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It depends who you ask: Divergences in staff and external stakeholder narratives about the causes of a healthcare failure

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Abstract

Investigations of institutional failure in healthcare typically use staff narratives to identify the cultural factors contributing to the incident. But, to what extent can staff, who are embedded in the culture and who were part of the failing, reflect on and report on the culture? We investigate this by comparing 40 witness statements from staff and 53 witness statements from patients and relatives collected by a public inquiry into a major UK healthcare failure (*Clostridium difficile* outbreak). Through quantitative text analysis, we found that, while staff and external stakeholders both recognised problems in care, they diverged on the factors considered paramount. Staff emphasised underlying factors such as under-resourcing and training (causal culture), while patients and relatives emphasised corrective behaviours such as communication for identifying and taking precautions against the spread of *C. difficile* (corrective culture). The results indicate that patients and relatives may be able to report on cultural factors that staff do not report or are unaware of, thus allowing a more complete analysis. Even in light of an institutional failure, staff may have incomplete accounts of the contributing cultural factors, with implications for learning and postincident improvement.

KEYWORDS

corrective culture, healthcare failure, organisational culture, patient perceptions, public inquiry

1 | INTRODUCTION

An institutional failure is 'a physical, cultural and emotional event incurring social loss, often possessing a dramatic quality that damages the fabric of social life' (Vaughan, 1999, p. 292). Institutional failures in healthcare, for example at Mid Staffordshire NHS Foundation Trust (Francis, 2013) and Bristol Royal Infirmary (Kennedy, 2001), typically involve widespread patient harm due to systematic safety problems in healthcare delivery. Turner's (1978), Turner and Pidgeon (1997) seminal work on explaining 'man-made disasters' theorises organisational culture to play a crucial role in such incidents, with problematic norms and behaviours accounting for the causes of failure (e.g., normalising risk-taking) and their lack of prevention (e.g., dismissing whistle-blowers).

Turner and Pidgeon (1997) posited that, after a disaster, the 'general perception of all of the discrepant events' that led to failure 'will be changed' as the event demands people's reinterpretation (p. 75), with this eventually catalysing efforts for a complete 'cultural readjustment' (p. 83). Yet, as revealed by the recurring nature of institutional failures with similar causes in the UK National Health Service, culture change in healthcare can be challenging after a severe incident (Goodwin, 2019; Walshe & Higgins, 2002). According

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to Turner and Pidgeon (1997), a potential barrier to culture change after failure is 'disagreement which prevails among groups about the effectiveness of any new precautions adopted' (p. 77). This observation is pertinent to healthcare, where research on medical errors shows that healthcare staff, and patients and relatives (henceforth sometimes: external stakeholders), can have quite divergent narratives on the causes of an incident, with patients and relatives reporting on cultural problems that staff do not observe or find difficult to report on (e.g., ignoring safety concerns, not following procedures) (Reader & Gillespie, 2021). Extrapolated to the level of organisational failure, such work indicates that a potential barrier to learning from severe incidents in healthcare may be a lack of recognition, within organisations, for the cultural factors that contributed to harm. We investigate this idea in the current study by using advances in automated text analysis to undertake a comparative analysis of staff and external stakeholder (patients and relatives) witness statements given to a public inquiry on a major safety failure in five hospitals in Northern Ireland within a Health and Social Care (HSC) trust (HSC refers to Northern Ireland's public healthcare system). We suppose that divergences in accounts of the cultural factors that precipitated the failure may reveal gaps in the knowledge and understanding of healthcare staff for the norms and behaviours that require change within their organisation. We examine whether cultural factors that are identified by patients and relatives as important in contributing to failures in healthcare organisations can go unrecognised by staff, with this being potentially detrimental for subsequent efforts of culture change. There have been various public inquiries into healthcare failures within the United Kingdom over the past 30 years (e.g., Bristol Heart Inquiry, Mid-Staffordshire Inquiry). We selected the Northern Trust Inquiry as our case because of the balanced number of witness statements available for healthcare staff and external stakeholders, combined with the fact that it involved patient and relatives' experiences with a range of healthcare staff over time.

2 | INSTITUTIONAL FAILURE, ORGANISATIONAL CULTURE AND LEARNING IN HEALTHCARE

Turner's (1978) and Turner and Pidgeon's (1997) model of 'man-made disasters' has had a profound impact on how social scientists explain and investigate institutional failures, and is especially useful for understanding the factors underlying healthcare failures (Macrae, 2014). He demonstrated that disasters are often 'incubated' in organisations, whereby cultural norms relating to recognising risks, mitigating threats (e.g., improving procedures, good communication), being cognisant of failure, and decision-making trade-offs mean that hazards are unheeded, played down and ignored. This can lead to management holding a 'blinkered, unrealistic view of their organisation, its operations, its environment and its vulnerabilities' (Turner, 1994, p. 217), resulting in clear dangers not being addressed, and rendering organisations susceptible to failure.

Subsequent models have developed Turner's ideas, and, in particular, have placed organisational culture at the centre of explanations for why institutions fail (Reason, 1990; Roberts et al., 2001; Westrum, 2004). Organisational culture refers to the common ways in which people of an organisation understand the world (e.g., in terms of values, beliefs) and behave accordingly (Chatman & O'Reilly, 2016; Schein, 1984; Schneider et al., 2013). There is lack of agreement regarding what dimensions of culture are relevant, particularly in a healthcare context (Scott et al., 2003). For example, Mannion et al. (2005) report that hospital performance differentiated on the four cultural dimensions of: leadership style, lines of accountability, recruitment strategies and quality of relationships with community and stakeholders. Sorra and Dyer (2010) measure culture on 12 dimensions, including: openness of communication, response to error, continuous organisational learning and teamwork. A scoping review by Williams et al. (2015) identified five factors of organisational culture that impede the adoption of evidence-based practise, including: high workloads, colleagues' lack of support, lack of access to relevant research, feeling unable to achieve change or be listened to and a cultural unwillingness to accept change. Flin (2007) finds that healthcare research repeatedly highlights four factors of safety climate from other contexts, including: 'management commitment to safety, supervisor commitment to safety, safety system and work pressure' (p. 662). As these examples demonstrate, models for explaining incidents in healthcare tend to focus on both the practices that are directly 'causal' to incidents (e.g., lack of teamwork, poor management, perceptions of safety), or the absence of 'corrective' actions for detecting, raising and correcting the causes of incidents (e.g., incident reporting, resolving poor conduct) (Hald et al., 2021).

