

# Validation of Brazilian educational technology for disseminating knowledge on leprosy to adolescents

*Validação da tecnologia educacional brasileira para disseminação de conhecimento sobre a hanseníase para adolescentes*

*Validación de tecnología educativa brasileña para difusión de conocimientos sobre lepra entre adolescentes*

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## ABSTRACT

**Objective:** Elaborate and validate an educational technology for adolescents on leprosy, focusing on preventing the disease and reducing stigma. **Method:** First, a prototype of the educational technology was elaborated and later analyzed by 17 adolescents and 7 researchers' experts in the leprosy area and educational technologies who answered a questionnaire with questions related to the subject. Subsequently, the technology has been applied to 43 adolescents, and a questionnaire was handed before and after the use of the game, so that questionnaire scores were compared by a Wilcoxon paired test. **Results:** After the data collection with researchers and adolescents, the answers received descriptive treatment, and the Content Validity Index was calculated, which reached a good level of agreement, with an overall value (0.86), although there were improvements to the technology, based on the perceptions of researchers and adolescents. **Conclusions:** There was an increase in knowledge about leprosy.

**Descriptors:** Leprosy; Adolescent Behavior; Health Promotion; School Health Services; Educational Technology.

## RESUMO

**Objetivo:** Elaborar e validar uma tecnologia educacional para adolescentes com hanseníase, focando na prevenção da doença e redução do estigma. **Método:** Inicialmente, um protótipo da tecnologia educacional foi elaborado, e então analisado por 17 adolescentes e 7 pesquisadores especialistas na área de hanseníase e tecnologias educacionais, que responderam a um questionário com questões relacionadas ao tema. Posteriormente, a tecnologia foi aplicada a 43 adolescentes, e um questionário foi entregue antes e após o uso do jogo, para que os escores dos questionários fossem comparados com o teste de Wilcoxon pareado. **Resultados:** Após a coleta de dados com os pesquisadores e adolescentes, as respostas foram submetidas a um tratamento descritivo, e o Índice de Validade de Conteúdo foi calculado, alcançando bom nível de concordância, com valor global de 0,86, embora houvesse melhorias a serem feitas na tecnologia, de acordo com as percepções dos pesquisadores e adolescentes. **Conclusões:** Houve um aumento no conhecimento sobre a hanseníase.

**Descritores:** Hanseníase; Comportamento do Adolescente; Promoção da Saúde; Serviços de Saúde Escolar; Tecnologia Educacional.

## RESUMEN

**Objetivo:** Elaborar y validar una tecnología educativa sobre lepra para adolescentes, enfocada en la prevención de la enfermedad y en la reducción del estigma. **Método:** Inicialmente, se elaboró un prototipo de tecnología educativa, luego analizado por 17 adolescentes y 7 investigadores expertos en las áreas de lepra y tecnologías educativas. Respondieron un cuestionario con preguntas relacionadas con la temática. Posteriormente, la tecnología fue utilizada con 43 adolescentes, a los que se les entregó un cuestionario antes y después del uso del juego. Los puntajes del cuestionario fueron comparados por Prueba Pareada de Wilcoxon. **Resultados:** Una vez recolectados los datos de los investigadores y los adolescentes, las respuestas recibieron tratamiento descriptivo y se calculó su Índice de Validez de Contenido, que alcanzó buen nivel de concordancia en su valor global (0.86), aunque igualmente se mejoró la tecnología acorde las percepciones de investigadores y adolescentes. **Conclusiones:** Se aumentó el conocimiento sobre lepra.

**Descriptores:** Lepra; Conducta del Adolescente; Promoción de la Salud; Servicios de Salud Escolar; Tecnología Educacional.

