Revista de Enfermagem UFPE On Line
ISSN: 1981-8963

J Nurs UFPE on line.
2021;15:e245132
DOI: 10.5205/1981-8963.2021.245132
https://periodicos.ufpe.br/revistas/revistaenfermagem

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LOW FIDELITY SIMULATOR IN THE CARE OF INTESTINAL STOMAS
SIMULADOR DE BAIXA FIDELIDADE NO CUIDADO DE ESTOMIAS INTESTINAIS
SIMULADOR DE BAJA FIDELIDAD EN EL CUIDADO DE OSTOMIAS INTESTINALES

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ABSTRACT

Objective: to describe the development and application of a low fidelity simulator for intestinal stoma care training. ***Method:*** It is a descriptive study, of the experience report type, about the idealization, elaboration, confection and application of a low fidelity simulator, which consists of a model of relief apron representing organs of the gastrointestinal tract and types of intestinal stomas. ***Results:*** The embossed apron was built with felt, cotton fabric and common filling fiber with polyester. The simulator was used, after completed, to train students and patients with intestinal stoma, from which it was confirmed that it allows the visualization of the gastrointestinal tract and possible sites of confection of the stomas. ***Conclusion:*** it is concluded that the simulator has proved to be positive for the development of skills and self-care of people with intestinal stoma and for the teaching of students, since it brings them closer to practical experience.

***Descriptors*:** Simulation Training; Nursing Education Research; Health Education; Stoma; Mentoring; Self Care.

RESUMO

Objetivo: descrever o desenvolvimento e a aplicação de um simulador de baixa fidelidade para capacitações sobre os cuidados com estomias intestinais. ***Método:*** trata-se de um estudo descritivo, do tipo relato de experiência, sobre a idealização, elaboração, confecção e aplicação de um simulador de baixa fidelidade, que consiste em um modelo de avental em relevo representando órgãos do trato gastrointestinal e tipos de estomias intestinais. ***Resultados:*** construiu-se o avental em relevo com feltro, tecido de algodão e fibra comum de preenchimento com poliéster. Utilizou-se o simulador, após finalizado, para a capacitação de discentes e pacientes com estomia intestinal, a partir da qual se confirmou que ele possibilita a visualização do trato gastrointestinal e possíveis locais de confecção das estomias. ***Conclusão:*** conclui-se que o simulador se mostrou positivo para o desenvolvimento de habilidades e do autocuidado de pessoas com estoma intestinal e para o ensino de discentes, visto que os aproxima da vivência prática.

Descritores: Treinamento por Simulação; Pesquisa em Educação de Enfermagem; Educação em Saúde; Estomia; Tutoria; Autocuidado.

RESUMEN

Objetivo: describir el desarrollo y aplicación de un simulador de baja fidelidad para el entrenamiento en el cuidado de la ostomía intestinal. ***Método:*** se trata de un estudio descriptivo, tipo relato de experiencia, sobre la idealización, elaboración, confección y aplicación de un simulador de baja fidelidad, que consiste en un modelo de delantal repujado que representa órganos del tracto gastrointestinal y tipos de ostomías intestinal. ***Resultados:*** el delantal en relevo se construyó con fieltro, tela de algodón y fibra común rellena de poliéster. Luego de simular, se utilizó el simulador para el entrenamiento de estudiantes y pacientes con ostomía intestinal, de lo cual se confirmó que permite la visualización del tracto gastrointestinal y posibles lugares para realizar los estomas. ***Conclusión:*** se concluye que el simulador resultó ser positivo para el desarrollo de habilidades y autocuidado de personas con estoma intestinal y para la docencia de los estudiantes, ya que los acerca a la experiencia práctica.

Descriptores: Entrenamiento Simulado; Investigación en Educación de Enfermería; Educación en Salud; Estomía; Tutoría.

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* Article extracted from the research project entitled: Nursing care in the perioperative period from the perspective of teaching, assistance, safety and management. Federal University of Santa Catarina (UFSC), 2019.

