

Surgical reconstitution of the perineum after delivery: a qualitative study of a pedagogical practice

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Abstract *A pedagogical activity with Master's Degree and Postgraduate students in Maternal Health and Obstetrics Nursing is described, applying principles of simulated practice in perineal suturing after delivery. This procedure causes a lot of insecurity and generates great anxiety in the students, when they start the internship in a delivery room. Objectives: to develop the psychomotor skills in students for perineal surgical reconstruction; increase students' self-confidence to perform the procedure. Methodology: qualitative, with 2 moments of data collection applied to two courses. Questionnaire with open questions, focus group session and filming. Content analysis of the answers to the questions and verbatim of the focus group. Results: a close relationship was observed between simulation and skills development. Conclusion: the students emphasized the importance of the pedagogical activity in the acquisition of suturing skills, improving their self-confidence and reducing the initial anxiety. The use of the qualitative research allowed identifying the impact of the simulated practice on the development of the students' skills and to identify aspects to be improved, contributing to the progress of pedagogical practices.*

Key words *Simulation, Suturing techniques, Perineum, Students, Obstetric nursing*

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Introduction

Simulation practice (SP) is considered a fundamental pedagogical resource in the training of health professionals and the importance of this type of teaching-learning method has been demonstrated in several studies^{1,2}.

Worldwide, the growing concern related to ethical and safety issues, resulting from the practical training of students in an actual environment, makes these methodologies more attractive, allowing the achievement of learning results without harm to clients and with health gains³.

The students of the Master's Degree and Postgraduate Specialization Courses in Maternal Health and Obstetrics Nursing (CMESMO and CPLEESMO) must expand and develop competences during their training program, in an appropriate and safe manner, for both the students and the pregnant women⁴.

The students must take into account their own well-being and consider the relevance of that well-being when caring for the pregnant woman. This has been the focus of care by the teachers/nurses specialized in maternal and obstetric health (EESMO).

Therefore, the pedagogical teaching during the SP was based on the concepts of Swanson's theory, inherent to the care processes: getting to know all of the students, being with them in person and emotionally, doing it for them, demonstrating when they report having difficulties, preserving their dignity, aiming to enable technical evolution, maintaining the belief in their potential to overcome the situation, achieve the expected results and face the future in a significant way^{5,6}.

Despite the WHO guidelines, since 1996, in order to reduce the episiotomy rate in women with spontaneous vaginal delivery⁷, perineal suturing (after an episiotomy or laceration) is a frequent EESMO intervention during the care practice.

Low-fidelity Simulation Practice - A training strategy in perineal suturing

The training through low-fidelity simulation practice is made more complex by the high financial cost it entails, so the use of medium- or low-fidelity simulation practice allows some skills, such as surgical repair of the perineum, to be learned at lower costs.

Acquiring theoretical knowledge through lectures or literature search does not allow the stu-

dents to reach the adequate and necessary level for their future performance as obstetric nurses. For this purpose, they must join and complement this knowledge with clinical practice, which takes place in the context of clinical teaching in the delivery wards. It is important that, before starting the internship, they experience the simulation practice in a controlled environment, since the learning developed with pregnant women is dependent on ethical-legal aspects.

Learning through simulation practice has shown to be an excellent strategy for students to acquire and / or develop skills before mobilizing and improving them in clinical practice. It also allows the training and reflection on the action and for action^{3,8}.

Simulation-based training is ideal for developing instrumental skills, such as basic surgical procedures of perineum suturing (episiorrhaphy and perineorrhaphy), showing a beneficial impact on self-confidence, satisfaction and self-efficacy^{1,9}.

Method

The pedagogical activity, as the one this study describes, was carried out within the curricular unit Internship with a Report, which takes place during the 4th semester of the 8th CMESMO and the 9th CPLEESMO, carried out in the context of a delivery ward. It is a self-directed, low-fidelity training, with guidance and permanent feedback provided by a teacher.

Its starting point comprised the answer to the following research question: "How do CMESMO and CPLEESMO students perceive the contributions of simulation practice to the development of psychomotor skills for the surgical reconstruction/suturing of the perineum?" There were two objectives to be attained: 1. to develop psychomotor skills in students for them to perform episiorrhaphy; 2. To increase students' self-confidence in performing the procedure.

An exploratory descriptive study with a qualitative approach was carried out, with several moments and using different methods of data collection, aiming to obtain more consistent results, as will be described below.