## INTRODUCTION

Eradicating leprosy from the world is a mission to be pursued by everyone. The World Health Organization<sup>(1)</sup> has instituted a guide that claims three main goals to be reached by 2020: 1) no existing incapacity among new cases on children; 2) reduction on the degree of incapacity two – where there is already deformity on hands, feet or eyes – among new cases, to less than one to one million inhabitants, and 3) no existing countries with laws that allows discrimination by leprosy. These goals are important since according to statistics from the same organization<sup>(2)</sup>, in 2017, there was the detection of 210,671 new cases of the disease, especially in the Southeast of Asia (153,487) and in America (29,101) and, globally, in the last decade, it has been noticed a slightly reduction on number of cases.

Brazil must be one of the main countries to invest on the eradication of this disease, since when comparing the amount of new cases between 2016 and 2017, it is noticed that from 150 countries, only seven, including Brazil, there was an increase on detection of new patients, going from 25,218 to 26,875; in which 1,718 were children<sup>(2)</sup>. From the new Brazilian cases in 2017; 1,949 were detected on degree two of incapacity, i.e. tardily, in which 54 were children<sup>(2)</sup>. Data from the Health Ministry<sup>(3)</sup> indicate that the disease is not presented on a homogenous mode in all the country, whereas from the period of 2012 to 2016, it was noticed that, stemming from 15 years old, there is a high detection of new cases on boys, who live in the Central-west region (37.37 in 100 thousand / inhabitants), the North region (34.23 in 100 thousand / inhabitants), and the Northeast region (23.43 in 100 thousand / inhabitants), black and brown races, with incomplete Primary School (55% of the new cases). More specifically in relation to children and adolescents, a time series between 2001 and 2016 of new cases on people under 15, pointed that in five Brazilian states the tendency of detection is static and non-decreasing, even in Tocantins whose rate of new cases in the period indicates hyperendemia<sup>(4)</sup>.

It is noticeable, thus, a need of precocious detection of new cases in Brazil and the necessary referral to health services, according to established guidelines for surveillance, attention, and eradication of leprosy by the Health Ministry<sup>(5)</sup>. As for the detection, the involvement of students on confrontation with the disease is primordial. Internationally, especially on endemic areas, there are programs in which students have their skin evaluated by health professionals and/or by teachers that obtained training to perform such evaluation<sup>(6)</sup>. In Brazil, similarly, there is search of new cases at public schools, when it is addressed a form to the students' parents so they may check whether there are skin stains on the child, then the form is analyzed by a health professional which, if needed, might be referred to the basic health network<sup>(7)</sup>.

The active search of cases at schools is important; however it may have its results amplified if the students were perceived as agents of change and not as passive receivers of health actions. Students may obtain and disseminate knowledge on the theme, helping on overcoming the prejudice against people with leprosy in their communities, searching for health monitoring whether noticed symptoms in themselves and convince other peers and relatives with similar symptoms to seek health services. Similarly,

a systematic review of literature<sup>(6)</sup> on actions of leprosy triage at schools, pointed the importance to include health education components to school-based screening programs.

For that matter, educational activities about the disease to the target audience of children and adolescents are essential and also in accordance to what WHO<sup>(1)</sup> advocate related to the need of community awareness and confrontation with exclusion and prejudice, as well as on the ground that educational institutions must be promoters of health<sup>(8)</sup>. Furthermore, the Brazilian Health Ministry indicates, in its program of leprosy eradication, the importance of educational activities on health and the articulation of health professionals, specially the Family Healthcare Team<sup>(5)</sup>.

Nevertheless, it is noticed that, even at science classes, in Brazil, little is taught about neglected diseases, such as leprosy, in which only in nine Brazilian states the theme is present on the basic curriculum<sup>(9)</sup>. Additionally, even at the National Leprosy, Verminose, Schistosomiasis, and Trochoma Campaign<sup>(7)</sup> that takes place at schools, the only educational technology envisaged is a folder. This material presents in a playful way the information about leprosy and other diseases, including a word-search and two comparative pictures where characters present symptoms of the disease to be found by the student.

