



Florence Nightingale's concepts in times of COVID-19 pandemic portrayed in comics: an experience report^a

Os conceitos de Florence Nightingale em tempos de pandemia da COVID-19 retratados em história em quadrinhos: relato de experiência

Los conceptos de Florence Nightingale en tiempos de pandemia COVID-19 retratados en cómics: relato de experiencia

Lucas Eduardo Mello Barboza¹

Isaque Souza da Silveira¹

Paula Carvalho Leite¹

Marialda Moreira Christoffel^{1,2}

Ana Leticia Monteiro Gomes²

Tania Vignuda de Souza²

Gláucia Cristina Lima da Silva²

1. Universidade Federal do Rio de Janeiro.
Macaé, RJ, Brasil.

2. Universidade Federal do Rio de Janeiro,
Escola de Enfermagem Anna Nery. Rio de
Janeiro, RJ, Brasil.

ABSTRACT

Objective: To describe the experience of the process of elaboration of a comic about prevention measures to combat the new coronavirus from the legacy of Florence Nightingale and the Environmental Theory. **Method:** It is an experience report of a university extension action about the process of elaboration of a graphic novel that brings the concepts of Florence Nightingale's environmental theory in the fight against the new coronavirus. **Results:** From the brainstorming technique, the comic idea came up and three characters were created: Florence Nightingale, Super Sabão (*Super Soap*, in free translation), and Luiza. These stages were followed: creation of the script and characters and transfer of the manual drawing to digitization programs. The material produced underwent three revisions: that of nursing students; of the teacher responsible for preparing the material and; of the group of teachers whose purpose was to evaluate the materials produced in extension activities on the theme COVID-19. **Conclusion and implications for practice:** The experience in the construction of didactic material such as a graphic novel was a challenge for students and teachers. Stands out the opportunity to discover new pedagogical resources and the production of technological material in times of social distancing.

Keywords: Comic; Nursing; Child health; Coronavirus infections; Health education.

RESUMO

Objetivo: Descrever a experiência do processo de elaboração de uma história em quadrinhos acerca das medidas de prevenção para o combate ao novo coronavírus a partir do legado de Florence Nightingale e da Teoria Ambientalista. **Método:** Trata-se de um relato de experiência de uma ação extensionista universitária acerca do processo de elaboração de uma história em quadrinhos que traz os conceitos da teoria ambientalista de Florence Nightingale no combate ao novo coronavírus. **Resultados:** A partir da técnica do *brainstorming*, surgiu a ideia da história em quadrinhos e foram criados três personagens: Florence Nightingale, Super Sabão e Luiza. Foram seguidas as etapas: criação do roteiro e dos personagens e transferência do desenho manual para programas de digitalização. O material elaborado passou por três revisões: a dos alunos de enfermagem; do docente responsável pela elaboração do material e; do grupo de docentes cuja finalidade foi avaliar os materiais produzidos nas atividades de extensão acerca do tema COVID-19. **Conclusão e implicações para prática:** A experiência na construção de material didático tipo história em quadrinhos foi um desafio para os estudantes e docentes. Destaca-se a oportunidade da descoberta de novos recursos pedagógicos e produção de material tecnológico em tempos de distanciamento social.

Palavras-chave: História em Quadrinhos; Enfermagem; Saúde da criança; Infecções por Coronavírus; Educação em Saúde.

