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Major Article

Speaking up about hand hygiene failures: A vignette survey study among healthcare professionals

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Background: Speaking up by healthcare professionals (HCPs) is an important resource to reduce risks to patient safety. Due to complex tradeoffs, HCPs are often reluctant to voice their concerns. A survey investigated HCPs' likelihood to speak up.

Methods: A cross-sectional survey study among HCPs in 5 Swiss hospitals addressed speaking-up behaviors, safety climate, and likelihood to speak up about poor hand hygiene practice described in a vignette. Likelihood to speak up was analyzed using a multilevel regression model.

Results: Of surveyed HCPs (n = 1217), 56% reported that they would speak up to a colleague with poor hand hygiene practice. Nurses as compared to doctors rated the situation as more realistic (5.25 vs 4.32, $P < .001$), felt more discomfort with speaking up (4.00 vs 3.34, $P < .001$), and reported a slightly lower likelihood of speaking up (4.41 vs 4.77, $P < .001$). Clinical function (hierarchy) was strongly associated with speaking-up behavior ($P < .001$). Higher risk of harm to the patient ($P < .001$) and higher frequencies of past speaking-up behaviors ($P = .006$) were positively associated with the likelihood to speak up. Higher frequencies of past withholding voice ($P = .013$) and higher levels of resignation ($P = .008$) were both associated with a lower likelihood to speak up.

Conclusions: Infection control interventions should empower HCPs to speak up about non-adherence with prevention practices by addressing authority gradients and risk perceptions and by focusing on resignation.

Speaking up by healthcare professionals (HCPs) to their colleagues is increasingly acknowledged as an important way to intercept errors, mitigate harm, and reduce risks to patient safety, such as healthcare-associated infections.[1] Non-adherence to infection prevention rules, such as hand hygiene protocols, is a typical situation in which speaking up by HCPs is warranted. Indeed, studies have shown that events such as missed hand disinfection or use of unsterile material frequently raise safety concerns in bystanders and prompt the question as to whether to speak up.[2] Breaches in hygiene protocols can be erroneous violations (e.g., accidental mishaps and lack of understanding or experience) or intentional violations (e.g., non-acceptance of the protocol and situational priority setting).[3] Speaking up by coworkers in such situations is a form of direct and real-time feedback. It can serve as a simple but effective and supportive reminder, particularly when rule violations are unintentional. In addition, speaking up is a signal of social norm, demonstrating that intentional deviations from standards are not accepted within the organization.

Despite the potential benefits of speaking up, research also reveals that HCPs are often reluctant to voice their concerns to coworkers and, in particular, to supervisors. HCPs who are considering speaking up are involved in complex, dynamic tradeoffs in which the strong motivation to protect patients competes with anticipated negative outcomes.[4,5] Various barriers to voicing concerns have been reported, such as fear of damaging social relationships. In a specific situation, a higher perception of the risk of harm to the patient is the key determinant for speaking up.[6-8] On the other side, strong authority gradients, power dynamics, and hierarchy inhibit the decision to speak up.[9] For example, Samuel et al. reported that most surveyed medical students were willing to speak up to fellow students about poor hand hygiene practices, but only a few would speak up to registrars (9%) or consultants (6%).[10] Past speaking-up behaviors, experiences, and interactions affect future decisions to voice

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or withhold concerns.[11] Contextual factors, such as the presence of an audience (patients or other coworkers), have strong moderating effects on HCPs' voicing behaviors.[11] On the organizational level, safety climate, teamwork culture, and strong leadership that encourages speaking up are related to HCPs' likelihood to speak up.[12]

Whether HCPs would speak up or remain silent about breaches in infection prevention practices is essential information for healthcare organizations. Data about willingness to speak up could serve as an outcome of interventions to improve infection control practices, implementation of hygiene protocols, or teamwork and leadership activities. However, studying speaking-up behaviors quantitatively is difficult. The decision to actively withhold voice is a "non behavior" and thus cannot be easily observed directly. Zero occurrences of HCPs' speaking up could result from an ultra-safe environment in which no rule violations occur or could originate from the diametric opposite—an organization with a very poor safety climate in which safety breaches occur frequently but employees either do not notice them or decide to remain silent. Simulation is one way to study speaking up by HCPs in depth under controlled conditions and has been successfully used in anesthesiology.[13,14] However, simulation studies are resource intensive and are thus often limited to smaller samples and single studies. The simulation setting may not be equally feasible for all groups of HCPs and not suitable to study reactions to "everyday" breaches of infection control practices. In this study, we used a brief clinical vignette of poor hand hygiene practice as a generic, standardized stimulus and surveyed HCPs about their hypothetical speaking-up behaviors. We assessed the self-reported likelihood to speak up and investigated factors associated with it. Based on prior research, we hypothesized that self-reported likelihood to speak up would be determined by clinical function (and thus hierarchical position), perception of risk to the patient, past speaking-up behaviors, and the speaking-up-related climate at the workplace.