Oswaldo Cruz Foundation presents a database of technologies for education in health about leprosy, developed between 1972 and 2008<sup>(10)</sup>. This database presents 276 materials, being only 6% aimed to children and adolescents, 1% to specific school audience, and 0.7% are games (a board game and a CD-ROM with word-search activities, memory game, and quizzes), it was elaborated after extensive data collection with Public Institutions and Non-Governmental Organizations<sup>(10)</sup>. According to the authors of this database, there is the predominance of biomedical speech, prescriptive technical language, and hierarchal relationships between enunciator-recipient.

Similarly, in review of literature on papers published between 2006 and 2016 at the database of SciELO, Medline and Lilacs, it was noticed only six papers describing Brazilian educative actions on leprosy to students, where five described lectures and one a folder<sup>(11)</sup>. Thus, the authors indicated the need of more studies on development and assessment of educational strategies with students, primarily those which encompass active methodologies of learning<sup>(11)</sup>.

Some more recent Brazilian initiatives that promote more action in part of the students as they amuse themselves refer to: a) empowerment in order to develop content on leprosy to be broadcasted on a web-radio, favoring the learning on the theme in an interactive, playful, and with more autonomy way<sup>(12)</sup> and b) perform circles of culture, in order to emerge actions from adolescents, among which the composition and execution of a play<sup>(13)</sup>. Beyond these initiatives, the use of games to teach about leprosy may be relevant, once the review on studies point the effectiveness of educational practices in a playful way, in which intense, relaxed, pleasant, and interactive participation occurs<sup>(14)</sup>.

Since there is a lack of studies that propose and assess Brazilian leprosy's playful technology, this study raises the research question: How relevant is the educational technology called "Myth or Truth" to increase adolescent's knowledge about leprosy and reduce stigma?

## OBJECTIVE

Elaborate and assess a playful educational technology for adolescents on leprosy, focusing on preventing the disease and reducing stigma.

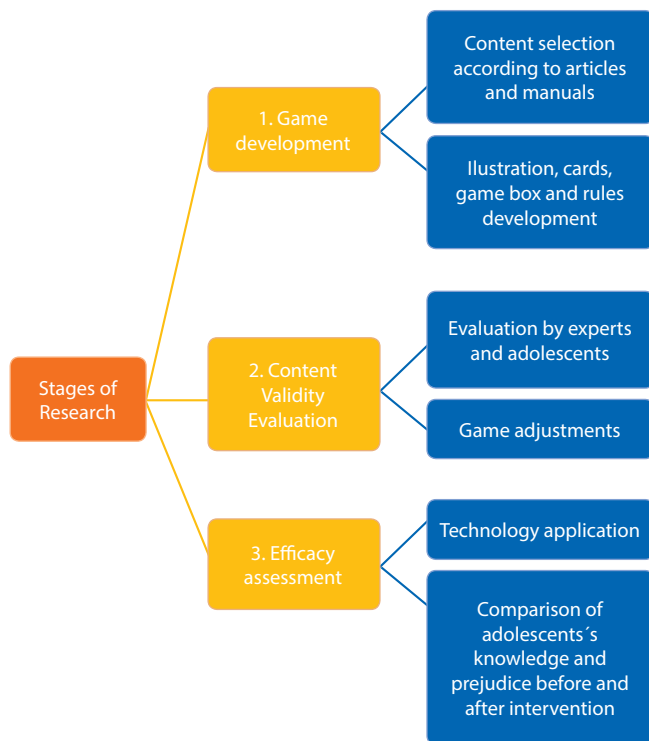
## METHOD

### Ethical aspects

This study was approved by the Human Research Ethics Committee of the State University of Ceará which protocol number is (omitted for assessment) and students, their parents and consulted researchers and experts provided signed informed consent.

### Design, place of study and period

It occurred into three stages, as shown in Figure 1. It is a methodological research that is defined as a study which the main objective is to develop a valid, reliable and useful instrument or product<sup>(15)</sup>. Another way to describe the design of this study is to characterize stage 2 as a descriptive study when collecting perceptions from experts and target audience and stage 3 as a pre-experimental study without control group<sup>(16)</sup>. The study took place at the city of Maracanaú, distant 15 km from Fortaleza, Ceará's capital. This city has 209,057 habitats, of whom 41,550 are in the age group of 10 to 19 years, that is, in the teenager age<sup>(17)</sup>. Between January, 2013 and December, 2017, 32 children or teenagers were diagnosed with leprosy, predominantly in the age of 14, 15 and 17 years. The majority of those cases were male and with the clinical form Dimorfa and Virchowiana, and five of them presented the highest degree of physical impairment (level 2).



