



The active patient: Voicing and correcting behaviors by patients and families to ensure safety in healthcare organizations

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ABSTRACT

Healthcare research increasingly observes that patients and families can be highly active in trying to prevent medical accidents. However, the safety literature lacks a model of these behaviors. Addressing this gap would not only advance understanding on how patients and families contribute to healthcare safety, but also provide a general framework for studying how non-employee stakeholders such as citizens and service-users influence safety outcomes in other organizational contexts. Therefore, the current study aimed to establish a model of the behaviors used by patients and families to prevent accidents and ensure safety whilst in hospital. Using a mixed qualitative-quantitative research design, we analyzed 1,857 healthcare complaints submitted by patients and families to UK hospitals reporting poor treatment experiences. Our analysis focused upon reports within the complaints of healthcare users engaging in (1) *voicing* behaviors to raise concerns about safety with staff and (2) *correcting* behaviors to directly resolve safety issues. Approximately three quarters of complaints reported patients and families having engaged in voicing and correcting behaviors, with them often doing so to ensure the resolution of missed and emerging safety problems. The behaviors contributed to hospital safety outcomes through *helping* staff to spot and resolve errors and hazards, *intervening* to ensure that safety standards were maintained, and *bypassing* teams and hospitals when they were judged as too unsafe. The study adds to the literature by establishing a framework for studying how the behaviors of non-employee stakeholders in healthcare and other domains contribute to organisational safety.

1. Introduction

Research in healthcare shows that patients and families who are active in trying to prevent or mitigate medical errors make important contributions to treatment safety: for example, through questioning incorrect diagnoses, challenging unsafe behavior, or fixing incorrect medications (Bell and Martinez, 2019; Fylan et al., 2018; Hor et al., 2013). This observation is significant for the safety literature because it demonstrates how the behaviors of non-employee stakeholders – any group or individual that is independent of an organization but “can affect or is affected by the achievement of... [its] objectives” (Freeman, 1984, p. 46) – influence organizational safety outcomes.

Yet, whilst it is widely recognized that ‘active patients’ are crucial to preventing or mitigating safety incidents in hospitals (O’Hara and Canfield, 2024), the organisational safety literature lacks a model that describes and accounts for how their behaviors achieve this (Reader,

2022). Developing such a model would be useful not only for explaining patient and family contributions to healthcare safety, but also for advancing theory on how non-employee stakeholders such as service-users and citizens contribute to safety outcomes in organizations.

Accordingly, focusing on the domain of healthcare, the current study explores the behaviors used by patients and families to ensure safety whilst receiving treatments in hospital. Based on the patient safety literature, we examine how patients and families try to prevent or mitigate safety incidents in hospitals through engaging in two forms of safety behavior: (1) *voicing*, which relates to patients and families raising safety concerns to healthcare staff (e.g., speaking-up about an observed hazard), and (2) *correcting*, which refers to patients and families directly fixing safety problems before they cause harm (e.g., fixing a mistake). Through a qualitative and quantitative analysis of reports by patients and families of engaging in voicing and correcting behaviors to address

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safety concerns during treatments, we unpack and explain their contribution to safety outcomes in hospitals. The aim is to develop a framework for understanding and further investigating how the safety behaviors of non-employee stakeholders contribute to the prevention of accidents in organizations.

2. Background

Research on patient safety investigates how hospitals can reduce avoidable medical errors (e.g., wrong diagnoses, wrong-site surgery, incorrect medications) and improve the safety and quality of treatments (Vincent, 2011). Approximately 10 % of patients experience an 'adverse event' in hospital, with around half of these being preventable, and 14 % resulting in disability or death (de Vries et al., 2008). Patient safety research initially focused upon the organisational and employee factors important for preventing harm – for example safety culture (Vincent, 2011), incident reporting (Kaya et al., 2023), and non-technical skills (Flin et al., 2025) – but in recent years has extended to focus upon the contributions that patients and families make to hospital safety. This is because, in comparison to the traditional domains in which safety research has been conducted (e.g., oil and gas, nuclear power, aviation), healthcare is distinguished by the fact that the focus of safety – patients – initiate clinical encounters, observe the provision of care, experience the consequences of medical error, and have agency to influence how treatments are delivered.

Accordingly, research on safety in healthcare has explored how patient and family behaviors can be crucial for mitigating or preventing medical accidents (Bell et al., 2022; Hor et al., 2013; O'Hara et al., 2019; van Dael et al., 2022). It finds patients and families are often active in trying to ensure the safety of treatments, and, when they perceive risks to themselves or others, engage in various actions for preventing harm: for example, raising concerns about safety (Entwistle et al., 2010), intervening to improve hygiene practices (Gillespie and Reader, 2018), reporting safety incidents (Armitage et al., 2018), whistleblowing (Mannion and Davies, 2015), or fixing wrong medications (Fylan et al., 2018).

Traditionally, for obvious reasons, safety research has focused on how the attitudes and behaviors of organizational employees contribute to the prevention of accidents (Beus et al., 2016; Griffin and Neal, 2000). Yet, for the safety science literature, the idea of patients actively trying to ensure the safety of treatments is significant because it reveals how non-employee stakeholders such as service users and citizens also contribute to safety in organizations. Examples beyond healthcare include: customers of products or food services reliably reporting on safety issues, members of the public campaigning for enhancing safety reforms within high-risk industries (e.g., trawler fishing), and passengers and citizens behaving safely and taking action to address hazards in domains such as policing, security, and transport (Bleaney et al., 2018; Chang and Liao, 2009; Goldberg et al., 2020; Lavery, 2015). Moreover, accident analyses often highlight how organizations dismiss interventions by stakeholders to prevent accidents (e.g., the 2017 Grenfell Tower disaster, where concerns from residents about fire safety in their building were routinely dismissed), reflecting their potential yet often unrealized contributions to safety (Hald et al., 2025; Turner, 1976). Whilst the role of stakeholders in different settings will vary, for instance in terms of their safety-relevant knowledge (e.g., healthcare versus aviation), ability to challenge (e.g., according to vulnerabilities and reliance on service providers), and engagement with organizations (e.g., routine or irregular), the core contribution of stakeholders is the same: helping or pushing organizations to fix safety problems that may have missed or not successfully resolved.

In terms of the core behaviors by which external stakeholders contribute to safety in organizations, the healthcare literature has focused on the following: *voicing* and *correcting*.

Voicing relates to people speaking up to others about safety concerns in order to prevent harm (Noort et al., 2019). Research in healthcare has

repeatedly observed how patients and families engage in voice acts to raise safety concerns to staff and hospitals: for example, speaking up about suspicions of diagnostic error (Entwistle et al., 2010), challenging staff on adherence to infection control (Sutton et al., 2019), raising alarms (Albutt et al., 2017), reporting incidents (Armitage et al., 2018; Weingart et al., 2005), remedying misinformation (van Dael et al., 2022), or raising concerns about unsafe clinicians or hospitals to regulators (Francis, 2013). Voicing behaviors attempt to shape safety outcomes by influencing the cognitions and behaviors of clinicians (e.g., by communicating novel information or raising concerns), and directing them to address perceived safety problems (e.g., a potential misdiagnosis). They prevent accidents by ensuring that potential errors or incidents are avoided (e.g., by requesting a second diagnosis to check a missed symptom), directing staff to fix errors or mistakes once they have occurred (e.g., wrong medications), and improving safety standards more generally (e.g., by requesting that staff follow infection control procedures).

