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Speaking up about errors in routine clinical practice: A simulation-based intervention with nursing students

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Abstract

Background: There has been little use of simulation to investigate speaking-up behaviors in response to routine clinical errors. We designed a simulation-based intervention to study the communication skills of nursing students.

Methods: The content of debriefings was coded to identify the barriers, enablers and strategies used to voice concerns in 17 groups. Questionnaires assessed students' attitudes before and after the simulation ($N = 98$).

Results: The most commonly perceived barriers were the students' status, the presence of the patient, and fear of consequences. Openness of the supervisor, risk assessment and team familiarity were the most frequently mentioned enablers. The main strategy was asking naïve questions. Teamwork climate was rated lower after the simulation training.

Conclusion: Nursing students tend to remain silent or to use inefficient strategies in response to violations of standard precautions. The simulation session had an impact on nursing students' attitudes.

Keywords: Speaking up, Teamwork, Simulation-based training, Patient safety, Nursing education.

Keypoints:

- Nursing students mainly reported that they remained silent when presented with opportunities to prevent errors, due to their status within the team, and in order to maintain the trust relationship between the patient and the team, and to avoid negative consequences both on their evaluation and on professional relationships.

- Nursing students reported using strategies to avoid such hurdles, namely asking naïve questions and delaying the communication.
- Information sharing bias and effective communication strategies should be included in nursing education curricula, through courses and simulation interventions.

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Introduction

Communication is a major aspect of error management in healthcare settings, and is essential to ensuring the safety and quality of care (Flin, O'Connor, & Crichton, 2008; Hull et al., 2012). Communication failures have been investigated, notably within operating room (OR) teams (Gawande et al., 2003; Lingard et al., 2004), leading to the development of tools to foster effective information sharing, such as the WHO preoperative checklist (Haynes et al., 2017, 2009) or SBAR method (Haig et al., 2006). Nevertheless, healthcare workers (HCW) might hesitate before speaking up, a behavior defined as the sharing of critical information in order to enhance the safety of a situation (Kolbe et al., 2013; Noort et al., 2019). Speaking-up behavior is associated with higher technical performance (Kolbe et al., 2012), and a failure to speak up is mentioned in 23% of root cause analysis reports of communication failures in hospitals (Rabøl et al., 2011), indicating various hurdles to effective information sharing, including fear of reprisal, hierarchical structure, and avoidance of conflict (Raemer, Kolbe, Minehart, Rudolph, & Pian-Smith, 2016).

In order to encourage speaking up, a range of procedures has been proposed, notably simulation-based interventions. These simulations, usually featuring a confederate making an error endangering patient safety, are useful for studying the factors that affect the ability to challenge a decision made by a superior, such as the behavior of the superior (Barzallo Salazar et al., 2014) or gender of the superior (Pattni et al., 2017). Most studies have focused on OR teams facing critical events, with anesthesia or surgical trainees as participants (Pattni et al., 2018).

To our knowledge, no study using simulation has been conducted in order to examine speaking up about routine healthcare errors, such as failing to comply with hand hygiene guidelines. Indeed, while HCWs often fail to comply with standard precaution guidelines, increasing the risk of hospital acquired infections (Erasmus et al., 2010), non-compliance with hygiene guidelines is less likely to be raised than issues such as medication errors (Schwappach & Gehring, 2014). It therefore seems important to investigate the conditions that enable HCWs to raise such concerns in order to prevent the risk of infection. As suggested by Oner et al. (2018), speaking-up training could mostly benefit HCWs who are at higher risk of remaining silent. This seems to apply particularly to nursing students who have learned the guidelines for best practice, but who are likely to stay silent due to their subordinate status (Bickhoff et al., 2017).

Although the relationship with the patient is a fundamental aspect of nursing, little is known about the impact of the patient's presence and behavior on the ability of HCWs to speak up during clinical procedures. Indeed, patients are increasingly encouraged to participate in the care process, and to ask questions if they have doubts concerning the procedure such as hand hygiene compliance or medication errors (Entwistle et al., 2010; Longtin et al., 2010; McGuckin & Govednik, 2013; Seale et al., 2015). However, the impact of the patient's behavior (asking questions, being proactive) on HCWs' decisions to speak up has never been studied.

Therefore, the aims of the present study were to explore the barriers and enablers of speaking up among nursing students during routine clinical practice and the strategies they use to voice concerns, and to evaluate the impact of simulation interventions on students' attitudes to safety and teamwork. We thus developed a simulation program to enhance nursing students' awareness of the importance of speaking up about errors in routine clinical practice. Nursing students' speaking-up behaviors were observed during the simulation sessions. Their

comments during the debriefing were recorded and analyzed to identify barriers and enablers of speaking up, and the strategies used. The impact of the simulation session on attitudes to safety and teamwork was assessed two weeks later.

METHODS

Ethical approval

This study was conducted at the simulation center of a nursing school during a simulation-based training session in November 2017. Given the educational benefit and low risk to participants, ethical approval of the study was not formally required by the ethics committee of the University Hospital to which the school of nursing is attached. However, the study complied with the ethical standards laid down by the international community, and was approved by the ethical review committee of the school of nursing. Participation was voluntary and confidential. All the participants were informed of the aim of the study and the nature of data collection. They gave their written consent to be involved in the study and for the simulation sessions and debriefings to be video-recorded. Two of the researchers who were also teachers at the nursing school were involved in the simulation, but they did not participate in coding either the students' behavior, or the barriers, enablers and strategies of speaking up.

