

ORIGINAL ARTICLE

BOARD GAME AS AN INFORMATION DEVICE ON HIV/ AIDS FOR AGED INDIVIDUALS

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ABSTRACT

Objective: to validate the board game called “Mural do Risco” (“Risk Wall”) on the prevention of Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome among aged individuals attending Youth and Adults Education. **Method:** a methodological study developed in the state of Recife, Brazil, which validated the content of the game and its user’s guide from September to November 2020 via e-mail. The participants were 27 evaluators from the health area and another 18 from other fields. The data were analyzed by means of descriptive statistics to obtain the Content Validity Index and the Suitability Assessment of Materials score. **Results:** both obtained a Content Validity Index of 0.90; and the Suitability Assessment of Materials score was 22 points for the game and 24 for the guide. The images were restructured, prioritizing clarity, size and relationships with aged individuals. **Conclusion:** the game and the guide are adequate and, after registration, they will be able to mediate educational practices to prevent Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome among aged individuals in the school context.

DESCRIPTORS: Validation Studies; Educational Technology; Aged Individual; Education in Health; HIV.

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INTRODUCTION

Acquired Immunodeficiency Syndrome (AIDS) is one of the most worrying public health problems and the Human Immunodeficiency Virus (HIV) is still globally disseminated⁽¹⁾. Evidence for this are data from the UNAIDS in 2020: worldwide, 1.7 million people were infected and 38.0 million lived with HIV⁽²⁾.

The development of studies on HIV infection and the evolution of the antiretroviral treatment resulted in increased survival and, consequently, in an increase in the number of infected aged individuals⁽³⁻⁴⁾. In Brazil, 342,459 cases of HIV infection were reported from 2007 to June 2020, and mortality increased by 38.5% in the aged population over the last 10 years⁽⁵⁾.

New antiretroviral treatments have improved survival and, thus, led to more challenges to deal with the exponential growth in the number of infected aged individuals, according to a systematic review conducted in the United States⁽³⁾. This increase in the number of aged people infected can be driven by: suppressed immune system; inadequate use of condoms; low schooling levels; and limited knowledge about HIV prevention, among others⁽⁶⁻⁷⁾.

A study that analyzed the aged individuals' knowledge about syphilis and AIDS before and after educational actions evidenced that 96.4% of the participants knew about AIDS. However, when asked about transmission means, 12.7% did not know how it happens, 38.1% believed that HIV could be transmitted by a kiss, and 78.1% mentioned mosquito bites as a way of transmission. Regarding unprotected sex, 78.1% stated that it is a transmission means. After the educational action, knowledge increased to 100%⁽⁸⁾.

This serious public health problem confirms the need for health promotion actions, especially with aged individuals, who, due to immunosenescence, are more susceptible to diseases⁽¹⁾. Educational technologies are powerful resources in supporting prevention and health promotion in aged individuals⁽⁹⁾.

In Brazil, the Health at School Program (Programa Saúde na Escola, PSE), which aims at promoting health and reducing the vulnerabilities of learners from the public school system, promotes actions in the health and education sectors⁽¹⁰⁻¹¹⁾. Brazilian aged individuals are inserted into schools by means of Youth and Adult Education (YAE), with their rights guaranteed by the Statute of the Elderly⁽¹²⁻¹³⁾. Although the PSE does not directly allude to the approach of sexuality as a curricular component, the Ministry of Health recommends prioritizing the sexual health of this population⁽¹⁴⁾. Nurses are one of the professionals capable of performing health actions in the school.

An integrative review on the knowledge of aged individuals infected with HIV identified a scarce production on this theme; and a study developed in Japan showed that, although research studies on the use of board games are scarce, recent findings have already shown their cognitive benefits. Therefore, studies with these themes need to be better explored⁽¹⁵⁻¹⁶⁾.

Thus, it is necessary to develop preventive strategies for HIV/AIDS, also in aged individuals. In this context, the "Mural do Risco" game stands out, a resource created to be used with aged individuals⁽¹⁷⁾. In view of the above, and considering the benefit of using technologies in health actions⁽⁸⁾, this study aims at validating, according to expert evaluators, the board game called "Mural do Risco" and its user's guide to mediate educational practices of HIV/AIDS prevention with aged individuals who are YAE students.