Correcting involves taking direct action to fix safety problems (Hald et al., 2025). Research in healthcare has shown that patients and families also take direct action to prevent accidents. Examples include: checking and amending medications (Fylan et al., 2018), correcting errors in notes (Bell et al., 2020), fixing identification errors (De Rezende et al., 2019), undertaking care tasks (e.g., monitoring) when there is insufficient staff (Khan et al., 2017), or cleaning wounds in order to manage infections that have occurred due to neglect (Gillespie and Reader, 2018). Correcting behaviors are generally found to occur when patients and families perceive that staff are unable to resolve safety problems in a timely or effective manner and feel that they need to take action to prevent harm. They contribute to hospital safety by helping staff to complete tasks they lack capacity to undertake (e.g., delivering medications), providing additional resources for preventing incidents (e.g., for monitoring patients), and directly fixing mistakes (e.g., errors in hospital notes).

In combination, patient and family *voicing* and *correcting* behaviors prevent or mitigate adverse events through acting as a form of 'safety net' for helping clinicians and hospitals to resolve safety problems that have been missed or not resolved (Reader, 2022). For instance, by providing staff with knowledge on illnesses and care journeys that are hard to discern without patient input (e.g., patient histories, responses to medications, misdiagnoses), identifying glitches in healthcare treatments hidden to staff (e.g., provision of wrong medications, incorrect discharge procedures being followed), and raising issues that may be challenging – especially in a poor safety culture – for staff to directly address (e.g., on competencies and skills of colleagues, social norms on standards of care) (Albutt et al., 2017; Bell et al., 2022; Gillespie and Reader, 2018; Lai, 2021). Patient and family safety behaviors are distinct to those of staff because they are not mandated or expected by hospitals, and are reactive to perceptions of problems in organizations managing risk (i.e., of misdiagnosis). Moreover, they become especially important as the safety culture of a hospital worsens: for example, where staff have normalized poor conduct or cannot speak-up, the externality and independence of patients from healthcare institutions means they can be free to push for issues to be resolved in a way that staff might find challenging.

Generalizing beyond healthcare, the patient safety literature therefore indicates that non-employee stakeholders such as service-users and citizens can substantively contribute to organisational safety through engaging in voicing and correcting behaviors that aim to address safety problems missed or not resolved by staff. Yet, the model of stakeholder safety behaviors has not been formally theorized or explained in terms of the distinct mechanisms by which they prevent or mitigate accidents. The current research investigates this through an empirical study of how the voicing and correcting behaviors of 'active patients' contribute to the safety of treatment delivery in hospitals.

3. Current study

In this study we investigated patient and family reports of engaging in voicing and correcting behaviors to prevent or mitigate safety incidents in UK hospitals. The data for our study was a sample of 1,857 healthcare complaints sent by patients and families to UK National Health Service (NHS) hospitals. We used a mixed quantitative-qualitative design to analyze, within the complaints, reports by patients and families of engaging in voicing and correcting behaviors to avert harm and ensure the safety of treatments.

Healthcare complaints are narrative accounts written by patients and families about poor treatment experiences that are sent to hospitals in order to achieve redress and ensure organizational learning (Reader, 2025). Our rationale for analyzing them was the following. First, healthcare complaints have previously been shown to contain rich and ecologically valid information on patient and family voicing and correcting behaviors (e.g., describing interventions to change a diagnosis or correct a medication) and thus are an established data source for the study (van Dael et al., 2022). Second, the information about safety problems reported in healthcare complaints predicts hospital safety outcomes such as mortality, which indicates that such complaints provide a valid source of information from which to investigate patient and family safety behavior (Bismark et al., 2013; Reader and Gillespie, 2021). Third, when a large corpus of complaints is generated, they can be analyzed quantitatively and qualitatively, meaning that both generalizable observations (e.g., frequencies) and detailed explanations (e.g., causes and outcomes) of voicing and correcting behaviors can be generated. Finally, while healthcare complaints represent a subset of patient experiences, they are numerous and representative of problematic healthcare encounters (e.g., over 170,000 complaints are sent to the NHS annually, representing 3 in 1000 healthcare admissions: NHS England, 2022), and are more suited to studying patient safety behaviors than other methods such as surveys or interviews (e.g., due to the logistical challenges of accessing relevant samples, and more ecological and naturalistic approach to collecting data).

To leverage the large and textual nature of the sampled complaints, we analyzed them using a mixed-methods quantitative and qualitative design (Ivankova et al., 2006; Seawright, 2016). Our study goals were to (1) establish the model of voicing and correcting behaviors to explain how patients and families intervene on safety in hospitals, and (2) investigate the mechanisms by which these behaviors influence safety outcomes. In doing so, we aimed to establish a generalizable model of the behaviors and mechanisms by which stakeholders contribute to organizational safety.

4. Method

We used a mixed-methods explanatory sequence study design involving phases of quantitative and qualitative analysis of secondary textual data (Ivankova et al., 2006; Seawright, 2016). The data were

complaints from acute hospitals in the UK written by patients and families, and the analysis focused on reports, within the complaints, of their engagement in voicing and correcting behaviors. See Fig. 1 for an overview of the process for the study.

4.1. Data collection

Healthcare complaints were sampled from English hospital trusts, where each hospital is an independently managed organization (a “trust”) within the publicly funded NHS system and is legally obligated to collect, respond to, and catalogue complaints. Through the UK Freedom of Information Act, we requested redacted written complaints for 2013–2014 (with any identifying details on healthcare users and clinicians removed). Ethical approval was obtained from our local university ethics board.

We contacted 137 acute trusts and requested redacted copies of 50 complaints: the first 25 typed complaints received after April 1, 2013, and the first 25 typed complaints received after October 1, 2013. The two dates correspond to Q1 and Q3 for the national reporting of complaints. These dates were chosen to counteract seasonal effects and ensure coverage for an entire year. They also ensured that hospitals randomly sampled their complaints, and did not select them according to any other criteria.

Sixty-six acute NHS hospitals provided 2,137 complaints (mean 31.9, SD 13.10, range 12–63). Hospital trusts all delivered acute treatments requiring overnight stays (e.g., surgery, intensive care, accident and emergency, oncology), were sampled from across England (e.g., 19 were from London and Southeast England, the rest from other regions), and included small, medium, and large teaching hospitals (See Reader and Gillespie (2021) for further details). This ensured a representative sample, and that findings of the study were generalizable.

All complaints were irreversibly anonymized at the source, and illegible/unintelligible complaints (e.g., due to redaction) were removed. The final sample of 1,857 healthcare complaints contained 2,299,151 words (mean letter length = 1,238.10) and represented 14 % of all complaints received by the hospitals. All complaints were converted to PDF files with optical character recognition software. While hospital-level data relating to the healthcare complaints have previously been reported (Reader and Gillespie, 2021), this analysis was novel due to its focus on the content of individual patient and family experiences.

