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Novice medical students' perception about bad news training with simulation and spikes strategy

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ABSTRACT

Objective: To analyze the medical students' perception about simulated consultations before and after training using the SPIKES protocol.
Methods: Quasi-experimental study, with a qualitative approach. It counted with the participation of 20 students as Simulated Physicians (SF), and 20 students as Simulated Patients (SP), all belonging to a medical course. Data were obtained from the responses given to a reflective question, applied before and after training with the SPIKES. The treatment and the analysis of the data were guided by the stages of thematic analysis.
Results: In the category "Simulated Medical Student's Self-Perception", the subcategories "Nervousness and Insecurity" were predominant after the first consultation, while "Tranquility and Security" after the second consultation after training. In the category "Simulated Medical Student's Perception about the Educational Process", the subcategory "Reflective Learning" emerged in the students' speeches, especially after the second consultation. In the speeches of SP, it was evidenced the improvement of the care provided by SF after training.
Conclusion: The strategy used for the development of communication skills showed evidence of short-term effectiveness.
Innovation: The research resulted in a teaching protocol for students in pre-clinical stages that involves four stages: simulation, self-assessment, feedback and new simulations.

1. Introduction

Studies have recommended that medical schools invest in the teaching-learning process of communication skills (CS) [1-5]., in order to guarantee the formation of professionals capable of exercising their role in society [6].

Evidence over the past few years has proven that CS can be taught and that this learning can be long-lasting. Of the educational strategies used for teaching CS, those based on pedagogical theater and simulation have been the most widely used and recommended [7-9].

These strategies are aimed to insert students into the learning process through assisted and guided practice. In the educational context, simulation can be defined as a situation created to allow people to experience the representation of an actual event, with the purpose of practicing, learning, assessing, testing or understanding human systems or actions [9].

In this sense, the theory of experiential or experience-based learning (EBL) constitutes the theoretical foundation of simulation-based educational strategies. According to EBL, knowledge is the result of the understanding and transformation of experience [6,10].

By recognizing the difficulty of health professionals in transmitting bad news, the application of the SPIKES [11] protocol can contribute to the development of this skill. This is a protocol developed by a group of North American and Canadian oncologists associated with the MD Anderson Cancer Center at the University of Texas, United States of America, and the Sunnybrook Regional Cancer Center in Toronto, Canada, and incorporated by the Brazilian National Cancer Institute (INCA, as per its Portuguese acronym) and the Ministry of Health of Brazil [5,12,13].

The SPIKES protocol describes six steps in a didactic way to communicate bad news. The initial letter of each step corresponds to the letters that form its name – SPIKES. The first step (setting up) refers to the preparation of the physician and the physical space for the event. The second (perception) verifies to what extent the patient is aware of his/her condition. The third (invitation) seeks to understand how much the patient wants to know about his/her illness. The fourth (knowledge) will be the transmission of the information itself. At this point, some recommendations are highlighted, such as: to use introductory sentences that indicate to the patient that bad news will come; not to do it in an abrupt way or use technical words in excess; and to check the patient's understanding. The fifth step (emotions) is intended to empathically respond to the reaction shown by the patient. The sixth (strategy and summary) can decrease the patient's anxiety by revealing the therapeutic plan and what might happen [12-14].

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CS training in a simulated environment has been pointed out as the best way to effectively acquire the necessary skills in this field of action [3,8,15-18]. Given this understanding, this research was carried out to analyze the perception of medical students about simulated consultations, before and after training, using the SPIKES protocol, in the condition of simulated patients (SP) or simulated physicians (SF).

2. Method

This is a quasi-experimental study [19], typified as analytical, with a qualitative approach [20], based on the students' responses to the question: "How was the experience with the consultation?", after simulated consultations. It had a convenience sample offering the totality of 1st and 4th semester students out of a universe of 100 students for each, and the invitation to take part in the registration for the research was made at times other than class hours. The first 20 students who accepted in each semester were accepted into the research. The simulated patients were offered a 4-hour educational theater training with one of the medical researchers and the other psychologist with Role play method, as well as reading and discussion of the complete clinical case, one week before the simulation. The consultations took place before and after training for communicating bad news to medical students, using the SPIKES protocol. Data were collected during a one-week period between the two consultations, guaranteeing similar conditions on the two days, thus characterizing a before and after study without a control group. The second consultation was considered by us as the application and incorporation of the content of the Spikes Protocol and that occurred three days only to the training of the same characterizing TBL (Team Based Learning) [21-23].

