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**“Doctor, please”:
Educating nurses to speak up with interactive digital simulation tablets**

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Conflict of Interest

The authors declare that they have no conflict of interest.

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Abstract

Background. Courses are developed to train on open communication. This study focuses on speaking-up for scrub nurses.

Method. The scenario is implemented on digital tablets, with vignettes involving problematic behaviours of a colleague with the same or different status. The nurses (N = 33) were asked whether they would point out the error, whether they would be embarrassed, and how they would do it.

Results. Nurses expressed greater embarrassment with a colleague of a different status. This is confirmed by their phrasing and the strategies they reported when speaking to the surgeon.

Conclusion. The scenario was well accepted and could be used to train other health professionals.

Keywords: non-technical skills, speaking-up, interactive digital simulation, scrub nurse, self-debriefing.

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5 **Introduction**

6 In the operating room (OR), 43% of incidents are related to a breakdown of
7 communication among personnel, and 23% of these are related to reluctance to share critical
8 concerns or information (Gawande et al., 2003; Rabol et al., 2011). Furthermore, information
9 exchanged in the OR may be inaccurate or incomplete, and shared with the wrong person or
10 at the wrong time (Sutcliffe et al., 2004). Lack of effective communication has been identified
11 as a major cause of incidents in the hospital environment. A strategy identified for nurses is to
12 “speak up” to avert errors when they identify that optimal care is not being provided.
13 Speaking up by healthcare professionals is the explicit voicing of concerns about risky or
14 deficient actions of others in order to improve the quality and safety of care. Speaking-up
15 behaviours include for example reporting an asepsis error or non-compliance with safety rules
16 (Okuyama et al., 2014). It is a very important non-technical skill, especially for surgical teams
17 (Kolbe et al., 2012).

18 According to Okuyama’s model (2014), speaking up is motivated by patient safety. It
19 is modulated by the perceived risks for the patient (level of risk) and the ambiguity of the
20 situation (level of uncertainty). It is also influenced by factors that are contextual (e.g.
21 hospital policy, interdisciplinary policy-making, team relationships, attitude of leaders) or
22 individual (e.g. job satisfaction, responsibility towards the patient, professional role,
23 confidence and previous experience, communication skills, educational background). Other
24 factors also interact, such as the balance between feelings of perceived safety *versus* costs
25 (e.g. fear of others’ responses/ conflict, fear of appearing incompetent) and by the balance
26 between perceived effectiveness *versus* futility (e.g. lack of change, personal control and
27 impact). Healthcare professionals may thus choose to remain silent, but when they do speak

up, they use various tactics (e.g. collecting facts, showing positive intent, choosing who to address) to overcome the barriers. Hierarchical differences, conflicting roles, concerns with upward influence, power relationships, interpersonal conflict, and organisational culture can explain communication failures and are the most frequently observed barriers to challenging authority in the OR. In order to make health professionals aware of the risks of remaining silent in the OR and to encourage them to communicate openly with their colleagues, education and training courses are being developed in different forms (Pattni et al., 2019; Sutcliffe et al., 2004). For example, simulation sessions to train nurses to speak up have already been implemented with mannequins (Kolbe et al., 2012) and virtual humans (Robb et al., 2015), but very few use digital simulation or virtual reality (VR) simulators (Bracq et al., 2019). Digital simulation or VR simulators to train healthcare professionals on non-technical skills have been developed during the last decade. They are easy to set up, and allow the replication of standardised simulation sessions (Bracq et al., 2019).

Using the representation of a virtual OR we created for a VR-simulation scenario for scrub nurses (Bracq et al., 2019), we created an interactive digital simulation on tablets. The scenario was created to educate scrub-nurse students to speak up in various situations and with people of different professional status, and to analyse their attitudes and their strategies. We used the paradigm of clinical vignettes (Schwappach, 2018), each one addressing three questions: the likelihood of speaking up, the level of embarrassment with speaking up, and the strategies used. To understand students' motivation and underlying processes, we used self-debriefing, which has proved efficient for non-technical skills training (Boet et al., 2011). It is defined as "an individual, written activity in which a series of questions (designed based on a theoretical debriefing framework) facilitate learners' reflection on a simulation" (Lapum et al., 2018, p. 1). This allows participants to express themselves at their own pace, free from the

social pressure that can be felt during collective debriefings, and to feel psychologically safe (Levett-Jones & Lapkin, 2014; Roussin et al., 2018).