Intervention design

Recruitment of participants

The intervention design is represented in Figure 1. Participants were volunteers recruited during a lecture on non-technical skills and human factors in healthcare teams. A total of 98 out of 148 third-year nursing students agreed to participate in the study (M = 22.51 years; SD = 4.23, range 19 to 46 years, 81 women, 66.22% participation rate). On this basis, 18 groups of four to eight students (N = 98) were formed. In France, nursing students take a

three-year cooperative training course, alternating between course work at the school of nursing and clinical placements in care units. At the time of the study, the students, who were all in their final year, had carried out five clinical placements in care units, and seven simulation sessions in the school of nursing. Previous simulations targeted technical skills (e.g. blood transfusion) and interpersonal skills.

****Insert Figure 1 about here****

Simulation-based training sessions

Briefing

Each simulation group attended a session that lasted about two hours. Sessions were led by a nursing instructor trained in simulation-based education who laid down a number of rules prior to the session (confidentiality, right to err, safety climate). In each group, two students were chosen to take part in the simulation, while the other group members observed the video of the scenario shown in the debriefing room. The instructor presented the scenario to all the members of the group, as follows: the two students are on their second day working in a department of internal medicine. Due to the increase in catheter-associated urinary tract infections, the head of department has decided that nursing students should observe a catheterization procedure before being authorized to perform it. The students' clinical supervisor must insert a urinary catheter in an 85-year-old male patient suffering from oligoanuria. As requested by the head of department, the supervisor asks the two students to observe the intervention. After presentation of this clinical vignette to observers and participants, the supervisor was introduced to the two participants.

Simulation scenario

The scenario was designed in accordance with previous research: a series of errors are made by a confederate playing the role of the clinical supervisor, providing opportunities for

the participants to speak up (Pian-Smith et al., 2009; Raemer et al., 2016; Sydor et al., 2013). The scenario was pre-tested with a group of three second-year students, and a few minor changes were made. Specifically, given the short duration of the simulation in the pretest, a discussion phase was added at the start of the simulation, in which (1) the supervisor and the students introduced themselves, and (2) the supervisor reminded the two participants of the procedure for placing a bladder catheter.

Opportunities to speak up

Two types of error were included in the scenario: errors jeopardizing the patient's safety, and unprofessional behavior (Martinez et al., 2015). Participants had three opportunities to detect errors and speak up:

- At the beginning of the procedure, the supervisor forgets to wash his /her hands with a hydroalcoholic solution before putting on the sterile gloves that were on the bed.
- Just before inserting the catheter, the end of the catheter is then contaminated when the supervisor takes the collector tube from the drape to the sterile field
- Having difficulty inserting the catheter, he/she speaks disrespectfully to the patient.

All participants had the ability to detect the errors, irrespective of their clinical experience, as they concerned basic standard precautions, and not specific features of urinary bladder catheterization. All the participants were familiar with the catheterization procedure, which was taught in their fourth semester.

Supervisors' behaviors

Three nursing educators (two men, one woman), not known to the students, played the role of the supervisor. To ensure consistency between groups, a reminder of the technical procedure was sent to the educators before the simulation, together with a script to be followed during the simulation. They also had a training session with the mannequin. To

encourage participants to speak up, the supervisor adopted behavior defined as open to discussion, in accordance with Sydor et al.'s (2013) operationalization of "non-hierarchical" behavior. The supervisor introduced him/herself, explained procedural aspects of the intervention, and answered any questions. Participants were specifically told at the outset that they could ask questions whenever they liked.

Patient behavior

The groups were randomly assigned to a "proactive patient" condition (9 groups) or a "passive patient" condition (9 groups). The "proactive patient" showed proactive behaviors, such as being engaged in his treatment and asking the healthcare professional questions. The "passive patient" answered questions briefly and let the healthcare professionals work without asking questions. The verbal reactions of the mannequin were controlled by a technician following a script.

Debriefing

After the simulation, a debriefing session was conducted in three phases. First, participants reacted spontaneously to the scenario. The instructor raised the question of discrepancies between what the students observed and what they had learned in the nursing school. In this way, the speaking-up issue was addressed, and the instructor highlighted the fact that errors were intentional. The aim of the second phase was to encourage participants to identify the factors that led them to speak up or remain silent, both during the simulation and during their clinical placements. The third phase involved discussion of the participants' internship experience, the strategies they used to voice concerns, and the consequences for them and for the patient.

Second lecture

Two weeks later, the students attended a lecture about teamwork in healthcare, including a description of models of voicing behaviors (Morrison, 2011; Okuyama et al., 2014), and a description of certain structured communication tools of the TeamSTEPPS Program, such as the two-challenge rule and SBAR script (King et al., 2008).

Observation tools and dependent measures

Nursing students' behaviors during the simulation

Videos of the simulation session were used to observe and code participants' behaviors during the simulation scenario. Behaviors were dichotomized as concerns that were voiced (expression of opinion, suggestion or question related to the error) or not voiced (stayed silent), and were coded immediately after the occurrence of the errors in the scenario by a psychologist trained in human factors.

Nursing students' reactions during the debriefing

To code the barriers and enablers to speaking up, we used the classic grids used in the literature (Bickhoff et al., 2017; Raemer et al., 2016). Three main categories were identified from content analysis of the verbatim records of the debriefing sessions: barriers to speaking up during the care procedure, enablers to speaking up, and strategies used to voice concerns. The categories and elements are described in Table 1.

Each video-recorded debriefing was viewed and coded independently by two coders (a psychologist and a post-graduate psychology student). We evaluated inter-rater reliability by calculating Cohen's Kappa (Hallgren, 2012; Landis & Koch, 1977). Overall, kappa values for our observation tool were moderate to substantial: the average Cohen's Kappa were moderate for barriers (0.49) and enablers (0.59), and substantial for strategies (0.74).