4.2. Data analysis

The complaints were qualitatively analyzed by MSc-level and PhD-level trained psychologists familiar with the topic domain. The analysis was done in three phases: (1) descriptive analysis of complaints using the Healthcare Complaints Analysis Tool (HCAT) (Gillespie and Reader, 2016); (2) content analysis of the complaints to identify and explore reports of patient and family engagement in voicing and correcting behaviors; (3) inductive qualitative analysis to explore and

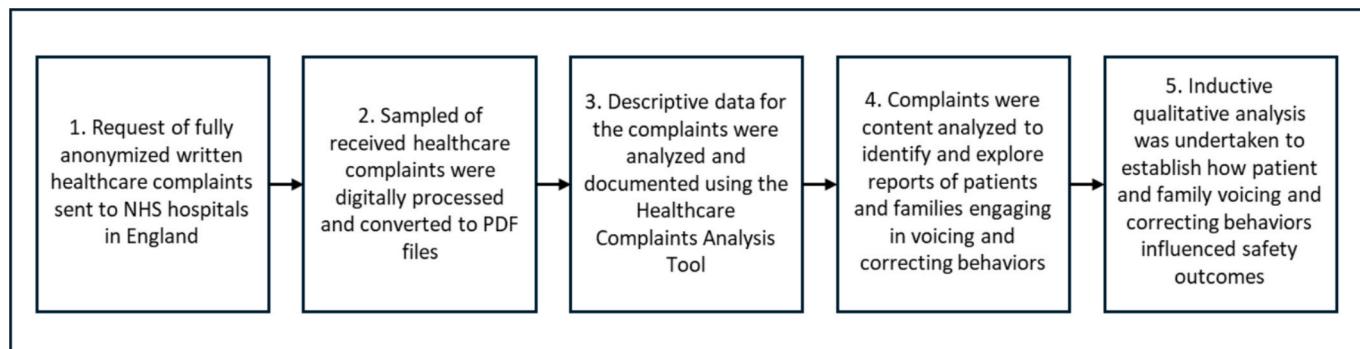


Fig. 1. Study process.

model how these behaviors influenced safety outcomes. For phases 1 and 2, inter-rater reliability was assessed to ensure quality of analysis. Phase 3 analysis was inductive, and developed through co-author discussions and critical and reflexive review of observations.

4.2.1. Descriptive data

We used HCAT to classify the complaints in terms of descriptive data, and evaluate the validity of the safety information reported. Complaints were coded in terms of: i) complainant (patient or family), ii) whether the complaint focused on ongoing or completed care, and iii) the level of overall harm reported as having occurred (none, minimal, minor, moderate, major, catastrophic). Inter-rater reliability was calculated for 101 complaints using Cronbach's alpha.

4.2.2. Patient and family voicing and correcting behaviors

A content analysis of the complaints was undertaken to establish the model of patient and family voicing and correcting behaviors. Content analysis is a quantitative research method for coding textual data into explicit categories that can be counted and statistically analyzed (Berelson, 1952). We combined a 'directed' (coding data using pre-determined classifications) and 'summative' (exploring the use and context of statements) approach (Hsieh and Shannon, 2005).

Complaints were qualitatively coded by three Psychology MSc-level research assistants, with the codes guiding the content analysis defined in Table 1. The analysis initially identified instances of voicing and correcting (and their place within a sequence if multiple behaviors were identified), and then calculated the total number of behaviors. We then categorized the type of safety problem addressed by a voicing or correcting action (based on the categories for classifying hospital adverse events (Donaldson et al., 2014)), and established the most common issues addressed. Finally, we coded whether patients and families reported that the problems they were attempting to address had been resolved, and used a Chi-square test to examine whether this varied by patient and family voicing or correcting behaviors. We also coded (if reported) whether healthcare teams cooperated with patient and family safety behaviors (e.g., staff accepting that a problem needed to be addressed) or did not cooperate (e.g., ignoring patients).

Fig. 2 illustrates the application of the content analysis procedure to a single complaint. The coders independently read and coded a third of the complaints each, and data from coding were logged in an Excel spreadsheet hyperlinked to the original complaint PDF. Prior to coding, a calibration exercise was undertaken whereby the codes to be applied were explained, refined, and agreed upon. Over 5 % (n = 117) of complaints were common so that inter-rater reliability could be calculated.

4.2.3. How patient and family voicing and correcting behaviors influence safety outcomes

We inductively and abductively analyzed cases where patient and family voicing and correcting behaviors were reported to resolve a safety problem (and made comparisons with cases where safety problems were not resolved). Our aim was to establish the mechanisms through which patient and family voicing and correcting behaviors influenced safety outcomes in hospitals. We combined guidance on inductive theorizing from Shepherd and Sutcliffe (2011) and Sætre and Van de Ven (2021) to create a six-stage analysis for modelling how patient and family voicing and correcting behaviors prevented or mitigated harm. The stages are outlined in Table 2, with examples.

Through the inductive analysis, conceptual themes on the mechanisms by which patient and family voicing and correcting behaviors influenced safety outcomes were generated, and then tested and explored through further data collection and analysis. We ceased data analysis once we had developed a model of settled and parsimonious explanatory concepts, grounded in the literature and decided through group discussion and critique. To preserve anonymity, cases have been paraphrased and lightly re-edited with meaning retained.

Table 1

Coding framework for content analysis of healthcare complaints to identify patient and family voicing and correcting behaviors.

Codes	Definition
Complaint-level coding	
Complainant	
Patient	The person receiving healthcare treatment
Family	Family (or friend) of the person receiving healthcare treatment
Status of care	
Ongoing	Treatment has yet to be completed
Completed	Treatment has been completed
Harm	
None	No harm or no harm mentioned
Minimal	Minimal intervention or treatment required
Minor	Minor intervention required to ameliorate harm
Moderate	Significant intervention required to ameliorate harm
Major	Patient experienced, or faces, long-term incapacity
Catastrophic	Death or multiple/permanent injuries
Narrative-level coding	
Patient and family safety behavior	
Voicing	Voicing concerns about safety problems to healthcare staff
Correcting	Taking direct action to correct safety problems
Safety problems	
Access	Accessing care (e.g., getting an appointment, not accessing a ward, long waits)
Communication	Problems in staff communication (e.g., between doctors)
Conduct	Staff treating patients poorly (e.g., ignoring communication)
Diagnostic	Mistakes in making diagnosis (e.g., wrong diagnosis)
Documentation	Errors with patient notes, records, documentation
Examination	Errors in the examination of patients
Hygiene	Problems in ensuring safe hygiene (e.g., patient wounds, infection control)
Medication	Mistakes in administering medication (e.g., wrong medication, no medication)
Neglect	Neglect of patient well-being (e.g., food, pain management)
Planning	Problems in patient care plans (e.g., lack of plan, inappropriate discharge)
Skills	Unqualified person delivering care (e.g., untrained doctor)
Treatment	Mistakes in clinical treatments (e.g., no treatment, wrong equipment used, bad outcome)
Responses	
Cooperative	Healthcare teams accept problems addressed by patients and families (e.g., compliance failures) and/or try to support them in resolving them
Non-cooperative	Ignoring: healthcare teams ignore the safety problems addressed by patients and families (e.g., medication concerns) and/or block or take no action to help them
Problem resolution	
Resolved	Safety problems were reported as resolved (e.g., error avoided, hazard addressed)
Not resolved	Safety problems were not reported as having been resolved (e.g., error not prevented, hazard not addressed, no information provided)

5. Results

5.1. Descriptive data

Of the 1,857 complaints, 52 % (n = 973) were submitted by patients (family members 41 %, n = 757), 57 % were related to ongoing care (n = 1,050), and 16 % (n = 300) reported major or catastrophic harm (minor/moderate 38 %, n = 706; none/minimal 46 %, n = 851).