RESUMEN

Objetivo: Describir la experiencia del proceso de preparación de una historieta (cómics) sobre las medidas preventivas para el combate al nuevo coronavirus a partir del legado de Florence Nightingale y de la Teoría Ambientalista. **Método:** Relato de experiencia de una acción de extensión universitaria acerca del proceso de elaboración de un cómic que trae los conceptos de la Teoría Ambientalista de Florence Nightingale en la lucha contra el nuevo coronavirus. **Resultados:** A partir de la técnica de *brainstorming* (lluvia de ideas), surgió la idea del cómic y se crearon tres personajes: Florence Nightingale, Súper Jabón y Luiza. Se siguieron los pasos: creación del guion y de los personajes y transferencia del dibujo manual a programas de digitalización. El material producido se sometió a tres revisiones: por alumnos de enfermería; docente responsable de preparar el material y; del grupo de docentes cuyo propósito era evaluar los materiales producidos en actividades de extensión sobre el tema COVID-19. **Conclusión e implicaciones para la práctica:** La experiencia en la construcción de material didáctico como los cómics fue un desafío para estudiantes y profesores. Se destaca la oportunidad de descubierta de nuevos recursos pedagógicos y la producción de material tecnológico en tiempos de aislamiento social.

Palabras clave: Historieta; Enfermería; Salud de los niños; Infecciones por coronavirus; Educación para la Salud.

Corresponding author:

Ana Leticia Monteiro Gomes.
E-mail: analeticiagomes88@gmail.com.

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INTRODUCTION

The year 2020 marks great events for world and Brazilian nursing, both because it is considered the international year of nursing and midwifery professionals by the Pan American Health Organization (PAHO) and the World Health Organization (WHO),¹ as for the celebration of the bicentenary of the birth of Florence Nightingale.

Born in 1820 in Florence, Italy, Florence Nightingale is considered the founder of Modern Nursing worldwide, obtaining greater prominence from her participation as a volunteer in the Crimean War (1853-1856) in the care of soldiers. Nightingale's worldwide recognition came from that period, when she established approach protocols that collaborated in reducing British soldiers' mortality. A pioneer in a context where women could not study or work, Florence was consecrated as the "Lady of the Lamp"² for her valued performance.

In Brazil, the Nightingale System represents an invaluable contribution to Nursing. In the 1920s, was founded the first School in the Nightingale Model, the then School of Nurses of the National Department of Public Health, created in 1923. Currently, the institution exists under the name of Escola de Enfermagem Anna Nery (Nursing School).³

Despite these references to the history of Nursing, the year 2020 has been a great challenge for these professionals regarding the performance and implementation of measures to protect and combat the pandemic of the new coronavirus. With the name "new" since it has never before been found in humans, it is now known that this virus causes Severe Acute Respiratory Syndrome in people, called SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2), also called COVID-19. This virus can spread from person to person (direct transmission) through droplets released when speaking, sneezing and coughing, or indirectly through the hands, which come into contact with contaminated surfaces (fomites) and can carry the virus from one location to another. To date, there is no specific treatment or vaccine for infection caused by the new coronavirus.

In this sense, the importance of Florence Nightingale's environmental theory in times of COVID-19 pandemic stands out, which resumes care related to the hygiene of the environments, body and water, in addition to prioritizing natural ventilation, appropriate clothing, among others.

With the advance of the pandemic, the major concern of the WHO is in developing countries, predominantly located in Latin America, Africa and the Middle East, places where health services are less prepared to face the pandemic for several reasons, among which the shortage of health professionals, especially those in nursing. Data presented by the WHO indicate that, to reach the goal of universal health coverage by 2030, more than 9 million nurses and midwives would be needed in the world. Currently, for the Americas alone, these professional categories are among the 800,000 health professionals highlighted by PAHO.¹

Nursing professionals have as one of their fundamental roles the dissemination of knowledge to the population through health education, through dialogue with the community on issues

of prevention of contamination and infection by COVID-19, thus seeking to delay the epidemic peak of the disease.