How to cite this article
Amante LN, Girondi JBR, Will MM, Martins EB, Mohr HSS, Santos EB, et al. Low fidelity simulator for training in the care of intestinal stomas. J Nurs UFPE on line. 2021;15:245132. DOI: https://doi.org/10.5205/1981-8963.2021.245132

INTRODUCTION

The educational process in the field of health is promoted through the use of technologies that provide the construction of knowledge and know-how from the application of innovative teaching methods. Through these innovative teaching methodologies, the awakening of curiosity, criticality and creativity and the development of skills and abilities in the formation of future Nursing professionals instrumentalized for care are stimulated. Thus, through the applicability of innovative methodologies, a new model of teaching-learning is configured that distances itself from remote methodologies, which imply processes of repetition and memorization of concepts and practices in Nursing.[1]

Simulation is widely used in the education of health professionals, bringing them closer to reality and encouraging participants to react to problems or conditions as they would react in genuine circumstances and, in this sense, the educational value of simulations is valuable.[2] From the survey of aspects related to the use of active methodologies and the implementation of innovative models in the process of teaching and learning in Nursing, it is considered that the simulation makes available, to the student, a previous contact about the Nursing interventions in a certain situation, allowing, before the actual experience, the error, repetition and training, promoting the excellence in the procedures and thus raising the safety standards. In this way, the student is able to develop self-confidence in exercising such care, minimizing the psychological impact caused by the execution of the procedure on the patient.[3]

Simulation can therefore be defined as an approximation of reality, requiring a reaction to problems or conditions presented in genuine circumstances involving standardized patients, computerized case management scenarios, mannequins, clinical vignettes or a combination of these methods.[2]

As for learning, it is important to emphasize that simulation can be a more enriching experience than real practice, since there are pre-established objectives, in an environment that is conducive to this, with the possibility of constant reconstruction of knowledge.[3] It is also understood that the simulation goes beyond teaching the practical contents, because it leads the student to ponder on the factors that involve the care process. It is pointed out, in Nursing, that these factors are intrinsic to the recognition of health priorities, resulting in a well-founded planning.[1,3]

It is noted that the nurse, as a health educator, is responsible for guiding the person with intestinal stoma about the information necessary for their self-care, promoting their autonomy and independence. It is noted, in this process of health education, that the nurse must equip himself with strategies that promote significant learning of the person, being the use of educational

technologies a tool that facilitates the process, contributing, in a wide and creative way, to the practice of the nurse and favoring the educational advance.[4]

It is also considered, when dealing with an intestinal stoma, that the appearance and potential contact and visualization of feces can negatively affect the effectiveness of teaching, and the use of a physical stoma simulator can help to solve this problem.[5] On the other hand, it is noticeable that the experiences with patients in the operative period for the confection of intestinal stomies in need of self-care guidance, the training offered as activities to the Support Group for Ostomized People (SGOP), the projects of extension Wounds, Stomas and incontinence in the practice of Nursing: from prevention to treatment (FEPENF), educational actions in health in the context of the care of people with wounds and stomas (LAPEFE) and the classes offered by the graduation course "The care in the process of human living II - surgical condition of health" of the Nursing graduation course of the Federal University of Santa Catarina lead to the need to elaborate a didactic material, as a low fidelity simulator, which allows the visualization and, at the same time, the understanding of the anatomy of the gastrointestinal tract (GIT) and the possible positions for the construction of an intestinal stoma.

OBJECTIVE

To describe the development and application of a low fidelity simulator for intestinal stoma care training.

METHOD

This is a descriptive study, like an experience report, about the making of a low-fidelity simulator represented by a model of an apron in relief with the organs of the gastrointestinal tract and the types of intestinal stomas, considering the topography of each type of intestinal stoma. The apron was produced as one of the extension results of the research project "Nursing care in the perioperative period from the perspective of teaching, assistance, safety and management", approved by the Ethics Committee on Research with Human Beings of the Federal University of Santa Catarina under ordinance 3.701.031.