5.2. Patient and family voicing and correcting behaviors

Inter-rater reliability using Cronbach's alpha found that the coding and categorization used in the content analysis had good reliability (>0.7), except for planning, treatment, and examination (>0.5).

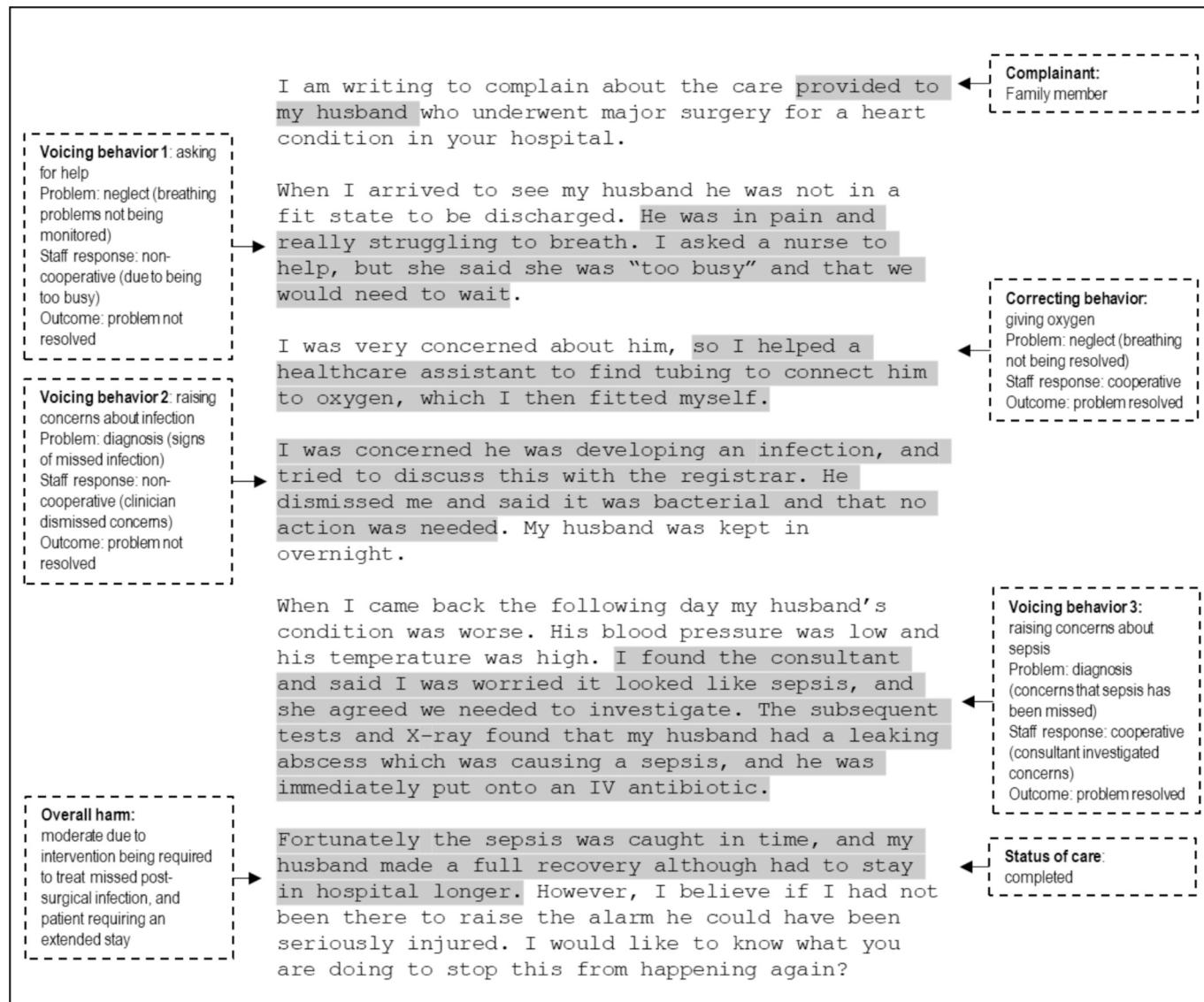


Fig. 2. Example of a coded healthcare complaint (note: the sample letter is illustrative, not actual).

5.2.1. Prevalence of voicing and correcting behaviors

In total, 4,159 instances of voicing and correcting behaviors were reported in 1,406 complaints (76 %). Most reports were related to voicing behaviors (82 %). Good inter-rater reliability was found for both voicing and correcting behaviors (>0.7), indicating the concepts to be observable and distinguishable (see examples in Table 3). Analysis of cases found the behaviors to address both clear safety hazards (e.g., misdiagnosis, wrong medication) and routine clinical issues patients considered important for safety: for example, cancelled appointments or surgeries, perceptions of bad attitude, bureaucratic errors, beliefs that people had been treated badly, or fears that they had experienced a medical error. Such instances could be distal to safety, and arguably a routine part of healthcare (e.g., delays), and were coded because they are a common feature of adverse events.

5.2.2. The focus of voicing and correcting behaviors

Of the 11 safety problems coded, the most frequently addressed were accessing care (18 %, $n = 769$), neglect (18 %, $n = 764$), planning (16 %, $n = 692$), and errors in treatment provision (8 %, $n = 344$). Exploratory analysis found correcting behaviors to be more common for some safety problems (e.g., hygiene, 37 % of correcting behaviors), but less frequent for those only staff could undertake (e.g., examinations). Table 3

includes examples of each safety problem type. Qualitative analysis of these instances revealed a common feature: voicing and correcting behaviors often pertained to *things that had not been done*, such as wounds left untreated, critical appointments not made, absence of post-treatment care plans, and treatments not provided (e.g., for pain management), rather than to *things done wrongly*. Within the psychology and safety literatures, such errors are described as omissions (mistakes from inaction or oversight: e.g., forgetting to give a medication), rather than commissions (mistakes from incorrect actions: e.g., giving a wrong medication) (Gilovich et al., 1995).

5.2.3. Resolving safety problems

In total, 43.7 % of patient and family voicing and correcting behaviors were reported as successful at resolving safety problems ($n = 1,838$). It is important to note that where safety problems were not reported as resolved, this could be because no information was provided. Additionally, because the data source is complaints, the proportion of resolved safety problems was expected to be quite low.

The analysis found correcting behaviors were more likely ($\chi^2 = 159.242$, $df = 1$, $p < 0.001$) than voicing behaviors to result in problem resolution (476 observed versus 321 expected). Based on the cases examined, the likely reason for this is that corrective actions

Table 2

Stages of inductive analysis for modelling how patient and family voicing and correcting behaviors prevent or mitigate harm.