The aim is for the students to develop, in a controlled environment, skills that will allow them to improve their performance in an actual context, both in the technical, and in the psychological, cognitive and attitudinal aspects¹.

The participants of this pedagogical activity comprised 18 students from CMESMO and 15

students from CPLEESMO, attending the last semester of their respective courses, most of them females, with the exception of two male students. All of them had at least 2 years of previous experience as general care nurses at the beginning of the course. The students were informed about the objectives of the study and were asked to provide informed consent for the capture and use of photos and video, as well as for the use of their narratives expressed during the focus group session and their answers to the open questions.

This low-fidelity simulation practice activity consisted of 3 sessions. The first one lasted 2 hours and the next two lasted 3 hours each, which took place over one week. The students were divided into groups of 3, with each student having 3 sessions with in-person supervision by a teacher.

For both courses, the first session consisted of theoretical training aimed at reviewing previously taught theoretical content. The first session included the training of the surgical knot, the handling of surgical instruments (needle holder, forceps and scissors), and the initiation of suturing technique using a “high-density foam bench model”. In the second session, the training continued using the described model. In the third session, the perineum reconstitution training was carried out using a “meat piece bench model”, as shown in Figures 1 and 2.

The students learn and train, in an increasing order of complexity, the “surgical knot” technique, the basic stitch suture - the “simple stitch”, the vertical or U-shaped stitch - the “Donatti

stitch”, and the “Continuous suture technique”, perfecting the knots and sutures. The following suture threads were used: Novosyn® Quick HR37s, 0, and Novosyn® Quick HR37, 2-0, commonly used in delivery rooms in Portugal.

Although there was a guiding line of the common teaching-learning process, it considered the specific needs of each student, their dexterity or difficulties they had. The practice was individualized, repetitive and participatory. The “high-density foam bench model” consists of a wooden board with a foam parallelepiped measuring about 15 cm x 15 cm x 10 cm, removable and supported by two metal hooks and an elastic band, to prevent the foam block from sliding during the procedure.

The “piece of meat bench model”, consists of a wooden board, a waterproof disposable cover and a Kocher tongs, allowing the piece of meat to be fixed, preventing it from moving when training. The meat is usually pork, and the most often used pieces being pork belly or tenderloin. These pieces of meat allow a better simulation of anatomical structures after an episiotomy or perineal laceration (with a scalpel blade being used to reproduce these lesions), allowing a better perception of the different structures, such as the mucosa, the transition to the skin, the subcutaneous cell tissue and muscle. There is therefore the possibility of a more effective and real training in the coaptation of the “wound” edges.

The open questions of the questionnaire carried out at CMESMO, in 2018, before the internship was started, included the following:



Figures 1 and 2. Equipment used to initiate suture training.

Source: photographs taken by the authors.

1. Briefly mention 3 aspects that you consider the most positive/facilitating in/of your participation in this training;

2. Briefly mention 3 aspects that you consider the least positive/hindering in/of your participation in this training;

3. In order to improve this training practice as an instrument of the teaching-training process of learning, what suggestion/s would you present?

In the focus group session, all information obtained previously was validated. We aimed at identifying the initial difficulties and show the evolution regarding the mastery of the technique. For this purpose, the following questions were asked:

What skills did you develop with this pedagogical activity?

What facilities/facilitating aspects did you find during the course of this activity?

What difficulties/hindering aspects did you find during the course of this activity?

What are your suggestions to improve this activity?

The focus group session was filmed and recorded in audio and its *verbatim* was transcribed, to be subsequently analyzed.

Aiming to validate the importance of the pedagogical experience, we asked the students the following question, which was presented to the 9th CPLEESMO in 2019, at the end of the internship: "Describe how the simulation practice sessions of suturing technique initiation contributed to the acquisition of surgical skills for perineal reconstitution?"

All the material collected using the previously mentioned different data collection methods (open questions for the questionnaire and *verbatim* for the focus group¹¹) was submitted to content analysis according to Bardin¹⁰.

Results and discussion

The students who participated in the activity emphasized, at both times (during the SP and at the end of the internship) the contribution of the SP to the safety of the pregnant woman / student, for the development of skills at the cognitive, instrumental and affective levels. During the SP, time management, the intervention space and the opportunity to experience and anticipate facilities and difficulties emerged, as well as the reflection on the practice of care.