Purpose of the present study and hypotheses

The objective of this study was to assess the speaking-up behaviour of scrub-nurse students in various clinical situations and with people of different professional status, and to analyse their attitudes and strategies. Based on previous studies on speaking-up literature, we expected an effect of status on the likelihood that participants would speak up to their scrub-nurse colleague or to the surgeon, and on their feelings of embarrassment.

Hypothesis 1. The likelihood of pointing out an error would be greater when the person involved has the same professional status as the speaker. Participants would thus speak up more with the nurse (equal professional status) than with the surgeon (higher professional status).

Hypothesis 2. There would be greater feelings of embarrassment pointing out an error to someone of higher professional status. Feelings of embarrassment would thus be greater when addressing the surgeon than the nurse.

Method

Participants

Thirty-three voluntary students (28 women and 5 men) from two classes (first and second year) in a French school for scrub nurses were invited to take part in the study. The average age of nurse students was 34 years. The study was approved by the Ethics Committee of the local University Hospital. Participants provided their informed consent for the study.

Procedure

Two simulation sessions were held at the nursing school, on 13th June 2019 (n = 15 students) and 24th October 2019 (n = 18 students). They were run by the first and third authors

simultaneously for each class, each participant working individually on their own tablet. The simulation session lasted about 90 minutes.

Briefing

In the pre-briefing, participants were told that they would experience four situations with colleagues in a virtual OR. These situations exposed problematic behaviours and errors that needed to be reported. They were asked to imagine how they would interact with these colleagues (“After finding a mistake, how do I react?”). To make them feel secure, participants’ answers were anonymous and no assessment or judgement was provided. Some explanations were given concerning the tablet interface and possibilities of interactions in the interactive digital simulation: give their answers by clicking directly on scales of responses and explain their answer by typing on a keyboard that appeared on the tablet.

Scenario of Simulation

Individual tablets without headsets were used to run the scenario (see Figure 1). It represents an interactive virtual simulation of OR created with Unity game engine (Version 2018.4, Unity Technologies, San Francisco, CA). It is based on a real OR allowing immersion and interactions with the environment. The scenario was designed by VR researchers according to French national standards on simulation (HAS, 2012). It places participants in front of four clinical vignettes each involving problematic behaviour of a colleague who has either the same or a different status (see Appendix A). Nurse 1: The circulating nurse is wearing earrings. Nurse 2: The circulating nurse gets too close to the instrumentation table. Surgeon 1: The surgeon is not wearing his mask properly. Surgeon 2: A surgeon from another OR and with a dirty gown enters the OR to see his colleague and gets too close to the sterile field.

For each vignette, participants were asked if they would point out the error (Likelihood of speaking up), how embarrassed they would be to do so (Feelings of embarrassment), and

101 how they would do it (Strategies for speaking up). The tablet simulation scenario lasted about
102 12 minutes.

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

104 **Debriefing**

105 Debriefing after the simulation session took the form of hand-written, anonymous self-
106 debriefing, based on the 3D model: Defusing, Deepening and Discovering (Zigmont, Kappus,
107 & Sudikoff, 2011). Participants were asked to express their feelings and reactions after the
108 simulation (Defusing phase). For each vignette, they were asked to defend and explain their
109 decision whether or not to speak up (Discovering phase). Finally, they were asked if they
110 would speak up if they encountered similar situations and what they had learnt for their future
111 clinical practice (Deepening phase).

112 At the end of the session, the first author distributed and read an educational sheet about
113 speaking up: definition, how speaking up is developed and the effective communication
114 techniques (see Appendix B).

115 **Measures**

116 ***Likelihood of speaking up.*** The first question concerned the intention of speaking up:
117 “Do you point it out (with words or gestures) to the circulating nurse/surgeon?” Participants
118 rated each scenario using a seven-point scale ranging from 1 (*very unlikely*) to 7 (*very likely*).