To avoid future institutional failures in healthcare and other domains, a common response is to undertake post-hoc investigations of the contributing cultural factors. The idea is that, after a major failure, the cultural problems that contributed to the event can be unmasked, forming a solid platform for learning and change. This follows the principles of double-loop learning (where a rupture forces organisations to modify their assumptions) (Argyris, 1982), whereby data are collected after an incident to inform learning and culture change within an organisation or industry (Hopkins, 2006). However, narratives of why an institutional failure occurred can themselves be shaped by the cultural factors that contributed to the event (Gephart, 1984). For example, through the diffusion of responsibility, concerns over blame and lack of insight on interdependencies within the organisation. This can limit the extent to which an organisation identifies and understands the cultural problems that contributed to failure, and is willing to address them (Elliott, 2009; Elliott & Smith, 2006).

Failing to understand the factors involved in failure are evident in healthcare, where major safety failures have been found to repeatedly occur within the same system (Walshe & Higgins, 2002). For example, in the United Kingdom, 13 public inquiries have been undertaken into major healthcare scandals since 1990 (see Norris & Shepheard, 2017). Examples include public inquiries into failings of care at Mid Staffordshire (Francis, 2013), Bristol Royal Infirmary (Kennedy, 2001)

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and Morecambe Bay maternity services (Kirkup, 2015). A common feature in these inquiries is the apparent lack of recognition within organisations of the cultural problems that led to failure (e.g., normalisation of unsafe practices), their similarity with past events and lack of learning from these (e.g., ignoring whistle-blowers), and the need for change within the healthcare system to prevent future occurrences (e.g., improving incident reporting).

A potential challenge for healthcare organisations in adapting after a major incident is that cultural factors involved in the failure may be difficult for staff and managers to observe or acknowledge, resulting in them being hard to subsequently address and change. Emphasising this, research on medical errors has shown that, oftentimes, external stakeholders observe cultural problems that led to an incident that are not recognised by healthcare staff (Reader & Gillespie, 2021). External stakeholders are found to observe and report on problems that are not apparent or significant to staff (e.g., ignoring concerns, missed opportunities for preventing harm), and because they tend to be less concerned with institutional retribution (e.g., in terms of staff hierarchies), and are independent of the tacitly-accepted norms that can underlie errors (e.g., for rule violations), can freely report on behaviours and attitudes that contribute to unsafe care (Gillespie & Reader, 2018). Although the validity of external stakeholder narratives on healthcare failures has been questioned, and are often not learnt from, they are increasingly recognised as valid and important for identifying instances and causes of unsafe care in hospitals (Francis, 2013; Waring, 2009). Extended to the level of institutional failure, the above observations are significant, because they reveal that, when reflecting on institutional failures, healthcare staff may not recognise or accept some of the cultural factors that contributed to an event or permitted safety problems to go unprevented. According to Turner (1978), this may have important implications for organisational learning, with fundamental change within healthcare organisations being challenging if the cultural problems that precipitated a safety failure are not recognised or accepted.

In the current study, we investigate the idea that healthcare organisations may develop partial or incomplete accounts of the cultural factors involved in institutional failure through comparing staff and external stakeholder narratives of their experiences of a major safety incident within the HSC. Given the recurring nature of institutional failures in public UK healthcare services, and the similarity of cultural factors that precipitate them despite efforts to enact change (Goodwin, 2019), our aim is to investigate the degree to which cultural factors identified by patients and relatives as important for understanding hospital failures, and requiring change (e.g., defensiveness, lack of incident reporting, not responding to safety problems), are evident in witness statements from staff.

3 | CURRENT STUDY

To investigate and compare staff and external stakeholder narratives on the cultural factors involved in major failures in healthcare organisations, we analyse witness statements submitted to a public inquiry. In the United Kingdom, major failings in public institutions are typically investigated through a public inquiry (see Norris & Shepheard, 2017). A public inquiry considers a large amount of evidence, and the collection of written witness statements from those involved is an important part of this process. A witness statement is a written account of experiences and events relevant to an inquiry which may be written alone or taken by a solicitor. As such, witness statements are a useful data source for examining how the people involved in a failure understand it, and in the current study, we apply a natural language processing (NLP) methodology to witness statements given to a public inquiry into the outbreak of *Clostridium difficile* infection (CDI) between June 2007 and August 2008 at Northern Health and Social Care Trust (henceforth: NHSCT or the Trust) (Hine, 2011). *C. difficile* is a bacterium which causes a painful and life-threatening infection of the large intestine (see Leffler & Lamont, 2015). An outbreak of CDI was declared at the Trust on January 7, 2008, involving five hospitals (Whiteabbey, Moyle, Mid-Ulster, Braid Valley and Antrim) and causing 31 patient deaths (Hine, 2011).

Our analysis examines whether healthcare staff and external stakeholders (i.e., patients, relatives) diverge on the cultural problems they emphasise when describing their experiences of a major safety failure in public healthcare. A comparison of the cultural factors invoked by staff and external stakeholders in their witness statements to a public inquiry has not been conducted before. Indeed, public inquiries typically try to aggregate the evidence to understand what went wrong, and this can involve resolving conflicting witness evidence (Brown, 2004). However, conflicting witness evidence from staff and external stakeholders could indicate an incompleteness in how staff understand organisational culture to have contributed to a failure. While the 'truth' of what happened may lie in the intersection between them, it is also possible that both accounts are incomplete, and thus, like separate parts of a jigsaw, the truth lies in piecing together both accounts. Crucially, however, for hospitals to learn after a failure, it appears especially important to identify any knowledge gaps amongst hospital members for the cultural factors that precipitated an incident (Edmondson, 2004).

To analyse and compare the witness statements of healthcare staff and external stakeholders, our analysis uses a framework of the common cultural factors that contribute to institutional failures (Hald et al., 2021). Built on an analysis of 74 academic case studies in different domains, the framework defines 23 distinct cultural factors identified as underlying institutional failures, with these being broadly grouped into two classifications: *causal factors* that can lead to a failure (e.g., organisational priorities, lack of planning, provision of training), and *corrective factors* that can prevent problems being resolved (e.g., whistle-blowing, listening). Usefully, the causal/corrective distinction offered by this model appears to map onto the different aspects of healthcare valued by staff (e.g., competency) and external stakeholders (e.g., reporting errors, communication) (see Anderson et al., 2007; von Essen & Sjodén, 1991; Pollock et al., 2004).

We use the causal/corrective framework as a systematic way to investigate the extent to which staff and external stakeholders

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diverge in their understanding of the cultural problems in the CDI outbreak at NHSCT. Methodologies for comparing the perspectives of groups have proved challenging to develop (Gillespie & Cornish, 2010). We utilise an innovative NLP methodology because people's cultural values, beliefs and assumptions are distributed in their language use (Schall, 1983). Specifically, NLP assumes that linguistic features of people's communication (e.g., sentiment, lexical diversity) can provide insight into their beliefs, emotions and other psychological phenomena (e.g., Pennebaker et al., 1997, 2003). We think of NLP as revealing underlying themes and assumptions that both come across in explicit statements about culture (e.g., they didn't care about safety), and also in more implicit references or behaviours (e.g., passing references to errors). An emerging body of research shows the application of NLP to the measurement of culture (Li et al., 2021; Pandey & Pandey, 2019). NLP is highly reliable because coding is automated. It is also a novel technique for studying safety. Using this methodology, we ask the following research questions (RQs).