****Insert Table 1 about here****

196 *Nursing students' attitudes toward safety and teamwork*

197 Attitudes to safety and teamwork were measured using scales from the Safety Attitude
198 Questionnaire (SAQ, Sexton et al., 2006). The seven items of the safety climate scale refer to
199 the involvement of the organization to ensure the safety of care ("The culture in this clinical
200 area makes it easy to learn from the errors of others"). The six items of the teamwork climate
201 scale refer to the perception of the quality of interprofessional collaboration ("Nurse input is
202 well received in this clinical area"). All items were answered on a five-point Likert scale,
203 from 1 (*disagree strongly*) to 5 (*agree strongly*). Participants were told to base their answers
204 on their last clinical placement, in order to assess the teamwork climate and safety climate in
205 the last unit they worked in. They completed this questionnaire at the end of the first lecture
206 and at the beginning of the second in order to test changes in attitude after the simulation
207 session. It should be noted that students did not have a clinical placement during the time of
208 the intervention. They had just completed a clinical placement in care units when the study
209 started.

210 **RESULTS**

211 **Speaking-up behaviors**

212 Due to a technical problem, the video data of one group were lost. The speaking-up
213 behaviors of 17 groups were thus observed. For the hand hygiene error (error 1), no
214 participant spoke up, irrespective of the patient's behavior. For the catheter contamination
215 (error 2), a member of one "passive patient" group (i.e. 12.5% of the groups in this condition)
216 and one "proactive patient" group (11%) spoke up. For inappropriate behavior toward the
217 patient (error 3), a member of one "passive patient" group (12.5%), and of two "proactive
218 patient" groups (22%) spoke up.

219 **Barriers and enablers of speaking up**

Due to a recording problem during the debriefing, the data of two groups were lost (*N* = 16). The five most frequently mentioned barriers and enablers are presented here. More detailed results are presented in Figure 2 and Figure 3. The first barrier mentioned by participants in all 16 coded groups was their student status. They felt that nursing students are not part of the team, and that it is not the role of learners or observers to comment on care procedures. The presence of a conscious patient was mentioned by 14 groups; challenging a professional was perceived as undermining the relationship of trust between a patient and HCWs and could cause the patient anxiety. Fear of reprisal was reported by 14 groups; they expected consequences on their appraisal, possibly jeopardizing validation of their internship. The fear of damaging relationships was mentioned in 13 groups, indicating avoidance of conflict and the need to preserve good relations for the end of their internship and as future colleagues. Thirteen groups mentioned personal characteristics of the erring HCW, such as personality and lack of involvement in mentoring. Not knowing the HCW was reported as a barrier in 9 groups.

****Insert Figure 2 about here****

Regarding the most frequently identified enablers, 11 out of 16 groups mentioned the personal characteristics of the erring HCW, such as openness to questions. Ten groups mentioned the evaluation of benefits for the patient and risk for the observer. Eight groups mentioned familiarity with the team, often linked to the ability to anticipate the HCW's reactions. Certainty and self-confidence were mentioned in seven groups. Team climate was raised in 6 groups, indicating the need to be part of the team to voice concerns.

****Insert Figure 3 about here****

Strategies

As we can see in Figure 4, the main strategy for voicing concerns, reported in 15 groups out of 16, was to ask "naïve questions" or "play the innocent". The aims of this strategy were to avoid making the patient anxious, and to stay in line with their "student status" by not questioning the knowledge or practices of the erring HCW. Another strategy, reported in 11 groups, was to put the conversation off till after the intervention or until the end of the day. Again, the main purpose was to avoid challenging the HCW in front of the patient. The notion of risk was sometimes raised as an important factor when deciding whether or not to speak up immediately or wait till later. In nine groups, students said they expressed their concern by referring to the nursing school instructions, in five groups they referred to the patient (i.e. asking about the risks or consequences for the patient), and in four groups they referred to protocols. The last three strategies were often combined with the use of a naïve question.

****Insert Figure 4 about here****

The effect of simulation on students' attitudes to safety and teamwork

Detailed statistics for the SAQ scale scores are shown in Table 2. To evaluate the effect of the simulation on students' attitudes to safety and teamwork, paired-sample *t*-tests were performed on the SAQ scale scores before and after the simulation session (see Table 2). On average, participants' scores on the teamwork climate scale were lower after the simulation (M = 3.84, SE = 0.50) than before (M = 3.95, SE = 0.52). This difference, 0.11, 95% CI [0.21, 0.02], is significant, $t(72) = 2.463$, $p = .016$, and represents a small effect size, $d = 0.29$. On average, scores on the safety climate scale were also lower after the simulation (M = 3.88, SE = 0.48) than before (M = 3.95, SE = 0.55), but this difference is not significant, $t(72) = 1.111$, $p = .270$.

****Insert Table 2 about here****

DISCUSSION

The aims of the study were to explore the barriers and enablers of speaking up, the strategies participants used to voice concerns, and to evaluate the impact of the simulation intervention on students' attitudes to safety and teamwork.