Stage	Process	Example
Sampling	Healthcare complaints were sorted (in the Excel file containing data for the first analysis) according to the deductive coding categories assigned to them (see Table 1), and then systematically and randomly sampled (e.g., examining every 10th case) according to these categories so as to ensure analysis of instances of voicing and correcting behaviors in different contexts.	Researchers investigated voicing behaviors by systematically analyzing complaints with voice acts in different contexts (e.g., addressing different safety problems). Instances of voice acts in different situations and scenarios were identified, compared, and contrasted.
Observation	Instances of voicing and correcting were read and interpreted within the context of each complaint narrative, with observations relating to each behavior being systematically documented. Expected and unexpected data points (e.g., anomalies, recurrent features) were noted against each complaint, refined into coherent observations, and then discussed.	Through analyzing voice acts in different contexts, it was observed that patients, often and unexpectedly, described communicating with clinicians to share safety-relevant information they thought had been missed. Analysis of correcting actions identified a less typical and unexpected feature: patients reporting exiting hospitals to save themselves from harm.
Confirmation	Complaints were resampled, with a focus on confirming and deepening understanding of initial observations, for example, to check that observations were not isolated or one-offs, explore their context, and document variations and possible explanations of what they meant.	It was confirmed that voice acts by patients to furnish clinicians with safety information believed to be overlooked were highly common and prevented incidents through helping staff to recognize and address unrecognized hazards. Correcting actions for exiting were unusual but recurrent in complaints, and were a last resort to avoid a medical error.
Generation	Explanations of observed phenomena were generated through investigation of further cases, reference to the literature, and group deliberation. Based on this, initial constructs were outlined to consolidate, distinguish, and further explore ideas on the function of safety behavior.	Voice acts focusing on sharing safety information were theorized in terms of 'joint action' (Knoblich et al., 2011) where patients 'helped' clinicians to solve safety problems. Correcting actions for exiting hospitals were theorized in terms of 'circumnavigation' (Kassing, 2009) where patients 'bypassed' clinicians to ensure safety.
Challenging	A new set of complaints was investigated to test and challenge the emerging constructs, for example, to confirm that the constructs could be applied to further cases, test boundaries, consider contradictory cases, and examine the generalizability of ideas (e.g., joint action) to other cases.	Further cases of 'helping' were identified and explored, distinguished through analyzing edge cases, fleshed out, and tested in terms of generalizability beyond voicing (e.g., in terms of joint action between patients and staff for correcting behaviors). A similar process was undertaken for bypassing, with patients also using voice to circumnavigate clinicians (e.g., going over their heads).
Integration	As the cycle of previous steps moved to completion, further complaints were sampled in order to consider the constructs in relation to one another (e.g., considering them all within a single complaint), and build a general model of patient and family safety behavior.	Within the narrative of single complaints, voicing behaviors related to 'helping' and correcting behaviors related to 'bypassing' were found to be distinct and parsimonious, but often related: for instance, where staff did not listen to patients (meaning they could not help them), they exited hospitals because they felt unsafe.

Table 3

Examples of patient and family voicing (n = 3426) and correcting behavior (n = 733).

Safety Problem	Voicing	%	Correcting	%
Access	Expectant mother had to ask midwife to access emergency care when having a serious bleed	19.8	Mother had to fix an error in the appointments system that had caused several months delay in care for a child with cerebral palsy	12.1
Communication	Patient voiced concerns over errors in the handover of blood results and treatment planning between hospital teams	3.8	Parent facilitated communication between hospital units due to teams not communicating about error on X-ray for a child's orthopedic pain	0.8
Conduct	Family raised concerns that a member of the nursing team was being abusive toward elderly patient	4.9	Expectant mother changed care provider at final stage of pregnancy due to poor conduct in midwifery team for managing birth	3.3
Diagnosis	Patient voiced concerns that symptoms of detached retina after clinical procedure were erroneously interpreted as side effect of medicine	5.8	Patient went to an alternative clinic to prove (correctly) that she had received someone else's terminal cancer diagnosis	13.1
Documentation	Family member reported that medication for treating a patient's heart episode had been mistakenly stopped in the discharge notes	5.3	Patient personally updated medical record before surgery on her medications and underlying illnesses due to her recognizing errors	3.7
Examination	Family asked for second examination of a patient after a doctor missed symptoms of spinal damage	8.5	Patient had to chase up X-ray and examination results to correct an error in diagnosing severe deep vein thrombosis in her leg	6.9
Hygiene	Parent asked for her son with a hospital-acquired bug to be moved from dirty room	1.7	Family cleaned away containers and vessels filled with urine that had been left by bedside	4.5
Medication	Son raised concerns around incorrect administration of anticoagulation medicines to father	7.1	Husband obtained and re-administered opioid medications for patient with myelofibrosis after being given wrong dose	4.8
Neglect	Daughter complained when she found her father becoming dehydrated post-operation due to a drip being empty for an unspecified time	17.5	Step-daughter had to connect seriously ill step-father to oxygen tank and fit mask due to staff not monitoring him	22.4
Planning	Family asked for a formal plan for surgery and post-care after a hip operation was planned by clinical team without consultation	17.1	Family arranged emergency care for a sick parent after he was discharged out of the hospital without accommodation arranged	14.5
Skills	Patient voiced concerns that junior	1.2	Patient aided novice team member in	0.9

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Table 3 (continued)

Safety Problem	Voicing	%	Correcting	%
Treatment	team member (care assistant) was not trained to administer morphine		changing stoma bag after she had broken the seal	
	Family raised concerns that a biopsy was not being done correctly due to a pleural effusion having not been drained	7.3	Mother attempted to avert harm to son by suspected erroneous steroid treatment through completing a visual record of his condition	13
		100		100

focused on smaller and fixable problems (e.g., incorrect medications, hygiene standards of dressings, appointment errors), whereas voicing behaviors addressed more complex issues (e.g., misdiagnosis). Additionally, voicing behaviors required the cooperation of staff to address problems, and for them to have time and resource to address these, whereas corrective actions were able to solve problems directly and could only be prevented if staff pushed back against them (e.g., a patient exiting a hospital).

The complaints reported that staff responded cooperatively to 50.6 % of voicing and correcting behaviors, whereas 30.4 % of behaviors led to a non-cooperative response (no information was provided for 19 % of cases). Again, given that complaints provide negative feedback on healthcare experiences, the high proportion of non-cooperative responses is not surprising. As might be expected, Fig. 3 shows that where complaints reported staff to respond cooperatively to patient and family safety behavior, safety issues were far more likely to be coded as having been resolved.

In some cases, safety problems were resolved even after a non-cooperative response, and this could be explained by a multitude of

factors (e.g., interventions by third parties, problems righting themselves over time). In other cases, cooperative responses could not resolve safety problems (e.g., staff trying to help with a misdiagnosis, but being unable to do so because harm had already occurred). Table 4 gives illustrative examples of patient and family voicing and correcting behaviors that led to positive safety outcomes.

5.3. How patient and family voicing and correcting behaviors influence safety outcomes

Having established the model of voicing and correcting behaviors, the analysis then examined the mechanisms by which they influenced safety outcomes. The inductive analysis found voicing and correcting behaviors to prevent or mitigate safety incidents via three mechanisms: *helping*, *intervening*, and *bypassing*. The framework is presented in Table 5

5.3.1. Helping

When patients and families first encountered safety problems in hospital, they often reported trying to help healthcare staff avoid making mistakes or deal with hazards. These behaviors were found to resolve safety problems through catalyzing joint action (Knoblich et al., 2011), whereby patients and clinicians combined their skills and resources to prevent or mitigate an adverse event. Patients became temporary team members, providing input into decisions and backing up staff when they did not have the capacity or resources (Salas et al., 2020).