The categories that emerged based on the answers to the questions that were asked to the

students were: facilities and perceived difficulties, acquired skills and suggestions (in the first during the SP); and in the second moment at the end of the internship: the teaching-learning process and the cognitive, psychomotor and affective domains.

The Charts related to the categories illustrate the subcategories identified with a registration unit considered by the authors as the most significant of the students' verbal production.

In the first category (Chart 1), the facilities perceived by the students are in line with the scientific evidence, namely the "Decrease in anxiety"⁹.

The realism provided by the simulation was emphasized by the students as a facilitator of the "Anticipation of reality", especially a piece of meat was used in the suture training, simulating a situation similar to that in the internship context. The realism of the simulators contributed to the students' satisfaction, self-efficacy and self-confidence, an opinion also defended by Baptista et al.¹².

The students stated that the simulated practice allowed them to reduce their anxiety and nervousness they were facing when experiencing real situations, which increased their self-confidence, aspects corroborated by Zapko et al.¹³, who associated the students' decrease in anxiety with the simulation practice.

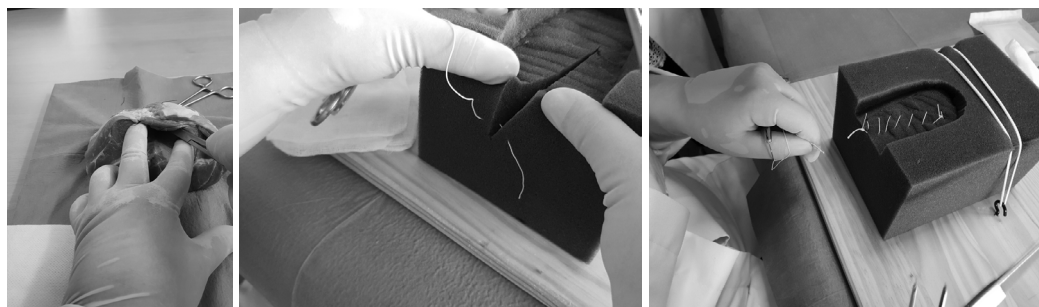
As a learning strategy, students also reported the importance of reviewing and consolidating previously taught theoretical contents to encourage them in simulated situations. The awareness of their need to expand the theoretical knowledge, as well as their motivation and initiative, shows that the simulation is an appropriate methodology for the training of adults, either through the active dynamics of problem-solving in the contexts of clinical practices¹⁴, or through the students' involvement and accountability of their own learning, in an environment that promotes well-being^{5,6}.

Based on the analysis of Chart 2, related to the *Perceived difficulties* category, the following subcategories were identified: "Fidelity of the high-density foam bench model", "Adaptation to the space / location of the place to be sutured (perineum)", "Handling of the surgical instruments", "Respect for safety principles", "Recognition of perineal structures", "Performing the technique rigorously" and "First practical contact with the technique".

The difficulties identified by the students were centered on the use and handling of the ma-

Chart 1. Main facilities perceived by the students.

| Categories | Subcategories | Registration units | Frequency Units |
|----------------------|---|---|-----------------|
| Perceived facilities | Anticipation of reality | <i>It was possible to have a clearer idea of what I have to do</i> | 3 |
| | Observation / previous suture training | <i>I had already worked in an area where we were used to seeing sutures</i> | 3 |
| | Use of Biological Model (piece of meat bench model) | <i>The piece of meat better simulates the reality that we will have to face</i> | 3 |
| | Decrease in anxiety | <i>If we hadn't had these classes, it would have been a greater overload of anxiety</i> | 1 |
| | Mobilization of theoretical knowledge | <i>It is always good to recap the basics</i> | 1 |

**Figures 3 to 5.** The various steps of the procedure.

Source: photographs taken by the authors.

terials, as well as on the adaptation to the available space for the performance of the technique in an actual context. The abovementioned difficulties are in line with the authors' teaching experience, having been one of the starting points for carrying out this study. The perception of these difficulties will allow the teaching team to find solution strategies based on Swanson's caring processes^{5,6}, facilitators of adaptation to clinical practice.

As advantages of simulation, regarding the students, the reflection and development of critical thinking about their own experiences is demonstrated, the importance of maintaining safety during the procedures^{15,16}, so that the possibility of errors occurring in an actual context is minimized, disclosing an aspect of ethical awareness³. The possibility of having a first con-

tact with the technique, thus reducing the gap between theory and practice, as reported by the students, is corroborated by Joset¹⁷ and Carneiro et al.¹⁸.