Regarding the speaking-up behaviors during the simulation scenario, few dyads challenged the HCW about the sterility issue or behavior toward the patient. The non-compliance with hand-hygiene guidelines was never challenged. These results could reflect the difficulty of student nurses to speak up, especially regarding hand hygiene. It is of note that although the risk of infection was discussed during the debriefing, the consequences for the patient were underestimated in several groups, and the patient safety issue was not seen to justify the risk of speaking up ("a urinary infection isn't a life-threatening risk"). The results suggested that the main barriers to speaking up were the students' status in the team, concerns about challenging an HCW in front of the patient, and fear about the consequences. In a recent literature review, the main barrier to challenging poor practice was seen by students to be their status, viewing themselves as "just a student" (Bickhoff, Sinclair, & Levett-Jones, 2017). That review also highlighted the fear of consequences (both on evaluation and on relationships) as a major hurdle to speaking up. By contrast, in our study the erring HCW's openness and personality, patient risk assessment, team familiarity, certainty and self-confidence, and team climate were the main factors perceived as enabling the expression of remarks or questions. Not surprisingly, the HCW's characteristics (personality, openness) were mentioned equally as barriers and enablers. Several studies in healthcare settings have emphasized the role of leader openness in the decision by nurses to speak up (Garon, 2012). Weiss, Kolbe, Grote, Spahn and Grande (2018) demonstrated that speaking up in OR teams is enhanced by inclusive leader language, both implicit (use of "we", referring to individuals as

part of the group) and explicit (invitation to contribute and appreciation of input). Therefore, interventions promoting such behaviors among supervisors, especially explicit inclusive leader language, could ease the sharing of critical information for interns.

Although the fear of discrediting an HCW in front of the patient or of making the patient anxious was one of the main barriers, this has rarely been discussed in the literature, probably due to a focus on surgical settings. In oncology, Schwappach and Gehring (2014) observed the use of non-verbal communication to call attention to errors in the presence of patients, especially with regard to hand hygiene. This strategy was rarely mentioned by our participants and was not observed during the scenario. Instead, the dyads who spoke up used indirect forms of speech, such as questions or suggestions. Their main strategies were to ask naïve questions. Medical residents and nurses also report using this type of communication with a senior (Schwappach & Gehring, 2014). The efficacy of these strategies is questionable and should be discussed during nurse training, along with the advocacy for assertive communication tools.

Finally, the results revealed that the students rated the teamwork climate lower after the simulation session than before. This result could seem counterintuitive, but could be interpreted as a rise in the standard of what they considered to be an effective teamwork climate after the simulation session. Although this suggests that the simulation had an impact on the participants' attitudes, the small size effect should be considered. Further simulation-based studies are needed to explore the effect on attitudes to teamwork. In addition to quantitative data analysis, it would be enlightening to investigate the impact on teamwork attitudes through qualitative analysis of a focus group a few weeks after the simulation sessions. This could help understand how the intervention could affect nursing students' attitudes and possible changes in their behavior with supervisors and healthcare workers regarding communication and patient safety in care units.

Limitations

The present study has a number of limitations. First, the sample was small and all the participants attended the same nursing school. Secondly, to encourage participants to speak up during the simulation, a number of changes could be made to the scenario, especially regarding the type of errors (including errors associated with a higher risk, such as a medication error) and the participant's role (giving a more active role to participants). Finally, the simulation setting could have inhibited the students from speaking up, and thus not reflect real behavior in a clinical environment. For example, non-compliance with standard precaution guidelines could have been seen as irrelevant in this environment. Nevertheless, most participants declared that they would not speak up if they were faced with this situation "in real life".

Practical implications for patient safety and nursing education

We believe that our research has several practical implications for patient safety and nursing education. It provides observational data that support previous evidence about nursing students' reluctance to voice their concerns. The "Big Five" model of teamwork proposed by Salas, Sims, and Burke (2005) suggests that team performance is enhanced by mutual performance monitoring and backup behaviors. However, even if the nursing students engaged in mutual performance monitoring by assessing team members' compliance with standard safety precaution guidelines, most of the time they did not dare to initiate backup behaviors. This tendency to silence could impair team performance and patient safety, as shown in surgical settings (Belyansky et al., 2011; Greenberg et al., 2007; Kolbe et al., 2012). Based on the literature and qualitative data, there appear to be two effective ways to encourage nursing students to speak up for patient safety. First, barriers to speaking up in a clinical environment should be addressed by increasing clinical supervisors' awareness of these issues and advising them how to promote speaking up through the use of inclusive

leader language (Weiss et al., 2018). New interventions targeting healthcare workers in units, and especially supervisors, should be implemented in collaboration with the school of nursing. Second, nursing students should be taught to use assertive strategies to voice concerns, such as the two-challenge rule (Pian-Smith et al., 2009), and be given opportunities to regularly rehearse such conversations. To that end, simulation-based training aimed at improving teamwork skills should be developed.

Conclusion

We used a simulation procedure to make nursing students aware of the importance of speaking up about errors in routine clinical situations. Nursing students are likely to remain silent when they observe an error that jeopardizes patient safety. The main barriers to voicing concerns were their student status and the fear of harming the relationship of trust with the patient, as well as the negative outcomes both on their appraisal and on collegial relationships. The supervisor's openness and the risk for the patient were reported as the main enablers. Participants predominantly used naive questions or delayed talking about the errors they had observed until they were outside the patient's room. Before and after the simulation session, participants were asked to evaluate the teamwork and safety climate in their last clinical placement. The intervention had an effect on their assessment of the teamwork climate, but not on the safety climate. Future simulation-based studies should investigate how to encourage nursing students to voice concerns regarding standard precaution violations. At the same time, interventions should be developed at the supervisors' level to facilitate the sharing of critical information for patient safety.