119 ***Feelings of embarrassment.*** The second question asked about the embarrassment of
120 speaking up: “Do you feel embarrassed about pointing it out to the circulating
121 nurse/surgeon?” Participants rated each scenario using a seven-point scale ranging from 1 (*not*
122 *embarrassed at all*) to 7 (*very embarrassed*).

Strategies for speaking up. The third question concerned the strategies for speaking up: “If you point it out, how do you do it?” To answer this open-ended question, participants were asked to write down their answer in full using the touchscreen keyboard. The answers were coded according to the coding scheme of previous studies (see Landgren et al., 2016). We coded the nature of the sentences (i.e. question only, statement only, question and statement, or no intervention), their verbal or nonverbal components (i.e. words only, actions only, words and actions), phrasing (i.e. polite formula, personalization, informal or formal tone), and explicit elements of content (i.e. humour, warning, advice or suggestion and reminder of rules). All responses were coded by one coder (first author), and 60% by two coders (first and third authors) to check the reliability of the coding. Inter-coder reliability was strong or almost perfect (Cohen $k_{\text{Nurse1}} = 0.92$, Cohen $k_{\text{Nurse2}} = 0.75$, Cohen $k_{\text{Surgeon1}} = 0.85$, Cohen $k_{\text{Surgeon2}} = 0.85$).

Self-debriefing

The open-ended questions in the self-debriefing were the following: (1) “For each situation, give the reasons why you chose to speak up or why you preferred not to. I spoke up because... I preferred not to because...”; (2) “If you encountered similar situations in your work, what would you do?”; (3) “What can this simulation scenario help you improve in your communication with team members in the OR?”

Answers to the questions were coded using an adaptation of Okuyama’s speaking-up model (Okuyama et al., 2014). The speaking-up factors identified from this model were the following: contextual factors (team relationship), individual factors (responsibility towards the patient and role as professionals), perceived safety *versus* costs (fear of the responses of others or conflict), perceived efficacy *versus* futility (personal control and impact) and the strategies used when speaking up were to show positive intent and to choose who to speak to.

Other strategies were also identified from participants' answers and were added in our coding scheme: choosing to use nonverbal communication, or no communication at all, deciding to raise the subject later and discreetly, finding excuses for the situation or playing down the risks, transferring the responsibility of the situation or of speaking up to others, and the deliberate use of humour. All responses were coded by one coder (first author), and 60% by two coders (first and third authors) to check the reliability of the coding. Inter-coder reliability was moderate or strong (Cohen $k_{\text{Nurse1}} = 0.58$, Cohen $k_{\text{Nurse2}} = 0.75$, Cohen $k_{\text{Surgeon1}} = 0.80$, Cohen $k_{\text{Surgeon2}} = 0.80$).

Satisfaction post-simulation

Participants were asked to assess their perception of the scenario with eight items rated on a seven-point scale ranging from 1 (*totally disagree*) to 7 (*totally agree*) and grouped around five dimensions of system acceptability: ease of use (2 items), immersion (2 items), efficiency (2 items), global satisfaction (1 item) and behavioural intention (1 item). They also assessed their emotional state using a classical five-point scale, each point of which was illustrated by an emoji to help them associate their emotions to a number.

Statistical analysis

Statistical analysis was performed with Jamovi (The Jamovi project, 2020). Descriptive statistics were computed, including means, maximum and minimum values, and standard deviations. To compare the means between vignettes, a repeated measures ANOVA (Greenhouse-Geisser correction) and post-hoc tests with Bonferroni corrections were made. P values $< .05$ were considered significant. A statistical power analysis (jpower, with Jamovi) was performed for sample size estimation. The effect size (ES) in this study was 0.50, considered to be medium using Cohen's (1988) criteria. With an $\alpha = .05$ and power = 0.80, the projected sample size needed with this effect size is approximately $N = 27$ for a

within group comparison. Thus, our proposed sample size of $N = 33$ will be adequate for quantitative analysis.

Results

Participants' answers to the likelihood of speaking up and embarrassment for each vignette were compared to check any differences between 1st and 2nd year students.

Differences were not statistically significant, so the answers of all the participants were aggregated.