RQ1. First, what cultural factors do staff and external stakeholders respectively refer to more frequently in their narratives about the outbreak? We test for discrepancies in the cultural factors mentioned most frequently by each group on the basis of differences in staff and external stakeholders' social roles (i.e., at the providing- vs. receiving-end of care), normative frameworks (i.e., staff share a common organisational culture), and potential response biases. Specifically, we expect that external stakeholders, who observe and engage with the organisational culture, yet are independent of it, will focus more than staff on cultural problems at the sharp end of care delivery that may be sensitive and difficult for staff to recognise or report on.

RQ2. Second, do discrepancies in the narratives of staff and external stakeholders respectively coalesce around the dimensions of causal and corrective culture put forward by Hald et al. (2021)? Previous research suggests that staff value causal aspects of culture, such as teamwork (Galletta et al., 2016) and management style (Sellgren et al., 2006), which—where problems occur (e.g., poor coordination between teams, inappropriate management style)—can create conditions conducive to failure. External stakeholders, on the other hand, tend to emphasise corrective aspects of culture such as communication and listening (Anderson et al., 2007; Jagosh et al., 2011) which involve surfacing the problems of causal culture (e.g., lack of training) and ensuring they are corrected (e.g., training programme improved). Where corrective factors of culture are misfunctioning, the problems of causal culture persist and could lead to an additional failure even after one failure has come to light (i.e., an outbreak) such as not taking all the actions to resolve it (Hald et al., 2021). Accordingly, we expect that staff and external stakeholders will respectively focus more on causal and corrective cultural problems, with this being measured through their usage of keywords related to each dimension in their witness statements.

4 | METHODS

4.1 | Data collection and preparation

A total of 93 written witness statements (total words = 220,505) provided by staff (n = 40 witness statements, total words = 105,045) and external stakeholders (n = 53 witness statements: 43 from relatives and 10 from patients; total words = 115,460) in relation to their experiences of the CDI outbreak at NHSCT were downloaded from the UK Government Web Archive's (2011) website of the Public Inquiry into the Outbreak of Clostridium Difficile in Northern Trust Hospitals that was archived on August 10, 2012. As Hine (2011) outlines, witnesses to the Inquiry were directed in their witness statements by set themes, derived through an open-ended questionnaire (the same for both staff and external stakeholders) prefaced as seeking to understand 'how [individuals affected] wish to speak to the Inquiry' (Hine, 2011, p. 206). Questions in the questionnaire included:

- 'Please […] tell the Inquiry how were you affected by the outbreak of *C. difficile* infection in Northern Health and Social Care Trust hospitals, June 16, 2007–August 31, 2008'.
- 'From your experience, is there anything you think should be done differently in the event of *C. difficile* [*sic.*] infection in hospital?'
- 'Please use the box below to tell the Inquiry if there is anything you want to know'.
- 'If there is anything else you wish to tell the Inquiry Panel please use the box below' (Hine, 2011, pp. 208–210).

The Inquiry Panel synthesised the information provided in questionnaires and meetings with witnesses to determine 'common themes for further exploration' (Hine, 2011, p. 2).

Supporting evidence attached to witness statements which was not written in the first-person and therefore not an extension of the witness statement (e.g., letters sent/received, copies of policies) were excluded. We included only two of nine supplementary witness statements (both from staff) because they elaborated or clarified the original witness statement. Although staff and external stakeholders wrote their witness statements to different themes, these themes were the outcome of open-ended questionnaires and meetings, and witnesses could comment outside the themes if relevant to the inquiry (Hine, 2011).

4.2 | Preprocessing of witness statements

Witness statements were prepared for analysis in the R programming language (R Core Team, 2020) using quanteda, which is an R package for NLP (Benoit et al., 2018). This involved converting letters to lowercase and removing stopwords (e.g., 'and', 'this'), punctuation, URLs, symbols and terms which combined letters and numbers. We also removed multiword phrases which interfered with the analysis (e.g., 'blood pressure' obscured references to resources, see Table A1). After preprocessing, total words remaining for analysis were 95,674.

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4.3 | Text analysis of witness statements

4.3.1 | Dictionary analysis and culture model

To measure divergences in staff and external stakeholder narratives about the aspects of the culture they experienced in the outbreak, we conducted a dictionary analysis using quanteda (Benoit et al., 2018). Dictionary analysis involves identifying the frequency with which a phenomenon features in a communication by counting the frequency of keywords indicative of that phenomenon (see Welbers et al., 2017). Keywords to index organisational culture were based on factors of causal and corrective culture identified by Hald et al. (2021) (see Tables 1 and 2). This model was chosen as one systematic way to investigate culture in healthcare failure. To ensure their relevance to the outbreak, keywords to index Hald et al.'s (2021) cultural factors were developed through repeat readings of the witness statements (UK Government Web Archive, 2011).

4.3.2 | Validating dictionary features and the analysis

It is important to validate the results of quantitative text analysis because data are coded automatically (Grimmer & Stewart, 2013). We checked the dictionary manually using quanteda's keywords-in-context function to examine each dictionary keyword within a window of text (e.g., 15 words). We did not lemmatise words because their inflection was often important for the dictionary's construct validity.

4.3.3 | Modifications to Hald et al.'s (2021) model

'Bullying', 'disbelief', 'homogeneity', 'rhetoric' and 'role-modelling' were excluded because suitable keywords could not be developed. 'Speaking-up' and 'speaking-up system' were changed to *communication* to better capture informational issues in the outbreak. Keywords related to hospitals' *physical environment* were separated from *resources* for greater parsimony, but we combined 'resources' and 'satisfaction' (pertaining to stress and morale) due to conceptual overlap. 'Management' and 'supervision', as well as 'regulation' and 'external environment', were combined because of overlap in relevant keywords. Finally, we renamed 'procedure' as *procedural adherence* to better distinguish it from *training and policy*.

4.3.4 | Procedure

To address RQ1, we first calculated the number of references in each witness statement to each of the 15 cultural factors. We divided these frequencies by the total number of words in each witness statement to derive a percentage of text about the different factors of culture for each witness statement. To identify where there were differences in the cultural factors focussed on by staff and external stakeholders, we used Wilcoxon rank-sum tests (Wilcoxon, 1945) to test whether staff and external stakeholders differed significantly in the median percentages of text in their witness statements about any cultural factor. In answer to RQ2, we combined the dictionaries for cultural factors according to whether they are causal or corrective, and thus calculated the number of references to each cultural dimension. These frequencies were divided by the total number of words in each witness statement to derive a percentage of text about causal and corrective culture for each witness statement. To identify a difference in the extent to which staff and external stakeholders focus on causal and corrective culture, we used Wilcoxon rank-sum tests (Wilcoxon, 1945) to test whether staff and external stakeholders differed in the median percentages of text in their witness statements about each cultural dimension. Results are represented with a violin plot created in the R package ggplot2 (Wickham, 2016). A violin plot 'combines the box plot and density trace into one diagram' (Hintze & Nelson, 1998, p. 181).