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Figure Legends

Figure 1. The steps of the intervention design

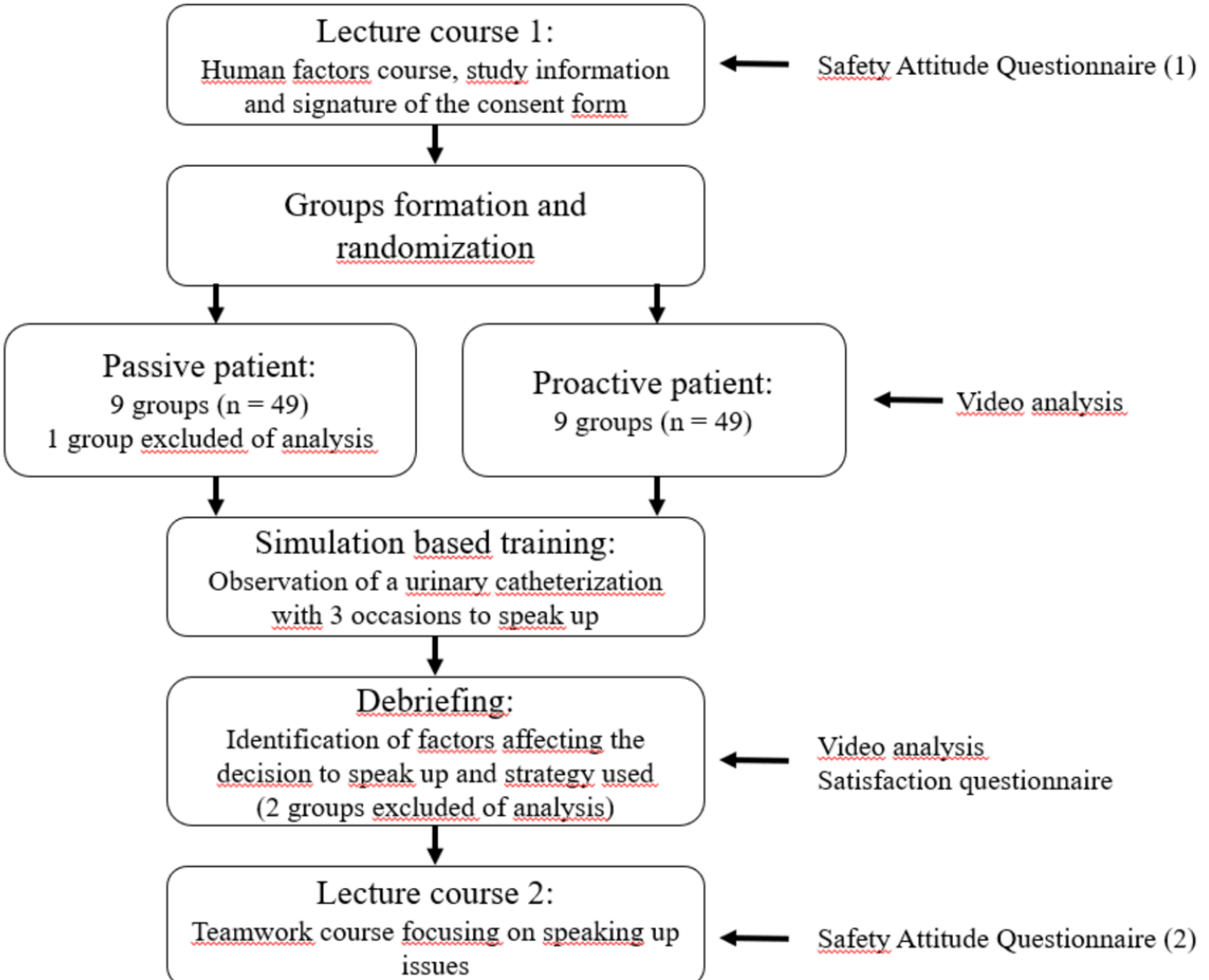
Figure 2. Frequency of communication barriers perceived by the nursing students during the debriefing (number of groups who mentioned the element)

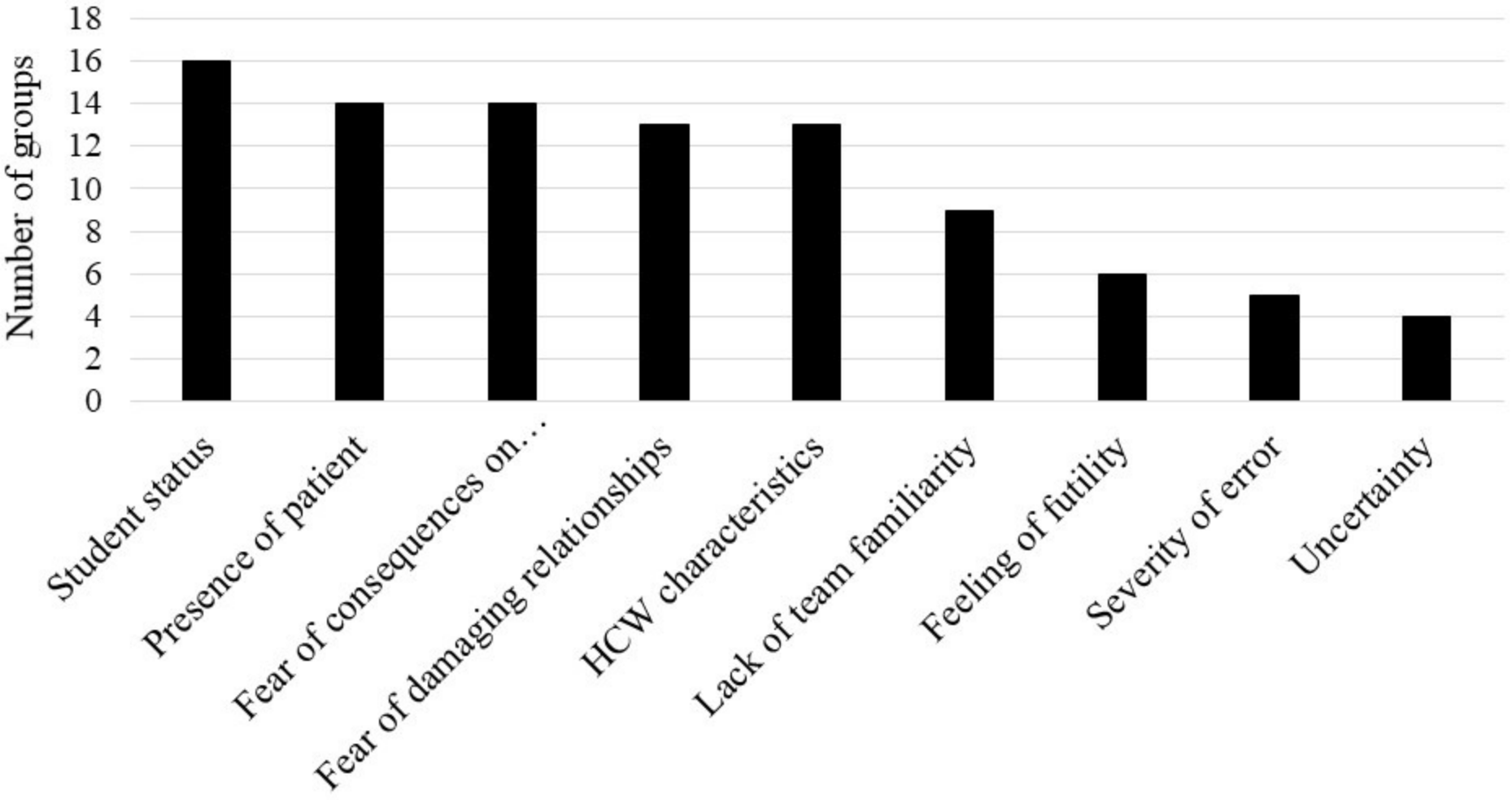
Figure 3. Frequency of communication enablers perceived by the nursing students during the debriefing (number of groups who mentioned the element)