In the third category, *Acquired Skills*, the subcategories identified in Chart 3 emerged. The perception of the acquired skills is in line with the objectives of this pedagogical activity, namely the development of psychomotor skills and the increase of the students' self-confidence to perform the procedure. Some examples comprise the identified subcategories and the observed registration units, corroborated by other authors, disclosing the development of critical thinking¹², the ethical competences involved in the promotion of a safe environment^{8,15,19,20}, increasing the students' self-confidence, decreasing their anxiety, and reducing the gaps between theory and

Chart 2. Main difficulties perceived by students.

| Categories | Subcategories | Registration units | Frequency Units |
|------------------------|---|---|-----------------|
| Perceived difficulties | Fidelity of the “high-density foam bench” model” | <i>The foam does not simulate so well</i> | 2 |
| | Adaptation to the space / location of the site to be sutured (perineum) | <i>To suture an arm, we have all the space (around it), there we are limited to that little space</i> | 8 |
| | Handling of the surgical instruments | <i>The biggest difficulty was in handling the irons</i> | 3 |
| | Respect for safety principles | <i>My biggest difficulty was placing the needle safely in the needle holder</i> | 3 |
| | Recognition of perineal structures | <i>The biggest difficulty was the recognition of the structures (to be sutured)</i> | 2 |
| | Performing the technique rigorously | <i>The biggest difficulty: everything has to be aligned, the planes are all correct, otherwise the purpose won't be the intended one, if everything is not millimetrically aligned.</i> | 1 |
| | First practical contact with the technique | <i>I had never had contact (with sutures and suturing instruments)</i> | 2 |

Chart 3. Skills acquired by the students.

| Categories | Subcategories | Registration units | Frequency Units |
|-----------------|--|---|-----------------|
| Acquired skills | Risk perception | <i>I became aware of the risk I take if I don't take certain precautions</i> | 6 |
| | Development of self-confidence | <i>I was already thinking: then how do I pick up the scissors, and how do I pick up the tweezers ... and so we run into things and it is not as complex as we thought it would be</i> | 4 |
| | Development of manual dexterity | <i>It helps with dexterity with the material and with the irons, where we put them and where we don't, how we approach the skin</i> | 4 |
| | Adaptation to technique | <i>It allows adaptation to the limited space we have to work in</i> | 4 |
| | Expanding and mobilizing the knowledge about the technique | <i>Knowledge of the different types of stitches and the different types of planes, and how to perform them</i> | 3 |

practice, which translate into an improvement in psychomotor skills⁸. The close relationship between simulation and the development of skills, apparent in scientific evidence, is highlighted by Dimassi et al.²¹.

In the last category, *Suggestions*, of which subcategories are shown in Chart 4, we observe that these are related to the need to increase the time available during the week of simulation practice for the surgical reconstitution of the perineum,

the use of the biological model since the first practical session, the increase of the teacher / student ratio, and also the use of a model closer to the reality of the puerperal body. This last suggestion would allow the students to have a better idea of the real space for the reconstruction of the perineum in the postpartum period. There are other interesting suggestions, such as not combining other activities with the practice of suturing.

Chart 4. Suggestions for improving the activity identified by the students.

| Categories | Subcategories | Registration units | Frequency Units |
|-------------|---|--|-----------------|
| Suggestions | Use of the Biological Model since the beginning, which simulates different structures | <i>With a meat model, the experience is more real, and it raises more doubts</i> | 6 |
| | Increase the time of this training activity | <i>The time (of this activity) should be longer</i> | 11 |
| | Increase the teacher / student ratio | <i>It should be more teachers in this activity</i> | 4 |
| | Maintain the same group of students in different sessions | <i>It should last a full day, morning and afternoon, always with the same people</i> | 1 |
| | The “piece of meat” is supplied by the School | <i>The equipment that ESEL provided was adequate, but it could also supply the piece of meat</i> | 2 |
| | Do not combine other simulation practice activities | <i>It becomes ‘confusing’ to always change activities</i> | 1 |
| | Use of a model closer to reality (size of the puerperal woman’s body) | <i>The model (should) be more real, and have legs (to better simulate the available space)</i> | 3 |

The suggestions presented by the students reveal the importance they attributed to the experience and are essentially focused on the need to increase the time of the activity and to implement measures that give greater realism to the simulation situation, as also defended by other authors¹². On the other hand, Villalba et al.³ emphasize the concerns about the clients’ safety and the fact that students do not “practice” on them. For this reason, for some authors, the use of simulation as an instrument for nursing teaching is seen as an ethical imperative, as it results in several benefits for students and health service users^{8,22}. In turn, Almeida et al.²³ add that the good results of simulation practice, as a teaching-learning strategy, have shown to be a good predictor of a high level of performance in an actual context.