5 | RESULTS

5.1 | Descriptive findings

5.1.1 | Word counts

Witness statements from staff and external stakeholders were on average 1248.65 (SD = 988.3) and 869.4 (SD = 694.9) words long, respectively. This represents a significant difference ($W = 744$, $p < .05$) and indicates that staff may provide more content about healthcare failures.

5.1.2 | Sentiment of statements

We applied Young and Soroka's (2012a, 2012b) Lexicoder sentiment dictionary to the witness statements in quanteda after applying Luxon's (2017) preprocessors. We found that staff were significantly more positive in sentiment than patients and relatives ($W = 392$, $p < .001$). This difference is probably an outcome of the difficult experience of CDI on external stakeholders, but could also indicate staff's optimism regarding learning after the outbreak.

5.1.3 | Lexical diversity of statements

Using quanteda (Benoit et al., 2018), we found that staff were significantly less lexically diverse than external stakeholders ($W = 1379$, $p < .05$). The higher diversity of words used in external stakeholders' witness statements indicates they are informationally rich for understanding healthcare failure.

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TABLE 1 Dictionary terms to index Hald et al.'s (2021) causal factors of culture in failure with adapted definitions.

Causal factors	Definition	Dictionary terms
Change	Change in the organisation	'amendment*', 'ceas*', 'changes', 'closure', 'continuit*', 'evol*', 'expan*', 'merg*', 'modernisation', 'modif*', 'proposal*', 'reconfig*', 'redesignat*', 'replaced', 'reorgani*', 'restructur*', 'upgrad*'.
External environment	External factors including legislation, politics, media coverage and regulation	fund, funds, funded, funding, government*, kingdom, legislation, media, minister, politic*, regulation, uk.
Management & supervision	Quality of management and supervision	'assur*', 'audit*', 'backing', 'board', 'ceo*', 'chief', 'delegat*', 'direction*', 'directive*', 'director*', 'enforc*', 'ensur*', '*executive*', 'governance', 'lead*', 'management', 'mandated', 'monitor*', 'oversee*', 'oversaw', 'senior*', 'supervis*'.
Physical environment	The physical environment of hospitals (e.g., cleanliness)	'basin*', 'bathroom*', 'bedded', 'chairs', '*clutter*', 'cramped', 'crowded', 'dust', 'dusty', 'en*suite', 'equip*', 'facility', 'facilities', 'filth*', 'floor*', 'linen*', 'mattress*', 'mop', 'mops', 'odour*', 'overcrowd*', 'pillow*', 'screen', 'screens', 'sheets', 'sink*', 'smell*', 'space*', 'spillage*', 'stain*', 'syringe*', 'tidiness', 'toilets', 'towel*', 'untidy*'.
Planning	Planning of care and for the future	'agenda*', 'chao*', 'designed', 'developing', 'milestone*', 'plan*', 'preparation*', 'standardi*', 'strateg*', 'sustainab*'.
Priorities	Organisational priorities, particularly those focussed on financial performance	'achiev*', 'business*', 'challenges', 'challenging', 'cost*', 'deliver', 'delivering', 'expenditure*', 'financial*', 'invested', 'investment', 'money', 'objective*', 'overspend', 'performing', 'performance', 'priorit*', 'rate*', 'revenue*', 'savings', 'target*', 'timescales', 'time*frames', 'turnaround', 'turnover*'.
Procedural adherence	Compliance with procedure	'adher*', 'apron*', 'bags', 'breach*', 'careful*', 'careless*', 'cautio*', 'clean*', 'complian*', 'complie*', 'comply*', 'correctly', 'decontam*', 'disinfect', 'disinfected', 'error*', 'glove*', 'handover*', 'hygien*', 'jug*', 'lax', 'laundry', 'measures', 'mistake*', 'misus*', 'mopped', 'precaution*', 'prescri*', 'proper*', 'pruden*', 'safe', 'safely', 'sanitis*', 'scrupu*', 'sterilis*', 'strict*', 'thorough*', 'unattend*', 'uniform*', 'washed'.
Resources	The availability of resources (e.g., suitable staff) and morale	'allocation', 'budget*', 'busy*', 'commitment', 'constrain*', 'consuming', 'cover', 'dedicat*', 'demand*', 'demoralis*', 'demotiv*', 'determination', 'dissatisfaction', 'enthusias*', 'exhausted', 'extra', 'frustration', 'morale*', 'overtime', 'overwork*', 'pressur*', 'ratio', 'ratios', 'resource*', 'shifts', 'shortfall*', 'staffing', 'stress', 'stressed', 'stressful', 'stretch*', 'struggl*', 'supply*', 'supplies', 'uncertainty', 'understaff*', 'work*load*'.
Teamwork	Collaboration and coordination	'agree', 'agreed', 'agreeing', 'chain*', 'collaborat*', 'co*operat*', 'coordinat*', 'disagreements', 'flexible', 'fragment*', 'inflexible', 'joint*', 'mutual', 'partnership', 'shared', 'structure*', 'supported'.
Training & policy	Employee training and protocols in place	'assign*', 'clarity', 'code*', 'competen*', 'designat*', 'educat*', 'expert*', 'guidance', 'guideline*', 'induct*', 'instruction', 'literature', 'manual', 'mentor*', 'module*', 'movement*', 'policy', 'policies', 'prohibit*', 'professionalism', 'procedur*', 'protocol*', 'qualif*', 'refresher', 'regime*', 'responsib*', 'restrict*', 'role*', 'rules', 'skill*', 'standard', 'standards', 'technique*', 'tolerance', 'trained', 'training', 'untrained', 'vigilan*'.

5.2 | RQ1: Staff and external stakeholder references to cultural factors involved in the CDI outbreak

In answer to RQ1, we found that there were major differences in the median percentage of text allocated by staff and external stakeholders to all but one cultural factor. Staff referred more frequently to a majority of the cultural factors ($n = 10$), including, for example: *change* (e.g., the Trust was relatively new), *management and supervision*, *priorities* (e.g., performing efficiently) and *training and policy* (e.g., to care for patients with CDI) (see Tables 3 and 4). This indicates that, after a healthcare failure, staff and external stakeholders diverge on the cultural problems they consider most relevant to understanding the event. While staff invoked a more diverse set of cultural factors, external stakeholders tended to focus on a few cultural factors. These differences could be a product of patients and relatives being at the 'sharp-end' of healthcare (e.g., patients experiencing pain, relatives raising issues) while staff have privileged access to 'back-office' issues (e.g., staffing, teamwork).

