of characteristic such as authority or status – are ubiquitous (Bunderson, Van Der Vegt, Cantimur, & Rink, 2016).

Hierarchy exists throughout society with people consciously and unconsciously aligning with patterns of dominance and deference (Bunderson, 2003). In organisations, hierarchy supports an efficient, stable social order (Magee & Galinsky, 2008), despite tensions between hierarchy and motivations towards equality (Kolodny, 2023). Hage (1995, p.212) defines hierarchy in organisations, noting that the term normally refers to a "hierarchy of authority" or "chain of command". Magee & Galinski (2008) further characterise hierarchy as a 'rank order' of status and power while Kolodny (2023) describes it as a 'pecking order'. In consideration of the complexity, variability and fragmented multi-professional nature of healthcare settings (Launer, 2022; Walston and Johnson, 2022), this review identifies a relative lack of research at the macro level of healthcare organisations (Bresnen at al., 2016; Chen et al., 2021; Johnson et al., 2018; Khayal, 2022; Oyri et al., 2020; Ramanujam & Rousseau, 2006; Turner, 2019; Vaughn et al., 2019) in leadership, management, organisational dynamics, complexity theory, quality improvements, innovation failure, resilience, regulation, disdain for business management, systems thinking, risk analysis, and health expenditure, all of which relate to hierarchy. Hierarchy also exists at the meso and micro levels of healthcare organisations in teams, regardless of how broader societal relations or how a broader organisation is structured; competence and perceived expertise, amongst a range of other factors, are important in explaining how hierarchies are formed and are maintained amongst groups and teams (Bunderson, 2003; Magee & Galinsky, 2008). In addition to being pervasive, hierarchies vary substantially, from rigid to dynamic, steep to flat (Anderson & Brown, 2010); from hierarchy where leadership and decision making is more concentrated, to more dispersed democratic leadership (Kolodny, 2023) in varying cultural interpretations of hierarchy (Bell & Pei, 2020).

Healthcare organisations, defined broadly, tend to operate a top-down structure of hierarchical management, where the chain of command and control extends pyramidally from the top to the bottom. The complexity of hierarchical management in modern organisations, notably in healthcare, has been analysed by systems management expert Drucker (2012, p.89), who observed that "the hospital [is] altogether the most complex human organization ever devised, but also, in the last thirty or forty years, the fastest-growing one in all developed countries". To manage this degree of complexity within healthcare organisations (Bresnen, Hodgson, Bailey, Hyde, & Hassard, 2017), individuals often have relatively clear roles and responsibilities, frequently dictated by their differential access to training and subsequent expertise. Hierarchy is also embedded in healthcare culture, with acculturation starting in training (Colenbrander,

Causer & Haire, 2020; Lempp & Seale, 2004) and is historically entrenched. As Johnson et al., (2020, p.126) observe, "Leaders within health organizations operate mostly in a hierarchal structure - what might be thought of as swim lanes at best and more often silos at worst". Within this, certain professions have been regarded as having lower status and have been expected to submit to others, such as nurses acting subordinately in deference to doctors, as in the original historical 'doctor-nurse game' (Brown, 2019; Stein, 1967; Stein, Watts, & Howell, 1990) while those in positions of power have actively excluded women, disabled people, and those from ethnic minorities (Brathwaite, 2018; Colenbrander et al., 2020). Although progress towards greater equality in management has been attempted in many respects (Paton, Naidu, Wyatt et al., 2020; Stein, Watts, & Howell, 1990), hierarchy still pervades all areas of healthcare: a hierarchical culture has been identified as one of the key characteristics of struggling organisations (Vaughn et al. 2019). This form of social categorisation is also remarkably resistant to efforts that seek to change the status quo, which at least in part can be attributed to these historically entrenched power disparities (Battilana, 2011).

Hierarchy is important because it shapes the delivery of health services, how health services are structured, what is prioritised and who receives care, amongst other things. Hierarchy also influences how teams operate, shaping attitudes toward collaboration (Filizli & Önler, 2020), decision making and communication (Green, Oeppen, Smith, & Brennan, 2017) facilitating or limiting contributions of different team members (Stocker, Pilgrim, Burmester, Allen, & Gijselaers, 2016). Within the significant prior literature on teams in healthcare, some components relate to hierarchy, notably regarding the management, structuring, communication, collaboration, and performance of teams. A scoping review on interprofessional teamwork in trauma settings by Courtenay, Nancarrow, and Dawson (2013), for example, highlights the importance of good communication and collaborative team structures, finding that around "70 to 80% of healthcare errors are due to poor team communication and understanding" (p.1), whereas "cross-disciplinary leadership and collaborative decision-making had positive effects on overall team performance" (p.3). The need to challenge steep hierarchical structures to achieve good team communication and performance in high-risk healthcare is also reported by Green et al. (2017). A more recent scoping review carried out by Raveendran et al., (2022, p.511) on teamwork research in medical operating rooms observed that "individual components of teamwork behaviors" predominated in the literature, "rather than a holistic interpretation of teamwork based on