Among the fundamental measures in the fight against COVID-19, personal hygiene practices stand out, such as frequent hand washing for at least 20 to 30 seconds, thoroughly cleaning of inanimate surfaces and the environment, as well as respiratory etiquette when presenting respiratory syndrome, maintenance of well-ventilated environments, social distancing, among others.⁴

Florence Nightingale left a lasting legacy that is more alive than ever, in the context of the COVID-19 pandemic which the world is facing. Such legacy goes beyond hygiene practices, and encompasses the use of epidemiology with statistics and graphs to show and improve data interpretation. Through her Environmental Theory, it is possible to verify how much this theory has an impact today.^{2,5}

In the 1860 book "Notes on Nursing", Florence Nightingale wrote that "every nurse ought to be careful to wash her hands very frequently during the day. If her face, too, so much the better". She also said about the need to keep windows open for ventilation, scrubbed carpets and drains clean. Such principles of hygiene practices have helped to transform public health concepts. Florence valued the importance of beneficial environments for mental and physical health; believed that patients were less likely to improve if they became depressed or desperate.²

For Florence Nightingale, the preparation of the environment must ensure the sanitary conditions of the housings, which are: clean air, pure water, efficient sewage, cleaning and lighting. In addition to the principle of healthy housing, the control of daily activities, food, beds and bedding, conversations about hopes and advice, observation of the patient, care with the caregiver and scientific literacy in health of the caregivers based on Florence Nightingale's Environmentalist Theory should also be observed. Such principles support nursing practices and are relevant in the fight against the current infection by the new coronavirus (COVID-19).^{2,5}

In view of the knowledge inherited from Florence Nightingale and the context of the COVID-19 pandemic, we saw the opportunity to bring such knowledge together in the production of educational material by the university extension, as an interdisciplinary educational, cultural, scientific and political process, which would promote transformational interaction between university and society. This congregation occurred through a comic strip, considered a product of mass culture, present in the daily lives of children, youth and adults.⁶ Working with students in extension projects, we saw the need to disseminate information, guidance and care to prevent and to avoid the spread of COVID-19 in children and family members who share the same household.

In Brazil, the dialogue between comics and health emerged in the mid-1920s with Monteiro Lobato, who wrote *Jeca Tatu - A Ressurreição* (The Resurrection). The short story, better known as *Jeca Tatuzinho*, served as inspiration for a very popular comic book, which was disseminated throughout the country through the *Biotônico Fontoura Almanac*.⁷ In education, the Comic Book (CB) has its first records from 1970s, with the insertion of comics

in textbooks. There are several authors and styles of this form of communication, among them, we can highlight the author Ziraldo Alves Pinto, who created “O Menino Maluquinho” (Crazy little boy). In his work, Ziraldo deals with diverse subjects, such as values, the importance of education and sport for children.⁸

Recently, the famous cartoonist Mauricio de Sousa and the producers of *Turma da Mônica* (Monica and friends) magazine, who in 1961 created the character Cascão, known for not enjoying bathing, also joined the COVID-19 confrontation, when they launched an edition with the character washing hands and thus giving children a positive and playful message about the importance of personal hygiene.⁹

The CB produces unique language characteristics, combining the visual with the textual, in a light and brief narrative. It is a genre that consists of plots told in small pictures, through direct dialogues between its characters, generating a kind of conversation. Its structure is composed of illustrations and balloons, where are the character’s speech, his thought, or onomatopoeia, which are words that imitate the voice of animals or the noise of objects. As an example of onomatopoeia, we have: BOOM!!! (explosion), KNOCK-KNOCK! (knocking on the door).¹⁰

The present study aims to describe the experience of the process of preparing a comic strip about preventive measures to combat the new coronavirus from the legacy of Florence Nightingale and the Environmental Theory.

METHOD

For the preparation of this work, the brainstorming (storm of ideas) technique was used with students and teachers of the extension projects, in remote meetings that happened every fortnight. The brainstorming technique was developed specifically to develop the creativity and productivity of individuals during the idea generation sessions.¹¹

From this exercise, came up the idea to create a comic story for children and their families with the participation of Florence Nightingale, since in the current year is being celebrated the 200th anniversary of her birth and also her legacy regarding the principles of the Environmental Theory, associating those elements with the pandemic that we are experiencing.

