

## Youth empowerment through health education scale: validity study

Escala de empoderamento juvenil pela educação em saúde: estudo de validação  
Escala de empoderamiento juvenil por la educación para la salud: estudio de validación

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## How to cite:

Barros MB, Rosário HR, Martins SP, Galvão DM, Tenório SJ, Farias AC, et al. Youth empowerment through health education scale: validity study. Acta Paul Enferm. 2023;36:eAPE015232.

## DOI

<http://dx.doi.org/10.37689/acta-ape/2023A0015232>



## Keywords

Adolescent health; Health education; Empowerment; Methods; Validation studies

## Descritores

Saúde do adolescente; Educação em saúde; Empoderamento; Métodos; Estudo de validação

## Descriptores

Salud del adolescente; Educación en salud; Empoderamiento; Métodos; Estudios de validación

## Submitted

July 27, 2022

## Accepted

March 14, 2023

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## Abstract

**Objective:** To validate the Youth Empowerment Through Health Education Scale (EJEdUS) content and appearance after an educational intervention.

**Methods:** This is a methodological study carried out through EJEdUS assessment by relevance, clarity and pertinence criteria by experts in the subject as well as by school adolescents and from a *quilombola* community. The analysis was performed using the Content Validity Coefficient and Content Validity Index, in addition to calculating the Gwet AC2 to verify inter- and intra-expert agreement.

**Results:** Of the initial 50 items on the scale, 18 needed to be reformulated and 11 were excluded after consensus discussion with adolescents. The intra-expert agreement was almost perfect for the three criteria: relevance (Gwet: 0.894; 95%CI 0.825-0.919), clarity (Gwet: 0.848; 95%CI 0.816-0.879) and pertinence (Gwet: 0.896; 95%CI 0.870-0.923). In the intra-adolescent agreement analysis, an almost perfect agreement was observed (Gwet: 0.96; 95%CI 0.917-1), with acceptable agreement rates of Content Validity Coefficient and Content Validity Index, both with 0.91.

**Conclusion:** The scale presented satisfactory Content Validity Indexes and appearance to measure youth empowerment through health education.

## Resumo

**Objetivo:** Validar o conteúdo e a aparência da Escala de Empoderamento Juvenil pela Educação em Saúde (EJEdUS) após uma intervenção educativa.

**Métodos:** Estudo metodológico realizado mediante a avaliação da Escala de Empoderamento Juvenil pela Educação em Saúde (EJEdUS) pelos critérios de relevância, clareza e pertinência, por especialistas na temática como também por adolescentes escolares e de uma comunidade quilombola. A análise deu-se pelo Índice e pelo Coeficiente de Validade de Conteúdo, além do cálculo de Gwet AC2, para verificar a concordância inter e intraespecialistas.

**Resultados:** Dos 50 itens iniciais da escala, observou-se a necessidade de reformulação de 18 deles e a exclusão de 11 após discussão de consenso com os adolescentes. A concordância intraespecialistas se mostrou quase perfeita para os três critérios: relevância (Gwet: 0,894; IC95% 0,825-0,919), clareza (Gwet: 0,848; IC95% 0,816-0,879) e pertinência (Gwet: 0,896; IC95% 0,870-0,923). Na análise de concordância intra-adolescentes, observou concordância quase perfeita (Gwet: 0,96; IC95% 0,917-1), e com taxas de Índice e Coeficiente de Validade de Conteúdo aceitáveis de concordância, ambos com 0,91.

**Conclusão:** A escala apresentou Índices de Validade de Conteúdo e aparência satisfatórios para aferir o empoderamento juvenil pela educação em saúde.

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Conflicts of interest: nothing to declare.

## Resumen

**Objetivo:** Validar el contenido y la apariencia de la Escala de Empoderamiento Juvenil por la Educación para la Salud (EJEdUS) después de una intervención educativa.

**Métodos:** Estudio metodológico realizado mediante la evaluación de la Escala de Empoderamiento Juvenil por la Educación para la Salud (EJEdUS), según criterios de relevancia, claridad y pertinencia, tanto por especialistas del tema, como también por adolescentes escolares y de una comunidad quilombola. El análisis se realizó a través del Índice y del Coeficiente de Validez de Contenido, además del cálculo de Gwet AC2, para verificar la concordancia inter e intraespecialistas.