**Figure 1** - Steps that were followed in the elaboration of the game “Myth or Truth” on Leprosy, Brazil, 2015

## Game development

The game was given the name “Myth or Truth” on leprosy, established with the aim of demystifying and reducing existing doubts about the disease, as well as reducing prejudice to the bearers. The technology development considered scientific publications on leprosy, such as articles<sup>(18-20)</sup> and Brazilian Health Department Documents<sup>(21-22)</sup>. In addition, for the development of the game, the 10-year experience period of the first author on leprosy cases workout made a valuable contribution.

The technology can be used by at least two and a maximum of four adolescents and addresses: the concept of leprosy, the form of transmission, symptoms, diagnosis, treatment, and prejudice. The game consists of a board, four pins of different colors (blue, yellow, red and green), one die and 31 question and answer cards, called “card questions”. Eleven illustrations arranged on the board and in the box containing it are also part of the game and were specially developed for technology, related to the theme and raising doubts and discussions about the disease. Approximately, the technology costs 15 US dollars (Figure 2) and could be less expensive if the board and pins were made of paper or recycled materials. The board and cards are available for download free of charge as an appendix of this article.



**Figure 2** - Final version of the game “Myth or Truth” on leprosy, Brazil, 2015.

### Content validity evaluation

- Sample, inclusion and exclusion criteria

First, the game was evaluated by experts and after by the target public which were chosen by convenience. The experts included two researchers from the field of leprosy, three researchers from the field of educational technologies and two professionals working with leprosy. Data collection from the target audience involved 17 adolescents from the 9th grade of a municipal public school. If the participants did not fully complete the questionnaires, they would be excluded from the study, what did not happen.

- Study protocol

The experts received a technology's copy and an Educational Material Adequacy Questionnaire which was answered by them. This questionnaire consisted of four open questions and 20 closed questions, and the closed responses were in the form of a Likert scale, with four levels (1. much poor, 2. poor, 3. good, 4. excellent). The adolescents were divided into groups, two groups with four students and three with three students and a copy of the educational game was given to each group to use the technology. The duration of the game ranged from 30 to 40 minutes. After completing the matches, the adolescents completed a questionnaire like the judge's questionnaire to evaluate the details of the game, such as colors, illustrations, box, rules and content.

- Data analysis and statistics

The responses to the questionnaires were described and the Content Validity Index (CVI) was used, which quantified the agreement extent of the judges and adolescents regarding the quality and relevance of the material. The Content Validity Index (CVI) was calculated by counting the items that were marked by 3 (Good) or 4 (Excellent) by the judges and adolescents and dividing it by the items amount. CVI greater than 0.78 was considered as desirable<sup>(8)</sup>. Opinions on the open questions of the judges and adolescents were analyzed to compose the categories of impressions that were more frequent, and which contained relevant suggestions for the improvement of the educational technology.

### Efficacy assessment

- Sample, inclusion and exclusion criteria

A non-random sample of 43 adolescents, of both sexes, of the 9th year of Elementary School, studying in the same school and residing in Maracanaú/CE were part of the research. If the students did not play until the end of the board game they would be excluded from the study.

- Study protocol

For the evaluation of knowledge and stigma, the adolescents answered a questionnaire with 21 objective questions. The options for answering the questions were predominantly "yes" or "no" and the questions were divided into five categories: 1) transmission, 2) symptoms, 3) treatment, 4) behaviors and prejudices, and 5) prevention. The adolescents completed this questionnaire twice: before the application of the game and after five days of technology's use.