To collect information on health education, a bibliographic review was carried out at the Biblioteca Virtual em Saúde – BVS (Virtual Health Library), looking for comic books, articles on Florence Nightingale’s Environmental Theory and its principles, newsletters from the Ministry of Health and World Health Organization on measures to prevent and combat COVID-19 for bibliographic review.

After selecting this material, critical reading and discussion with professors and students was carried out. A CB on the life of Florence Nightingale and the nursing profession were found, in addition to a video on her life in the form of cordel literature.^{12,13} After thorough analysis, systematic activities were developed, such as reading the articles, writing of the script by students and analysis of these scripts by teachers to understand and interpret the conditions of written production. With the remote meetings,

began the process of creating and adapting the text to the language of Comic Books from paper to the digital environment. The final script was analyzed by the teachers and detailed as to the situation of interlocution through the comic strip, the creation of the characters and the context of the hygiene and home environment principles of Florence Nightingale associating them with the protective measures of COVID-19 aiming to guarantee the necessary knowledge for the written and creative production process.

For the production of the story in comics, the following steps were carried out: script of the story itself, with the synopsis of the entire story, scenery, characters and their profiles; costume and framing of comics, respecting their organization regarding the time of action; number of pages; graphic language; sequential art of narrative; and the digital tool.

Two students included in the Project “Segurança do recém-nascido e criança em diferentes contextos” (“Safety of newborns and children in different contexts”, in free translation), with drawing and web design skills, accepted the challenge proposed by the project coordinator. The process of preparing the educational material took place from March to April 2020, with remote meetings between the cities of Macaé, Cabo Frio and Rio de Janeiro.

After completion, the story in digital comic book (DCB) was forwarded to two nursing professors who work in university extension, so that they could make recommendations and after, the adjustments, the material could be released in the repository of the Escola de Enfermagem Anna Nery, on the website: <https://eean.ufjf.br/index.php/coronavirus>

RESULTS

Three main characters were created: Florence Nightingale, Super Soap and Luiza. The chosen scenario was the home environment, considering that social distancing through confinement at home is one of the preventive measures for COVID-19 and, according to the concepts of Florence Nightingale, it is in this environment that child care mainly occurs, especially with regard to personal and home spaces hygiene, and having, in general, good ventilation, essential items for these pandemic times.

The first version of the script, entitled “Florence in... children against COVID-19” with the creation of the characters’ drawings and the home scenario were presented by the students to the teachers. The story script was read and reread with the connotation of the storytelling language of the characters and their lines. After this reading and the dialogical discussion between the group of students and teachers, several suggestions were made regarding the written language, coherence of the sequence of dialogues and representations of the balloons (space where the speech appears).

The version of script 1 underwent changes in its title, sequence of lines and characters. From these interventions, students transferred the CB from paper to the digital environment. DCB narratives culminated in version 2 of the script, entitled “Florence Nightingale and Super Soap in... Luiza against the new coronavirus” (Chart 1).

Chart 1. Presentation of versions 1 and 2 of the CB script.

Title	Version script 1	Version script 2/final
CB dialogues	Florence Nightingale in... children against COVID-19	Florence Nightingale and Super Soap in... Luiza against the new coronavirus
01	Luiza is a very cheerful and fun girl. She enjoys playing, watching television and seeing her friends from school.	Luiza is a very cheerful and fun girl. She enjoys playing with her friends, watching television and going to school.
02	Luiza did not understand very well when her parents took over the television and started to spend more time at home. – Daddy? I want to watch cartoons! – Luiza, we need to see the newspaper! Replied her father, Carlos. Did he look ... nervous?	She didn't quite understand when her parents started watching television and spending more time at home.
03	Then she didn't understand when she had to stop seeing her friends and stop going to school. – Mom, why can't I visit Caio?	She didn't understand why she stopped going to school and seeing her friends (Suggestion: Why can't I go to school anymore? Why can't I play with my friends on the playground anymore?)