**Resultados:** De los 50 ítems iniciales de la escala, se observó la necesidad de reformular 18 de ellos y de excluir 11 luego de una discusión de consenso entre los adolescentes. La concordancia intraespecialistas demostró ser casi perfecta en los tres criterios: relevancia (Gwet: 0,894; IC95 % 0,825-0,919), claridad (Gwet: 0,848; IC95 % 0,816-0,879) y pertinencia (Gwet: 0,896; IC95 % 0,870-0,923). En el análisis de concordancia intraadolescentes, se observó concordancia casi perfecta (Gwet: 0,96; IC95 % 0,917-1) y con valores aceptables de concordancia del Índice y Coeficiente de Validez de Contenido, ambos 0,91.

**Conclusión:** La escala presentó Índices de Validez de Contenido y apariencia satisfactorios para determinar el empoderamiento juvenil por la educación para la salud.

## Introduction

An individual's empowerment is liberation from a context of oppression that is beyond cognitive abilities. From the perspective of health, it allows improving the behavior of healthy habits and acting on the social determinants of health, based on a critical awareness that, in Paulo Freire's approach, provides opportunities for decision-making in health with autonomy and security, in the exercise of an ethical attitude for greater control over their lives and coping with social and health inequalities.<sup>(1,2)</sup>

Freire's understanding of empowerment deals with the process of humanization and indignation in the face of injustice as a political and social act, in an expanded perspective of personal or community dimensions, according to a concept linked to the model of affective health education and promotion, which it promotes health in all personal and social areas, which, in turn, dialogue with problematization to question the dominant relationships that produced it.<sup>(3,4)</sup>

With a focus on achieving empowerment in health, education plays the role of mediating the situational complexities imposed on people. When carried out through a critical and reflective dialogue, liberating education promotes the development of skills that influence health-related choices, in addition to adapting to new circumstances in a context of vulnerability.<sup>(3,5)</sup>

Subject to social, cultural and environmental influences, adolescents are marked by intense biological and behavioral changes, which place them

in a fragile social position.<sup>(6)</sup> The development of autonomy for healthy choices can drive internal and external changes and encourage attitudes to promote autonomy and skills that mobilize peers to propose improvements to quality of life, based on the adoption of emancipatory behaviors that increase the ability to face social injustices.<sup>(7)</sup>

Even with the availability of empowerment measurement scales for adults and older adults, the construction of a praxis of encouraging youth empowerment, however, faces obstacles, as there are few instruments capable of measuring autonomy, emancipation and promoting the role of adolescents in strategies to promote their health.<sup>(1,8)</sup>

Concomitantly with the increase in studies on empowerment in the theoretical field, there is a gap in the applicability of this construct by validated instruments, especially those that allow assessing educational interventions in health from Paulo Freire's perspective.<sup>(9)</sup>

The existence of few instruments with good psychometric properties leads to the need to develop measures that portray the vocabulary universe of adolescents; analyze constructs of an emancipatory character based on educational interventions for the development of empowerment processes, with the autonomy to take over changes in behaviors that promote individual and collective health; and identify motivating factors of leading role in health promotion and care actions to face oppressive relationships and inequities through knowledge.

In this context, this study aims to validate the content and appearance of a youth health empowerment scale after an educational intervention.

## Methods

This is a methodological study with a quantitative approach to validate content and appearance by assessing the scale named Youth Empowerment Through Health Education Scale (EJeduS - *Escala de Empoderamento Juvenil pela Educação em Saúde*), developed from the perspective of empowerment through a liberating and social-critical education by Paulo Freire.<sup>(1,2)</sup>

American Educational Research Association (AERA) for standards of psychometric and educational tests was used, when considering the target audience's statements, perceptions and literature review as well as the scope of the construct to be measured, outlined by a theory substantive, according to Paulo Freire's assumptions of social class empowerment.<sup>(10)</sup>