multiple processes", calling for the importance of "an accurate assessment of teamwork properties" and "a framework to understand the nuanced nature of teamwork" in operating rooms ;… "to foster high functioning teams". (Raveendran, et. al., 2022, p.511). The need for a holistic interpretation of healthcare organisations resonates with this finding, notably at a whole organisational level. While the above examples of teamwork research provide important findings for the effective functioning of complex differentiated meso and micro levels of healthcare, this scoping review aims to look beyond these levels to consider organisations holistically.

Beyond its impact on teams, hierarchy is also an important factor in explaining some of the most problematic elements of healthcare culture. Studies from around the world have revealed that humiliation and verbal abuse are all commonly experienced by medical students as part of an adverse, competitive 'hidden curriculum' of covert institutional discrimination perpetuated by senior staff, fellow students and even patients to reinforce the medical school hierarchy (e.g., Colenbrander, Causer & Haire, 2020; Frank, Carrera, Stratton, Bickel, & Nora, 2006; Lempp & Seale, 2004; Wilkinson, Gill, Fitzjohn, Palmer, & Mulder, 2006). In many respects we cannot begin to understand the delivery of healthcare services and any related shortcomings without considering the impact of social and professional hierarchies. We also cannot begin to have a complete picture of how healthcare organisations deliver health services and the influence that hierarchy may have within this. The aims of this scoping review are to collate and analyse the available qualitative literature related to social and professional hierarchy in healthcare. More specifically, this review hopes to 1) explore the impact of hierarchy for healthcare workers and 2) examine how hierarchy is negotiated, sustained and challenged in healthcare settings. While there is substantial overlap between hierarchy as it exists within teams and broader hierarchies that exist within organisations, the focus of this review is on the latter.

Methods

Design

Given the potential breadth of the literature on hierarchy and its potential impact on the delivery of healthcare, a scoping review was utilised to capture the extent of the available literature. We

defined the broad scope of this review as ‘hierarchy in healthcare organisations’, including macro-organisational structures in addition to multiple meso and micro sub-structures, to gauge the strength of research interest and identify insights from the evidence in this field. We argue that an expansive focus with particular reference to the gap in research at macro-organisational levels is necessary to scope the field of ‘hierarchy in healthcare organisations’ in an initial review, following which more granular investigations can be specified. Below we follow the steps outlined in the updated JBI guidance for conducting a scoping review (Peters et al., 2020), including the inclusion/exclusion criteria applied, search strategy and results, data extraction and analysis. Our search and reporting are also consistent with PRISMA ScR guidance (Tricco et al., 2018).

A more detailed description of our methodology is included as supplementary material (see supplementary information 1), including details related to our search terms, data extraction and analysis. A search was carried out on 28/07/2022 utilising four search databases: Medline, PsycInfo, CINAHL and Scopus. The search returned 3,141 results. A title and abstract screen left 229 articles. After a full text screen and searching the references lists of included papers, 32 papers were left in this review. Studies were included if they were mixed methods or qualitative and examined social or professional hierarchy as it existed within healthcare organisations and were carried out in clinical settings or the context of patient care. A summary of this process is outlined in a PRSIMA flow diagram (see supplementary information 1).

Results

The majority of studies included in this review were carried out in the US (n = 13), the UK (n = 7), Sweden (n = 3) and Australia (n = 3). Studies used interdisciplinary samples (n=17) or limited their samples to doctors (n=5) or nurses (n=5), and one study provided a case study of an allied health professional. Eighteen studies employed interviews, focus groups or reported case studies, while 12 studies employed ethnographic methods. Two studies were mixed methods. Below we discuss the findings of this scoping study, with a focus on the research questions above, namely, 1) the impact of hierarchy in healthcare as it related to health workers and 2) how hierarchy is negotiated, sustained and challenged in healthcare settings.