Concomitant with the written version of script 1, there was the process of creating art, characters, scenery, clothing and scenes in each comic appropriate to the text. Manual drawing was performed by one of the students with drawing skills. The design of the characters is shown with details, perspectives and colors. For the art process, colored pencils and hydrocolors were used, using both primary and secondary colors in the design.

Then, the main characters were presented, collectively discussing the possible points to improve, for example, the visualization of the characters and the scenes that would be produced to then be in tune with the story to be told. The characters from version 1 and 2 are shown in Figure 1.

In the preparation of the first version, entitled "Florence in ... children against COVID-19", the students already with the written script, the scenery and the characters of Luiza and family, transferred the images from the paper to the Adobe Photoshop software CS6, a program suitable for editing different layers, where the layout of the four pages was assembled. In this program, DCB cells were created using the tools that the software itself offers. The characters of Florence Nightingale, the Super Soap and the new coronavirus were drawn by hand, scanned and imported to the website <https://www.storyboardthat.com/pt>.

The aesthetics and text were portrayed in simple figures. To start the digitization process, the pages were diagrammed, colored and adjusted for framing. After preparation, the cells were downloaded individually in image format to the software. After the completion of this first version, which included 21 comics

and three pages, it was presented to the group of teachers for the appreciation of the DCB.

After this first version of the DCB, the material underwent two revisions as to the script text due to containing incomplete sentences, absence of words and the need to adjust the sequence of dialogues on the balloons. In addition, the design of planet Earth did not fully characterize it. The figures of the characters, when transferred from the drawing to the digital version, were not adequate, due to the scarcity of the variety of changes in movements and facial expressions, reaching the conclusion that the software did not help in the effects of the characters. Thus, it was necessary to review the structure of the drawings in each comic and select a new software to adjust the idea of movement of the characters. Figure 2 shows the first page of the DCB script version 1.

For the second version of the DCB, the online program "Storyboard That" was used in its trial version. On the Story Board, graphics are organized such as a series of illustrations or images arranged in sequence, with the purpose of previewing a film, animation or animated graphic, including interactive elements on the website.¹⁴

From the reviews and evaluation by the group of teachers and students, the ordering of the narrative balloons was carried out, with the expansion of preventive measures to combat COVID-19. The title of script version 1, entitled "Florence in... children against COVID-19", was also modified. For the second version of the DCB, the title was also changed to "Florence Nightingale and Super Soap in... Luiza against the new coronavirus".

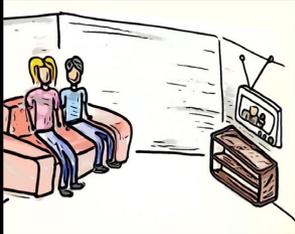
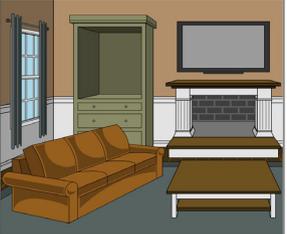
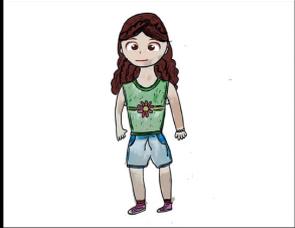
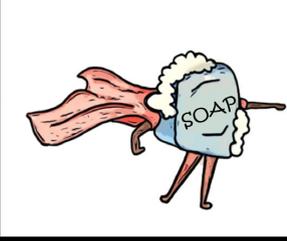
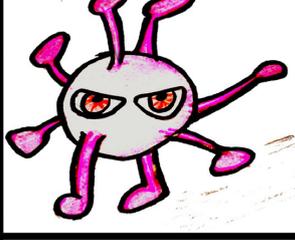
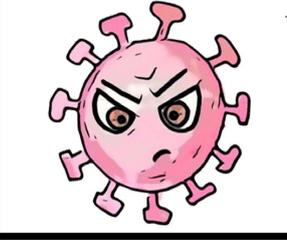
	VERSION 1	FINAL VERSION
FAMILY ENVIRONMENT		
LUIZA		
FLORENCE NIGHTINGALE		
SUPER SOAP		
NEW CORONAVIRUS		

Figure 1. Presentation of the characters still in the creation process and the versions of the characters.

