RESEARCH ARTICLE

Barriers of Pediatric Residents to Speaking Up About Patient Safety

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ABSTRACT

BACKGROUND AND OBJECTIVES: Medical errors are a leading cause of death in the United States. Effective communication and speaking up are crucial factors in patient safety initiatives. We examined the reasons reported by pediatric residents for not speaking up about safety events when they are observed in practice. We also tested a priori hypotheses of associations between categories of barriers to speaking up with perceptions of safety and teamwork culture.

METHODS: Pediatric residents completed an anonymous electronic survey measuring safety and teamwork culture along with an open-ended question asking them to list the top 3 barriers to speaking up about patient safety concerns. Researchers independently coded the open-ended responses to identify themes, which were then categorized into a published framework. Data were collected in 2013 (response rate = 46%) and 2014 (response rate = 62%).

RESULTS: The most common reported barriers to speaking up were as follows: perceived personal safety of speaking up (consequences, intimidation, and hierarchy concerns), individual barriers (communication skills and confidence), perceived efficacy of speaking up (feeling powerless), and contextual factors (high workload). Residents who reported barriers relating to efficacy of speaking up reported lower safety culture scores in 2013 and 2014. Residents who reported barriers related to safety reported lower teamwork culture scores in 2013.

CONCLUSIONS: Pediatric residents reported individual barriers, personal safety concerns, lack of efficacy, and contextual factors as reasons to not speak up about patient safety. Concerns about the safety of speaking up and the efficacy of speaking up were correlated with teamwork and safety culture, respectively.

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Effective communication and speaking-up behavior are crucial factors in patient safety initiatives.[1] Speaking up is defined as health care professionals raising concerns for the benefit of patient safety, either to the parties themselves or via a reporting system, upon recognizing risky or deficient action of others.[1] Staff involved in frontline care are in a key location to observe unsafe practices, and speaking up to bring safety to attention is expected to have an impact on the prevention of errors. Although as many as 75% of physicians can recall when speaking up prevented an adverse event,[2] there are still many times where health care professionals report that they remained silent.[1–3]

The reasons behind silence are multifactorial. Okuyama et al[1] developed a framework for barriers to speaking up in clinical fields adapted from Morrison's model for organizations. They developed a model that included the following: (1) low motivation to speak up, such as a low perceived risk; (2) contextual factors of hospital administration; (3) individual factors such as communication skills; (4) the perceived efficacy of speaking up; (5) the perceived personal safety of speaking up; and (6) tactics and targets of how and with whom to speak up to.[1] This model provides a framework to examine the barriers to speaking up.

Most of previous research on speaking up has investigated nurses or attending physicians, but few studies have looked at the reasons training physicians remain silent.[4–8] Pediatric residents have a unique role as learners and practitioners in the hospital hierarchy and comprise an important group to bring patient safety issues to attention. Studies from the aviation industry have noted that each member of the team has unique reasons for silence, and so residents are likely to have unique barriers.[3,9] The most common barrier investigated is the idea of resident sensitivity to strict hierarchical roles, with studies showing mixed reviews of effect of hierarchy on speaking up.[4,5] Other studies have examined how residents' roles as learners affect their willingness to speak up, either from fear of offending or placing a high value on attending experience.[4,6]The existing literature examines specific reasons behind residents' silence in primarily surgical fields; however, there is a need for an examination of what pediatric residents perceive as barriers.[4–8]

We sought to assess resident perceptions about barriers to speaking up and to categorize them according to Okuyama et al's published framework. Safety culture and teamwork culture were measured with the Safety Attitudes Questionnaire.[10] We tested our hypotheses that barriers related to the efficacy of speaking up were associated with lower perceptions of safety culture, and barriers related to personal safety of speaking up were associated with lower perceptions of teamwork culture. This is the first study that attempts to link perceived speaking up barriers with aspects of hospital culture.

METHODS

We performed a cross-sectional study with the use of surveys with Likert scales and an open-ended response. The institutional review board at the McGovern Medical School approved this study.

Participants

In 2013 and 2014 we sent an e-mail with an anonymous Web-based survey to all pediatric, medicine-pediatric, and pediatric-neurology residents at an academic hospital in the southern United States. In 2013, the survey invitation also included visiting residents. Residents were contacted 3 times to participate in this survey, and no incentive was offered.

Survey

The survey contained the safety and teamwork culture dimension from the Safety Attitudes Questionnaire, all of which specifically referred to the residents training on an inpatient service.[10] Safety culture refers to the perception of a proactive organizational commitment to safety, and teamwork culture refers to the perceived quality of collaboration in the workplace. Safety culture was measured with 7 items in both years, and teamwork climate was measured with 7 items in 2013 and with 8 items in 2014. All items were measured on a 5-point Likert scale ranging from 1 = disagree strongly to 5 = agree strongly. In addition, an open-ended question was included, which asked, "What are the top 3 reasons you might not speak up when you see a patient safety concern that needs to be addressed?"