The impact of hierarchy

Hierarchy had wide reaching impacts on healthcare workers and the delivery of health services. The vast majority of studies considered the impact that hierarchy had on communication and, in particular, to speaking up about in situations that might challenge the power, status and professional expertise of senior staff. In a study of Irish junior doctors in specialist training, hierarchy was an ever-present factor that shaped day to day practice (Crowe, Clarke, & Brugha, 2017). Most participants spoke about obedience and the importance of hiding any frustration they may have felt toward senior staff. Several spoke about their reluctance to speak up and voice their opinions. Despite these frustrations and the obvious impacts that hierarchy had, several participants saw this as a 'rite of passage', suggesting a tacit acceptance, having to prove that they had what it takes to be accepted in their speciality. While many of these issues could be put down to the structure and nature of the meso and micro environments, many of these impacts were explained by the organisation of training posts within hospitals, which for many felt like they were arranged in an instrumental fashion by hospital management, further embedding hierarchical culture and alienating junior doctors from their places of work. These findings are seen throughout the literature. Examining video recordings of eleven surgeries that involved senior consultant surgeons and those who were in training, Murtagh and Bezemer (2020) found that while the differential expertise between the senior and junior members of the team did not always determine actions and interactions, hierarchy shaped how actions and interactions were 'produced and organised'. That is, along with the distribution of expertise within these teams broader cultural and organisational hierarchy dictated how communication was conducted between senior and junior members of the team, with an implicit understanding that "the lead surgeon is the authoritative expert, the one with the requisite knowledge and expertise to assess a situation and lead decision making" (p.29). Like many of the studies below there was a reticence to speak up amongst junior team members, with the authors concluding that this was not "a simple matter of the imposition of senior power and status, but may have more to do with the careful distribution of interactions rights and responsibilities that both trainees and consultant surgeons meticulously orient to" (p.29).

In another study, amongst a sample of 23 Japanese nurses, Omura, Stone, and Levett-Jones (2018) found that hierarchy was a substantial factor in explaining nurses' (un)willingness to speak up and challenge those in more senior positions. This study primarily focused on what were intra-professional differences between nurses and doctors, however it also described the

consequences of this hierarchy. More than just restricting communication, this study details bullying, which had broader impacts beyond the individuals who were targeted, silencing others who were a witness to or who were aware of the bullying. What is noteworthy about this study is how broader Japanese culture impacted the reproduction hierarchy and its consequences within this organisation. Similarly, Eekholm, Samuelson, Ahlström, and Lindhardt (2021) found that amongst nurses in Denmark, organisational structure was one factor impacting nursing care, with the authors noting that such care was devalued, with a biomedical approach dominating. This approach not only took time away from nurses being able to deliver services, but also resulted in a loss of professional identity.

In a study that employed a comparative design, researchers observed and carried out a survey with nursing staff across four wards, two of which had adopted a 'lateral management structure', while the other two had more hierarchical management structures in place (McMahon, 1990). Offering further insight into how hierarchy shapes communication, this study found that on hierarchical wards, communication was far more concentrated, with the designated leader often the centre of this, whereas communication was more dispersed on laterally managed wards. Other differences were also noted, namely that problems related to patients or nursing prompted far more discussion in wards that were managed laterally, while on hierarchical wards similar issues were often not discussed, and instead, they were referred to other health workers. Finally, nurses on the laterally managed wards reported communication with their colleagues to be far more collaborative compared to those on the hierarchical wards. Notably, it was not only communication from which staff were excluded. At least one study gave some insight into how this manifested physically, showing how in morning interdisciplinary rounds, nursing and allied health staff often took positions outside of the core circle where discussions were dominated by doctors. Some described a 'fight to get in', while others reported having given up on attempting to participate in morning rounds (Paradis, Leslie, & Gropper, 2016).

One study offered a different perspective: instead of focusing on those who were in lower hierarchical positions, this study focused on health workers who were middle managers and their role in communicating information to stakeholders delivering care and to those in management. Currie, Burgess, and Hayton (2015) found that amongst a sample of doctors and

nurses their ability to broker knowledge related to quality improvement and patient safety was limited, resulting in a broken chain of knowledge between and within these professions. Differences were again noted between nurses and doctors: nurses, for example, found it easier to broker their understandings down the hierarchy, but because their status differed from that of doctors, it was often difficult to share this knowledge inter-professionally, creating what the authors labelled knowledge 'fault lines'. As a whole these results show how complex inter and intra-professional hierarchy that exists within health organisations may restrict vertical and horizontal communication. Studies that have examined how hierarchy is negotiated (which will be discussed below) have reached similar conclusions, not only showing that hierarchy limits the extent to which health workers are willing to speak up, but that a broader culture shapes how communication occurs (Kim & Oh, 2016; Tarrant, Leslie, Bion, & Dixon-Woods, 2017).