METHODS

Study design and sample

We conducted a cross-sectional survey study of HCPs working in acute care hospitals. Four large general hospitals and 1 pediatric university hospital participated in the study.

HCPs in this study included doctors and nurses of various medical disciplines and levels of training and hierarchy. Doctors included resident, attending, senior, and chief physicians. Nurses included nurses in training and nursing assistants, qualified nurses, nursing experts (who have higher education and commonly hold specific expert roles), and head nurses (experienced nurses with managerial functions). Doctors and nurses in the sample were identified by hospitals' study coordinators. They were invited to participate and received a printed copy of the self-administered survey and a pre-paid envelope at their work or home address. Two electronic reminders were sent. The survey was anonymous and participation was regarded as informed consent. The study was exempt from review by the Ethics Committee of the Canton of Zurich, Switzerland (BASEC-Nr. Req-2016-00462).

Survey instrument and measures

We applied the "Speaking Up About Patient Safety Questionnaire." Development and psychometric properties have recently been reported in detail.[15] In brief, the instrument assesses respondents' past speaking-up behaviors, their evaluations of the speaking-up climate at their workplace, and their anticipated speaking-up behavior. Survey development was informed by prior qualitative research.[2,5] Psychometric testing included explorative factor analyses, reliabilities of the explored scales, and inter-item analysis. Analysis of variance (ANOVA) confirmed known-groups validity, (e.g., differences between staff members of lower and higher hierarchical status).

The survey includes a brief vignette that describes a hypothetical speaking-up situation, which is the main focus in this report. The vignette reads, "You are on a daily round with several doctors and nurses. During the round, the attending doctor shakes hands with a patient who recently had surgery. He wants to examine the patient's wound. However, the attending does not apply gloves and/or does not disinfect their hands." Responders were instructed to consider their anticipated behaviors if they would find themselves in the situation. After being presented with the vignette, they were asked to answer 4 questions addressing the realism of the situation, patient harm, and discomfort with and likelihood of speaking up (see Table 1 for description of all measures). These questions each used a 1-7 response scale with specifically labeled poles.

Two scales in the survey address past speaking-up-related behaviors: frequency of withholding voice and frequency of speaking up in specified situations. Response options for the items in these scales are anchored to "in the last four weeks" and range from "never" to "very often." Higher mean scale values (range: 1-5) indicate higher frequencies of past speaking-up and withholding-voice behaviors, respectively.

Speaking-up-related climate covers the subjective perception of work and organizational aspects that are relevant for speaking up. It is assessed by 11 items presented as statements and asking respondents for their level of agreement. The items are organized in 3 subscales: psychological safety for speaking up scale, which measures HCPs' fear of negative consequences; trust in colleagues and supervisors that speaking up is safe and encouraged scale, which measures the "normality" of speaking up and encouragement by colleagues and supervisors; and resignation scale, which measures frustration from previous ineffective episodes of speaking up. Higher mean scale scores (range: 1-7) indicate higher levels of perceived psychological safety at the workplace, higher levels of perceiving the workplace as encouraging speaking up, and higher levels of resignation with speaking up, respectively.

Data analysis

Descriptive statistics (mean and standard deviation [SD]) are reported for responses to the vignette. ANOVA was used to determine whether mean ratings to the vignette questions differed significantly between respondents of different clinical functions. For easier interpretation, vignette ratings were also dichotomized: responses on the 1-7 scales were split and recoded as "0" (values 1-4) or "1" (values 5-7). For past speaking-up behaviors and speaking-up-related climate scales, descriptive statistics are reported. Cronbach's alpha was calculated as a measure of internal consistency of scales. Mean scale scores were computed to be used as independent variables in the regression model.

Regression analysis was conducted to model HCPs' reported likelihood to speak up as outcome. Due to the natural hierarchical structure of data, we used multilevel regression modelling. "Level 1" comprised individual respondents, whereas "level 2" consisted of the 5 hospitals. Based on our hypotheses, past withholding-voice and past speaking-up behaviors and the 3 speaking-up-related climate scales (encouraging environment, psychological safety, and resignation), respondents' personal characteristics (age and clinical function), and potential of harm rating were included as independent variables.

An intercept-only model (without explanatory variables) was estimated to compute the intraclass correlation coefficient (ICC). The ICC is the variance between clusters (i.e., hospitals) divided by the