Effect of status on the likelihood of speaking up

As shown in Table 1, the mean scores of likelihood of speaking up differed significantly according to the clinical situation, $F(3, 96) = 9.53, p = .001, \eta^2 = .14$. Post-hoc paired contrasts (Bonferroni) revealed that the mean scores of the likelihood of speaking up to the two nurses were significantly different from each other ($t_{\text{Nurse1-Nurse2}} = -5.18, p < .001$), and from those regarding the likelihood of speaking up to the surgeons ($t_{\text{Nurse1-Surgeon1}} = -3.55, p = .004$; $t_{\text{Nurse1-Surgeon2}} = -2.30, p = .10$; $t_{\text{Nurse2-Surgeon2}} = 2.88, p = .03$), except between the Nurse 2 and the Surgeon 1 ($t_{\text{Nurse2-Surgeon1}} = 1.63, p = .64$). There was no significant difference for the likelihood of speaking up to the two surgeons ($t_{\text{Surgeon1-Surgeon2}} = 1.25, ns$).

Contrary to our expectation, the likelihood of speaking up varied according to the clinical situation more than according to status, with a limit for the first clinical situation (Nurse 1). The likelihood of speaking up to Nurse 1 was significantly lower than for the others. As expected, there was a greater likelihood of speaking up to the Nurse 2 than to both surgeons.

Effect of status on feelings of embarrassment

As we can see in Table 1, the results showed that the mean scores of embarrassment differed significantly according to the clinical situation, $F(3, 96) = 6.49, p < .001, \eta^2 = .09$. As expected, post-hoc paired contrasts (Bonferroni) revealed that the means scores of embarrassment were marginally or significantly different between nurses and surgeons ($t_{\text{Nurse1-Surgeon1}} = -2.43, p = .10$; $t_{\text{Nurse1-Surgeon2}} = -2.51, p = .07$; $t_{\text{Nurse2-Surgeon1}} = -3.53, p = .004$; $t_{\text{Nurse2-Surgeon2}} = -3.61, p = .003$). Moreover, there was no significant difference between the scores of embarrassment in relation to the two nurses ($t_{\text{Nurse1-Nurse2}} = 1.10, ns$) or the two surgeons ($t_{\text{Surgeon1-Surgeon2}} = -0.08, ns$). Scores for the two nurses and the two surgeons were aggregated, and the results show significant differences ($t(32) = -3.42, p = .002$). The mean embarrassment scores were higher for surgeons ($M = 3.44, SD = 1.97$) than for nurses ($M = 2.27, SD = 1.45$).

As expected, embarrassment in speaking up and pointing out an error was greater when the person spoken to had a higher professional status.

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

Strategies for speaking up

The strategies used to speak up are presented in Table 2. Students expressed themselves using mainly statements (75.76%), sometimes questions (16.67%), and more rarely, a statement followed by a question (3.03%). Five participants gave no answer (3.79%). Interventions were mostly verbal only (79.55%), sometimes involved words and actions (15.15%), and were rarely non-verbal (1.52%).

With regard to content, participants' interventions included rule reminders (55.30%), sometimes a suggestion or advice (28.03%) or a warning (23.48%), and, more rarely, humour (5.30%). Apart from warnings, which were addressed twice as often to the nurse than to the surgeon, there were no obvious differences according to the status of the person spoken to. However, there were differences in the phrasing: statements to the surgeon were formal (72.73%) and personalized (36.36%), but informal (66.67%) and almost never personalized

(4.55%) for the nurse. Polite formulas were sometimes used (26.52%), slightly more often with the surgeon (30.30%) than with the nurse (22.73%).

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

Content analysis of self-debriefing

Self-debriefing responses are presented in Table 3. Among the factors that encouraged speaking up, participants were most aware of individual factors, particularly their role as professionals (88.64%) and their responsibility towards the patient (25.00%). Contextual factors such as team relationship (5.30%) were mentioned less. Perceived obstacles to speaking up were cost in terms of fear of the responses of others or conflict (8.33%), and one participant mentioned lack of personal control and impact (0.76%). Fear of conflict was greater with the surgeon (13.64%) than with the nurse (3.03%), and lack of impact and personal control was only mentioned in relation to the surgeon (1.52%). Participants mentioned different strategies: positive intent (4.55%) and selecting to whom to address their concerns (3.03%).