2.1. Sample

This study included the participation of 20 students from the first year and 20 from the second year of the Medical course, 1st and 4th semester, respectively, from a private institution, located in the city of Salvador, Bahia. The 100 students from each semester were invited to participate in the study. The first 20 volunteers from the 1st semester, who responded to the invitation, composed the groups of simulated patients (SP). The students of the first year were selected considering the capacity of giving greater veracity to the simulations because they weren't related to the fourth year students, and because they started acquiring academic scientific knowledge very recently and can better represent the patient's role. Among the 30 volunteers from the 4th semester, 20 participated in all stages of the study and were included as simulated physicians (SF). All participants completed the Free and Informed Consent Form (FICF) to participate in the various stages of the study. The quantitative sample established in this study takes as a reference that, in the qualitative approach, besides the participants being intentionally selected, a large sample size is not necessary for the researcher to understand the problem and the research question [20,24,25], since, according to Minayo de Creswell, a reasonable sample in qualitative approaches should be between 20 and 30 participants [23,24].

2.2. Study context

Initially, the students from the 1st year underwent training to act as SP. A service scenario was then constructed at the institution's outpatient clinic, at a time not dedicated to patient care. The group of students was supported by the research team, one psychologist and one doctor, which had professionals trained to provide psychological support to students, if necessary. In a second moment, the group of students who acted as SF underwent training for the SPIKES protocol, which used active learning methodology as strategies, TBL [21-23] and pedagogical theater [9]. After the training was concluded, the students who acted as SF and SP performed a 2nd consultation, with the same case and scenario. Thus, after the 1st and 2nd consultations, the question "How was the experience with the consultation?" was applied, in order to be responded in writing by the SF and SP.

2.3. Data analysis

Both for the treatment and the analysis of the data, the stages of content analysis theorized by Bardin [22] were adopted. In content analysis, the most appropriate modality was the thematic one, since keywords or phrases are the "units of meaning that naturally emerge from an analyzed text" (theme). It is commonly used as a Record Unit (RU) to collect motivations, opinions, attitudes, beliefs and tendencies of a surveyed population or group [26]. This analysis resource was considered appropriate to support the notion of methodological cycle addressed in this research, where the experiences in the simulations, before and after the SPIKES protocol training, could allow the production of different views on the use of competencies related to effective communication. The analysis and categorization was held individually and finalized in consensus by three researchers with expertise in the theme.

Finally, the researchers met with the main researcher to show the final categories, which were defined for validation of the collected data. The categories related to SF and SP emerged from the content of the students' responses.

The project of this study was registered in *Plataforma Brasil*, under n° 33098314.4.0000.5544, in compliance with the guidelines of the National Health Council, through Resolution 466/2012 [27]. It was received by the Research Ethics Committee (REC) and, after assessment, authorized through Opinion n° 1.649.349.

3. Results

A total of 20 students acted as SF, 10 females and 10 males, and with a total of 19 simulated patients, 11 females and 8 males, with an average age of 20 years. One student was missing on the day of the simulations.

Data analysis took place in accordance with the steps of the thematic analysis technique, culminating in thematic categories that corresponded to the reports of simulated physicians (SF) and simulated patients (SP), at two different times: referring to the perceptions of the first and second consultations. In tables 1 and 2, the Registration Units (RU) are displayed, corresponding to each category that emerged from the speeches of SF and SP, respectively.

The category referring to the SF student's self-perception and its respective subcategories, displayed in Table 1, highlighted that the practice of simulation in transmitting bad news allowed reflections about the importance of developing communication skills. The testimonies related to this condition showed the difficulties in giving bad news and suggest that this practice needs care by those who have the knowledge and occupy the position of health professionals. The subcategories reflect the perception of the feelings of SF, before and after training with the SPIKES.

3.1. Feeling – Nervousness/insecurity

In the first consultation, the RUs that register the "feeling – nervousness/insecurity" stand out, revealing how difficult emotions arise in the face of technical unpreparedness. These can be seen in the following RU:

Table 1
RU of the Thematic Categories Emerged from the Simulated Physicians to the question after each consultation: "How was the experience with the consultation?"