The scale also presents clear and accessible language to adolescents, as it was developed by them to characterize an identity, according to their vocabulary universe, followed by a judgment of experts, whose qualifications and experiences were confirmed, to independently assess the validity of the context-oriented scale of application after a health education intervention. EJeduS does not result in any indirect benefit, other than the use of information by interpreting the results themselves.<sup>(10)</sup>

The instrument was elaborated based on the Grounded Theory and on the analysis of culture circles held with adolescent students and a *quilombola* (*quilombola* is a common designation for slaves who were refugees in *quilombos*, or descendants of black slaves whose ancestors during the period of slavery fled from sugarcane mills, farms and small properties where they performed various menial jobs to form small villages called quilombos) community in Pernambuco as well as through a literature review on the concepts of empowerment in health from adolescents' perspective.

The scale created is of a Likert-type, and to develop the scale and its items, empowerment in health was defined as a construct of interest based on dimensions based on individual, collective and social-critical perspectives. The dimensions were raised through bibliographical research, consulta-

tion with experts and theoretical conceptions presented in adolescents' speeches during the culture circles. The items have five response options, ranging from strongly disagree to strongly agree as well as from "yes, very much" to "no, nothing, never".

As the beginning of the validity process of a measurement instrument, content validity was guided by Streiner et al.<sup>(11)</sup> and aimed to determine whether the phenomenon actually measured the proposed objective, whether the theoretical domain of measuring the construct was contemplated in the instruments' items, and to discuss whether the indicator's meaning and relevance were sufficiently evidenced.

The study followed the six content validity steps proposed by Yusoff:<sup>(12)</sup> prepare the content validity form; select an expert review panel; perform content validity; review domain and items; provide scores on each item; and calculate Content Validity Index, Content Validity Coefficient, kappa test and second-order agreement coefficient (Gwet AC2).

In order to ensure that the expert review panel had clear expectations and understandings of the task as well as to minimize bias due to interpretation difficulties and inexperience, the content validity form was sent with the classification, the conceptual and theoretical bases for developing the scale, its origin, its dimensions and the description as a Likert model.<sup>(12)</sup>

Judge selection was carried out by consulting the *Curriculum Lattes* of the Brazilian National Council for Scientific and Technological Development's *Plataforma Lattes*, through the link: <https://buscatextual.cnpq.br/buscatextual/busca.do?metodo=apresentar>, in the search for individuals who presented knowledge and recent scientific production related to the theme (health education and health in adolescence) and the area of the construct (empowerment).

An invitation letter was sent to each judge with the link generated by Google Forms to access the scale via email. To compose the panel of experts, the snowball sampling process was also adopted, when each expert nominates others who meet the eligibility criteria.

The explanatory invitation letter to experts contained the purpose of the study and the scale, the

description of EJEduS, its score and interpretation, with an explanation of the form of response and the reason why the judge was chosen.

Upon confirmation of interest in participating in the research, the Informed Consent Form (ICF) was sent in virtual format with a form. Of a group of 76 experts on the subject who were invited and instructed to record observations, criticisms and contributions that served as the basis for assessment and modification of the original instrument, 24 returned with the assessments, which involved quantitative and qualitative procedures.<sup>(13)</sup>

The criteria for constructing the panel of judges followed those proposed by Jasper.<sup>(14)</sup> Of the 24 judges, 22 were selected because they had at least two criteria in the area of interest between skill/acquired knowledge: professional care experience working with adolescents for a minimum period of 5 years; teaching experience; experience in carrying out individual and collective activities to promote child and adolescent health; specialized skill/knowledge that makes the professional an authority on the subject: having been a guest speaker at a national or international scientific event; having supervised *Stricto Sensu* graduate academic works; having a master's degree, with a thematic dissertation related to the areas of interest; participation in round tables of scientific events; having a doctoral degree, with a thesis on topics related to the areas of interest; having special ability in a certain type of study: having experience in the development of scientific research; authorship of scientific articles in journals classified by the Coordination for the Improvement of Higher Education Personnel (CAPES - *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior*); participation in assessment boards of academic works of *Stricto Sensu* Graduate Courses; having approval in a specific test to identify judges: being a professional certified by the Brazilian Society of Nursing in Public Health, or other institutions that carry out recognition; having a high classification attributed by an authority: having received from a well-known scientific institution homage/honorable mention of recognition as an authority; having works awarded in national or international scientific events.<sup>(14)</sup>

After the weighted kappa survey, it was observed that one expert had zero variance, being removed from the scale, ending the group with 21 evaluators, i.e., a number close to the sample of 6 to 20 judges recommended by Pasquali for content analysis validity.<sup>(15)</sup>

The assessment form was composed of questions to survey expert characterization, according to age, sex, professional category, profession, occupation, job tenure, length of experience in the area of interest of the study and academic title.