Participants also mentioned other strategies that are not included in Okuyama's model: playing down the situation or making excuses to explain the behaviour (11.36%), transferring responsibility to others (8.33%), silence (7.58%), humour (1.52%), nonverbal communication (0.76%), and raising the subject later and discreetly (0.76%). Most of these strategies were more frequent with the surgeon than with the nurse: finding excuses and playing down the situation (15.15% with the surgeon, 7.58% with the nurse), transferring responsibility to others (13.64% with the surgeon, 3.03% with the nurse), remaining silent (10.61% with the surgeon, 4.55% with the nurse); humour, raising the subject later, and nonverbal communication were used only with the surgeon.

****Insert Table 3 about here****

Acceptability of the simulation and satisfaction

Participants found the tablet easy to use ($M = 4.68$, $SD = 0.39$, $min = 4$, $max = 5$). They also said that they were immersed in the scenario and liked the graphics ($M = 4.47$, $SD = 0.58$, $min = 3$, $max = 5$). They were more reserved about its contribution for training ($M = 3.18$, $SD = 0.76$, $min = 1.5$, $max = 4.5$). However, overall satisfaction was good ($M = 4.39$, $SD = 0.79$, $min = 2$, $max = 5$) and also the intention to use in the future ($M = 3.97$, $SD = 1.00$, $min = 1$, $max = 5$). At the end of the session, participants' emotional state was good ($M = 4.18$, $SD = 0.73$). Twenty-nine participants expressed positive emotional state, three participants expressed a neutral emotional state. Only one participant expressed a negative emotional state.

Discussion

The objective of this study was to assess the speaking-up behaviour of scrub nurse students in different situations and with people of different professional status, and to analyse their attitudes and strategies, through an interactive simulation on digital tablets.

First, the results confirm our first hypothesis concerning the effect of status on the likelihood of speaking up. Apart from the first vignette where the nurse is wearing earrings, there was a greater likelihood of speaking up with the nurse than with the surgeon. This result confirms some previous studies showing the effect of hierarchical relationships in OR on speaking up (Hémon et al., 2020; Okuyama et al., 2014; Pattni et al., 2017; Sydor et al., 2013). We also observed an unexpected difference between the two vignettes involving a nurse. It could be due to our choice of the clinical situation. Even though wearing jewellery is forbidden in the OR, there are varying degrees of tolerance about wearing earrings between regions, hospitals, and teams. This non-compliance with universal standard precautions in the OR, which is fairly common, does not trigger as much speaking up as could be expected

(Michinov et al., 2016). Future development of our scenario should include a less controversial clinical situation involving the nurse.

The results also confirm our second hypothesis, showing that participants were more embarrassed to point an error out to the surgeon (higher status) than to the circulating nurse (equal status). There was thus an effect of status on participants' embarrassment about speaking up. This is also observed by the analysis of the way the participants wrote about how they would speak up: they used a more formal tone and personalization when addressing the surgeon, which is in line with the politeness strategies described in previous studies (Morrison, 2011; Pattni et al., 2019). The participants said that it was their role as professionals and their responsibility towards the patient that motivated them to speak up. The strategies they used are in agreement with their feelings of embarrassment when addressing the surgeon: selection of who to speak to, nonverbal communication, and raising the subject later were only used in this situation. The other strategies (i.e. non-communication, playing down the situation and finding excuses, transfer of responsibility to others) were mentioned in relation to both surgeon and nurse, but particularly the surgeon (Pattni et al., 2019).

Regarding the simulation scenario on digital tablets, participants reported good levels of acceptability and satisfaction. As in other studies on the use of tablets for education and training, the students felt engaged and satisfied with the use of digital tablets (Verkuyl et al., 2019). Their future intention to use digital tablets for future training is good. Concerning the usefulness of the digital tablets for training, the scores are moderate. Several explanations can be proposed. First, we did not specify at the beginning of the course clear and informative curriculum guidelines for implementation of tablet technology, and some previous studies suggested that it a recommendation (Otterborn et al., 2019). Moreover, the theoretical background to the concept of speaking up was given to the students after their evaluation of

the scenario at the end of the session. This was done to ensure the spontaneity of the students' responses and to stay close to the natural situations of interaction.