METHOD

A methodological validation study of the "Mural do Risco" board game, developed between September and November 2020 in Recife-PE, Brazil. The study was conducted in two rounds, namely: 1) validation of the game content; and 2) validation of the user's guide content. Data collection was conducted nationwide, covering the five Brazilian regions for the evaluators from the health area and four regions for the evaluators from other fields (designers, graphic artists, and YAE pedagogists). In the first round, in addition to the validation, the evaluators suggesting preparing a user's guide, which was produced and validated in the second stage.

The inclusion criteria for the evaluators from the health area were as follows: at least three years of clinical experience in the care of the target population; having papers published in journals and/or events on the theme; having papers published in journals and/or events on elaboration and validation of Care Educational Technology (CET) in the area; and being a specialist (*lato sensu*) and member of a Scientific Society in the field. Inclusion of the evaluators from other areas considered the following: at least two years of professional experience with the CET format/modality; having papers published in journals and/or events on CET, having papers published in journals and/or events on the elaboration and validation of CET, having papers registered and/or applied with the CET format/modality; and being a specialist (*lato and/or strictu sensu*) in the professional area. The professionals should meet at least two criteria⁽¹⁸⁾.

In the first contact, via e-mail, the evaluators received the invitation letter. After accepting to participate, they signed the Free and Informed Consent Form and, subsequently, they accessed the link to the validation instrument and to the game in PDF format. In the second round, they received the link to the validation instrument and the guide in PDF format.

To calculate the size of the sample of evaluators from the health area⁽¹⁹⁾, a 95% confidence level and a 15% sample error were established, totaling 27 evaluators. For the evaluators from other areas, the indication from six to 20 was adopted⁽²⁰⁾. Of the 70 evaluators invited, 45 (27 from the health area and 18 from other fields) answered the instruments.

For validation, Pasquali's theoretical framework⁽²⁰⁾ was followed, with emphasis on the content and on the appraisal by the committee of evaluators/specialists. Two instruments were used in the game and guide validation process, namely: 1) for the evaluators from the health area, who judged: objective structure, presentation and relevance, based on a Likert scale: (one) Totally Adequate (TA); (two) Adequate (A); (three) Partially Adequate (PA), and (four) Inadequate (I)⁽²¹⁾; and 2) for the evaluators from other areas, who judged: illustrative didactic format and applicability, based on a Likert scale: (two) Adequate (A); (one) Partially Adequate (PA) and (zero) Inadequate (I)⁽²¹⁾. The instruments offered space for suggestions. In the validation process, the Content Validity Index (CVI) was used for the evaluators from the health area and, for those from other fields, the Suitability Assessment of Materials (SAM) score.

Descriptive statistics was adopted for the analysis, determining the absolute and relative frequencies. Valid CVI values were considered those that presented scores ≥ 0.80 , with $\geq 80\%$ agreement level in the TA and A options⁽¹⁸⁾. For the SAM score, such score was ≥ 10 .

The research was approved by the Research Ethics Committee of the Health Sciences Center at Universidade Federal de Pernambuco, under opinion No. 4,258,34.

RESULTS

The 27 evaluators from the health area were nurses, 25 (92.60%) of them were female, aged between 25 and 62 years old, and 11 (40.74%) were at least 46 years old. Academic degrees: 15 (55.6%) were PhDs, nine (25.9%) had master's degrees, three (11.1%) had some lato sensu specialization, one (3.7%) was a post-PhD and another one (3.7%) was in a residency on Older Adults' Health.

Of the 18 evaluators (designers, graphic artists and pedagogists), 10 (37.04%) were female and aged between 25 and 60 years old Academic degrees: four (22.2%) were PhDs, five (27.8%) had master's degrees, eight (44.4%) had some lato sensu specialization, and one (5.6%) was attending a specialization course.

First round – Validation of the game

In the validation with evaluators from the health area, the "Objectives" domain had 76 choices for TA (56.30%), 51 (37.78%) for A, six (4.44%) for PA, and two (1.48%) for I. The suggestion was adding images on homosexual relationships, relationships with sex workers, and practice of aquarobics. The TA and A scores totaled 127 choices, representing 97.69% of the valid answers. The overall CVI of the "Objectives" domain was 0.94 (Table 1).