Data and Statistical Analysis

The responses to the Likert scale items were scored, and negatively worded items were reverse scored to match; a mean positive score >4 was defined as a positive perception. A mean was calculated for the 2 dimensions of safety and teamwork culture. Each year was considered individually because of the additional item in 2014.

To understand responses to the open-ended question, we conducted a thematic content analysis of the response with 2 reviewers, a third-year surgical resident (Z.A.) and a second-year MD/MPH student (R.L.), with oversight from a faculty member who is an expert on safety culture (J.E.). Each reviewer was asked to create codes for the responses, and then a meeting between all 3 was convened to reach consensus on the definition of a set of codes. A set of codes was standardized, and then each reviewer coded the entire data set independently. The faculty member identified inconsistencies and reached agreement with the reviewers about the final codes; with any disagreement, each code was discussed with all 3 parties until consensus was reached. The final codes were then reviewed and sorted on the basis of thematic content into Okuyama et al's published framework with agreement from all parties.

We examined the frequency of the thematic responses and variation across years of training. In addition, 2 a priori hypotheses linking lower perceptions of the culture of the hospital to specific categories of barriers were tested. Means of residents listing barriers related to the efficacy of speaking up, such as powerlessness, or the safety of speaking up, such as intimidation, fear of consequences, and hierarchy, were compared with the means of residents who did not list these barriers and analyzed by using a χ^2 test.

RESULTS

Participants

In 2013, 93 pediatric residents were invited to complete the survey and 54% ($n = 50$) of the invited residents completed the survey, including 17 postgraduate year (PGY)1, 14 PGY2, 16 PGY3 and 4, and 2 unidentified residents. In 2014, 81 residents were invited, with 53% ($n = 43$) completing the survey, including 17 PGY1, 15 PGY2, and 9 PGY3 and 4, and 2 unidentified-year residents. PGY3 and 4 residents were grouped because not all invited programs were 4-year programs. Of these residents, 22 residents (45%) in 2013 and 22 residents (51%) in 2014 completed the open-ended question.

Safety Attitudes Questionnaire

The initial portion asked respondents questions regarding safety and teamwork culture. In 2013, 72% of the respondents reported a positive safety culture, whereas 81% reported a positive teamwork culture. In 2014, the percentages of positive responses for safety and teamwork culture scores were 76% and 88%, respectively.

Open-Ended Response

The responses were coded on the basis of thematic content and then categorized on the basis of a previously published structure.[1] Examples of the types of responses and the frequency with which each major theme in each category was mentioned are included in Table 1 for participants across both years.

Perceived Personal Safety

The most common category of barriers to speaking up was related to the perceived personal safety of speaking up (24%; $n = 22$). This category included themes related to consequences of speaking up, intimidation in the workplace, and concern for the hierarchy of medicine. Consequences of speaking up included concerns about external consequences, such as damaging a team dynamic, being singled out as responsible for an error, or

TABLE 1 Frequency of Categories of Barriers to Speaking Up as Reported by Pediatric Residents

	Examples	Percentage of respondents listing barrier ($N = 93$)
Perceived personal safety of speaking up		
Consequences of speaking up	"Fear of hurting a professional relationship" "Being singled out for a systems-based error" "Fear of retaliation (eg, nurse not wanting to work with me)"	9
Intimidation	"People are more well liked if they do not serve as policeman" "Reminders responded to with sighs, eye-rolling…" "There is a blame game, and I do not want to look like someone who raises issues too often and be seen as a 'troublemaker'" "Too intimidated"	9
Hierarchy	"With certain attendings it is difficult to approach them" "Decisions made by superiors" "Afraid of the boss"	9
Individual factors		
Interpersonal skills	"Embarrassment or humiliation" "Do not want to admit fault" "Unsure how to bring it up"	13
Clinical skills	"Assume attending experience outweighs my concerns" "Not sure if I'm right" "What I think might be a liability may not be one"	9
Efficacy of speaking up		
Powerlessness	"Nobody will back you up" "The feeling that nothing will get done" "It has already been spoken up about but nothing got done. So why bother again?" "Knowing it won't go anywhere"	13
Contextual factors		
Workload-related barriers	"No time to appropriately speak up given a safety concern" "Time constraints" "Too busy caring for other patients"	12
Motivation to speak up		
Uncertainty about event	"Not being aware if an error" "Unsure if truly an error"	4
Concerns already addressed	"Thinking someone else would do it" "Someone else probably reported it"	2
No harm done	"Error is not serious" "Doesn't seem like it would harm the patient"	2

Residents were asked to list 3 barriers each, and so the percentages of residents listing each barrier will not add up to 100%.

being retaliated against by nurses or senior physicians (9%; $n = 8$). Intimidation in the workplace included responses related to being treated with disrespect after safety concerns were brought up previously (9%; $n = 8$). Residents who mentioned barriers related to intimidation or consequences were equally likely to mention fear of a reaction from a senior physician as from a nurse as a barrier. The theme of hierarchy-related concerns included responses about being afraid to approach or contradict a senior physician (8%; $n = 7$).