Amongst the studies that explored the impact that hierarchy had on communication, several explored more specific outcomes, like the reporting of child abuse and communication about medication safety. Amongst a sample of 21 Australian nurses, hierarchy was one of the salient factors in explaining why nurses experience challenges in reporting child abuse (Lines, Grant, & Hutton, 2020). This study found that a fear of making mistakes, coupled with formal structures and procedures that were inflexible and inadequate (with nurses having to navigate complex legislation and clinical guidance) caused hesitation or confusion when it came to reporting possible occurrences of abuse. Other studies have reached similar conclusions. Amongst a sample of 17 junior doctors working in intensive care, while many initiated supervision or consultation in relation to medication safety, there were still reservations expressed about asking questions (Tamuz, Giardina, Thomas, Menon, & Singh, 2011). Interestingly, who from, and how information was sought differed between professions. That is, nurses and pharmacists assisted with decision making related to medication and were also sought for advice. In many cases this led to ambiguity as it related to hierarchy, in that doctors traditionally are seen as having higher status than other health professionals, however in this case nurses and pharmacists had more expertise when it came to medication safety and administration. This resulted in junior doctors using different communication strategies. For example, they used deferential and indirect language when seeking assistance from other professions. In another study carried out in a surgical setting, communication was explored as it related to surgical site infection amongst interdisciplinary surgical teams (Troughton et al., 2019). Again, a number of participants were apprehensive to speak up. As in the above study,

the reasons why participants were apprehensive to challenge senior colleagues varied by profession. For junior doctors this was usually because there was an assumption that more senior surgeons had superior knowledge and experience, while for other professional groups, many feared offending or provoking a negative reaction from senior colleagues. While the results of this study largely speak to the impact and reproduction of hierarchy within a team environment, it notes the larger culture of hierarchy that exists within healthcare organisations and between healthcare professions as a key contributor to these results.

A number of studies detailed the impact that hierarchy had on individuals, perceptions, attitudes and wellbeing. Position within an organisational hierarchy dictated participants' views and perceptions of complex organisational change that involved workforce restructuring and a move to a new hospital, for example (Jones et al., 2008). While there were shared concerns between supervisory and non-supervisory staff, concerns and views about the change differed. For example those more senior in the hierarchy were likely to be less impacted by the change, while those in non-supervisory roles expressed greater concerns about the impact that the change was likely to have on their day-to-day activities and routine. Other studies examined other personal impacts of hierarchy as they related to wellbeing in the workplace. Hierarchy also resulted in a range of personal costs. Junior doctors in Ireland in specialist training spoke about fear related to speaking up and challenging more senior doctors, risking repercussions or poor treatment or simply being seen as inadequate. A number expressed the desire not to be seen as 'troublesome' by more senior staff. The fear of alienation also impacted help-seeking behaviour, with several participants noting they were reluctant to seek help for these reasons. This relative sense of powerlessness for many resulted in anger, resentment, and disillusionment, with participants detailing intimidation, bullying and humiliation from senior staff which largely went unchallenged and unquestioned (Crowe et al., 2017). Similarly, in a study carried out with nurses, support workers and health care aides in Canada, Syed et al. (2016) found a link between the stress experienced at work and "care work hierarchies, task orientation, and strict divisions of labour" (p. 41) between and within these groups. This study also detailed experiences of bullying, with staff feeling undervalued, overwhelmed and stressed, which was, in part, attributed to the hierarchy found within this workplace. Importantly, two studies explored the ways in which ethnicity and gender intersected with hierarchy, speaking to how hierarchy reproduces ethnic and gender inequalities in the health workforce (Hinze, 1999; Iheduru-Anderson, 2021).

While all of the above studies suggest that in some way hierarchy was conflictual or restrained communication or action in some way, at least two studies noted the potential security and certainty that hierarchy offered (DiPalma, 2004; Klein, Ziegert, Knight, & Xiao, 2006). For example, amongst an emergency team who dealt with "unpredictable, interdependent, and highly consequential tasks", hierarchy was an important factor that contributed to team members knowing who to defer to in moments of uncertainty (Klein et al., 2006, p.590). In the discussion below, we comment on the ways in which hierarchical processes operate in small specialist healthcare teams may relate to the overall organisation.