The different stages of the process of conceiving, elaborating, making and applying this simulator model are exposed: elaboration of the GIT design to configure the moulds on sheets of butter paper and A4 sheets and then the making of the apron in relief. The members of the SGOP participated: two teachers; five students from the Nursing degree and one seamstress, totaling eight people involved in the production of the material.

In the first stage, two molds of the apron were made to represent the GIT and the intestinal stomas, first made in sheets of butter paper and drawn by hand from images available in books of

Anatomy and Physiology. The drawing was transferred, after finalized, to a sheet of A4 paper, being contoured with a permanent black pen. A mold was also constructed to determine the bottom of the apron in adult size, which served as the basis for fixing the gastrointestinal tract and intestinal stomas.

The following fabrics were used to make the apron: white felt contoured by a red bias to the base of the apron; beige felt for part of the stomach and small intestine; red felt for the large intestine; cotton fabric for the intestinal stomas and common polyester filling fiber so that the organs acquire a embossed shape.

In the second stage of production, based on the structure of the gastrointestinal tract with the intestinal stomas, the organs were made of felt (red for the large intestine and light beige for the small intestine and part of the stomach), being filled with common fiber of polyester so that they would be embossed.

Then, the intestinal stomas were made of red cotton fabric, using the *fuxico* technique. Pressure brackets were sewn on the back so that the stomas could be fixed to the intestine. It is pointed out that they can be removed, which helps in the demonstration and manipulation of the apron during the trainings.

In all, six intestinal stomas represented according to their topography in the gastrointestinal tract were produced: ileostomy; cecostomy; ascending colostomy; transverse colostomy; descending colostomy and sigmoidostomy. Finally, the structures of the gastrointestinal tract were joined to the apron with the use of a domestic machine.

The apron was used in the perspective of a pilot test on two occasions, one in laboratory and the other in a meeting for the training of patients in surgical period, involving the participation of teachers, students, SGOP fellows and patients / families. It is noteworthy that, at the end, the participants expressed their opinions on the use of the apron as a low fidelity simulator for training about the care of intestinal stomas.

RESULTS

The idealization, elaboration, confection and, finally, the practical use of this technology with the groups destined: students of the Nursing graduation course and patients benefited by the extension project of the SGOP were followed.

Figure 1 shows the moulds on A4 baking paper and A4 sheet.