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TABLE 2 Dictionary terms to index Hald et al.'s (2021) corrective factors of culture in failure with adapted definitions.

Corrective factors	Definition	Dictionary terms
Communication	Communication about CDI, the outbreak, or other contributing factors	'advice', 'alerted', 'advise*', 'awareness', 'campaign*', 'challenged', 'channel*', 'communicat*', 'circulat*', 'courage', 'dark', 'disseminat*', 'explain*', 'explanation*', 'feedback*', 'forum*', 'honest', 'inform*', 'insist*', 'instructed', 'interact*', 'leaflet*', 'messag*', 'notice*', 'notif*', 'oblivious', 'openness', 'oral', 'phoned', 'promot*', 'queries', 'question', 'questions', 'questioning', 'questioned', 'raised', 'said', 'speak*', 'spoke', 'spoken', 'talked', 'tell', 'telling', 'told', 'transpar*', 'voiced', 'warn*', 'written'.
Learning	Organisational learning from incidents	'analys*', 'data*', 'evaluat*', 'learn', 'learning', 'learned', 'methodolog*', 'questionnaire*', 'research*', 'statist*', 'studies', 'survey*', 'trend*'.
Listening	Listening to concerns	'buzzer', 'dialog*', 'disinterest*', 'dismiss*', 'disregard*', 'fought', 'ignored', 'indifferent', 'listen*', 'refused', 'shout', 'shouted'.
Problem acceptance	Acceptance for cases/severity of CDI, the outbreak, or other contributing factors	'acceptable', 'concern', 'concerns', 'concerned', 'problem', 'problematic', 'unacceptable', 'unusual'.
Problem response	Action taken on a problem	'actioned', 'adapt*', 'adopted', 'adoption', 'allev*', 'amended', 'answer*', 'arranged', 'blam*', 'confirmed', 'confirmation', 'corrected', 'countered', 'counteract', 'defen*', 'defer*', 'deflect*', 'delay*', 'deploy*', 'devis*', 'disciplinary', 'draft*', 'endeavour*', 'escalate', 'escalated', 'evasive', 'implement*', 'interven*', 'introduced', 'introduction', 'issued', 'resolve*', 'resolution*', 'respond', 'response*', 'responsive*', 'revis*', 'reply', 'tackl*', 'willing*'.

Abbreviation: CDI, *Clostridium difficile* infection.

5.3 | Convergences in frequency of staff and external stakeholders' references to different cultural factors

5.3.1 | Acceptance for problems

We found that staff and external stakeholders can converge in their perspectives on a healthcare failure. There were no significant differences in the median percentage of text allocated to the *acceptance* for problems (i.e., *problem acceptance*). It appears that staff and external stakeholders similarly recognised the existence of problems at the Trust. As one staff member stated, 'there was a general feeling in the ward that it was not a normal infection'.

5.4 | Divergences in the frequency of staff and external stakeholders' references to different cultural factors

We found that there were major discrepancies on three cultural factors that external stakeholders mentioned more frequently than staff, including: *communication* ($p < .001$), *procedural adherence* ($p < .001$) and *physical environment* ($p < .001$), in addition to *listening* ($p < .01$).

5.4.1 | Communication

External stakeholders ($M = 3.91\%$, SD = 1.29) made greater reference than staff ($M = 1.98\%$, SD = 1.18) to *communication*. Indeed, this was the cultural factor mentioned most frequently. *Communication*, defined in this context as communication about CDI, treatment, and the outbreak, was indexed by words such as 'told', 'communication' and 'notify'. In some cases, communication from staff to external stakeholders was lacking and this added to the failure: it meant some patients and relatives lacked knowledge of the ongoing outbreak and CDI. As one relative stated, 'I was very shocked to hear that elderly patients were a high risk as I had not been told this by the hospital'.

5.4.2 | Procedural adherence

External stakeholders referred more to *procedural adherence* ($M = 2.25\%$, SD = 1.18) than staff ($M = 1.41\%$, SD = 1.21). This may be understood in terms of the observability of procedure for patients and relatives who are at the receiving end of healthcare procedures. Staff and external stakeholder references to *procedural adherence* were also qualitatively different. While patients and relatives described both procedural compliance and noncompliance, staff references focussed on the importance of safe care, efforts to ensure correct procedure and factors which undermined these efforts. For example, a staff member stated, '[p]atients should be isolated or put in groups so that you can take proper precautions to prevent the spread of the infection'. This difference may indicate that staff may not see or report all problems of procedure.

5.4.3 | Physical environment

Patients and relatives ($M = 0.91\%$, SD = 0.6) referred more to the *physical environment* of the Trust than staff ($M = 0.36\%$, SD = 0.47).

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TABLE 3 Staff and external stakeholder references to causal cultural factors in witness statements in descending order of percentage of text allocated by staff.

Causal factors	Ranking by percentage of text (staff/external)	Staff example reference[a]	External stakeholder example reference[a]	Mean percentage of total words (staff/external)	Wilcoxon statistic (*p*-value)
Management & supervision	1/5	'Targets were always a problem with **management** and they did not want to breach the admission target time in Accident and Emergency of four hours'.	'I thought there should have been some **senior** infection control nurse or manager who could and should have **enforced** the protocol procedure (…)'.	3.38/0.14	13* ($p < .001$)
Training & policy	2/3	'The staff at ward level should have been aware of the contents of the infection control **manual** which was in every ward (…)'.	'I also feel that the staff needed more **education** and information regarding C. difficile and other hospital infections'.	1.99/0.36	125* ($p < .001$)
Procedural adherence	3/1	'Due to the concerns of (…) prolonged, delays in instigating isolation **precautions**, an audit (…) was carried out trust-wide at the end of 2007 and had to be repeated due to the poor response'.	'I would describe the **cleanliness** of the isolation room as pretty poor'.	1.41/2.25	1494* ($p < .001$)
Resources	4/4	'The crux of the matter was inadequate nurse **staffing** levels'.	'They were very **busy** and there never appeared to be enough staff on duty.'	1.32/0.15	90* ($p < .001$)
Priorities	5/6	'The Trust actually performed well meeting almost all **targets**'.	'Consideration needs to be given to the speed of **turnover** of beds and how that may impact infection control'.	0.72/0.01	172* ($p < .001$)
External environment	6/7	'We had requested financial **funding** but it was not forthcoming'.	'**Politicians**, lack of money, inefficient use of scarce resources, these, and many more, can all be blamed but personally I feel that all these can be overcome by using management strategies (…)'.	0.42/0.01	260* ($p < .001$)
Change	7/7	'If the infection control team had been given the full, and clearly evident, backing of management (…) **changes** could have been made much more easily'.	N/A	0.41/0	185.5* ($p < .001$)
Teamwork	8/8	'(…) The IPC team **supported** the staff at ward level on risk assessing patients however some staff at ward level (…) continued to ask the IPC staff to find out their patients' infection risk status (…)'.	N/A	0.39/0	185.5* ($p < .001$)

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TABLE 3 (Continued)

Causal factors	Ranking by percentage of text (staff/external)	Staff example reference[a]	External stakeholder example reference[a]	Mean percentage of total words (staff/external)	Wilcoxon statistic (*p*-value)
Planning	9/6	'The **plan** was then to roll this best practice out across other wards using the flag ship ward as an exemplar of best practice'.	'A formal meeting between the family, patient, consultant and nurse in charge should take place to outline the nursing **plan** for the patient'.	0.36/0.01	339* ($p < .001$)
Physical environment	9/2	'I also felt that the staff were concerned with the level of isolation **facilities** that we had in the Trust'.	'This I know is something which is frowned upon as there could be cross contamination but there were just not enough **chairs** for visitors to sit on (…)'.	0.36/0.91	1623.5* ($p < .001$)

Note: Emboldened words represent dictionary terms.