Negotiating hierarchy

Several studies gave insight into how hierarchy was negotiated, how it was reproduced and how it was challenged. Kim and Oh (2016) explored how 15 nurses assimilated to a hierarchical culture within a hospital in South Korea. This process started with learning 'unspoken rules', what was and wasn't acceptable behaviour and communication in this setting. Nurses then went on to negotiate the culture by employing several strategies, remaining silent and generally behaving and communicating in ways that were seen as acceptable. This study provides insight not only into the adjustment into hierarchical culture, but to how it is maintained; its findings are reflected in several other studies. Graham (2009, p. 27) for example detailed how nurses and other non-medical health workers negotiated discharge rounds, utilising polite and non-confrontational language. While there was no overt tension, and the atmosphere in this session was generally collegial, there was "a clear institutional hierarchical structure that governs how caregivers interact with one another". A study by Tarrant et al. (2017) provides further insight here, finding that hierarchy dictates how communication was negotiated by all health workers, regardless of their status. While those lower in the hierarchy may tend to use more polite language, several other strategies were employed, from humour to more openly confrontational language, which was often dependent on a person's position in the hierarchy and to whom they were communicating. Similarly, Apker, Propp, and Zabava Ford (2005) suggested that experienced nurses have developed a repertoire of communication strategies and that they utilise these dependent on who they are communicating with. Importantly, how hierarchy was negotiated was dictated by a range of factors, not just profession-related. Three studies provided evidence about the impact of gender and ethnicity in negotiating hierarchy. Amongst

a sample of 18 US doctors, it was found that while the majority of participants endorsed some type of ‘prestige’ hierarchy, female doctors were far less likely to resist the idea of a ‘prestige’ hierarchy within the medical specialities (Hinze, 1999). Reasons given in support of this hierarchy were pervaded by perceptions of toughness and masculinity. Importantly, this study shows that we cannot begin to understand hierarchy and its negotiation in healthcare organisations without considering gender differences. As Hinze (1999, p.233) concludes, hierarchy “is not a gender-neutral concept… it is infused with gender”. We can see similar themes emerge in Omura et al.’s (2018) study with Japanese nurses, not only showing how hierarchy is gendered, but also showing how broader societal traditions shape expectation and modesty, which only further complicate the negotiation of hierarchy. Like gender, it is also likely that the intersection of ethnicity only further complicates this picture, with health workers from ethnic minority backgrounds having to further negotiate hierarchies, where power has historically been held by those who are white and male (Iheduru-Anderson, 2021).

Several studies spoke to the difficulties in attempting to shift hierarchy. Spyridonidis and Currie (2015) examined how nurse middle-managers negotiated hierarchy. The findings of this study suggest that nurses acted as ‘translators’ between implementing policy driven guidelines as they related to the delivery of care, and those in upper management. This role as a translator however was not always smooth, with this translation work difficult to manage over the longer term, “as professional and managerial hierarchies reassert themselves” (p.760). A Swedish study that sampled ‘process managers’ in three hospitals (Nilsson & Sandoff, 2015) provides further insight here. Process managers were health workers who were charged with leading and influencing processes related to treatment. Process managers spoke about occupying a position within the hospital hierarchy which did not provide them with an adequate mandate to make changes to treatment processes, while others felt their mandate was too ambiguous to make substantive change. To negotiate this ambiguity and the barriers experienced, process managers employed a range of strategies, including emphasising the importance of any change for all staff, ‘anchoring’ ideas or proposed changes, and involving other staff in the development of new processes. In negotiating a new organisational plan, Sebrant (2014) suggests that within an aged care clinic, a range of individual factors contributed to change being resisted between doctors and nurses, who had opposing views about clinical restructuring. A series of power struggles to achieve dominance in the organisational hierarchy ensued, complicated by strong emotions of envy, rivalry and feelings of victimisation. This resulted in a shift from a flat

decentralised structure in which head nurses had taken on powerful positions to a conventional medical hierarchy in which senior physicians once again took up their traditional leading roles.

Several other studies suggest that hierarchy can be negotiated, and that it can indeed shift with time. In a study in a US based health organisation, Satterstrom (2016) collected data for over 31 months, examining how change within hierarchies occurred. These findings suggest that while difficult to change, hierarchies are not static. A range of factors are influential in shifting hierarchy, such as a 'micro wedge' a behaviour which undermines the status quo. A number of further studies detail the way in which hierarchy was negotiated and challenged. In a study that was carried out in two phases, Nugus et al. (2019) showed how providing feedback about workplace communication and hierarchy shifted health worker's perceptions. While nursing and allied health staff were initially marginalised in decision making, highlighting this fact after phase 1 of the study prompted changes that generated greater participation and resulted in health workers reflecting on their positions and relative power. Several other studies also spoke to how hierarchy was challenged or shifted. Eekholm et al. (2021) suggested that assertive nursing leadership helped to put nursing care on the agenda, making it visible and taking time away from other activities that support the work of doctors, reclaiming time and professional identity. In a study that examined the implementation of a clinical pathway on hierarchical structures within a German surgical department, Ronellenfitsch, Loerbroks, and Schwarzbach (2019), participants felt that it had impacted hierarchical structures, giving staff in lower hierarchical positions more autonomy by providing detailed instructions in relation to care, for example. Another example spoke to how hierarchy may be shifted or challenged. Yuter (2012) describes the relationship between a self-organising 'community of practice' that existed within a hierarchical health organisation in the US. This study speaks to the dynamic and shifting relationship between this non-hierarchical group and the broader organisation, but also shows how such groups can begin to undermine hierarchy, describing how this group "evolved from a small group dealing with basic equity issues to a large body spearheading a major labor organizing effort" (p.117). Finally, Nuttall (2017) provides a case study of one allied health professional's adjustment to working in a dental hospital. Drawing on the concept of relational agency, this study suggests that rather than remaining silent, the participant in question negotiated hierarchical relationships by reading the culture and identifying 'what mattered' for those at the top of the hierarchy. In doing this, they focused on two features of