Concretely, patients' and families' voicing behaviors led to the resolution of safety problems through providing staff with information that were unaware of, which subsequently altered the delivery of treatments. In some cases, the act of voicing immediately resolved a misunderstanding or misperception: for example, an instance where a clinician handed over 500 μ g instead of 50 μ g of a drug to a patient, and a family member who noticed this stopped the patient from taking it, and

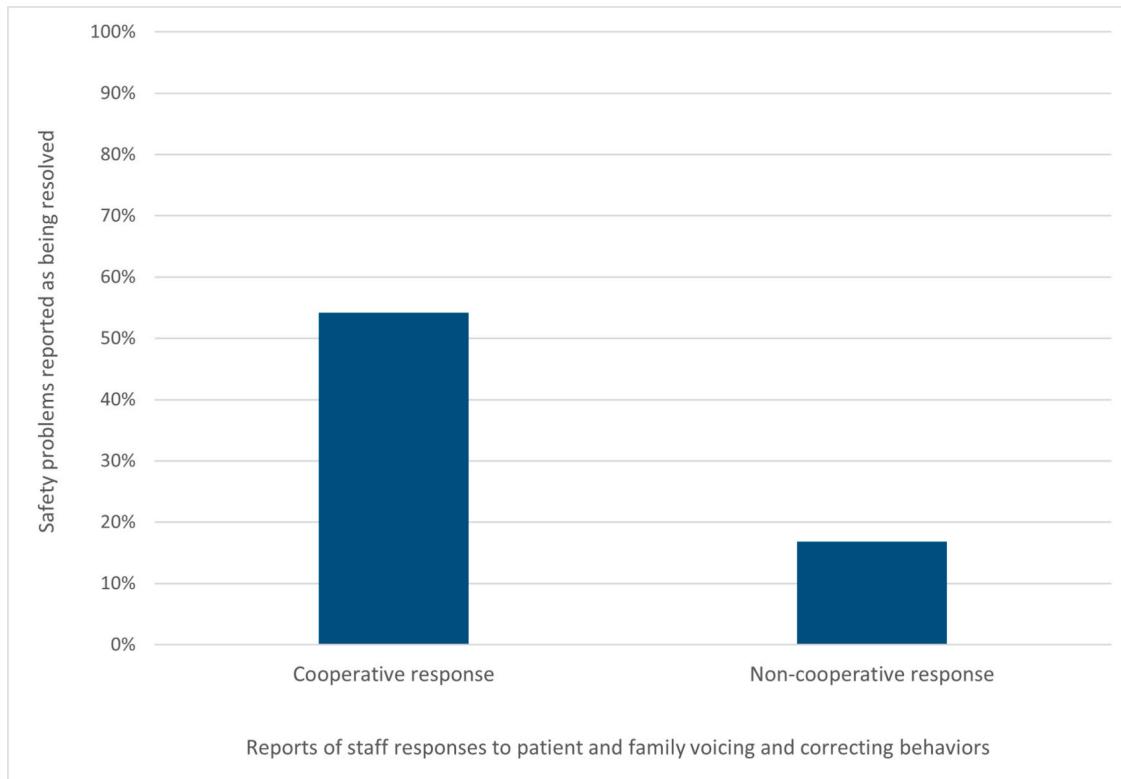


Fig. 3. Percentage of safety problems being resolved when staff are reported as responding cooperatively or non-cooperatively to patient and family voicing and correcting behaviors.

Table 4

Examples of patient and family voicing and correcting behaviors that were successful in resolving safety problems.

Safety problem	Description	Voicing/correcting	Staff response	Outcome
Access	Two months of delays in treatment and examination to understand medical causes of deteriorating cancer patient	Voicing: family voiced concerns and pushed staff to arrange more rapid care for stopping deterioration	Staff arranged additional examination	Misdiagnosis which led to incorrect treatment was identified before serious harm occurred
Communication	No communication in team for turning on tap for drain delivering medications	Correcting: family member fixed the equipment on observing deterioration	Staff agreed error had occurred	Family alleviated pain and condition recovered
Conduct	Inappropriate behavior of surgeon toward patient	Correcting: patient refused operation	Staff agreed behavior problematic and to re-arrange	Patient was able to re-schedule operation
Diagnosis	Misdiagnosis of infected gall bladder for elderly man in pain	Voicing: family voiced concerns over diagnosis of trapped air	Re-examined patient	Infection identified and treated before injury
Documentation	Wrong name written on admittance board and wristband for surgical patient	Voicing: patient reported error to nurse	Nurse investigated problem	Patient identification error averted
Examination	Did not recognize signs of breathing deterioration in elderly man	Voicing: family voiced concerns about breathing problems	Staff acknowledged error and applied treatment	Further deterioration in breathing was prevented
Hygiene	Patient with chemotherapy treatment left in unhygienic conditions	Voicing: family raised concerns about bedside conditions	Staff accepted unsanitary conditions	Family cleaned patient and infection risk reduced
Medication	Errors in preparing insulin medications for patient	Correcting: Family corrected error by bringing in own medications	Staff allowed family to take over medication	Potential diabetic ketoacidosis prevented
Neglect	Husband choked on mucus after not being attended to	Voicing: wife spotted emergency and asked clinician for aid	Mucus cleared from throat using suction method	Treatment disrupted, but choking hazard averted
Planning	Elderly lady with severe chest infection erroneously discharged despite relapsing	Voicing: family challenged decision	Staff agreed patient was in no state to be sent home	Later tests revealed pneumonia for which IV antibiotics were needed
Skills	Stitching for an episiotomy incorrectly done by an unskilled junior doctor	Correcting: patient referred herself to another unit to have stiches reviewed	Referral request permitted	Resuturing applied before likely infection developed
Treatment	Severe post-operative pain after error during shoulder operation	Voicing: patient raised concerns pain was not normal and error had occurred during the operation	Surgeon agreed with concerns and undertook investigation	Damage caused during nerve block procedure identified and treated

Table 5

Mechanisms through which patient and family voicing and correcting behaviors contribute to safety outcomes.

Safety behavior	Helping	Intervening	Bypassing
Voicing	Sharing information with clinicians providing treatments to help them mitigate or prevent a mistake or hazard	Challenging teams so that they ensure risks are contained and safety standards are upheld	Asking external parties to intervene and ensure the safety of treatments
Correcting	Stepping in to help teams deliver treatments so that errors and unsafe events are avoided	Taking control over decision-making processes to ensure safety	Exiting treatment and finding alternative healthcare providers

ensured the correct dosage was given. In other cases, voicing behaviors kickstarted the sensemaking processes needed to understand and resolve safety problems. An example includes a family raising concerns that their loved one had acquired a hospital infection, prompting clinicians to undertake a thorough examination and immediately confirm that antibiotics were needed. Such sensemaking processes could also involve resolving past errors: for example, a case where a patient identified a communication failure between a cardiac specialist and emergency doctors, whereby notes regarding their condition had gone missing. The patient voice behavior led to the specialist finding the 'lost' information, correcting a wrong diagnosis, and referring the patient for an urgent and potentially life-saving angiogram scan.