Table 1 – Answers given by the evaluators from the health area regarding the "Objectives" domain of the validation process corresponding to the "Mural do Risco" game. Recife, PE, Brazil, 2020

Domain	Validation				
	TA 1	A 2	PA 3	I 4	IVC*
1.1 All the information included in the game is consistent with the everyday needs of the aged population attending school.	15	8	3	1	0,85
1.2 All the information included in the game is important for the quality of life of the aged population attending school.	15	11	0	1	0,96
1.3 The game invites and/or fosters changes in behaviors, habits and attitudes.	11	13	3	0	0,88
1.4 The game can freely circulate in the scientific field of the health and education areas.	16	11	0	0	1
1.5 The game meets the objectives it intends to achieve with the aged population attending school.	19	8	0	0	1
Score	76	51	6	2	135
Percentage	56,30%	37,78%	4,44%	1,48%	100%
Global CVI	0,94				

Note: 1. TA=Totally Adequate; 2. A=Adequate; 3. PA=Partially Adequate; 4. I=Inadequate.

Source: The authors (2020).

The "Structure and Presentation" domain had 158 choices for TA (58.51%), 89 (32.96%) for A, 21 (7.78%) for PA, and two (0.75%) for I. The suggestions were as follows: improve the graphic definition of the images, represent drug use by young people and not by aged individuals; replace the representation of the sharps with everyday scenes; replace

the image of the sexual act with the aged individuals lying in bed; and include images representing anal sex.

The TA and A scores totaled 247 choices, representing 91.48% of the valid answers. The overall CVI was 0.91, which represented content validation regarding the objective proposed (Table 2).

Table 2 – Answers given by the evaluators from the health area regarding the “Structure and Presentation” domain of the validation process corresponding to the “Mural do Risco” game. Recife, PE, Brazil, 2020

Item	Validation				
	TA 1	A 2	PA 3	I 4	IVC*
Structure and Presentation					
2.1 The game structure and presentation are appropriate to be used by the aged population attending school.	15	12	0	0	1
2.2 The images are presented in a clear and objective way.	18	5	3	1	0,85
2.3 The images are scientifically correct.	13	12	2	0	0,92
2.4 The material is appropriate to the socio-cultural level of the aged population attending school.	15	9	3	0	0,88
2.5 The game's content follows a logical sequence.	15	10	2	0	0,92
2.6 All the information is well-structured and in consonance with the theme of HIV/AIDS prevention.	15	8	4	0	0,85
2.7 The presentation style corresponds to the level of knowledge of the aged population attending school.	17	10	0	0	1
2.8 The illustrations are expressive and sufficient in number.	15	7	4	1	0,81
2.9 The material is appropriate for the aged population attending school.	17	9	1	0	0,96
2.10 Length is adequate to address HIV/AIDS prevention with the aged population attending school.	18	7	2	0	0,92
Score	158	89	21	2	270
Percentage	58,51%	32,96%	7,78%	0,75%	100%
Global CVI	0,91				

Note: 1. TA=Totally Adequate; 2. A=Adequate; 3. PA=Partially Adequate; 4. I=Inadequate.

Source: The authors (2020).

The “Relevance” domain had 112 choices for TA (59.26%), 62 (32.80%) for A, 15 (7.94%) for PA, and zero (0%) for I. The suggestions were as follows: include contexts of stigma and social discrimination and expand the discussion beyond the school setting.

According to the evaluators’ assessment, TA and A totaled 174 choices, representing 92.06% of the valid answers. The block’s CVI was 0.92, which represented content validation regarding the objective proposed (Table 3).

Table 3 – Answers given by the evaluators from the health area regarding the “Relevance” domain of the validation process corresponding to the “Mural do Risco” game. Recife, PE, Brazil, 2020

Item	Validation				
	TA 1	A 2	PA 3	I 4	IVC*
3.1 The game's topic portrays key aspects that must be reinforced in the context of education in sexual health of the aged population attending school.	17	7	3	0	0,88
3.2 The educational material allows learning on HIV/AIDS prevention in different contexts.	16	9	2	0	0,92
3.3 The game proposes that the aged population attending school elaborates knowledge about HIV/AIDS prevention.	16	9	2	0	0,92
3.4 The game addresses the subject matter that is necessary for the knowledge about HIV/AIDS prevention of the aged population attending school.	15	9	3	0	0,88
3.5 The game is suitable to be used by education professionals.	15	10	2	0	0,92
3.6 The game proposes that the aged individuals elaborate knowledge about HIV/AIDS prevention.	17	9	1	0	0,96
3.7 The game addresses the subject matter that is necessary for the knowledge and actions of the aged population attending school.	16	9	2	0	0,92
Score	112	62	15	0	189
Percentage	59,26%	32,80%	7,94%	0	100%
Global CVI	0,92				

Note: 1. TA=Totally Adequate; 2. A=Adequate; 3. PA=Partially Adequate; 4. I=Inadequate.