Chart 5 shows the students’ perception of the contribution of Simulation Practice at the end of the internship, enunciates the students’ perception of SP, four months after its completion, at the end of the internship. The categories that emerged are based on the three domains of competence (cognitive, psychomotor and affective), as mentioned in the assessed literature, which enunciates the cognitive²², psychomotor²⁴ and affective⁹ domains. The *Teaching-Learning Process* category emerges as relevant as an added value of SP, as mentioned by Baptista et al.¹² and Miranda et al.²².

The close association between simulation and the development of skills seems to emerge

in these reports, as highlighted in scientific evidence²⁵.

Conclusions

Simulation Practice showed to be a pedagogical strategy with high potential in the training of students. This methodology allowed student-centered learning, based on Swanson’s theory, in a controlled and safe environment, maintained by repeated training and reflection under personalized supervision by the teacher.

The performance of study answered the starting question. The results obtained through the students’ narratives showed the contribution of this methodology to the pregnant woman’s safety, the development of skills at the cognitive, instrumental, and affective levels, the temporal management and the intervention space. Experiencing and anticipating facilities and difficulties with this technique allowed the students to reflect on the practice of care and its respective anticipation.

In addition to the aforementioned skills, students reported having developed critical-reflective thinking, professional responsibility and became aware of the ethical issues involved.

The added value mentioned by the students is in line with the one perceived by the teachers involved in the training and by the nursing preceptors in a clinical context.

Chart 5. Students' perception of the contribution of Simulation Practice at the end of the internship.

| Categories | Subcategories | Registration units | Frequency Units |
|-----------------------------------|--|---|-----------------|
| Teaching-learning process | Importance / Added Value | <i>At the clinical teaching site, the nursing teacher also reports a better performance of students who had simulation practice, compared to those who did not.</i> | 8 |
| Cognitive domain | Acquisition of theoretical knowledge | <i>It allowed me to acquire basic knowledge about the technique</i> | 9 |
| Psychomotor / instrumental domain | Acquisition of skills for clinical practice | <i>Contributed to the acquisition of skills in the reconstitution of the perineum, because when it was time to perform the perineorrhaphy in clinical teaching it was no longer a new thing</i> | 5 |
| | Manual / technical dexterity training | <i>I was able to train several stitches and repeat them enough, so that, when in practice, I wouldn't feel as 'blind' as if I had never trained</i> | 9 |
| | Suture material handling | <i>It gave me the possibility to know and learn how to handle all the suture material</i> | 5 |
| | Asepsis Training | <i>It allowed me to train to ensure asepsis</i> | 2 |
| Affective domain | Decreased anxiety in internship | <i>On the other hand, being able to practice in the classroom allows less clinical anxiety in the context of clinical teaching</i> | 1 |
| | Greater confidence for internship practice | <i>It allowed me to increase my confidence during the Internship with a Report</i> | 1 |
| | Training in a controlled and safe environment for the student / client | <i>We were able to practice previously on a piece of meat or foam without causing problems for the woman.</i> | 3 |

The limitations found in this study essentially indicate to the need for more training time and a higher teacher / student ratio.

The performance of the present study allowed answering the outlined objectives and promoted a critical reflection on the low-fidelity simulation practice teaching activity, which will have implications in the future regarding readjustments and adaptations to the planning of the sessions. It is important and necessary to continue investigating this pedagogical practice, monitoring and evaluating the impact of this type of methodology, identifying aspects to be improved, as well as disseminating the results of these activities to the scientific community.

Collaborations

L Sotto-Mayor contributed with data collection; MAF Santos contributed with the study design and final review of the manuscript; IMT Soares and IMGGR Serra contributed with data processing and MTS Félix and MJ Delgado contributed with the theoretical basis.

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