Thematic Categories	"n" of RUs in the 1st moment (Assessment of the 1st consultation)	"n" of RUs in the 2nd moment (Assessment of the 2nd consultation)
Simulated Medical Student's Self-Perception		
Feeling – Nervousness/ insecurity	16	03
Feeling – Tranquility/security	01	13
Feeling - Personal mobilization	07	0
Simulated Medical Student's Perception about the Educational Process		
Reflective learning	07	12

Table 2
RU of the Thematic Category and subcategories, emerged from the SP students, after each consultation, to the question: "How was the experience with the consultation?"

Category Student's Perception (SP) about the Simulated Physician (SF)"		
Subcategories	"n" of RUs in the 1st consultation	"n" of RUs in the 2nd consultation
Empathetic welcoming	13	15
Effective communication	03	05
Nervousness/insecurity	04	04

"When assisting a patient with a difficult diagnosis like this, I felt powerless in the face of this situation (SF5)"; "I felt unprepared and nervous, since I didn't know how to fully deal with the situation (SF7)"; "During the experience of communicating bad news, I felt bewildered as to how to hold the situation (SF10)".

The feelings mentioned above are consistent with the content of the RUs in the category "Student's perception (SP) about the Simulated Physician (SF)", when they assess the service of SF, also before and after training, in the subcategory "Nervousness/insecurity" (Table 2). In this, significant contents are registered in the first consultation, related to the interference of the nervousness/insecurity feeling, perceived by SP and can be verified in the following excerpts: "I seemed very nervous about the situation, I didn't seem prepared to give such strong news to a patient (SP02)". "It was a very important experience, although they were very nervous (SP07)"; "G. was considerate, took the time to explain the terms to me, and he did his best to try to help me, even though he was nervous (SP03)".

3.2. Feeling – Tranquility/security

Although SF did not feel completely secure, the content of RU suggested some difference in the second consultation, identified in the subcategory "Feeling – tranquility/security", exemplified below: "It was a much better experience than the previous one! It's great to have a sense of what to do, a sequence to act, makes us better prepared for these situations (SF5)". "Today's experience was smoother. I was already more secure about how I should proceed (SF10)". This condition is supported by the content of the subcategory "Empathetic welcoming" (Table 2), from the perception of SP, in the second consultation, seen in the excerpts: "This time, the service was better, J. introduced himself, took time to ask questions about my status, my family, about hospitalization, he said that it is a suspicion and that it is nothing concrete. It was a good service (SP07)"; "The second doctor seemed much more interested in my understanding of the disease and my emotional state after the diagnosis (SP11)"; "Compared to the first week, the physician tried to find out a little more about my life and its influence on the disease. I felt more welcomed with the doctor's behavior when he met me at the door and kept looking into my eyes (SP17)".

3.3. Feeling – Personal mobilization

In this subcategory, it was possible to verify that even feelings not mentioned, nor treated as something to be reflected upon or taught in the training process, stand out as components of a reality where the emotional and sensitive dimension of human life is recognized. This is identified only in the first consultation, shown in the following RUs: "Initially, I felt bad for giving a diagnosis, or rather a diagnostic suspicion. But, when I read the entire diagnosis, I felt even worse, since the diagnosis reminded me of a family member who had coincidentally died from the same thing I diagnosed the patient (SF8)"; "I have difficulties in giving bad news, as I laugh endlessly regardless of what the other is saying or regardless of how serious the news is (SF9)"; "The desire, the instinct I had was to calm down the patient, hug him, comfort him as a friend. But, I should always remember that, as a physician, I could not assume the position of a friend (SF12)".

3.4. Simulated Medical Student's Perception about the Educational Process

Reflective learning has emerged in the context of the educational process. It is produced, fundamentally, from the observation of one's own way of acting, supporting the creation of a personal way of acting that meets the present needs. As can be verified in the statements that follow, the students recognize that the experience stimulates critical and reflective capacity, facilitating the learning process, even in the first consultation, still without the training: "The experience as a whole was constructive and pleasurable. I learned how important communication skills are, especially at the time of the 1st service (SF1)"; "I hope I can improve my communication skills later on (SF4)"; "I left the consultation wanting to learn a lot about this (SF7)".