Data were organized in spreadsheets using Microsoft Excel, version 2010, and analyzed using descriptive statistics of absolute and relative frequency, measures of central tendency and dispersion as well as p-value to compare the proportions of variables.

Then, the instrument's assessment questionnaire allowed experts to analyze each item independently for clarity, relevance, pertinence and dimensionality, in addition to the possibility of raising suggestions and considerations for inclusion, exclusion or modification of EJEduS items,<sup>(16)</sup> from February to March 2022, based on a Likert-type scale with scores from one to four, one for "no", two for "little", three for "is", and four for "is strongly".

In the review stage of domains and items, experts were encouraged to provide suggestions and comments regarding each item for inclusion, exclusion or modification of EJEduS items, in addition to the possibility of describing an overall instrument assessment. All considerations were analyzed using an interpretive approach and discussed in order to refine the dimensions and their items.

The degree of agreement of the study was analyzed according to the Content Validity Index, which measures the proportion or percentage of judges who agree on certain aspects of the instrument and its items, by the Content Validity Coefficient, at an acceptable rate 90% or greater agreement among expert members for the Content Validity Index and 80% for the Content Validity Coefficient.<sup>(11,12)</sup>

Items with values below 0.90 for the Content Validity Index and 0.80 for the Content Validity Coefficient in the three criteria (relevance, clarity,

and pertinence) were excluded from the scale; those with low agreement in one or two criteria were analyzed by the authors according to suggestions for modifications or exclusion.<sup>(13)</sup>

To measure the reliability of inter- and intra-expert assessment agreement, homogeneity and equivalence among judges for the selected ordinal variables, the Kappa coefficient weighted by linear weights was calculated.<sup>(17)</sup>

With the growing concern of limitations in Kappa coefficient use, the study also analyzed Gwet AC2 to assess intra-expert agreement. This coefficient is used with two or more judges, but with an ordered rating scale containing two or more categories. Like Kappa, Gwet AC2 ranges between zero and one, and the closer to one, the less likely the agreement happens due to chance.<sup>(17,18)</sup>

Kappa coefficient data were analyzed with the support of IBM Statistical Package for the Social Sciences, version 28, and, for the calculation of AC2, using Real Statistics Resource Pack (Release 7.6). The study adopted a 5% significance level.

According to Standards for Educational and Psychological Testing,<sup>(10)</sup> agreement between judges does not guarantee high reliability; then, the items that presented a low Content Validity Index and Content Validity Coefficient in one or two criteria by judges were assessed according to the literature and reformulated, followed by face validity with the target audience for consensus discussion.

Appearance validity was composed of a group of six adolescents participating in culture circles. Collectively, they rated each item on the scale as “did not understand”, “understood a little”, “understood”, and “understood a lot!”, characterized EJEduS alternatives by emotions, raised their understanding of the items, scale size and harmonization.

For this validity, the study followed that proposed by Streiner et al.,<sup>(11)</sup> when seeking to understand how the public understands the scale, item wording, response options, application time, formatting and whether it contemplates the vocabulary universe of adolescents.

This assessment format allowed a dialogic arena for suggestions and perceptions of each volunteer: if they would change something, if they would delete

the item, or if they were satisfied. The analyzes also followed content validity, based on the degree of agreement and reliability of agreement among adolescents.

Even in view of holding virtual meetings and the possibility of scheduling meetings and flexible meetings, according to the availability of children's parents, of the 24 who showed interest, only 18 parents and/or guardians consented to the participation of students in culture circles. Participants' average age was 14.3 years, and the majority were female (83.3%).