Source: The authors (2020).

Based on the evaluators' considerations, the game's text and images were restructured, prioritizing clarity and the relationship of the images with the theme and with the aged individuals' context. For the evaluators, the technical and specific issues related to the layout are fundamental to attain the game's objective (Figure 1).

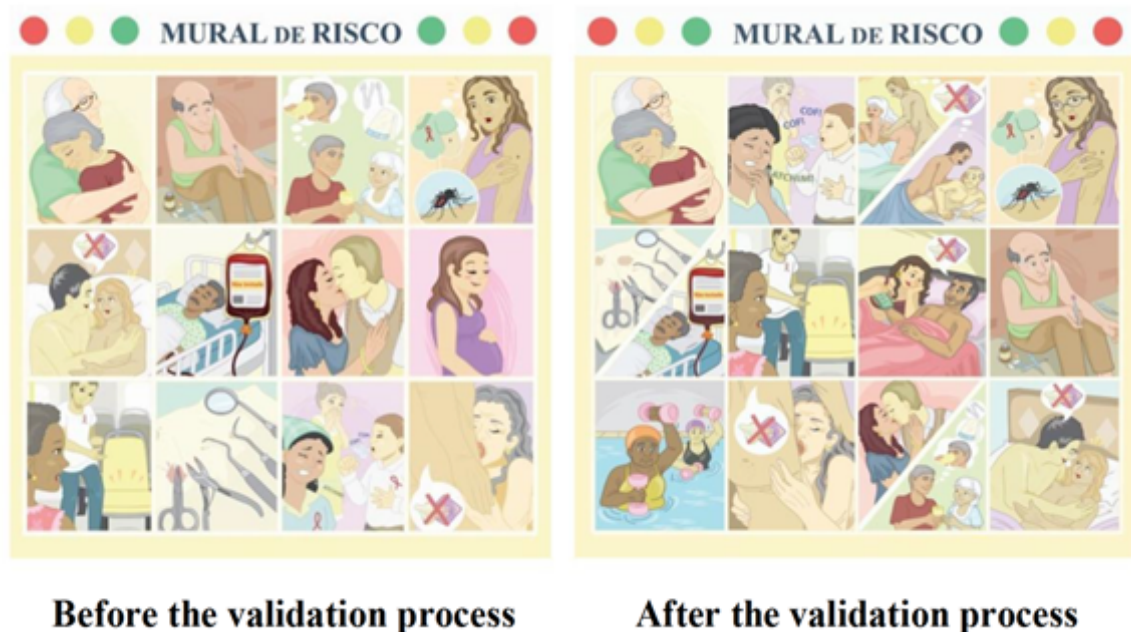


Figure 1 – “Mural do Risco” game boards. Recife, PE, Brazil, 2020
Source: Barbosa et al. (2019); the authors (2020).

The validation with evaluators from other areas considered the answers obtained in each item, according to the number of times each valuation was mentioned and to the SAM scores, per item (Table 4). A total score of 22 points was obtained.

Table 4 – Answers given by the evaluators from other areas regarding the validation criteria of the “Mural do Risco” game. Recife, PE, Brazil, 2020 (continues)

Block	Content			Language			Illustrations		Motivation			Cultural adequacy		SAM Score	
	Itens	1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	4.1	4.2	4.3	5.1		5.2
Evaluators															
1	2	2	2	2	2	2	2	2	2	1	1	2	2	2	24
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	24
3	2	2	2	2	2	2	1	2	2	2	2	2	2	2	23
4	2	2	2	1	2	2	2	2	2	2	2	2	2	2	23
5	2	2	2	2	2	2	2	2	2	1	2	1	2	2	22
6	2	2	2	2	2	2	2	2	2	2	2	2	2	2	24
7	2	2	2	1	2	2	2	1	2	2	2	2	2	2	22
8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	24
9	1	2	1	2	2	2	0	1	1	2	2	2	2	2	20
10	2	2	2	2	2	2	2	2	2	2	2	2	1	2	23
11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	24

12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	24
13	2	2	2	2	2	2	1	1	2	2	2	1	1	22	
14	2	1	2	2	2	2	2	2	2	1	1	2	2	23	
15	2	2	1	1	1	2	2	2	2	2	1	2	2	22	
16	1	2	1	2	2	2	1	1	2	2	2	2	2	22	
17	2	2	2	1	2	2	1	1	1	1	0	0	1	16	
18	2	2	2	1	1	1	1	1	1	1	1	1	1	16	
Simple Arithmetic Mean										22					

*Note: 2- Adequate; 1- Partially Adequate; 0- Inadequate

Source: The authors (2020).