In the second consultation, the statements about reflective learning had greater resonance. The RUs that made up this category point to an increased reflection about their role as physicians at the moment of giving bad news, after completing the training. The content can be verified below: "I considered my performance much better. I felt that the patient was more welcoming and had more space to ask questions (which didn't happen in the first visit). As a whole, I learned a lot and gained important experience for my future profession (SF1)"; "I would do more experiences like this one, since this model of two simulations with training between them served for me to identify my difficulties, learn to improve and simulate the skills learned, in a logical and intuitive order (SF3)".

The perception of improvement in the service provided in the second consultation, as a reflection of successful learning, is identified by SP, through the subcategory "Effective communication", where RUs express adequate communication and point out changes that reflect the learning obtained after training with the SPIKES, where know-how is perceived in SF. This can be seen in the following expressions: "He wanted to make sure that I understood what the disease was, he tried to give me support and offered me help. Moreover, he tried to find out about my life story (SP3)"; "In the second visit, the improvement in the language item was notable, since the doctor tried to explain with simple language and that would make any layman understand the problem and its consequences. I liked the way my doubts were resolved and the illness process explained (SP14)"; "In general, being a patient, he certainly leaves the consultation more enlightened and happier, even though he has a better understanding of the severity of the leukemia (SP17)". Accordingly, in the second consultation, SP can observe the recognition of an internal resource by SF, when conducting the consultation by noting the care with communication and with a beginning, middle and end script.

4. Discussion and conclusion

4.1. Discussion

Results of studies have indicated that physician-patient communication should begin very early with medical students [4,9,17], considering that, as communication is a skill, it includes complex delicate, emotional and cognitive aspects. Thus, it has been increasingly evident that the development of this skill requires training and, due to its complexity, requires time and repetition [1]. For Moral *et al.*, students who participate in training programs related to the development of CS show greater capacity in using these skills in clinical practice [28].

With this understanding, the design of this research was conducted. Through the obtained results, it could be verified that the simulation, as an active methodology, allowed the students to be involved as active subjects and not objects of action. Wang *et al.* also point out that a simulation-based medical education provides students with a greater ability to communicate with colleagues and teachers, and the acquisition of this skill can lead to humanistic care and better physician-patient communication [29].

When analyzing the RUs of students who worked as SF, it was observed that the mobilization of feelings such as nervousness and insecurity, present in the first consultation, gave way to tranquility and security in the second

consultation. This fact was also perceived by SP, when they assessed the service as "Empathetic welcoming" conducted by SF, in the second consultation. It is known that experimentation in a simulated environment is an important stimulant for learning. To this end, pedagogical theater techniques [9], which facilitate learning, have been used, such as role playing, realistic simulations with simulated patients and physicians (SP-SF), with filmed cases or not, discussion in small groups, reading of cases, films and tutorials [30].

In this context, research by Jianj, Shi and Cao [31] on the effectiveness of using dramas with clinical settings for teaching communication skills and physician-patient relationship revealed that medical students indicated that this resource helped them gain more confidence, better understand the physician-patient relationship and improve their clinical communication skills.

In the case in question, an educational action was applied between the two consultations, with the SPIKES protocol [11] and the TBL methodology [21-23] by considering that, with the use of this strategy, one learns in collaborative work and in theory based on meaningful learning [32].

Personal mobilization, by identification with the clinical situation shown in the simulation or by identification with the patient, was also observed in the first consultation, which was not identified in the second, probably because it is a situation already experienced and worked on by the educational action.

As could be seen in RUs, the students recognize that the experience stimulates critical and reflective capacity, facilitating the learning process, even in the first consultation, even without qualification or any training. In this sense, it is in line with Gronlound, an educator specialized in defining that learning can take place in two scopes: domain learning and developmental learning. The first refers to the acquisition of the cognitive and procedural content domain, previously established; the second, in turn, comprises the learning attitudes and attitudes that go beyond the previously established domain [33].