- Data analysis and statistics

The percentages of correct answers and errors were calculated for each question from the questionnaire in the group of respondents before and after the intervention. A chi-square test was performed to verify if there were differences in the proportion of correct answers and errors before and after the application of the technology. In addition, scores were calculated for each of the respondents in the following way: when the student answered the question, the question was given a point and when it was wrong, it received zero points. The points were summed up in five independent categories (transmission, symptoms,

treatment, behaviors and prejudices and prevention) and then a general score was computed from the sum of the points of all categories. After each student's score, a nonparametric test was performed for Wilcoxon paired samples to verify if there were changes between the knowledge by category and the total score, before and after the application of the educational technology. For statistical tests, SPSS® 19.0 was used.

### RESULTS

The participating judges were seven female professionals, four of them from the Nursing area, one from Medicine, another from Biology and another from Social Work, in the age group between 28 and 60 years, with a mean age of 46 years. Regarding the area of activity, five (72%) worked as university professors, having articles published in journals, minimum of four and a maximum of 25 articles. The other two judges (28%), despite not being researchers, performed their actions in the articulation of the leprosy program of the state of Ceará. As for the titling of the seven judges, three were doctors (42%), one with postdoctoral studies in progress, two were masters (28%), one doctoral student and two specialists (28%).

The seven judges considered that the information contained in the educational technology is necessary, relevant and in accordance with the current literature, having obtained the CVI value of 0.90 for scientific accuracy, 0.85 for the relevance of the content and 0.82 regarding the presentation characteristics of the game (size and style of letter, colors, among others). Of the five questions that evaluated the content question, only one item referring to the clarity of the rules obtained CVI of 0.57. Thus, an adaptation of the rules of the game was made in order to make them intelligible. Although it was pointed out the need for improvements in the rules, the total IVC was 0.86, indicating an excellent level of adequacy between the judges. Two judges commented that the technology raises the need to seek the health service when the onset of the first symptoms appears.

Adolescents who evaluated educational technology were mostly female (65%, 11 adolescents) were between 14 and 19 years old, predominantly adolescents aged 14 years (47%) and 15 years (35%). Of the 17 participating adolescents, 16 on completing the questionnaire stated that the language and rules of the game were easy to understand and 15 stated that the letters were understandable. Additionally, 11 stated that the designs were interesting and only five agreed that the colors of the technology were attractive. Everyone said they felt motivated to play with the game until its end.

Regarding the degree of relevance of the educational technology according to the responses obtained by the adolescents, the overall Content Validity Index (CVI) was calculated, obtaining a value of 0.97, indicating an excellent level of agreement between the target audience. Quantitative data were endorsed by qualitative views of adolescents, who made descriptions stating that technology is appropriate and fun. For example, a teenager reported that the game will help a lot of people to prevent leprosy and that people will enjoy it.

The efficacy assessment stage included 43 adolescents predominantly male (52%), aged 14 years to 16 years, with a majority



of 14 (52%) and 15 (38%) years. It was observed that there were statistically significant differences between the knowledge of the adolescents before and after the use of the game, in the general account of what the disease is, and more specifically regarding the treatment and prevention of leprosy, as presented in Table 1 below.

**Table 1** - Comparison between scores before and after the application of the "Myth or Truth" game through the Wilcoxon test (N = 43), Brazil, 2015

	Maximum Score Possible	Average		Z	p
		Before	After		
Transmission	6	4	5	-0.765	0.44
Symptoms	6	6	6	-0.176	0.86
Treatment	9	5	6	-4.867	<0.001**
Prejudice	7	5	5	-0.062	0.951
Prevention	2	2	2	-1.978	0.048**
Final Score	30	21	23	-3.581	0.001**