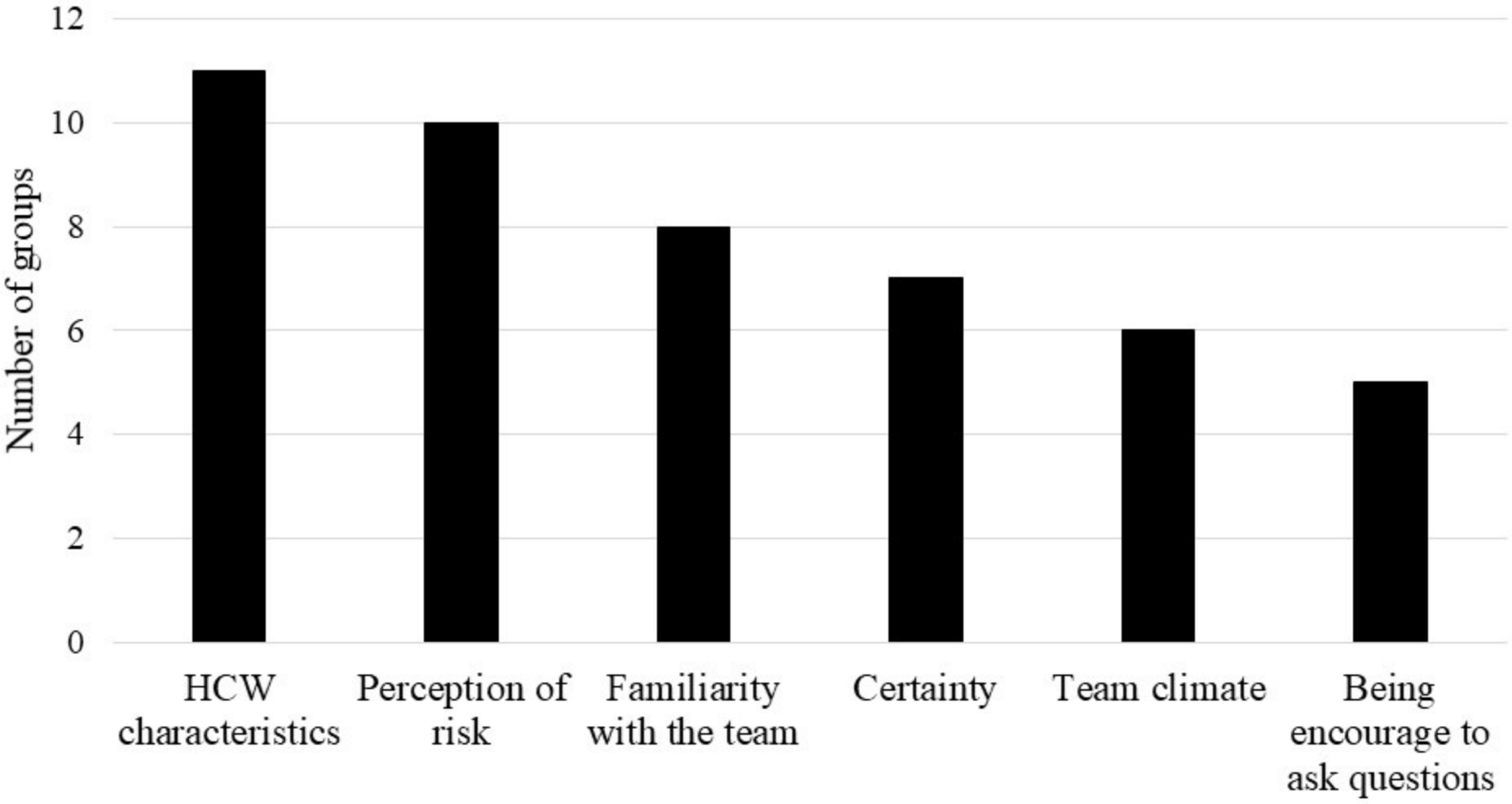
Figure 4. Frequency of strategies used to speak up identified by the nursing students during the debriefing (number of groups who mentioned the strategy)

Table 1. Taxonomy developed for coding barriers, enablers, and strategies used to speak up, including categories, elements, and examples.