The research project was approved by the Research Ethics Committee under Certificate of Presentation for Ethical Consideration (*Certificado de Apresentação para Apreciação Ética*) 33605320.4.0000.5208. In the case of adolescents, parents signed the Informed Consent Form, and the adolescent agreed to participate in the study.

## Results

Among experts, there was a higher frequency of females (85.7%), aged between 30 and 39 years (61.9%), nurses (66.6%), in the field of education (76.2%), working as a teacher (61.9%) for more than 10 years (70%), with the highest academic degree being master's (66.7%). Even with a higher prevalence of experts aged between 30 and 39 years, with more than 10 years of professional experience, higher academic degrees per master's degree and with more than five of Jasper's criteria, the proportion comparison test was not significant for these variables (p-value of 0.981; 0.05; 0.201; 0.201, respectively), indicating that the number of experts is similar according to age, academic title, job tenure and according to Jasper's criteria. Depending on the Content Validity Index and the Content Validity Coefficient, items 16, 19, 20, 44, and 45 of EJEduS had values below 0.90 for the three assessment criteria, according to relevance, clarity and pertinence, being excluded from the scale. Items 1, 2, 3, 6, 8, 9, 10, 14, 17, 18, 24, 25, 28, 29, 34, 35, 40, and 43 showed low Content Validity Indexes or Validity Coefficients of Content in one or two criteria and proceeded to the analysis according to experts' interpretative approach (Table 1).

**Table 1.** Analysis of Youth Empowerment through Health Education Scale items according to Content Validity Index and Content Validity Coefficient based on relevance, clarity and pertinence