More specifically, in terms of treatment, more adolescents increased their knowledge about the possibility of avoiding the physical deformities of leprosy. Initially, 65.1% knew about this possibility and, after the game, 88.4% had this knowledge ( $\chi^2 = 6.51$ ,  $p = 0.01$ ). Regarding the places where leprosy can be treated, there was a 16% increase in relation to the pre-test of adolescents who elected the health post as an adequate device for the care and attention of the disease (4.7%), ( $\chi^2 = 5.10$ ,  $p = 0.02$ ), previously 4.7% chose the position. In addition, more adolescents correctly pointed out that the treatment of leprosy can be performed during pregnancy, in the pretest 51.2% correct and in the post-test 81.4% ( $\chi^2 = 8.79$ ,  $p = 0.003$ ). There was a positive change in the assertion that the woman under treatment could breastfeed her child (51.2% prior to the application of the game and 81.4% after the game,  $\chi^2 = 32.88$ ,  $p = 0.001$ ). There was a significant increase in knowledge about the importance of the BCG vaccine in the prevention of leprosy that went from 74.4% in the pre-test to 90.7% in the post-test ( $\chi^2 = 3.95$ ,  $p = 0.04$ ).

Regarding the mode of transmission, there were no relevant statistical differences, and before the application of the technology about 90% already knew that the disease is not transmitted from mother to child, nor by means of handshake, hug, kiss and insect sting. In relation to the transmission by (a) use of the same cup, fork, spoon, towel and by (b) touch to the person's spots, respectively 84% and 74% agreed that these are not forms of transmission. The transmission through droplets eliminated in the respiration of the sick person was correctly pointed out as a way of contracting the disease by 37.2% of the adolescents before the application of the game and by 53.5% after the use of the technology, however this difference did not was statistically significant ( $\chi^2 = 2.29$ ,  $p = 0.19$ ).

Previous to the application of the game, most of the adolescents already had knowledge about the symptoms, and about 90% indicated that they were not symptoms of the disease: cough, allergy, fever and weight loss. Of the adolescents, 95.2% knew that blemishes on the skin with loss of sensitivity was a sign of the disease. In addition, 84% correctly pointed out that in identifying a case of leprosy, all the people who lived with the patient in the last five years should be examined by a health team.

Regarding indicators of prejudice, it was noticed that the technology did not promote alteration of attitudes toward the patients. Before the application, about 60% stated that it is necessary to separate the patient from his family, his school and his work and 65% would not sit next to a colleague who is in treatment, having maintained such perceptions. About 20% said earlier to the application of the game, that would not tell friends if they were with the disease.

## DISCUSSION

The quantitative (partial and total CVIs) and qualitative data (comments) revealed that the "Myth or Truth" board game was very adequate according to the judges (researchers and professionals) and adolescents, in the aspects content addressed, format and language. Although it received many praises and high CVIs (over 0.80), the few suggestions for changes were relevant, aiming at improving language, vocabulary, illustrations, layout, and design. The importance of the elaboration of educational technologies considering the opinion of the target public and of experts has been pointed out by authors<sup>(9-18)</sup>, the World Health Education<sup>(8)</sup> and the Health Ministry<sup>(3)</sup> and the great value of this method is also proved herein.

The students who have taken part on the third step of the study had knowledge much superior to the participants of studies included in a literature review<sup>(11)</sup>. On the studies of the review, approximately 50% had information about the disease, being that on the present study more than 74% knew how the disease was not contracted and approximately 90% of the participant adolescents knew how to distinguish between what was a sign from the disease and other signs. Possibly, the students participating on this investigation had much more knowledge for studying in an institution whose adjacent establishment was a basic health unit, being usual educational actions on health at the school performed by the unit's professionals, among which the National Leprosy Campaign. Therefore, it was noticed as pertinent the actions that are being developed at the scope of primary health attention, related to the confrontation with the disease.

Even though, prior to the use of the game, adolescents had answered most of the pre-test questions correctly, the knowledge change assessment has shown that the technology is promising, especially to increase information on treatment and prevention. Thereby, the technology may deepen some pieces of information less disseminated or misunderstood in other actions of health professionals in schools, for instance, on this investigation there was an increase on the amount of students that stated being possible avoiding physical deformities if the disease was precociously treated. Furthermore, it is supposed that whether the technology was applied in a school whose health professional actions were less frequent, the results related to the increase of knowledge would be even more significant. Therefore, it is defended that the game may be used on science classes, including the theme on the curriculum, once the latter is, most of the time, not taught<sup>(9)</sup>; and/or the combination of lectures, such as those pointed by the review of literature<sup>(11)</sup> and/or employed routinely or at the National Campaign by the Family Healthcare Team<sup>(7)</sup> in their actions with students.