The second version basically contains the same story, however, the graphic visualization, background colors of the comics and the character Luiza herself underwent changes in terms of aesthetics and visualization. (Figure 3)

The second version had 23 panels and three pages, in addition to an editorial page containing information about the authors, with the final version consisting of four pages. The second version was saved in PDF format so that the material had a good resolution and images unchanged.

DISCUSSION

The DCB production process was focused on the Florence Nightingale’s Environmental Theory, which has as its main focus the environment, taking into account its influences on the health of the individual, that is, their natural defenses are impacted by an environment which is healthy or not, especially children, who despite suffering the same influences from the environment, are more susceptible to them, with small ones being affected more

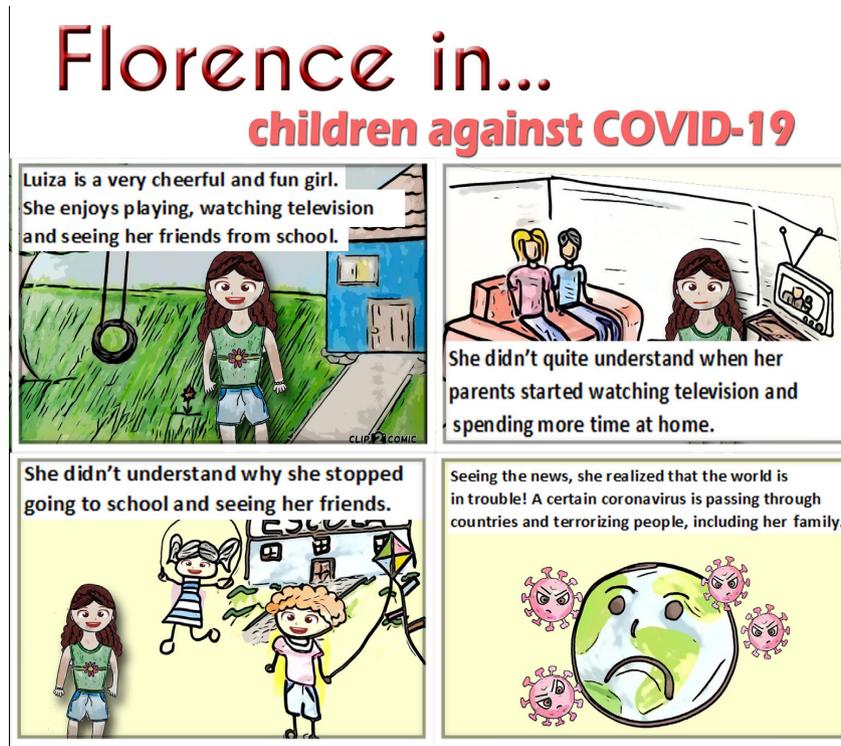


Figure 2. Presentation of the script1 version of the DCB entitled: "Florence in... children against COVID-19".