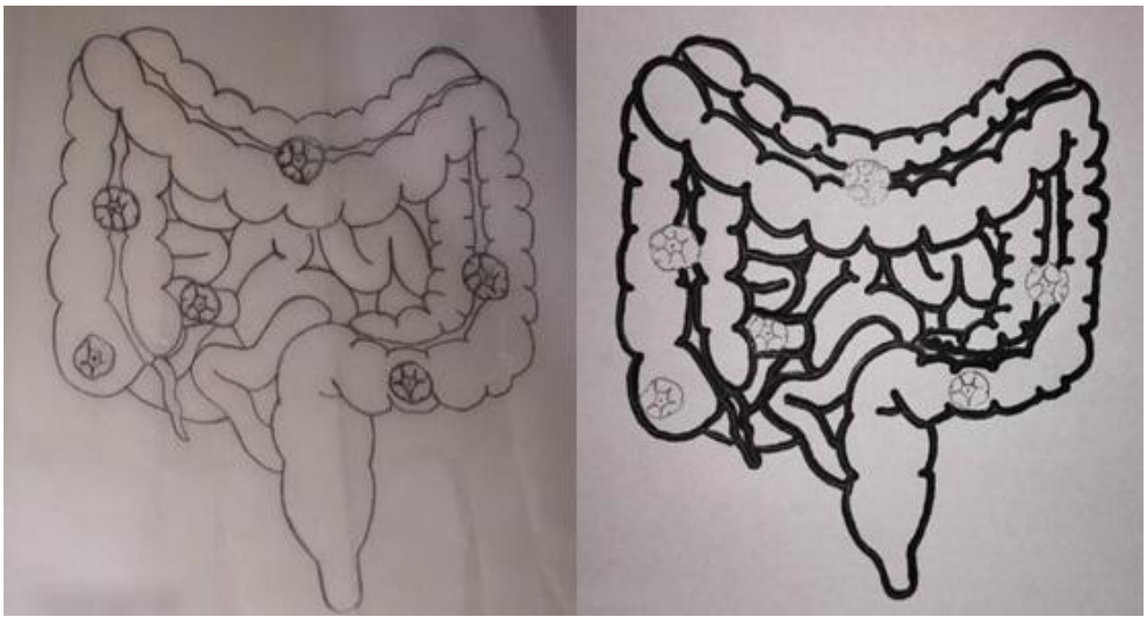

Figure 1: Moulding on a sheet of baking paper and on an A4 sheet. Florianópolis (SC), Brazil, 2019. Source: Authors' Collection (2020).

Figures 2, 3 and 4 show the final version of the apron.

Figure 2: Cutouts of the gastrointestinal tract in tissue overlapping the apron. Florianópolis (SC), Brazil, 2019. Source: Authors' Collection (2020).

Figure 3. Apron ready. Florianópolis (SC), Brazil, 2019. Source: Authors' Collection (2020).

Figure 4: Intestinal stomas in fuxico. Florianópolis (SC), Brazil, 2019. Source: Authors' Collection (2020).

It is revealed that the low fidelity simulator for trainings about the care with intestinal stomas allows the visualization of the GIT and the places where the stomas can be built. It is highlighted that this simulator promotes a significant impact on health education and its development allows the reproduction of real life scenarios with acceptable fidelity, deeply improving the learning environment.[2]

The apron was used as a low fidelity simulator for training on the care of intestinal stomas, which included a teacher, four fellows, 20 students and five patients, who considered the positive experience regarding the visualization of GIT in two dimensions and the location of the stomas, because all understood the anatomy of GIT and were able to visualize the possible positions of the stomas. In illustrations 5 and 6, a teacher using the apron for the laboratory class is shown.

Figures 5 and 6. Teacher using the low fidelity apron simulator for trainings on the care of intestinal stomas. Florianópolis (SC), Brazil, 2019.Source: Authors' collection (2020).

DISCUSSION

It is pointed out that the applicability of active teaching methodologies in the health area with innovative models transforms the process of vertical teaching-learning, based on the transfer of knowledge from the educator to the learner, into a process that makes the learner an active participant in the construction of knowledge and knowledge, regardless of the aspects in which this process is developed, i.e., whether it is focused on teaching Nursing academics or patients. It is also reaffirmed that by using this tool as an ally in the educational process of nursing students and patients/families, an opportunity is created to establish an open, diversified work dynamic that favors the collective, integrates and fosters the learning process.[1]

It is believed that the low fidelity simulator for trainings about intestinal stoma care can be used both for health education and for the training of the nursing student. It is considered indispensable, in this sense, during his performance in the practice scenarios, that the nurse welcomes and guides the person and his family in an efficient and effective way, with a view to quality of life and the development of skills for self-care. It is observed that this professional needs to have knowledge that will enable him/her for health education, contributing positively to the quality of life of the person with colorectal cancer with stomas.

It was found, from a systematic review conducted in 2019, on the effect of the use of educational intervention in the postoperative period of people with intestinal stomas of elimination, in which six studies were selected, that the most prevalent type of educational intervention was standard education for the control group and standard education plus telephone follow-up for the experimental group.[6]

In order to describe the various types of educational interventions for patients with colorectal cancer with stomas and examine their effects on quality of life, psychosocial abilities and self-management skills, a systematic review was performed in six electronic databases, in which 13 articles were selected, of which five examined quality of life and three reported improvements. It was pointed out in this systematic review, as one of the results, that patient education has a positive impact on some psychosocial and self-management skills, indicating that this area should be developed.[7]

It should be noted that the studies previously mentioned refer to educational interventions without the use of high/low cost and fidelity simulation.[6,7] However, it was revealed in a study of nursing students that the simulation of low fidelity is an educational method that provides the improvement of skills and provides effective learning.[8, 5, 9-10]