[a]Excerpts from witness statements were obtained from the archived website of the Public Inquiry into the Outbreak of Clostridium Difficile in Northern Trust Hospitals in the UK Government Web Archive (2011).

*$p < .001$.

The *physical environment* is the most immediate and visible feature of healthcare to patients and relatives, and previous research shows that external stakeholders are perceptive of problems in a healthcare environment (e.g., Muntlin et al., 2006). External stakeholders mainly referred to the availability of chairs, basins and other features of the physical environment. However, patients and relatives also identified circumstances which could be sensitive for staff. For example, one relative stated '[t]he floors were not overly clean and I noticed dust and debris below the beds'. While staff made some references to problems of cleanliness and tidiness, they tended to focus on problems of crowding, space and available facilities. These references were sometimes made in the context of insufficient resources, indicating staff's access to issues underlying the *physical environment*.

5.5 | RQ2: Differences in frequency of staff and external stakeholder references to causal and corrective culture

In answer to RQ2, we found significant differences in the median percentage of text written by staff and external stakeholders about causal factors of culture that can precipitate failure such as inadequate *management and supervision*, *training and policy* and *teamwork* (respectively: $M = 10.75\%$, $SD = 3.01$; and $M = 3.83\%$, $SD = 1.66$; $W = 36$, $p < .001$) and corrective factors of culture that relate to how problems are responded to (respectively: $M = 3.3\%$, $SD = 1.33$ and $M = 4.34\%$, $SD = 1.29$; $W = 1581.5$, $p < .001$; see Figure 1). Staff's focus on causal culture is not surprising in light of its latent nature being more accessible to organisational members. Patients and relatives focussed significantly more on corrective culture (specifically: *communication* and *listening*) and thus on staff's responsiveness to the problems that developed before and during the outbreak (e.g., informing relatives about CDI). These differences must be interpreted with appropriate caution given that witness statements were guided by themes, and the themes guiding staff were more oriented towards causal culture. However, these differences may indicate that the perspectives of staff and external stakeholders on a failure have complementary limitations. Patients and relatives may lack access to the underlying factors which *cause* the problems that they experience, such as the efficacy of the management team and the sufficiency of training given to staff. Yet, patients and relatives, being at the receiving end of care, are typically present when causal factors of culture develop into objective problems (e.g., errors) in the provision of care. As external stakeholders are those typically affected by failings in care, they are also witness to how staff respond to and/or resolve these failings. As corrective culture relates mainly to corrective actions that were not taken by staff, it could be sensitive or infeasible for staff to report on corrective culture. For example, staff may not report failing to act on a mistake because they did not recognise it as a mistake at the time. It could also be difficult to accept one's failure to take action on evidence of a problem. Equally, if external stakeholders were the ones raising a concern, then staff's lack of action would be particularly salient to

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TABLE 4 Staff and external stakeholder references to corrective cultural factors in witness statements in descending order of percentage of text allocated by staff.

Corrective factors	Ranking by percentage of text (staff/external)	Staff example reference[a]	External stakeholder example reference[a]	Mean percentage of total words (staff/external)	Wilcoxon statistic (*p*-value)
Communication	1/1	'The laundry problems were **raised** at many outbreak meetings'.	'We were very disturbed and frustrated by the doctors saying that it was a breach of confidentiality not to give us the **information** as it was our [relative] who was ill'.	1.98/3.91	1875** ($p < .001$)
Problem response	2/2	'This resulted in quick decision-making and timely **resolution** of any perceived barriers to success'.	'Our questions were always **answered** openly and freely by the nurses on duty and we always had access to a doctor'.	0.84/0.17	239** ($p < .001$)
Problem acceptance	3/3	'I first noticed the **problem** in the ward around about October/November 2007'.	'We found this attitude to be **unacceptable**'.	0.28/0.2	887 ($p = .17$)
Learning	4/4	'I felt that any such communication was as effective as it could be, given the range of elements involved and their changing nature over the duration of outbreak based on the **learning** that was being accrued'.	'(…) how can we **learn** lessons for the future?'	0.2/0.01	349** ($p < .001$)
Listening	5/5	'There is open **dialogue** and I have found this facilitative management style conducive to the establishment of a sound working relationship'.	'Her complaints were treated **dismissively** by the staff'.	0.01/0.07	1300* ($p < .01$)

Note: Emboldened words represent dictionary terms.

[a]Excerpts from witness statements were obtained from the archived website of the Public Inquiry into the Outbreak of Clostridium Difficile in Northern Trust Hospitals, in the UK Government Web Archive (2011).

*$p < .01$; **$p < .001$.

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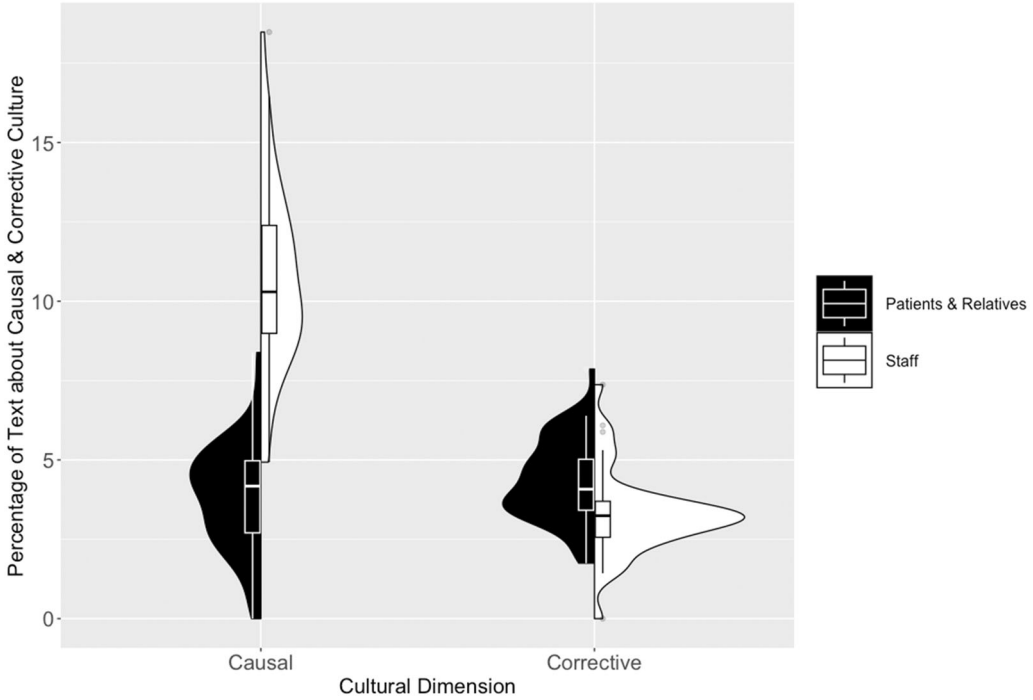