Table 2. Descriptive statistics and paired sample t-test statistics at Time 1 and Time 2 for the evaluation of teamwork and safety attitudes with the SAQ (Sexton et al., 2006)


Lecture course 1:
Human factors course, study information and signature of the consent form
Safety Attitude Questionnaire (1)
Groups formation and randomization
Passive patient:
9 groups (n = 49)
1 group excluded of analysis
Proactive patient:
9 groups (n = 49)
Video analysis
Simulation based training:
Observation of a urinary catheterization with 3 occasions to speak up
Debriefing:
Identification of factors affecting the decision to speak up and strategy used
(2 groups excluded of analysis)
Video analysis
Satisfaction questionnaire
Lecture course 2:
Teamwork course focusing on speaking up issues
Safety Attitude Questionnaire (2)


Number of groups
18
16
14
12
10
8
6
4
2
0
Student status
Presence of patient
Fear of consequences on…
Fear of damaging relationships
HCW characteristics
Lack of team familiarity
Feeling of futility
Severity of error
Uncertainty


12
10
8
6
4
2
0
Number of groups
HCW characteristics
Perception of risk
Familiarity with the team
Certainty
Team climate
Being encourage to ask questions

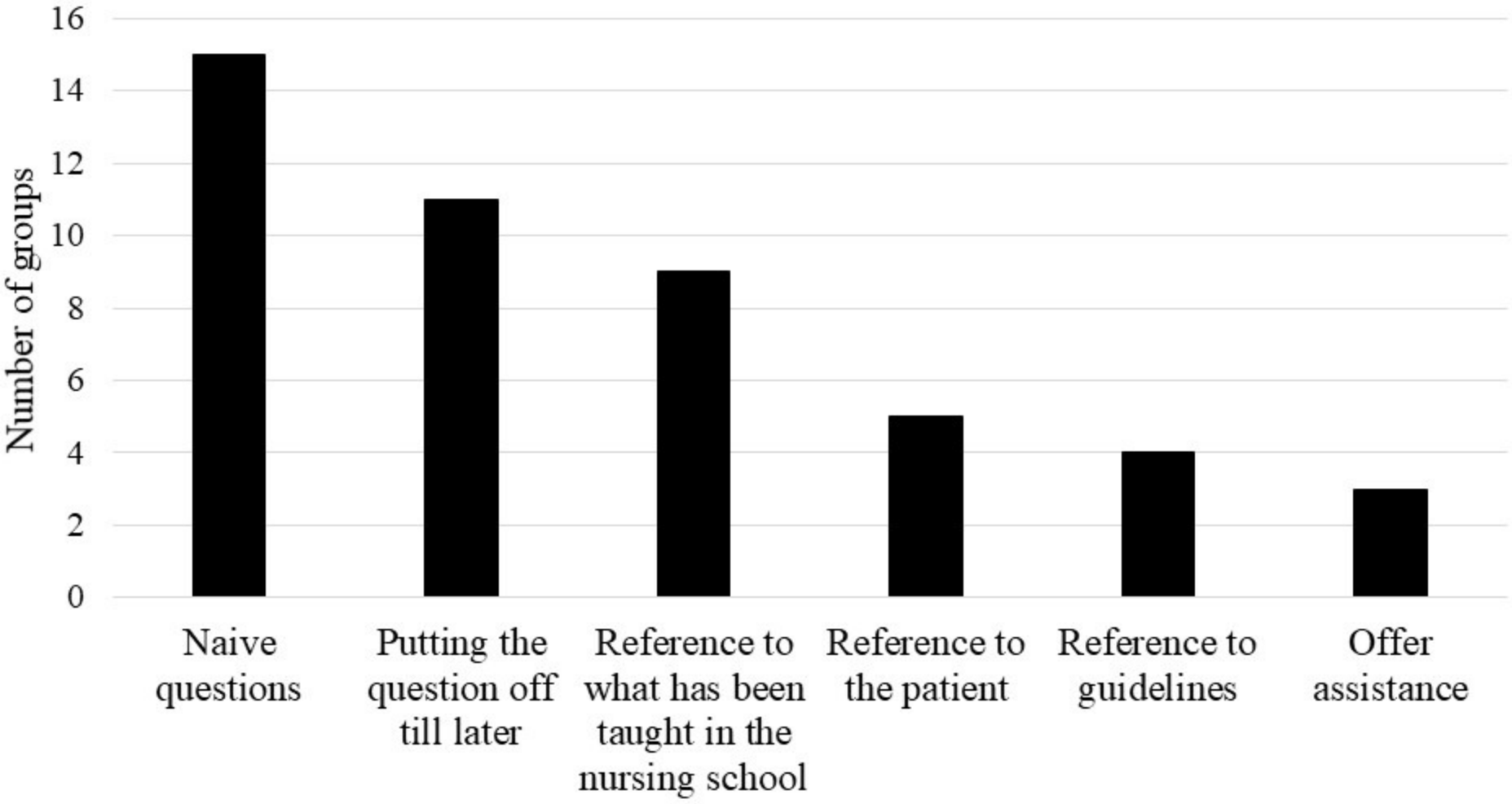

16
14
12
10
8
6
4
2
0
Number of groups
Naive questions
Putting the question off till later
Reference to what has been taught in the nursing school
Reference to the patient
Reference to guidelines
Offer assistance

Table 1

Taxonomy developed for coding barriers, enablers, and strategies used to speak up, including categories, elements, and examples