Individual Factors

The second most common category of barriers to speaking up were individual factors (22%; $n = 20$), which included themes related to interpersonal communication skills or a lack of confidence in clinical knowledge. Interpersonal skills, which were the most common individual theme, included comments related to not knowing how to speak up or fear of speaking up based on internal consequences such as embarrassment or shame (13%; $n = 12$). This category also included lack of confidence in clinical skills (9%; $n = 8$).

Efficacy of Speaking Up

The third most common category was the perceived efficacy of speaking up. This category was represented by 1 theme of powerlessness (13%; $n = 12$). Powerlessness included comments regarding apathy from the institution or perceptions that speaking up does not cause change.

Policies of the Workplace

The fourth most common category was related to policies of the workplace or contextual factors, which was represented by the theme of heavy workload (12%; $n = 11$).

Motivation Toward Speaking Up

The least common category of barriers to speaking up was related to motivation to speak up (11%; $n = 10$). This category included responses that discussed situation-specific elements of events, such as uncertainty about the details of an event (4%; $n = 4$), an event with a low perception of harm (2%; $n = 2$), or the belief that someone else had addressed the concern (2%; $n = 2$). These barriers were all related to the idea that there was no internal drive to report the event.

No Barriers

The least common reported category was no barriers to speaking up or they "always speak up" (6%; $n = 6$). Residents who reported that they always speak up or who perceive no barriers to speaking up had a positive view of both safety culture (100% positive in 2013 and 83% positive in 2014) and teamwork culture (100% positive in both 2013 and 2014). Residents did not list responses that were consistent with tactics and targets, such as gathering facts or selecting a specific individual who would be spoken up to.

We also examined whether the most common barriers changed with year of training, combined across respondents from 2013 and 2014 (Table 2). For residents in their intern year, the most important category of barriers was related to individual factors (29%; $n = 10$), including the themes of poor interpersonal skills (20%; $n = 7$) and lack of confidence in clinical skills (18%; $n = 6$). They also often reported barriers related to personal safety of speaking up (21%; $n = 7$), specifically fear of consequences (12%; $n = 4$) and hierarchy (9%; $n = 3$). For upper-level residents, the most important themes were related to the personal safety of speaking up (20%; $n = 5$), contextual factors (12%; $n = 3$), and individual barriers (12%; $n = 3$).

Relationship to Teamwork Culture and Safety Culture

We examined safety culture and teamwork culture and their relationship to the categories of perceived personal safety of speaking up and perceived efficacy of speaking up. Residents who reported responses related to concerns about the efficacy of speaking up, categorized as powerlessness, had significantly lower safety culture scores than residents who did not list these barriers in 2013 (56% positive versus 76% positive; mean score = 3.97 vs 4.32, $\chi 2 = 8.91$; $P < .05$) and 2014 (45% positive versus 83% positive; mean score = 3.71 vs 4.43, $\chi^2 = 31.33$; $P < .005$).

Residents listing barriers related to perceived personal safety of speaking up,

TABLE 2 Frequency of Barriers to Speaking Up by Year of Training in Pediatric Residency From 2013 and 2014

Category	PGY1 ($n = 34$), %	PGY2 ($n = 29$), %	PGY3 and 4 ($n = 25$), %
Perceived personal safety of speaking up	21	31	20
Fear of consequences	12	14	4
Intimidation	3	21	12
Hierarchy	18	18	13
Individual barriers	29	17	12
Lack of knowledge on how to speak up	20	10	12
Lack of confidence in clinical skills	18	7	8
Perceived efficacy of speaking up	5	10	16
Feelings of powerlessness	5	10	16
Contextual factors	6	21	16
Workload-related	6	21	16
No barriers	9	7	4
Motivation to speak up	9	17	4
Uncertainty about safety event	6	10	4
Concerns already addressed	6	7	0
No harm from not speaking up	6	7	0

Five residents did not identify a year of training when responding to the survey or respond to the free answer question, and so they are not included here.

including intimidation, hierarchy, and fear of consequences in their clinical environment, reported significantly lower scores on teamwork culture scores in 2013 than residents who did not list these as barriers (33% positive versus 78% positive; mean score = 3.77 vs 4.44, $\chi^2 = 40.9$; $P < .005$). This relationship was not significant in 2014 (71% positive versus 78% positive; mean score = 4.28 vs 4.47, $\chi^2 = 1.29$; $P = .26$).