For correcting behaviors, joint action involved patients and families covering for staff to prevent a mishap. Examples include patients correcting errors in medication administration for staff (e.g., returning to clinics in order to get drugs changed), or taking actions to ensure the safe provision of treatments (going to patient's home in the middle of the night to collect medicines). The cooperation of staff was important for enabling corrective actions to be successful: for example, in a case where a family member reported staff recognizing that they needed the support

of family to help wash a patient, and care for them when they were experiencing seizures.

Cases where helping behaviors were not successful often arose from unsuccessful joint action, where staff did not engage. For example, a wife described how, despite raising concerns about her husband having a blood clot during admittance to hospital, and then again during treatment, staff insisted it was an infection and missed multiple chances to treat an ultimately fatal embolism.

5.3.2. Intervening

Intervening involved patients and families challenging staff to make sure concerns about safety were influential in preventing harm. In doing so, patients and families engaged in a form of "boundary spanning" (Marcone, 2010, p. 914), whereby they interceded and tried to direct actions to ensure safety.

For voicing, intervening often involved patients and families explicitly directing staff to prioritize safety and improve standards. Examples include cases where a family member complained to clinical staff about medication being given but not fed to patients, and the doctor apologizing and saying they would fix the problem, or where a patient assertively raised concerns about poor safety standards, and nursing staff admitted the lapses had occurred and took action to correct them. Rather than being 'one-offs,' these voicing behaviors were often repeated and persistent, with the aim of guiding how staff managed safety: for example, a patient who wrote that they had to ask for help constantly and remind nurses of the treatment plan whilst recuperating from a major surgery.

Correcting behaviors went one step further than voicing behaviors and involved patients and families undertaking tasks that they could not get staff to do. A common example of this was family members finding that patients were wet or dirty, and that staff were too busy to help, leading them to take over the process of changing and washing their loved ones. Complaints also reported patients and families over-riding clinical decision-making: for example, a case where a patient intervened by contacting the X-ray department to speed up the process of examining their swollen leg, which led to them receiving a quicker diagnosis of deep vein thrombosis, and in-turn gave sufficient time for emergency surgery to retain the limb.

Examination of cases where patients and families were not successful at resolving safety problems revealed attempts to intervene being ignored or blocked: for example, a case in which missed or ignored phone calls pushing for action on severe abdominal pain led to delays in treatment and major complications after a hysterectomy.

5.3.3. Bypassing

In cases where patients and families were unsuccessful at helping or intervening, they attempted to *bypass* treatment providers for safety reasons. Conceptually, this resonates with the concept of 'circumnavigation' in the employee literature, which relates to people trying to resolve problems by going around those who are creating them (Kassing, 2009).

Voicing behaviors resolved safety problems by bringing in external parties (e.g., senior clinicians, adjacent healthcare providers) who could advocate for patients and families. Illustrations include a case where a patient contacted their community doctor to report that the clinician treating them in hospital had not undertaken the correct tests or delivered the correct medicines (which prompted an intervention to resolve the errors), or a case where a patient attempted to raise with senior clinicians clear shortfalls in service and compassion experienced after the loss of a child (which led to an investigation). 'Going external' could create a chain of voicing, whereby the external party to whom the patients and families had originally complained began to push others to get involved: for example, a case where a patient's community doctor co-opted other doctors to help push an orthopedic unit to re-assess a serious wrist fracture (which led to the identification and repair of a major injury). Indeed, even the threat of bypassing (e.g., contacting lawyers) could resolve safety problems: for example, a case where a patient wrote that a consultant was summoned to discuss a treatment problem condition when they threatened legal action.

Correcting behaviors resolved safety problems through patients and families circumnavigating the treatment processes and exiting hospitals. An example includes a case where a nurse told a patient that they did not need a bed or scan after an accident, and a family member took them to another hospital where a CT scan revealed a head fracture and contusions. Such corrective actions could be the last in a series of interventions: for example, in the case of a mother who could not get doctors to take her child's ankle injury seriously (staff insisted it was put in a bandage, and refused to put the ankle in a cast), and then went to another hospital where the seriousness of the injury was recognized, with clinicians putting the ankle in a cast for several weeks and observing that not doing so would potentially cause it to be irreparably damaged.

In cases where bypassing involved voicing, its success still hinged on the responses of staff (e.g., the person being appealed to). For example, one complaint reported a patient continually leaving voice messages with their community doctor and their secretary regarding poor hospital treatment for viral meningitis and encephalitis, with a lack of action by the doctor leading to an emergency hospitalization. Because correcting involved exiting, this could not be blocked or prevented, but required people to have an alternative option. Notably, complaints involving exiting often tried to make the point that patients and families had tried to raise safety concerns whilst in the hospital, that the response had been insufficient, and that it was only by exiting the institution they had avoided harm. From this standpoint, the complaints themselves were focused on addressing problems in the culture of the hospital rather than a specific injury or condition.

6. Discussion

Our analysis of healthcare complaints found patients and families to routinely report engaging in voicing and correcting behaviors to prevent or mitigate harm from safety problems encountered during treatments. Their behaviors tended to address safety problems emerging from errors of omission rather than commission, with these being challenging for

staff to detect, yet highly impactful on patients (e.g., communication breakdowns, missed medications, uncompleted treatments). Moreover, the behaviors were consequential: around half of the voicing and correcting behaviors identified within the complaints were reported as being successful in resolving safety problems. Thus, we propose the model of 'voicing' and 'correcting' as a framework through which to study how external stakeholders contribute to organizational safety. Reflecting the externality and independence of stakeholders, it is intended to complement existing literature on employee safety behaviors in organizations (Curcuruto and Griffin, 2018; Griffin and Neal, 2000).

Additionally, our analysis found that patient and family voicing and correcting behaviors influenced safety outcomes via three mechanisms: *helping* staff to avoid errors, *intervening* to ensure that safety standards were maintained, and *bypassing* situations with safety problems that could not be resolved. The mechanisms were often escalatory, with patients and families initially trying to help staff solve a potential safety problem (e.g., a misdiagnosis), then *intervening* when they considered the response to be insufficient (e.g., demanding a second diagnosis), and *bypassing* if the problem could not be solved (e.g., leaving the hospital). These mechanisms provide a starting and general model for investigating and advancing understanding on how stakeholder safety behaviors contribute to the prevention of accidents in organizations. They also have a deeper significance, because they reveal how stakeholder safety behaviors try to catalyze 'double-loop' learning in organizations (Argyris, 1976; Hald et al., 2025; Reader, 2025): namely, in prompting organizations to resolve both specific safety problems (e.g., a hazard) and the perceived dysfunctions in culture causing those problems (e.g., of not listening or enforcing safety standards).

6.1. Theoretical and practical implications

The findings of the study adds to the growing body of healthcare research on how the safety behaviors of patients and families are key to resilience in healthcare systems (O'Hara et al., 2019). Specifically, every patient who successfully spotted a treatment error, pushed for a second diagnosis, or bypassed and left the hospital was potentially one less safety incident for the hospital to record or address. Moreover, in many cases, patients and families were making interventions to compensate for problems in how hospitals were managing safety (e.g., poor resourcing, competency gaps, normalization of poor standards) and cultural failings (e.g., where patients had to escalate their interventions).