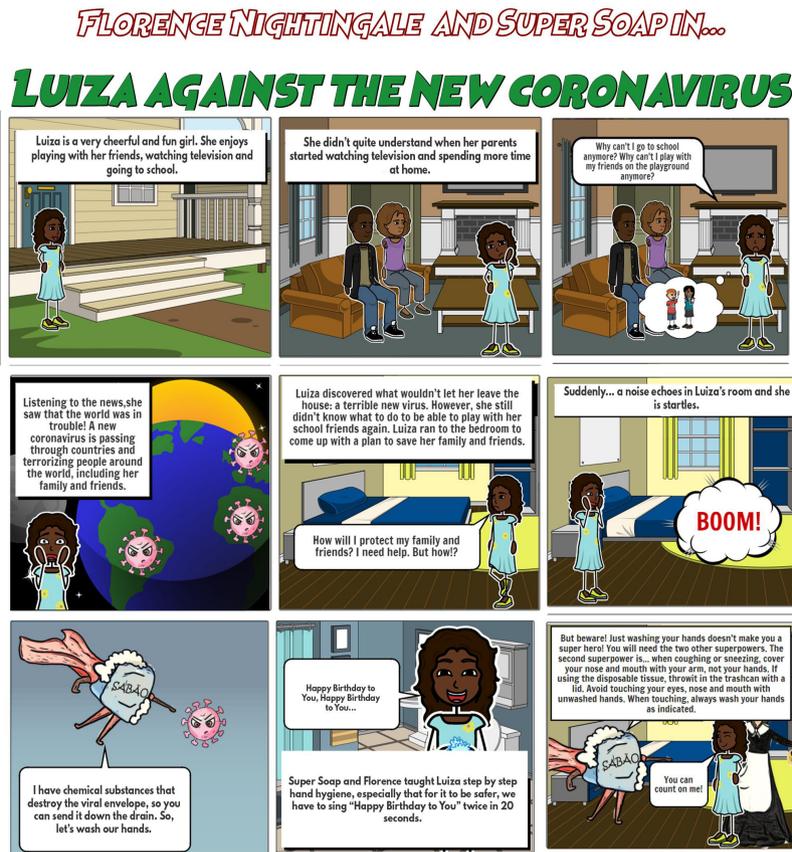


Figure 3. Presentation of the final version of the DCB, entitled: "Florence Nightingale and Super Soap in... Luiza against the new coronavirus".

quickly and severely. In this sense, it was recommended in the story to be in an airy environment, with clothes appropriate to the climate, maintaining the hygiene of the spaces in the house, clothes, bed, body, among others.²

The emphasis given to the precepts of this theory, is justified by the social distancing imprinted by the SARS-CoV-2/COVID-19 pandemic and the knowledge of frequent hand hygiene, natural ventilation of the environments, escaping from environments with crowds of people and maintenance of children's leisure/play, as important recommendations in controlling the spread of infection by the new coronavirus and the child's emotional balance, calling for changes in conducts/behaviors regarding environmental hygiene, which comes back to the fore with precepts and teachings proposed by Florence Nightingale in the second half of the 19th century and which are still current in this 21st century, the year in which the bicentenary of her birth is celebrated.

In these times of pandemic and social distancing, being able to reach children and adolescents to approach hygiene care in an accessible and playful language, while honoring this precursor nurse of modern nursing in her bicentenary of birth, the creation of the DCB aiming to attend to issues related to the hygiene of the environments and mainly of the hands, led to the personification of the character Super Soap.

During the experience of the process of preparing and finalizing the DCB, it was observed by the students that the main difficulties in the use of educational technologies associated with information and communication technologies in the area of child health nursing was a challenge, as it involved thinking about the theme to be worked on, creating dialogues with the most appropriate language for children, in addition to checking if the figures were representing what information they wanted to pass on.

The effectiveness of the message transmitted by the comic is in the extent of the intersection between text and image information that reinforce each other so that the message has the expected understanding. The drawings fulfill their role within the plot from the moment they allow the reader to view the story narrated faithfully.¹⁵

The experiences of using CB for the purpose of teaching, require care that ranges from the conception of the story, passing through the concepts addressed, to the choice of the way the characters communicate with the reader and with each other, since, as it is of an information document, the comics aimed at health promotion, if poorly designed, can bring serious problems to its own proposals.⁷

In this sense, in order to disseminate knowledge about foodborne diseases, Brazilian authors built a CB seeking to portray the daily lives of children, valuing their knowledge and motivating them to approach reading. Another study that addressed the theme "alcohol with teenagers" in a quilombola community, using the sensitive creative method, built and validated a CB that also brought common sense closer to scientific knowledge.^{16,17}

In this context, the DCB can be used so that the scientific evidence on the natural history of the disease (COVID-19) and its preventive measures are translated into language appropriate to the context of children, youth and adults.