Studies were carried out for the construction of simulators for the teaching and training model on peripheral vascular access.[9-10] Six low-cost simulators were developed for use in a Nursing undergraduate discipline during two school semesters and, based on the evaluation carried out by the teachers, the possibility of effective training of the skill in a safe and low-cost way and, as a weakness, the reduced durability and recurrent maintenance of the simulator were pointed out as potential of the use of the simulator.[10]

The teaching and training model on peripheral vascular access was developed, using a low-cost model for educational purposes, in the graduation course in Medicine, similar to the simplified forearm anatomy, and it proved practical for the puncture and, due to its extension, made it possible to puncture several times the same model.[9]

A low cost and low fidelity simulator has also been produced for teaching common pediatric stomas, aiming to train technical skills, built from simple and easily available materials, using intestine and pig skin. The simulator was used in a regional training for pediatric surgical recorders, who considered the model excellent and realistic.[11]

A randomized clinical trial with two groups, which received four training sessions, was conducted to determine the effects of simulation for self-care training of patients with permanent or temporary intestinal stoma. It is described that the first and fourth sessions were the same for each group, but in sections two and three, a wearable stoma simulator was used with one group, while the control group used the demonstration-return method. It is noted that the results suggested that the use of the simulation to teach self-care of the stoma improves after the third and ninth weeks.[5]

It is known that there are models of high fidelity with a pedagogical objective, however, the high cost of manufacture and acquisition makes it difficult for educational institutions to purchase, giving advantage to the use of materials that are easy to obtain and with cheap purchase value,

stimulating the research of experimental models and alternative techniques to offer the best learning in less time and with reduced financial cost.[9]

They are inert mannequins, that do not interact and do not present responses, being of the whole body or partial close to the human anatomy, with low cost and simple maintenance. In simulations, a type of device called part task trainer is used, which simulates a specific part of the body for the training of a certain technique.[1] The apron can be classified in this way, since it simulates the abdomen (viscera and organs) in order to educate and train techniques regarding the intestinal stomas.

It is evaluated, based on the assumption that low cost and fidelity simulators are an allied tool in the teaching process of both patients and Nursing students, that the making of the apron improves and facilitates the understanding, learning and assimilation of concepts, stimulating the interest, creativity and memorization of processes.

A stoma is defined as a path surgically constructed between a viscera and the external environment, temporary or definitive, with the intestines being the most frequent. It is known that the person with a stoma faces a series of physical, psychosocial and emotional issues that often profoundly alter their daily lives, with the appearance of limitations to autonomy, such as lack of control in the elimination of gases, in addition to changes in their self-care.[12] In this sense, through the use of the apron simulator of low fidelity for trainings about the care with intestinal stomas, the educational intervention performed in trainings promotes the knowledge of the gastrointestinal tract and has, as consequences, the understanding about the self-care and the improvement in the quality of life. Education is considered a right of the patient and a responsibility of the nurse, who uses different resources in order to promote adherence to treatment and properly administer the signs and symptoms of the disease.[13]

It is understood that the care of the person with stoma is complex, taking into account the multiple factors involved, which goes beyond the supply of materials, such as the collection bags, involving a multiprofessional team, with Nursing being the protagonist area in care.[14] It is necessary to welcome this person, aiming at his or her rehabilitation, thus needing to understand the changes that will affect him or her in order to stimulate his or her autonomy.[15]

CONCLUSION

A low fidelity simulator was developed and applied to trainings about the care of intestinal stomas in the form of an apron that proved positive for the development of skills and self-care of people with intestinal stoma and for the teaching of students, since it brings them closer to practical experience.

This experience report is expected to add value to the studies developed in the area of intestinal stomas, especially with regard to the development of low fidelity technologies for teaching about intestinal stomas. It is suggested that research be developed to evaluate the impact of using this tool with patients in preoperative of making intestinal stomas by means of quasi-experimental studies, for example.

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Submission: 28/04/2020
Accepted: 21/12/2020