this culture, namely the “respect for data and the power of the regular departmental meeting” (p. 51). This study speaks to how, with time and tenacity, change can follow.

Several other studies discussed the complexities in navigating hierarchies, not just in their maintenance or how they were challenged. In a study with US health workers, hierarchy was sustained and negotiated through everyday communication and actions. Noyes (2022) suggested that the negotiation of hierarchy is complex. The findings of this study suggest that while some groups more consistently used texts that re-enforced hierarchy, others used texts that both re-enforced hierarchy and challenged it. Context was important here: the makeup of the group where conversations occurred often dictated whether hierarchy was reinforced or challenged and how conversation was used to negotiate a balance of power within these groups. The idea of balancing the hierarchical and non-hierarchical interactions is also present in a UK study that interviewed stakeholders in relation to leadership on quality and safety (McKee, Charles, Dixon-Woods, Willars, & Martin, 2013). While the majority of participants saw a need to shift to ‘new’ and more distributed leadership, this was seen to need to be “balanced and complemented by direction-setting at a national and unit level; hierarchical approaches most commonly characterised as ‘old’ leadership are thus seen as having an enduring and useful role” (p.17). Similarly, after shadowing health workers in a US hospital, DiPalma (2004) found that hierarchy also played a positive and productive role, namely that at times it provided “a degree of stability and set a tone of general respect for others” (p.299). Challenging the position that hierarchy was always negative and that it was either re-enforced or opposed, this study concluded that “the labyrinthine working relationship between physicians and nurses is not a simple two-point hierarchical discourse—a game where one player is all powerful and the other entirely submissive” (p.297). This relationship is complicated by a range of factors, including context, institutional expectations and culture, expertise and gender, to name a few interactive factors. Starting from a similar position, that hierarchy is not just “a matter of subjugation” (p.2) but something that is complex, dynamic and ambiguous, Hindhede and Andersen (2019) suggest that in a Danish hospital this was achieved both through containing and cultivating ambiguity in relation to professional hierarchies. Together these studies speak to the resilience of hierarchy being difficult to untangle and shift, and how bureaucracy resists change and self-corrects with time.

Discussion

Hierarchy had wide-reaching impacts on the delivery of health services and health workers, with substantial effort utilised in navigating and negotiating it on a day-to-day basis. One particularly pervasive impact that was widely documented related to hierarchies impact on communication.

While many studies spoke about how hierarchy limited the incentive of low-powered healthcare workers to voice their opinions, its impact on communication was far more complicated. Hierarchy not only shaped action and communication, it dictated and shaped what was acceptable to say, by whom and at what time. That is, hierarchy was not only a process, but a structure (Ferguson, 1984), and rigid hierarchical structures foster "the particular styles of thinking and knowing" as they "expedite certain kinds of activities, possibilities and inspirations and dissuade and divert others" (DiPalma, 2004, p.299). A further thing that stands out from the above studies is that hierarchy created fault lines when it came to communication, whether between or within professions, from those who held power to those with relatively little. Several studies discussed how healthcare workers tailored their communication according to their own and other's position in the hierarchy. There were also broader and perhaps more pervasive impacts, such as the loss of professional identity (Eekholm et al., 2021). Importantly, these findings speak to the influence of broader cultural and organisational factors in reproducing hierarchy and to how hierarchy had pervasive effects across not only teams, but organisations. For example, hierarchy did not only impact communication in what is said or how this was negotiated, it shaped assumptions related to action and communications, often implicitly. Also present within our findings is the broader influence of professional, organisational and even societal culture in shaping organisational hierarchy and how it was negotiated. These findings are consistent and have parallels with the broader literature that speaks to how health and medical students are subtly socialised to conform to hierarchical norms, beginning in training (Colenbrander et al., 2020; Lempp & Seale, 2004). While a number of studies indirectly mentioned the aversive by-products of hierarchy, such as bullying, it is clear from the above results how certain hierarchies could enable such behaviour. Another outcome that was present in the literature related to the personal costs of hierarchy, with studies reporting fear, envy, rivalry, and anxiety amongst a range of other impacts that could be, at least partially, attributed to hierarchy.