Limitations and future studies

One of the main limitations of this study is the small number of participants, and the fact that they were all from the same school. It would be interesting to repeat this simulation session with students from other schools to see if our results are confirmed.

Another limitation is that the participants gave declarative answers about a situation in a nursing school. This obviously gave rise to a social desirability effect, in line with previous studies (Schwappach & Gehring, 2014). This is confirmed by the fact that five students declared that they would probably not speak up about the error, but that ten students explained why they would not do so in their self-debriefing. It would be interesting to enlarge our population and include experienced scrub nurses to see if their answers differed significantly from those of the students. Previous studies have shown that speaking-up training with real and virtual surgeons are of comparable difficulty for nurses (Robb et al., 2015). If simulation on tablets allows collective simulation sessions, it provides a lower level of immersion and self-debriefings remain individual. However, it would be interesting in future studies to measure correlations with actual behaviour in the OR.

Hierarchical differences were highlighted in our study, but in healthcare, gender often doubles this effect (Etherington & Boet, 2018). In our vignettes, the characters were represented according to social stereotypes, with female nurses and male surgeons. Future studies should include gender differences, with female surgeons and male scrub nurses, in order to analyse participants' reactions and the effect of gender on speaking up. Mistakes made by women in leadership positions are reported more frequently than those made by men (Pattni et al., 2017). Our study also does not take into account the type of relationship

between colleagues (e.g., familiarity, trust) that may also influence willingness to speak up (Milliken, Morrison, & Hewlin, 2003).

Conclusion

In this study, we analysed the speaking-up behaviour of scrub nurse students in various situations and with people of different professional status (i.e. scrub nurse and surgeon), using an interactive digital simulation on tablets. The results show that participants spoke up according to their evaluation of the situation (nature and level of risk), and not only according to the status of the person addressed. However, they expressed greater embarrassment about speaking up to a person with higher status. This is confirmed by their phrasing and strategies when addressing the surgeon. Results also show good acceptability of the simulation scenario, encouraging the development of simulation in nursing and other specialties. The scenario could be used to train surgical residents to speak up with senior surgeons and develop greater awareness of their listening skills as they climb the hierarchical ladder. Studies have shown that quality of communication is evaluated differently by surgeons and nurses (Makary et al., 2006). Training future surgeons to speak up may help cultivate a culture of open and safe communication in the OR (Pattni et al., 2019). The next step could also be the development of the scenario in an immersive virtual environment, to enhance immersion and enable participants to behave more naturally and intervene orally. Future developments of the scenario could include self-debriefing in the simulation session, with a facilitator-led virtual debriefing for example, and help contribute to the development of VR simulation debriefing standards (Verkuyl, Atack, et al., 2018; Verkuyl, Lapum, et al., 2018).

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Figure Caption

449 **Figure 1.** Photo of the virtual reality environment on tablet

Table 1

Mean scores (and standard deviations) of the likelihood of speaking up and embarrassment in each clinical situation

Clinical situation	Likelihood of speaking up	Embarrassment
Nurse 1	5.15 (2.12) ^a	2.48 (1.80) ^a
Nurse 2	6.79 (0.60) ^b	2.06 (1.68) ^a
Surgeon 1	6.27 (1.23) ^c	3.42 (2.24) ^b
Surgeon 2	5.88 (1.56) ^c	3.45 (2.12) ^b

Note. Means in the same column sharing a common superscript are not significantly different.

Nurse 1= Earrings; Nurse 2= Table; Surgeon 1= Mask; Surgeon 2= Sterile field.