The idea of using a Digital Comic Book has also been used by other authors in order to build a Logbook for describing and narrating the activities of a subproject entitled "OuSADAs". The subproject's innovation lies in the use of a language appropriate to comic books as a support for approaches whose methodology is active. And, although the potential of the DCB was seen in the experience in higher education, its use at this level of education is still incipient.¹⁵

This is a reflection study, which aims to describe the experience of preparing and using a CB about the instructional therapeutic toy on venipuncture, which showed that the CB is a health technology that contributes to pediatric nursing care.¹⁸

Faced with the construction of a DCB that brings up a great historical character, such as Florence Nightingale, in the year that celebrates her bicentenary of birth, and also recalls the Environmental Theory of her authorship in such a current moment, it is also a tribute and the opportunity to address preventive measures in the fight against the new coronavirus in a playful and dialogical way as soon as it is possible to resume face-to-face activities with students and clients. It is noteworthy that the present study describes a pilot experiment, which has as limitation not validating the DCB. The possibility of applying this DCB in the school community and in the routine of health professionals of the Family Health Strategies is expected, as a viable health technology to assist in the understanding of the fight against the new coronavirus.

CONCLUSION AND IMPLICATIONS FOR PRACTICE

The comic book produced by students and teachers was built with the aim of transmitting information in a simple and playful way about measures to prevent coronavirus infections (COVID-19), in order to reach children and their families. The experiences of thinking about the script, the way to approach the content, the choice of the form of the characters and the final presentation in digital format are challenges for extension students.

The opportunity to discover new pedagogical resources and the production of technological material in times of the COVID-19 pandemic and of social distancing stands out. Because the comic book is mainly aimed at children and young people, this is considered a mass communication tool capable of assisting in the dissemination of knowledge and the importance of Nursing, when dealing with an important character of this profession in addressing health education issues.

The contribution of this study is to answer the demands of educational actions where the theme "hygiene" is associated with the prevention of COVID-19 in a playful way for children, youth and adults.

AUTHORS' CONTRIBUTIONS

Design of the experience report proposal. Lucas Eduardo Mello Barboza. Isaque Souza da Silveira. Paula Carvalho Leite. Marialda Moreira Christoffel.

Collection of information for the production of the comic book. Lucas Eduardo Mello Barboza. Isaque Souza da Silveira. Paula Carvalho Leite. Marialda Moreira Christoffel.

Data analysis and interpretation of results. Lucas Eduardo Mello Barboza. Isaque Souza da Silveira. Paula Carvalho Leite. Marialda Moreira Christoffel. Ana Leticia Monteiro Gomes. Tania Vignuda de Souza. Gláucia Cristina Lima da Silva.

Writing and critical review of the manuscript. Lucas Eduardo Mello Barboza. Isaque Souza da Silveira. Paula Carvalho Leite. Marialda Moreira Christoffel. Ana Leticia Monteiro Gomes. Tania Vignuda de Souza. Gláucia Cristina Lima da Silva.

Approval of the final version of the article. Lucas Eduardo Mello Barboza. Isaque Souza da Silveira. Paula Carvalho Leite. Marialda Moreira Christoffel. Ana Leticia Monteiro Gomes. Tania Vignuda de Souza. Gláucia Cristina Lima da Silva.

Responsibility for all aspects of the content and the integrity of the published article. Lucas Eduardo Mello Barboza. Isaque Souza da Silveira. Paula Carvalho Leite. Marialda Moreira Christoffel. Ana Leticia Monteiro Gomes. Tania Vignuda de Souza. Gláucia Cristina Lima da Silva.

ASSOCIATED EDITOR

Candida Caniçali Primo

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