FIGURE 1 Percentages of text about causal and corrective culture in witness statements from staff and patients and relatives.

them. In this way, patients and relatives have a better view than staff of how staff respond to problems, and might be more likely to report these instances.

6 | DISCUSSION

Institutional failures often occur due to problems in organisational culture, and identifying the specific cultural factors underlying a major event is considered essential for understanding how an organisation or industry should change (e.g., Hopkins, 2006; Toft & Reynolds, 2005). However, this study shows that narratives of the cultural problems involved in a major healthcare failure vary according to whether the witness is an organisational member (i.e., staff) or external stakeholder (i.e., patient or relative). This underscores the general social science insight that different groups do indeed perceive events often quite differently, and this is especially true with healthcare staff and external stakeholders when errors have occurred (Reader & Gillespie, 2021). Specifically, an analysis of witness statements provided to a public inquiry into an outbreak of *C. difficile* at a major Trust revealed that staff tended to focus on cultural factors that contributed to the failure (causal culture), while patients and relatives tended to focus on the opportunities to avoid or mitigate the failure (corrective culture). Thus, and consistent with Gephart (1984), our analysis suggests that staff narratives of the cultural factors involved in failure may be selective, with key factors (e.g., not informing patients and relatives about CDI) being less salient for staff. In this way, the results indicate that, immediately after failure, staff may not have complete understanding for the values, beliefs and behaviours which created it. This complicates Turner's (1978), Turner and Pidgeon (1997) model by suggesting that failure may not bring about staff's recognition of all the issues which contributed to it. Consequently, failure may not automatically provide a catalyst for culture change. The cultural factors leading to the failure may still persist after the failure has become publicly recognised. Given staff's focus on causal culture, it may be that healthcare failures are more automatically revealing of causal culture: the underlying factors which created problems in care and safety. This would raise the need for learning initiatives to focus on enhancing staff understanding of corrective culture (i.e., listening to and acting on concerns raised).

6.1 | Understanding why staff and external stakeholders might differ in their perspectives

Explanations for why staff and external stakeholders might see and accept different aspects of hospital culture when accounting for failure, arguably centre around three phenomena: observability, normalisation and social desirability.

In terms of observability, certain aspects of culture are more observable than others. Staff may be able to see more of causal culture, while patients and relatives may be able to see more of corrective culture. This would be because of their different roles in healthcare. Staff have been socialised into the organisation and so have access to the typically latent causal factors of culture (e.g., management). These causal factors are not easily observed by patients and relatives who, by contrast, are at the receiving end of

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care where problems of causal culture eventually arrive. Consequently, patients and relatives are able to observe when failures to correct causal problems occur (i.e., corrective culture). It is comparatively difficult for staff to observe their own corrective culture because it is defined by the patients and relatives at the receiving end of care. It could also be difficult for staff to see and report failings of corrective culture because they may have been discounted by successes of corrective culture, as documented in the Mid Staffordshire public inquiry report (Francis, 2013). Finally, it is possible that staff did not see all the failings of corrective culture because the problems left undetected or unresolved were never defined by staff as having been 'problems' in the first place. Staff see more of the problems across the board than patients and relatives, but it is striking how much less they consider corrective culture problems.

In terms of normalisation, it is possible that divergences in staff and external stakeholder perspectives arose from deviance having become more normalised for staff (see Vaughan, 1996). As organisational members, staff may have seen recurring problems over time that did not result in disaster and thus may have gradually come to see those problems as normal. This could be caused by insufficient resources that would make resolving issues difficult.

In terms of social desirability (e.g., Holtgraves, 2004), failings of causal culture could offer more palatable explanations for staff than failings of corrective culture. This may be owing to the nature of failings of corrective culture which occur, to a large extent, despite evidence that something is wrong. Some corrective behaviours (e.g., communication) are also considered essential components to good care (e.g., Attree, 2001; Fallowfield & Jenkins, 1999). In these ways, social desirability bias could have inhibited staff from reporting failings of corrective culture.

7 | THE IMPLICATIONS OF THIS STUDY

The finding that organisational culture may not immediately be revealed by failure is important because it has four implications for how failure is investigated and learnt from.

First, relying only on staff narratives of the cultural factors underlying healthcare failures may lead to a partial understanding of the contributing problems, which lessens the likely success of efforts to improve the culture and avoid future occurrences. Where possible, patient and relative narratives should be collected to ensure that a full conceptualisation of why an event occurred can be developed.

Second, and for public inquiries into healthcare failures especially, analyses of staff and external stakeholder evidence are often merged to create a single account of why failure occurred. Through their differing narratives of the outbreak, this study demonstrates the value of keeping distinct the contributions of staff and external stakeholders, as their unique perspectives can lead to different cultural factors being identified as involved in failure. These asymmetries are significant, because they may implicitly reveal the deeply ingrained assumptions that contributed to failure, and which may do so again. For example, Weick and Sutcliffe (2003, p. 73) suggest that where a culture has 'blind spots' it 'can entrap hospitals into [...] repeated cycles of poor performance'.

Third, and linked, Turner (1976) supposes that listening to external information is not only important for averting disaster but also important for learning. Outsiders such as patients and relatives can see and raise problems that are not apparent to those within the organisation, and which may challenge the assumptions of staff.

Fourth, the witness statements of staff were more positive in sentiment than the witness statements of patients and relatives. This may indicate that staff have lingering optimism about their culture. Such optimism can be a barrier to learning (Gillespie, 2020). Thus, by providing contrasting and perhaps corrective information, patient and relative narratives can be used to stimulate organisational learning.

8 | LIMITATIONS

This analysis has a number of limitations, and we have clustered these into the four themes below.