Table 2

Strategies for speaking up

Categories	Elements	NURSE		SURGEON		TOTAL	
		/66	%	/66	%	/132	%
Nature of sentence	Question	11	16.67	11	16.67	22	16.67
	Statement	51	77.27	49	74.24	100	75.76
	Statement and question	2	3.03	2	3.03	4	3.03
	No intervention	2	3.03	3	4.55	5	3.79
Verbal and non-verbal	Words	51	77.27	54	81.82	105	79.55
	Actions	0	0	2	3.03	2	1.52
	Words and actions	12	18.18	8	12.12	20	15.15
Phrasing	Polite formula (e.g. please, excuse me)	15	22.73	20	30.30	35	26.52
	Personalization (e.g. first name, last name, Doctor)	3	4.55	24	36.36	27	20.45
	Informal	44	66.67	0	0	44	33.33
	Formal	0	0	48	72.73	48	36.36
Content	Humour	3	4.55	4	6.06	7	5.30
	Warning (e.g. Look out, Be careful)	20	30.30	11	16.67	31	23.48
	Advice or suggestion	15	22.73	22	33.33	37	28.03
	Reminder of rules	39	59.09	34	51.52	73	55.30

Table 3

Self-debriefing: speaking-up factors adapted from Okuyama's model (2014)

Categories	Elements	NURSE		SURGEON		TOTAL	
		/66	%	/66	%	/132	%
Contextual factors	Team relationship	5	5.58	2	3.03	7	5.30
Individual factors	Responsibility towards the patient	16	24.24	17	25.76	33	25
	Role as professionals	59	89.39	58	87.88	117	88.64
Perceived safety versus costs	Fear of the responses of others or conflict	2	3.03	9	13.64	11	8.33
Perceived efficacy versus futility	Personal control and impact	0	0	1	1.52	1	0.76
Voice: message, tactics, targets	Show positive intent	2	3.03	4	6.06	6	4.55
	Select person	0	0	4	6.06	4	3.03
Other strategies	Nonverbal communication	0	0	1	1.52	1	0.76
	No communication	3	4.55	7	10.61	10	7.58
	Raising the subject later	0	0	1	1.52	1	0.76
	Finding excuses, playing down the situation	5	7.58	10	15.15	15	11.36
	Transfer responsibility	2	3.03	9	13.64	11	8.33
	Humour	0	0	2	3.03	2	1.52

Figure 1

Photo of the virtual reality environment on tablet



APPENDIX A

Examples of scenario with the clinical vignettes

Nurse 1

The circulating nurse wears earrings

Do you report it (with words or gestures) to the circulating nurse?

1 2 3 4 5 6 7 OK

1 very unlikely 7 very likely

The circulating nurse wears earrings

Do you feel embarrassed to report it to the circulating nurse?