The above findings also detail the complex ways in which hierarchy was negotiated, challenged and reproduced. A range of communication strategies and interventions were detailed. As a whole, while these results further speak to the observation that the negotiation of hierarchy was dynamic, it was also relational and on the whole, notoriously difficult to shift. In saying this however, several studies provided case studies of how organisational hierarchy was challenged and in some cases shifted over time. Importantly in considering the relational and dynamic nature of hierarchy, these results spotlight the importance of taking an intersectional approach, namely that hierarchy should not be reduced to differences between or within the professions. A number of studies spoke to the impact that hierarchy had on sustaining gender and ethnic inequalities, maintaining historically discriminatory practices.

Importantly, it should not be assumed that hierarchy is solely restrictive or negative. A small number of studies reported on the more positive impacts that hierarchy had. This has been noted in the literature previously, for example, Bunderson et al. (2016) distinguishes between contrasting forms of hierarchical vertical differentiation, including centralised or steep hierarchies characterised by '*inequality'* and hierarchies involving *'acyclicity'*, an open chain cascade of top-down influence between successive pairs of individuals. This work highlights the functional benefits of relational connectedness within 'hierarchy-as-acyclicity' in comparison to the dysfunctional conflict and demotivation associated with 'hierarchy-as-inequality'. These acyclical hierarchical processes are reflected in the study by Klein et al. (2006, p.590) speaking to the vital importance of a "hierarchical, deindividualized system of shared leadership" for complex, highly challenging situations such as teams in emergency trauma care. A number of other studies spoke to how participants recognised the negative impact of hierarchy, however they continued to tacitly accept it, in their actions and language. Within the broader level of healthcare organisations, specialist sub-structures such as high risk rapid response emergency teams may need to develop dynamically adaptive forms of hierarchy that may operate like silos (or 'swim lanes') within the wider organisation. These can be both vital and highly successful in meeting important patient-centred operating targets, as in the example provided by Klein et al. (2006). However, at the broader healthcare organisational level, as Walston and Johnson (2022, p. 381) observe: "Traditional functional structures that cluster like professions in departments often block … information flows and create "silos" that

can impede good decision-making. Silos separating people and work areas increase the risk of errors and harmful choices. The viability and strength of a healthcare organization depends on the confluence of culture, behaviors, practices, and a supporting organizational structure that provides excellent governance, decision-making, and direction". As Launer (2022, p.58) comments from his extensive experience in reflective medical practice and multi-professional healthcare, 'the whole is more than the sum of its parts', in terms of the overall healthcare organisation.

While this review identified 32 studies, there is substantial scope for further research exploring hierarchy, both within healthcare organisations at a macro level, and at meso/micro levels. The picture at present, paints a somewhat fragmented, complex and variegated picture, requiring more holistic approaches that engage with broader organisational and cultural factors that shape hierarchy within healthcare settings. There also appears to be a need to engage with the more positive or at least necessary aspects of hierarchy, squaring these with its more negative aspects, along with how these could be minimised. Finally, there also appears to be scope to learn from healthcare organisations where hierarchy is deliberately minimised. Such case studies could provide important insights for more orthodox healthcare settings, along with how hierarchy and its more pervasive negative influences could be minimised.

Limitations

There are several limitations worth noting as they related to this paper. This paper did not include students. There are studies that detail the particularly alarming influence of hierarchy on issues such as bullying and humiliation of medical and nursing students. Further insights about hierarchy could be gained by reviewing this literature. While there is inevitably some overlap in the studies included above, this review primarily focuses on hierarchy from a macro organisational perspective, and therefore a vast amount of work on healthcare teams and teamwork was not included for this reason. The search that was conducted also had several limitations. While this paper is comprehensive, and is consistent with widely utilised guidance, it can only account for papers which explicitly examined hierarchy. That is, we did not search for terms like bullying, status, teamwork or leadership, nor would it be possible to include this broader literature in this review. For this reason, caution should be exercised in interpreting the

findings of this review: there is likely to be far more evidence available that speaks to the impact of hierarchy in healthcare, albeit indirectly.