However, although there was an increase in knowledge about the disease, it was noticed that some misconceptions persisted after the

post-test was applied. For example, about 10% of the participants continued to believe that the disease was transmitted from mother to child due to pregnancy and touch (handshaking, hugging and kissing), and 30% believed that there was touch transmission stains of the sick person. These results do not disqualify the relevancy of the technology, but most require the reformulation of the mode of application (more than once, for example) and the game improvement including more cards about these misconceptions.

Finally, in relation to prejudices, there were still about 60% who believed that isolation was necessary and 35% who would not sit next to a colleague with leprosy. These results suggest that the increase on information about the theme not necessarily reduces the stigma with diseased, it is needed to plan carefully how to elaborate actions with such goal<sup>(23)</sup>. It is believed, thus, that the technology must be used in joint with other materials, for instance: complemented with videos, debates, and testimonies that teach through awakening of emotions, such as empathy and solidarity. For that matter, although developed for the adult audience, there is the example of a Taiwanese video<sup>(24)</sup> and of cultural events<sup>(25)</sup> performed by people with leprosy whose great goal is to increase visibility on the arising symptoms difficulties, especially when instead of assisted, they are excluded and stigmatized.

### Limitations of the study

Future studies are essential to confirm the relevance of spreading the technology to other students, since in this study the application of the game was not very intense, the number of participants was small (43 adolescents) and most of them already had information about the disease, and data was collected only before and 15 days after the intervention, without medium and long term assessments to prove if the results were maintained, as well the study design did not include a control group. Therefore, it is important that future studies increase the number of participants, applied the game in other contexts, such as in private schools, and data should be collected longitudinally and from a control group.

### Contributions to the nursing area, health and public policy

In Brazil, the prevention of leprosy relies, primarily on actions from the Family Healthcare Team, which enables a rerouting of priorities on health, among them the control of leprosy, it is highlighted: 1) epidemiological surveillance; 2) management with focus on decentralization, planning, monitoring, and assessment; 3) integral attention; 4) communication and education; and 5)

development of researches<sup>(19)</sup>. On this team, nurses must present an essential part, especially when defending a non-vertical perspective between health professionals and users promoting the empowerment of the subjects, regarding their own health, rights, life conditions, and their community. Thus, nurses must extrapolate the actions of polychemotherapy distribution, referral of patients to other care and completion of information systems related to the notification, which is not always performed<sup>(18-20)</sup>. For that matter, it is believed that the use of active learning methodologies, such as the game "Myth or Truth", in the Basic Units of Family Healthcare in educational activities, underpin what should be the Nursing practice on the prevention of the disease.

This study may be one example to other researchers and professionals, thereby encouraging the development, assessment, and dissemination of educational playful technologies on leprosy, which have shown themselves as scarce in school curricula, in the National Campaign, and in collections of developed technologies by NGOs and Governmental institutions, as well as presented by scientific papers<sup>(11)</sup>. For presenting favorable results regarding the alterations on knowledge, the developed technology in the study also aligns with what the WHO<sup>(1-8)</sup> and the Health Ministry<sup>(5)</sup> propose concerning the need to educate on leprosy. Finally, playful education technologies are not expensive if it is considered the negative impact of the disease on society.

### CONCLUSION

This study aimed to develop and assess a low-cost educational technology (board game) as a way to promote student's knowledge about leprosy and stigma reduction, it was perceived that the technology was considered valid regarding its content and appearance and promoted changes of knowledge, especially regarding the treatment and prevention of the disease. In conclusion, it is believed that the "Myth or Truth" game about leprosy is a promising technology, particularly if applied in conjunction to other strategies, such as the National Leprosy Campaign, lectures, and videos.

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