DISCUSSION

Pediatric residents' self-reported barriers to speaking up in a hospital setting included individual skills, safety of speaking up, the effectiveness of voicing a concern, and contextual factors of the workplace. The concerns about the safety of speaking up and the efficacy of speaking up were correlated with teamwork and safety culture. This information can be used to guide interventions that may improve speaking up by residents and improve teamwork and safety culture.

The most common barriers to residents speaking up were individual factors and, most importantly, a lack of interpersonal skills. This barrier was 1 of the leading causes of silence reported in all training levels of residents, suggesting that even as clinical experience increases, interpersonal skills may not. An intervention that taught anesthesiology residents a specific technique for raising concerns in simulations was successful in increasing speaking up and may be an avenue of intervention for overcoming communication barriers.[4]

The second most frequently reported reason for silence was related to the safety of speaking up, including intimidation, fear of consequences, and hierarchy concerns. Interestingly, many of the barriers relating to fear of consequences or intimidation were not related to fear of a senior physician's reaction. Residents often commented on fear of a damaged relationship with a nurse and were more likely to list intimidation from nursing staff. Several residents commented that if they challenged a nurse on what they believed to be a safety issue, they were concerned about passive aggression or nurses' refusal to work with them. This finding is consistent with other research on the culture of disrespect in medicine, where often learners are treated with disrespect from other members of the health care team.[11] The prevalence of comments from residents on intimidation suggests that the disrespect comes not only from senior physicians but can come from any member of the health care team and can negatively affect speaking up.

Another outcome of this study is the association with 2 of the categories of barriers to speaking up with different safety culture dimensions. Low perception of safety culture was associated with low perception of the efficacy of speaking up in both 2013 and 2014. Low perception of teamwork culture was associated with low perception of the safety of speaking up in 2013. Although the association was not significant in 2014, the perception of teamwork culture tended to be lower in residents identifying barriers related to the safety of speaking up. Elements of safety culture are being increasingly measured in hospitals, and there are many interventions designed to improve safety and teamwork culture.[12] It is a worthwhile area of investigation to see how changing culture can change residents' perception of barriers, or how improving speaking-up behavior may affect the hospital culture.

An encouraging element of this study is the suggestion that motivational factors, such as low perception of harm, belief that someone else had reported the event, or uncertainty about the event, were the least frequently reported barriers to residents speaking up. In contrast to other studies, these barriers were even less likely to be reported than residents reporting that no barriers exist.[1] This finding may suggest that these motivational factors are either minor barriers or barriers that residents do not concentrate on when self-reporting. These barriers would be the hardest to target with interventions because they would require increasing internal motivation, so this finding is encouraging. Interventions can be focused on organizational factors and individual skills, and these may be more easily transferred across many clinical scenarios.

One major limitation is the potential lack of generalizability. The residents involved in this study were recruited from 1 academic site, and so are subject to a similar organizational context. We did not examine the prevalence of these barriers to speaking up in practice or how the barriers affect practice. This study had a relatively small sample size and a low response rate from medical residents, especially among PGY3 and PGY4 residents, although this finding is not unexpected given the difficulty of performing surveys in medical professionals.[1] This study was also conducted in the same population across 2 years, and so residents may have responded in both years at different levels of training. We chose to use responses over 2 years to provide a larger sample size to improve generalizability. Even in light of this, we still see a trend of changing responses on the basis of years of training. We did not pilot-test the open-ended question about barriers to speaking up, so there was a risk of residents misinterpreting the question, although no residents expressed confusion in their comments. One-on-one interviews may have provided a richer understanding of the barriers to speaking up. In addition, there is a risk that resident responses were misinterpreted when coding, as with all qualitative research, especially because many residents responded by using very brief comments. However, we believe that the results of this study make important contributions to a limited amount of literature on barriers that residents face to speaking up.

This study is the first attempt to capture a comprehensive view of barriers to pediatric residents speaking up. The literature review by Okuyama et al[1] found that there are important differences in barriers between residents, physicians, and nurses, but few studies on speaking up are focused on trainees. Although there are few studies that include residents when examining barriers to speaking up, the studies are limited to specific aspects of resident behavior, such as sensitivity to hierarchy. In addition, this study adds to the Okuyama et al review by validating their categorization system and begins to examine prevalence for each category. This may guide research into what barriers to speaking up are the most relevant and actionable.

Pediatric residents report many reasons for not speaking up about patient safety. Residency program directors and other faculty need to test interventions to equip residents with communication skills and to change cultures so that residents can speak up safely and effectively. Interventions aimed at speaking-up behavior may also improve safety culture and teamwork culture.

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