Second round – Validation of the game user’s guide

In the validation of the guide with the evaluators from the health area, CVI values of 0.89, 0.92 and 0.94 were obtained for the “Objectives”, “Structure and Presentation” and “Relevance” domains, respectively. A total score of 24 points was obtained in the validation with the evaluators from other areas. The suggestions for the guide were as follows: remove the word virus before HIV, conceptualize risk and add more rounds.

The global CVI value for the game and the guide was 0.90. The SAM scores for the game and the guide were 22 and 24 points, respectively, reaching the threshold established to be considered valid.

DISCUSSION

The “Mural do Risco” game innovates in the playful approach of HIV/AIDS prevention by means of a board game, with illustrations of aged individuals in different daily situations that may involve HIV/AIDS contamination.

There is also innovation in validating with evaluators from the health area, with expertise in Gerontological Nursing and in care to aged individuals with HIV/AIDS, as well as with designers, graphic artists and pedagogists, providing greater reliability in the adequacy of the technology to aged individuals, as professional plurality is essential to improve the resource⁽²²⁾.

The validation process conferred adequacy of the game and guide as a proposal of educational resources for aged individuals in the school context. They may be used in educational actions developed by health professionals and YAE teachers. Due to its pedagogical character which stimulates creativity, the board game awakens aged individuals for action and elaboration of knowledge. It is resource that is easy to use in the school and health contexts⁽⁹⁾.

The satisfactory CVI and SAM score values for the game and for its user’s guide show that most of the two groups of evaluators agree on the relevance of the items, in line with the recommended minimum value to consider them valid⁽²³⁾.

In the assessment of the game and of its guide, the following aspects were highlighted in the “Objectives” domain: lack of images on homosexual relationships and on relationships with sex workers, and absence of figures on the practice of aquarobics and its relationship

with HIV/AIDS transmission. Given the above, and from the assumption that dialog and knowledge are fundamental in the HIV/AIDS prevention practices with aged individuals⁽²⁴⁾, three images were added to represent the suggestions (Figure 1).

In order to respond to the suggestions made in the “Structure and Presentation” domain, the board’s dimensions and the length of the guide were modified. In addition, although the evaluators have suggested representing the drug use by young people rather than by aged individuals, the image of the aged individual was maintained, because it was understood that consumption of these substances was also associated with risk sexual behaviors in the aged population. It was also taken into account that the aged individuals’ experiences, risk perceptions and socioeconomic, cultural and demographic aspects have direct implications in sexual health⁽²⁵⁾.

Also in relation with the “Structure and Presentation” domain, a Brazilian study that developed gerontechnology on healthy aging revealed that, to achieve their educational goals, games should be adapted to the social reality of the target audience⁽⁹⁾.

Finally, reflections and suggested changes were made to the “Relevance” domain, focusing on deconstructing stigma and social discrimination in the context of aged individuals and of HIV/AIDS. In addition, the current study ratified the idea of school as a potential locus to perform health education actions, based on the contribution of the PSE as a link between the professionals from the health and education areas⁽²⁶⁾.

As the functionality of board games promotes cognitive stimuli and draws the aged individuals’ attention, use of these resources should be increasingly encouraged⁽²⁷⁾.

Health professionals, especially nurses, are active agents in the promotions of health education actions⁽²⁸⁾. Therefore, the relevance of school actions is evidenced, which should contemplate the health of children and young people as well as that of adults and aged individuals.

Education in health is a theoretical-practical multidisciplinary field that enables an educational process, fosters the construction of knowledge, and encourages autonomy concerning issues that involve the health context⁽²⁹⁾. Thus, the use of educational technologies such as the one validated by this study is indicated to enhance educational actions on the sexual health of aged individuals in the school context, as the “Mural do Risco” game may assist in the clinical praxis by reducing the HIV contamination rates.

Non-conduction of a semantic assessment presents itself as a limitation, indicating that a future study should perform such evaluation.

CONCLUSION

“Mural de Risco” obtained adequate validation indices. The suggestions of changes made by the evaluators were considered, becoming a resource that will be able to mediate educational practices in HIV/AIDS prevention directed to aged individuals in the school context.

After validation of the game, it is expected that it becomes available for use in YAE, providing aged individuals with a playful resource that enhances cognitive functions, socialization, dialogicity and knowledge acquisition, and leading to a decrease in the HIV infection rates.

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