From this standpoint, patients and families were often the backstop for preventing medical accidents. When internal systems for managing safety malfunctioned in some way (e.g., failures in infection control), they detected this due to their externality and different positionality within the healthcare system (i.e., as end-users who truly experience the 'sharp-end' of care), and became active in trying to resolve safety problems due to both their agency and independence from aspects of healthcare organizations which might inhibit staff action (e.g., hierarchies, normalization of poor conduct, task constraints). Oftentimes, however, patients and families perceived that their actions to prevent medical errors were unseen and unrecognized (hence why they sent complaints: to prompt organizational learning through informing hospitals of their experiences), and ironically flattered healthcare organizations perceived as unsafe (i.e., by preventing a safety incident).

Additionally, in the subset of cases where we could code how staff responded to voicing and correcting behaviors, just over a third of responses were classified as non-cooperative. This likely reflects a skew within the complaints data, which focus on negative experiences in healthcare institutions, and is not a generalizable representation of how healthcare staff respond to safety concerns. Nonetheless, in the cases identified, patients and families often perceived that the lack of responsiveness to their voicing and correcting behaviors meant an opportunity for preventing harm had been lost. For example, concerns over

misdiagnoses or unsafe practices being repeatedly dismissed. In these cases, patients and families tended to report either experiencing harm or avoiding it only through their own intervention (e.g., through 'bypassing'). The observation is significant, because it reveals the potential safety gains that healthcare organizations might make through encouraging and engaging with patient and family safety behaviors.

The research findings also have significance for domains beyond healthcare. As discussed in the introduction, there are numerous domains in which non-employee stakeholders such as citizens and service-users have potential to observe and address the safety problems: for example, in public transport, building safety, product safety, food safety, education, policing, or contexts where people live alongside safety-critical infrastructure. The current study provides both a behavioral framework (i.e., of voicing and correcting) to investigate this and a set of mechanisms (*helping, intervening, bypassing*) by which to investigate the influence of stakeholder safety behaviors upon outcomes. Yet, further integration is required in terms of understanding how the safety behaviors of external stakeholders relate to those of employees (e.g., by studying both forms of behavior, and their contribution to safety, concurrently). Moreover, further research is required to understand how organizations foster the 'corrective culture' needed for effectively learning from complaints and interventions by external stakeholders to improve safety (Hald et al., 2025; Reader, 2025). For example, in terms of whether the processes for learning from staff-reported safety incidents are similarly applied and used to document and learn from stakeholder feedback on safety.

Lastly, in terms of practical implications, it is unclear to what extent hospitals or organizations in other domains should aim to encourage non-employee stakeholders to be active on safety. Patient safety researchers have debated whether it is ethical or reasonable to expect patients and families, who can be dealing with traumatic situations, to become involved in the safety of their healthcare, and whether they should be considered an extension of healthcare teams (Lyons, 2007; Martin and Finn, 2011). Nonetheless, strategies for better including non-employee stakeholders in safety might include: stakeholder-accessible incident reporting systems, provision of clear guidelines on what stakeholders should do if they encounter a safety problem, protocols and training for staff on how to respond to stakeholder feedback, and surveys and feedback systems for gathering informal input from stakeholders.

6.2. Considerations

The study had a number of limitations that require consideration. The first is the use of healthcare complaints to study patient and family voicing and correcting behavior. While rich in unique and experiential data, the complaints reflected the perspectives of patients and families only (van Dael et al., 2022). Moreover, the veracity and accuracy of complaints could not be individually verified in terms of the problems raised, actions undertaken, and outcomes. Staff may have had a very different view on the events described by patients, for instance, contesting aspects of the complaint narratives, reporting things done to resolve problems that were out of the sight of patients, explaining why things did or did not happen, and giving the clinical context to events. To address this, alternative methods might be used to provide a broader perspective on patient and family voicing and correcting behaviors: for example, surveys, ethnographies, social media data, interviews, and staff accounts of incidents. A further complicating issue is that the complaints might be conceptualized themselves as voice acts: albeit, often with the aim of prompting institutional learning after a safety incident rather than trying to prevent harm as an event unfolds.

The dataset used was from 2013 to 2014, and in the period since we have experienced COVID-19 (which required people self-testing for the disease, wearing facemasks etc.) and there is wider recognition (e.g., amongst policy makers) of the importance of including patients in efforts to improve healthcare safety and quality (Martin and O'Hara, 2025). Whilst we do not think the underlying core phenomena of how patients

and families engage in safety will have changed, their willingness and ability to do so might have grown, and staff may be more receptive to patient and family safety behavior (e.g., in terms of engaging with expressions of concern). Future research might focus on more recent data, and also contextualize analyses against institutional characteristics where possible.

Data analysis had to cope with the rich and varied nature of complaints, which were highly complex, sometimes constituting hundreds of words. In addition, while we ensured the reliability of the content analysis, variations in coding are inevitable, and we found some instances of voicing and correcting behaviors to be somewhat distal from safety (e.g., complaints about cancelled appointments). Analyses in future might draw upon advances in AI for qualitative coding in order to improve reliability and increase the amount of data that can be processed (Bunt et al., 2025).

Although the qualitative analysis was inductive, it was constrained by the initial concepts (e.g., voicing and correcting) and could in future focus on other aspects of safety behavior or functions (e.g., those beyond *helping, intervening*, and *bypassing*). Having theorized and established the idea of voicing and correcting behaviors, other forms of data collection, for example surveys, may be useful for examining the frequency and prevalence of such behaviors in healthcare organizations or other domains. Lastly, our analysis focused on *voicing* and *correcting* because these are commonly observed within the healthcare literature, however research on stakeholder safety behavior in other domains may identify further types of behavior.

A final consideration is that, because we did not have access to health records, we do not know the individual factors that drove patient and family voicing and correcting behaviors. We also did not have access to data from the hospitals on how they engaged with patients on healthcare safety. This is important to understand going forward, because the contribution of stakeholders to organizational safety is likely shaped by both a combination of individual factors (e.g., education of stakeholders, expertise, vulnerabilities), and also the degree to which organizations encourage and enable contributions. In future, healthcare researchers may wish to examine how factors such as health literacy, socio-economic status, age, type of illness, and educational levels influence patient and family voicing and correcting behaviors, alongside characteristics of the hospitals such as their cultures and policies for engaging patients. Such observations would not only be useful for improving patient safety, but would provide insight for other domains that wish to encourage stakeholder safety behavior.

To conclude, the current study investigated patient and family reports of engaging in voicing and correcting behaviors to prevent safety incidents. In a sample of complaints about problematic healthcare encounters, we found patients and families to regularly report engaging in voicing and correcting behaviors to prevent or mitigate safety incidents. These behaviors influenced safety outcomes through three escalating mechanisms: *helping* staff to prevent errors, *intervening* to ensure that staff prioritized safety, and *bypassing* situations where an accident was likely. The study provides a model for investigating stakeholder safety behavior in other domains and advancing general theory on the contribution of service users and citizens to organizational safety.

CRediT authorship contribution statement

Tom W Reader: Writing – review & editing, Writing – original draft, Investigation, Formal analysis, Data curation, Conceptualization. **Alex Gillespie:** Writing – review & editing, Methodology, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The data that has been used is confidential.

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