1 2 3 4 5 6 7 OK

1 not embarrassed at all 7 very embarrassed

Surgeon 1



SPEAKING UP

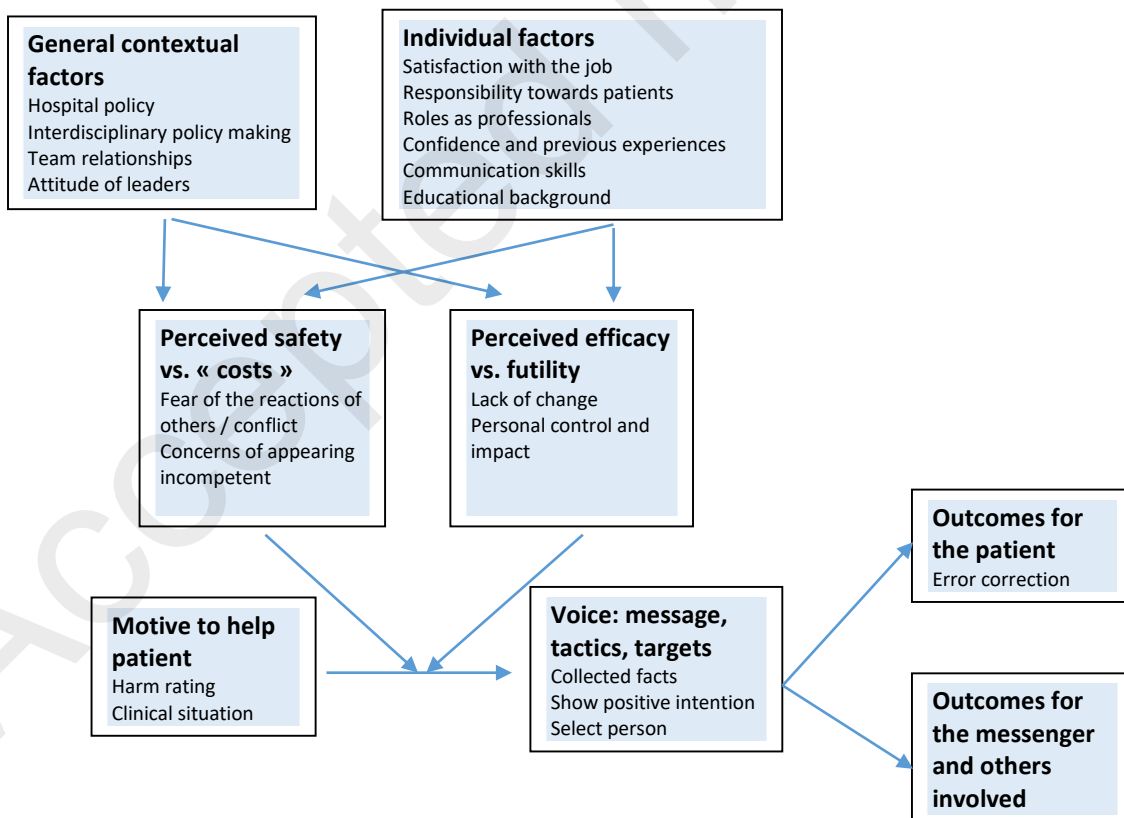
DEFINITION

- Explicit communication of critical information related to the task (opinions, doubts, suggestions...) in order to improve the quality and safety of care. E.g.: report an asepsis error.
- Ability to make oneself heard and to present one's point of view firmly and authoritatively.
- An important non-technical skill for teamwork.

WHY TRAIN ON THIS SKILL?

- 43% of incidents in the OR are related to communication breakdowns among personnel.
- 23% of incidents involving a communication gap are related to the reluctance to share concerns or critical information.
- Information exchanged in the OR may be inaccurate or incomplete, and shared with the wrong person or at the wrong time.

MODEL OF HEALTHCARE PROFESSIONALS' SPEAKING UP (OKYAMA ET AL., 2014)



APPENDIX B

- For healthcare professionals speaking up for is motivated by the desire to protect the patient and ensure safety of care. This motivation is modulated by the perceived risks to the patient and the ambiguity of the situation (uncertainty).
- Factors influencing speaking up are contextual (e.g. support from the hospital administration, safe team climate: valuing the role of each individual, encouraging questions) but also individual (e.g. positive past experiences, high sense of responsibility towards the patient, identification with the patient's professional role, communication skills and confidence in one's abilities).
- These factors interact on healthcare professionals' perception of safety or potential cost for themselves (e.g., apprehension of negative consequences: fear of repercussion on one's career, anticipation of team members' reactions, fear of appearing incompetent, fear of generating conflict) and on their perception of effectiveness (e.g. feeling of futility, feeling of being ignored or not having a word to say in the team).
- In light of all these factors, healthcare professionals may choose to express themselves orally or use strategies to overcome these perceived barriers (e.g. discreet and later resolution, call in a third party).

HOW CAN SPEAKING UP BE DEVELOPED?

BY TRAINING (SIMULATION)

Practise with communication tools, in team, identify effective message formulations and factors that allow one to speak up or not.

BY DOING

WITH STRUCTURED COMMUNICATION TOOLS

- **SAED** by the HAS: I describe the situation, I indicate the context, I give my assessment and I formulate my request.
- From TeamSTEPPS
 - **CUS** (Concerned, Uncomfortable, Safety) examples of assertive statements: "I'm worried," "I'm uncomfortable," "it's a safety issue."
 - **DESC**: I Describe the situation, I Express my feelings, I Suggest an alternative, I Evaluate the Consequences on the objectives in order to reach consensus.

APPENDIX B

- **TWO-CHALLENGE RULE:** after a first ineffective warning, a second assertive expression of concern. Either the target validates the reception of the message, or the problem remains unsolved: ask for help or ask the hierarchy for help.

A FEW RECOMMANDATIONS

- Speak in the first person
- Describe rather than judge
- Propose solutions and involve people
- In the presence of patients or family members, develop coded words or gestures.
- Don't get discouraged
- It's never too late

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