First, in relation to analysing the Northern Trust public inquiry. It is not certain to what degree the findings of this case are generalisable to other institutional failures, or would have been repeated in the analysis of a secondary case, and future research may apply the methodology to other relevant settings to examine this. More fundamentally, the analysis is bound by the initial remit of the public inquiry, which was to establish the number of deaths caused by CDI as well as 'to examine and report on the experiences of patients and others who were directly affected by the outbreak, and to make recommendations accordingly' (Hine, 2011, p. 1). This second term of reference was broad in scope, and did not directly apply to the causal and corrective practises relevant to the outbreak: thus, the insights we have drawn on causal and corrective culture emerge from witnesses, through the course of the statements, rather than a directed and reflexive line of questioning within the inquiry to examine these issues. The Inquiry did not examine the factors that caused the outbreak (as this was previously investigated by the Regulation and Quality Improvement Authority), and only examined issues related to management insofar as the experiences of those involved were 'dictated (...) by management action or inaction' (Hine, 2011, p. 1).

Second, in terms of the witness statements themselves, the process by which they were generated also limits the analysis. For example: statements were collected during the inquiry, and staff and external stakeholders therefore had little opportunity to learn from its findings; the focus of witness statements was on experiences, not causes, of the outbreak; and not all those invited to provide a witness statement did so (Hine, 2011). Additionally, the greater focus of patients and relatives on corrective culture may have reflected their lack of opportunity to observe the causal factors contributing to the failure, rather than indicating staff to have had incomplete understanding of how corrective culture contributed to the outbreak. Most crucially, the witness statements of staff and external stakeholders

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were directed by set themes within the inquiry, which were derived inductively through questionnaires and meetings. For example, the final questionnaire item asked: 'If there is anything else you wish to tell the Inquiry Panel please use the box below' (Hine, 2011, p. 210). Thus, although predefined themes guided witness statements, we suppose the above limitation may have been partly mitigated given that the themes directing the inquiry were derived inductively, and created the opportunity to introduce topics beyond the investigation's initial remit.

Third, the text analysis methodology also has a number of limitations. While enabling the quantification of themes within the inquiry, and supporting the qualitative investigation of these, the analysis is bound by the appropriateness of words used to guide the text analysis. We developed and manually verified the keywords that guided the analysis, however, there is the possibility of both human error at this stage (e.g., in identifying words representing corrective culture) and absences (i.e., high-relevance words that were entirely missed), which would have impacted the analysis (e.g., leading to the exclusion of cultural factors for which we could not identify relevant keywords). Additionally, dictionary analysis does not account for the context (e.g., sentiment) in which keywords are used, and sometimes keywords were used in a positive context (e.g., talking about the need for improvements in the future), or multiple keywords that occurred within a single sentence. Lastly, and due to both the structure of the witness statements and the nature of textual analysis, the study does not consider the high prevalence of subcultures in healthcare organisations (Mannion & Davies, 2018) nor the high probability of cultural differences across the five hospitals involved in the CDI outbreak: however, we assume some cultural commonalties given that this represented a majority of the Trust's eight hospitals.

Fourth, there is a conceptual limitation. A more established model of culture could have been applied to analyse the data. We drew upon the causal and corrective culture model because the two dimensions correspond to the internal and external perspectives we were comparing, with the causal factors being internal to the organisation and the corrective factors often assumed to go outside the organisation to involve external stakeholders.

9 | CONCLUSION

Establishing a robust corrective culture in healthcare organisations is arguably a priority as it assures that institutional failure is prevented in time (Hald et al., 2021). Yet, and as this study may indicate, failings of corrective culture such as disregarding information and not relaying concerns, may not be seen or reported by healthcare staff after failure. This is evident in the finding that patients and relatives refer significantly more frequently to corrective culture in their narratives of a failure than staff. Patient and relatives' greater focus on corrective culture is understandable because failing to make a correction is more salient to those who experienced the failing (i.e., patients and relatives) than those who failed to act (i.e., staff). Accordingly, and in contrast with Turner's (1978), Turner and Pidgeon (1997), staff may not recognise all the issues that 'incubated' in the organisation and contributed to the failure. This indicates the importance of learning initiatives after failure and that efforts towards culture change should begin with a comparative analysis of staff and external stakeholder narratives to identify where staff may have incomplete access into how accepted patterns of belief and behaviour actually contributed to the failure, particularly in relation to corrective culture.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the archived website of the Public Inquiry into the Outbreak of Clostridium Difficile in Northern Trust Hospitals in the UK Government Web Archive.

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APPENDIX

TABLE A1 Multiword phrases removed during preprocessing to ensure accuracy of reference to cultural factors.

	Removed multiword phrases
Causal factors	
Change	'emptied or replaced', 'replaced.', 'replaced daily', 'replaced them', 'replaced with'.
External environment	'a minister', 'media and it', 'minister came', 'minister spoke', 'minister went', 'not ceased', 'press and media', 'television or media', 'that whilst the media', 'was from the media and'.
Management & supervision	'crisis management', 'management of', 'notice board', 'notice boards', 'on board', 'other direction'.
Physical environment	'diarrhoea stained', 'diarrhoea staining', 'report sheets'.
Planning	'nursing plan'.
Priorities	'a cost of £', 'easy targets', 'everyone's business', 'financial matters', 'of the cost', 'staff turnover', 'the cost is over', 'this money'.
Procedural adherence	'carefully just', 'clean your hands', 'remember correctly', 'strict regime', 'thoroughly enjoyed'.
Resources	'blood pressure', 'cover it', 'ratio of isolation', 'seemed to cover', 'demoralising and takes', 'felt under stress', 'just stressed', 'stress. 53', 'spirited demoralised', 'stressful if', 'stressed that visitors', 'stress of it'.
Teamwork	'agree with everything', 'agree with its contents', 'agreed she', 'agreed to do all', 'agreed to give', 'agreed to prescribe', 'agreed with all', 'agreed with whoever', 'also agreed', 'chain of verbal', 'days agreed', 'family agreed', 'her and with the agreement', 'I agree', 'in supported', 'joint statement', 'shared the room', 'supported by infection', 'that I agreed with', 'they also agreed', 'with and supported', 'you shared', 'x-raying agreed'.
Training & policy	'bowel movement', 'had movement', 'her training', 'meant movement', 'the train'.
Corrective factors	
Communication	'am speaking', 'difficulty in communicating', 'generally speaking', 'gp telling', 'husband explained', 'phoned me in the', 'phoned my', 'phoned or', 'phoned the social', 'me I explained', 'oral antibiotics', 'oral evidence', 'oral hearing', 'oral medication', 'visitors speaking', 'we phoned the'.
Learning	'hospital for analysis', 'laboratory analysis', 'mild learning', 'own research', 'research indicates', 'research post', 'research registrar', 'severe learning'.
Listening	'listen to my stomach', 'listened via', 'refused to eat', 'with no buzzer'.
Problem response	'answering questions', 'answered the inquiry', 'failed to respond', 'having to answer', 'help answer', 'less responsive'.

[a]Phrases removed were used in context not relevant to organisational culture.

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