By applying this theoretical understanding to the use of the SPIKES protocol, it is possible to understand a learning process that enabled students to creatively use the resources learned in their daily practice with patients, that is, to integrate the steps and recommendations of the protocol in the care of people that, by any chance, need to receive "bad news". A basic learning that enables new mediations, as reality demands it [34].

In a simulation context, reflective learning is produced, fundamentally, from the observation of one's own way of acting, supporting the creation of a personal way of acting that meets the present needs [6]. The reflective look about oneself and one's actions was evident since the first simulated consultation (moment 1), as can be verified with some excerpts of RUs shown in Table 2. Accordingly, it can be related that reflective learning is also the one that allows creativity and humanization in the use of the technical domain of contents and can only be built intermittently, through lived and understood experience [33,34]. This teaching modality encourages students to reflect and makes them responsible for their own learning, giving a meaningful learning nature [35].

In the second consultation, the statements about reflective learning had a greater resonance, which points to an increased reflection about their role as physicians at the time of the bad news. These RUs reflect the concern with how to act and communicate the news more carefully. In this case, students felt more confident in their performance during the consultation. At the same time, they show how the protocol helped them to structure their communication, allowing for a more logical and supported dialogue than in the first consultation [36]. Despite not feeling completely secure, the reports suggest some difference after the second consultation.

Thus, learning with this quality indicates a developmental behavior that goes beyond the teaching-learning process. These require a type of teaching through experiences that allow the inclusion and integration of the student in the process of reflecting about their feelings in the moments of their performance. It is then up to the facilitator/educator to develop teaching objectives and methodologies, with the management and the represention of these emotions that professional-relational life requires [37]. For Karniele-Miller, the same communication skills taught during the training process of physicians, related to physician-patient communication, should be used by educators to improve the reflective capacity of the student [6].

With respect to the use of the SPIKES protocol, this meant learning that allowed the students to repeat the steps of the protocol, adapting the theory learned in the curricular components of the college to the reality of emotions and feelings that arose at the moment when patients and families had their diagnoses revealed, with information that is imposed in the daily practice of physicians [38].

The effect of educational action applied to SF students was also shown in the responses of SP students. The key elements of an adequate consultation, with welcoming, effective communication and empathy were evident in the comparison of the speeches related to the second consultation, after the application of the educational action with those after the first consultation. Although the aspect of empathetic welcoming was present from the first consultation, SP students described qualitative improvement, as well as communication. This effect is in line with what is expected from an effective physician-patient communication during a consultation, recommended by the Calgary – Cambridge guide, enhanced by Kurtz *et al.*, when it enables the development of communication skills, aimed at a possible successful clinical practice, which were acquired from reflective learning provided by the simulated environment [39].

As limitations of this study, the absence of a control group to verify the effectiveness of the training should be considered. Weakness was also perceived in the performance of SP students, compromising realism. This fact finds resonance in a study carried out by Bagacean, Cousin, Ubertin *et al.* [40], when they performed simulated dramatization activities of students with a professional actor, and it was identified that the students' communication skills were more adequate, when interacting with a professional actor, than with a fellow student. These authors concluded that the actors' flexibility in verbal and non-verbal communication, as well as their emotional commitment, seemed to generate more concentration in the learner.

It is noteworthy that, by applying this educational strategy, one can stimulate a learning process that enabled students to creatively use the resources learned in their daily practice with patients, reducing the insecurity and nervousness and promoting reflections about the importance of this theme in the medical practice.

4.2. Innovation

This was an innovation research aimed at implementing an intervention to promote the development of communication skills of medical students in pre-clinical phases. Research resulted in a teaching protocol involving four stages: simulation, self-assessment, feedback and new simulations. Despite being inserted early in the course, still in the second year, and focusing on bad news training, it is considered that the earlier this communication skill is developed, as a transversal skill throughout the course, the greater the chances of forming medical professionals with the competence to provide integral care, thus meeting the peculiarities of each patient, this practice being essential to medical professionalism.

4.3. Conclusion

It is concluded that the strategy used for the development of communication skills in relation to bad news showed evidence of short-term effectiveness, from the perspective of the participating students, when considering that the recognition of opportunity and learning with the applied strategy was present in the testimonies of SF and SP students, as well as the importance of developing communication skills for the medical professional.

Declaration of Competing Interest

The authors declare no conflict of interest.

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