Categories	Elements	Examples
Barriers	Student status	*"We are there to learn, it's not up to us to make an observation"*
	Presence of patient	*"There is a trust that has been created between the patient and the nurse, and it could break this trust"*
	Fear of consequences on evaluation	*"Eventually we have to validate our internship. If we don't, it means we might have six more months to go before we graduate"*
	Fear of damaging relationships	*"They are our future colleagues too …"*
	HCW characteristics: personality, openness	*"With some people you can tell that even if you say it cautiously they won't allow a comment...."*
	Lack of team familiarity	*"I don't think I'd do it the first internship week…. You have to know the professional"*
	Feeling of futility	*"It goes like this: you try once or twice to share your opinion and then when you notice they're not opened to comments you give up…"*
	Severity of error	*"As long as it's not a critical error, or a real assault to a patient you don't say anything"*
	Uncertainty	*"You have to be careful because you might be wrong, you might think it has to be done this way but actually you're not 100 % sure. It's not like it's something you're an expert of"*
	HCW's characteristics: personality, openness	*"I saw from the beginning that she accepted remarks and took them into account"*

Enablers	Perception of risk	*"You're not going to let the patient take a risk such as a multiplied infection risk…"*
	Familiarity with the team	*"You feel like you can share your views and be true to what you say, when the caregiver knows you a little, when both parts trust each other..."*
	Certainty	*"Actually, I was sure of what I was saying, so I preferred to say it rather than seeing it having consequences for the patient"*
	Team climate	*"It depends on the caregiver, it depends on if you're included enough or not, whether or not you're feeling comfortable within the team... If everything works well in the team and you're feeling included, yes, it's going to be easier"*
	Being encouraged to ask questions	*« If the conversation was open and everything had been established form the start like, "Feel free to interrupt me if you have any questions" ... It's something that's commonly done"*
Strategies	Naïve questions	*"You ask a question, but you know the answer"*
	Putting the question off till later	*"You can tell them later… except if there is an immediate danger"*
	Reference to what has been taught in nursing school	*"We learn things in school and if I see that the professional do things differently, I tell him: "listen, I don't understand, why you do it this way, because I 've been taught to do it that way…"*
	Reference to the patient	*"You might want to prioritize the patient in the sense that... Here the patient may have an infection if you don't take action"*
	Reference to guidelines	*"We can talk about protocols…"*
	Offer assistance	*"In general, when I see something that bothers me or questions me, I do not say it but I offer assistance"*

Table 2

Descriptive statistics and paired sample t-test statistics at Time 1 and Time 2 for the evaluation of teamwork and safety attitudes with the SAQ (Sexton et al., 2006)

Items	Time 1		Time 2					95% CI		
	M	*SD*	*M*	*SD*	*t*	*p*	Mean difference	*LL*	*UL*	Cohen's *d*
1. Nurse input is well received in this clinical area	4.35	0.61	4.27	0.63	1.10	.28	0.08	-0.07	0.24	0.13
2. In this clinical area, it is difficult to speak up if I perceive a problem with patient care *(inversed)*	3.67	1.20	3.37	1.05	2.24	.03	0.30	0.03	0.57	0.26
3. Disagreements in this clinical area are resolved appropriately (i.e., not who is right, but what is best for the patient).	3.74	0.96	3.71	0.83	0.29	.78	0.03	-0.16	0.22	0.03
4. I have the support I need from other personnel to care for patients.	4.07	0.79	3.96	0.68	1.18	0.24	0.11	-0.08	0.29	0.14
5. It is easy for personnel here to ask questions when there is something that they do not understand.	4.10	0.93	3.92	0.70	1.75	.09	0.18	-0.03	0.38	0.20
6. The physicians and nurses here work together as a well-coordinated team.	3.79	0.96	3.81	0.81	-0.12	.91	-0.01	-0.25	0.22	-0.01
7. I would feel safe being treated here as a patient.	4.14	0.69	4.05	0.64	1.00	.32	0.08	-0.08	0.24	0.12
8. Medical errors are handled appropriately in this clinical area.	3.99	0.80	4.00	0.65	-0.16	.87	-0.01	-0.19	0.16	-0.02
9. I know the proper channels to direct questions regarding patient safety in this clinical area.	4.26	0.79	4.04	0.73	1.93	.06	0.21	-0.01	0.44	0.23
10. I receive appropriate feedback about my performance.	4.14	0.89	4.04	0.79	0.82	.42	0.10	-0.14	0.33	0.10
11. In this clinical area, it is difficult to discuss errors.	3.63	1.20	3.42	1.03	1.37	.17	0.21	-0.09	0.50	0.16
12. I am encouraged by my colleagues to report any patient safety concerns I may have.	3.93	0.87	3.90	0.87	0.22	.83	0.03	-0.22	0.28	0.03
13. The culture in this clinical area makes it easy to learn from the errors of others. (*inversed*)	3.57	0.88	3.71	0.80	-1.26	0.21	-0.14	-0.36	0.08	-0.15
Teamwork attitude scores (mean)	3.95	0.52	3.84	0.50	2.463	.02	0.11	0.02	0.20	0.29
Safety attitude scores (mean)	3.95	0.55	3.88	0.48	1.11	.27	0.07	-0.05	0.18	0.13

Note: SAQ = safety attitude questionnaire; CI = confidence interval; *LL* = lower limit; *UL* = upper limit. Items 1 to 6 refers to the Teamwork scale. Items 7 to 13 refers to the Safety scale. Items were translated to French from "The Safety Attitudes Questionnaire: psychometric properties, benchmarking data, and emerging research", by Sexton, J. B., Helmreich, R. L., Neilands, T. B., Rowan, K., Vella, K., Boyden, J., Roberts, P. R., & Thomas, E. J., 2006, *BMC Health Services Research*, 6(1), 44.