Conclusions

This paper carried out a scoping review to collate and analyse the qualitative literature on hierarchy in healthcare organisations with a focus on macro-level perspectives, to explore its impact for healthcare workers and examine how it is negotiated, sustained, and challenged. Hierarchies are pervasive across human organisations: their structures vary from centralised to dispersed, steep to flat, and rigid to dynamic. Hierarchical management structures are present within almost all highly complex healthcare organisations. The functional benefits of hierarchies for effective performance and decision-making in complex organisations can, however, be outweighed by the high cost of inequalities of status, authority, and power, and their resultant negative effects relating to bullying, discrimination, conflict and demotivation. There is therefore a need to investigate hierarchy in healthcare at macro, meso and micro levels, to form a complete picture of how healthcare organisations deliver health services.

Conflicts of interest

The authors declare no conflicts of interest.

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Supplementary material

Detailed methodology

Inclusion/exclusion criteria

Studies were included if they:

- Examined social or professional hierarchy as it existed within healthcare organisations and were carried out in clinical settings or the context of patient care. A broad definition of healthcare organisations was applied, building on the prior work of Vaughn et al. (2019: 75) to include "ambulatory, subacute, acute, emergency or intensive care settings in any private or public institution".
- Primarily focused on the impact of hierarchy on healthcare workers.
- Were primary research, utilised a qualitative or mixed methodology, and had extractable data

Studies were excluded if they:

- Focused on other forms of hierarchy, for example hierarchy related to treatment, evidence, statistical analysis, supervision or values. Studies that referred to broader social or cultural hierarchy as it existed outside of healthcare settings were also excluded.
- Utilised simulation or were carried out in non-clinical settings
- Sampled students (i.e. nursing or medical students for example)
- Primarily focused on the impact of hierarchy on patient outcomes
- Had no extractable data; articles such as opinion pieces, analysis or theoretical papers
- Were written in a language other than English

Search strategy

Search terms were developed to capture the key concepts of interest in this review. Several preliminary searches were carried out to determine the best combination of terms, that would

provide adequate coverage of the literature and return a manageable number of results. Through these preliminary searcher several terms were also explicitly excluded, these related to hierarchical statistical analyses and uses of the term hierarchy that were not the focus of this paper (e.g., Maslow's hierarchy of needs). The final search terms were as follows: hierarch* AND doctor OR physician OR clinician OR "medical practitioner" OR nurs* OR "health profession*" OR healthcare OR "health care" OR pharmac* OR dentist OR midwi* OR dieti* OR therap* OR paramed* OR physiotherap * OR radiograph* OR Radiolog* OR surg* OR psycholog* OR "health worker" OR hospital OR paramedic OR ambula* OR Carer OR "operating department practitioner" OR "art therap*" OR "biomedical scien*" OR chiro OR podiatry* OR "clinical scien*" OR dietician OR "occupational therap*" OR orthoptists OR "speech and language" OR "physical therap*" AND NOT "hierarch* multiple" OR "hierarch* multivariable" OR "hierarch* multi-variable" OR "hierarch* cluster" OR "hierarch* linear" OR "hierarch* regression" OR "hierarch* mixed" OR "hierarch* analysis" OR "evidence hierarchy" OR "hierarchy of evidence" OR maslow OR maslow's OR "hierarch* diagnos*" OR "analytic hierarchy" OR "hierarch* logistic" OR "hierarch* mixed" OR "hierarch* analysis" OR "hierarch* multivariate" OR "hierarch* modelling" OR "hierarch* Bayesian" OR "hierarch* logistic"

Search results

A search was carried out on 28/07/2022 utilising four search databases: Medline, PsycInfo, CINAHL and Scopus. The search returned 3,141 results. These were exported to Rayyan (Ouzzani, Hammady, Fedorowicz, & Elmagarmid, 2016), where duplicates were removed and first and second screening was carried out. After duplicates were removed there were 2,296 articles remaining. A title and abstract screen were carried out by JK and DM, which left 229 articles. A full text screen was then carried out by JK, DM and RE. Each paper was screened twice, and the team met to resolve any disagreements. This left 27 papers that were included in this review. The reference lists of these papers were also searched. A further 39 papers were screened, with 5 included, leaving 32 papers in this review. A summary of this process is outlined in a PRSIMA flow diagram (Figure 1).

Data extraction

Data was extracted from included papers related to the studies' aims, country in which the study was conducted, sample, methodology employed and study outcomes. Data was extracted by RE and checked by all authors. A summary of this is included in table 1.

Data analysis

Given the nature of the papers that were included and the types of concepts in question, we utilised a narrative review. This is an approach which offered us flexibility in how we analysed and arranged our results (Dixon-Woods, Agarwal, Jones, Young, & Sutton, 2005). We present a brief descriptive overview of these studies below and then a narrative review of our findings for each of our research questions.

PRISMA flow diagram