Item	CVI/CVC		
	Relevance	Clarity	Pertinence
1. Did you choose the class subject? Did you have any participation in choosing the subject?	0.95/0.89	0.76/0.77	0.95/0.89
2. Was the subject taught in class important to you? Was it interesting? Was it your need?	0.95/0.92	0.86/0.86	1/0.94
3. Were you in class out of obligation? Wasn't it your will to be here?	0.9/0.87	0.81/0.86	0.9/0.88
4. Did the class meet or exceed your expectations?	0.9/0.93	0.9/0.93	0.95/0.94
5. Did the class help you in your decision-making? Will it collaborate/support in your choices?	0.95/0.92	0.9/0.87	1/0.96
6. Did the class help you identify or solve any of your problems? Did you have the courage to solve your health problems? Will the class help improve your health?	0.95/0.93	0.76/0.83	0.9/0.9
7. Did the class cause any concern? After the class, did you feel like/motivated to look for more on the subject?	0.95/0.95	0.9/0.92	0.95/0.95
8. Were you able to get your ideas out? Did you feel free to vent? Express your feelings and/or speak your mind?	1/0.96	0.81/0.86	1/0.94
9. I'll put it into practice what I've learned!	0.95/0.95	0.81/0.87	0.95/0.95
10. Will the teachings of the class you take into your life?	0.86/0.87	0.81/0.86	0.9/0.88
11. What I learned today will help me to stance myself, to establish my opinions more	1/0.96	0.95/0.92	1/0.96
12. The class encouraged me to dialogue with other people	0.9/0.93	0.9/0.88	0.9/0.93
13. The class taught me to recognize my own needs	1/0.95	0.9/0.9	1/0.95
14. By participating in the class, I was able to notice changes in my attitudes and decisions	0.95/0.92	0.86/0.88	0.95/0.9
15. What I learned today will help me to review my life project	1/0.95	0.95/0.9	1/0.96
16. The class changed the way I see the world. The class changed me. I am someone else	0.76/0.82	0.76/0.85	0.76/0.85
17. The class helped me to trust and believe in myself more. The class made me feel confident in myself	0.9/0.92	0.81/0.87	0.9/0.9
18. What I learned today will help me to be "myself". The class helped me to have more control, to become increasingly aware of my attitudes	0.9/0.92	0.86/0.87	0.9/0.92
19. The class made me think differently. Helped open my mind	0.81/0.86	0.81/0.85	0.76/0.83
20. The class will help my well-being	0.86/0.83	0.71/0.8	0.86/0.86
21. The class helped me to understand myself better. It meant, for me, new possibilities for us to know ourselves	0.9/0.93	0.9/0.92	0.9/0.93
22. Today meant a day of new possibilities to learn about "being a teenager". I understood that there is no right way to be a teenager! Everyone has their own way of being a teenager!	1/0.96	0.9/0.95	1/0.96
23. The class made me believe that I can think about my future, know what to do from now on	0.95/0.92	0.95/0.93	0.95/0.9
24. The class woke me up to not being an influential teenager	0.86/0.88	0.81/0.87	0.86/0.89
25. After class, I will have more voice at school, in the family and in society	0.95/0.93	0.86/0.9	0.95/0.94
26. What I learned today will help me socialize, meet new people, make friends	0.95/0.92	0.9/0.9	0.95/0.92
27. The class helped me learn to deal with others' opinion	0.95/0.95	0.95/0.94	0.95/0.96
28. After class, I felt like sharing my experience with my colleagues, family, and community	0.9/0.94	0.86/0.93	0.9/0.94
29. After class, I didn't feel like seeking connections and support from health professionals, family and friends	0.9/0.88	0.86/0.87	0.86/0.87
30. With the class, I realized that I can contribute to improving the health of my colleagues, family and community	1/0.98	0.95/0.96	1/0.98
31. In class, I was able to understand that it is very important for us teenagers to participate more strongly at school, in the community and in the family	1/0.96	0.95/0.92	1/0.96
32. The class helped me to put myself in the other's shoes, to respect and empathize with the other	1/0.98	1/0.96	1/0.96
33. In class, I was able to understand that a democratic place is where the teenager is heard, where choices are made together with the teenagers	1/0.99	0.95/0.98	1/0.99
34. The class made me recognize as a being belonging to a school, family, friends, and/or community	0.95/0.95	0.86/0.92	0.95/0.95
35. In class, I was able to understand that teenagers need to have a voice in the family, at school, and in the community	0.9/0.89	0.86/0.87	0.9/0.89
36. The class made me want to be more committed to the problems of my school, family, and/or community	0.95/0.95	0.95/0.95	0.95/0.95
37. The class motivated me to solve the health problems of my family, friends, and my community	0.9/0.9	0.9/0.92	0.9/0.92
38. The class made me want to contribute to a more ethical, fair and supportive society	1/1	1/0.99	1/1
39. In class, I was challenged to pursue my rights as a citizen	1/0.98	1/0.96	1/0.98
40. The class left out my background, my history, and my culture	0.86/0.85	0.86/0.85	0.86/0.85
41. After class, I felt like changing the way I live	0.9/0.92	0.95/0.94	0.9/0.92
42. After class, I had the courage to suggest changes in activities to meet the class's interests	1/0.95	0.95/0.94	1/0.95
43. What I learned today will help me understand the world in a different way	0.9/0.9	0.86/0.89	0.9/0.9
44. The class showed me how politicians can only think of themselves, only for their benefit, not ours	0.76/0.86	0.71/0.83	0.76/0.85
45. The class showed me how politicians want to silence my voice and manipulate me	0.67/0.8	0.67/0.81	0.67/0.79
46. In class, I was able to understand that social inequality exists, and in many places	0.95/0.96	0.95/0.96	0.95/0.96
47. In class, I managed to understand that a teenager is at risk when they do not receive the necessary protection for their growth and development, such as health care, food, school, and many other things	1/0.99	0.95/0.98	1/0.99
48. The class gave me the feeling of being free	0.9/0.93	0.9/0.93	0.9/0.93
49. The class showed me reality, practice, things like they happen out there	0.95/0.95	0.95/0.95	0.95/0.95
50. The class motivated me to resolve conflicts in a non-violent way, with dialogue and solidarity	0.95/0.98	0.95/0.98	1/0.99
Total CVI/CVC	0.93/0.92	0.88/0.9	0.93/0.93

CVI - Content Validity Index; CVC - Content Validity Coefficient.

It is observed that the term “class” can be replaced by the singularities of educational actions in health, which can permeate other formats and specific learning models. For the presentation of EJEdUS, the participating adolescents opted for the term “lesson” due to its identification with the health-promoting approaches they experience. Among the 21 experts, there was statistically significant agreement between 21 inter-expert combinations, of which ten had complete disagreements, six very little agreements, four small agreements and one moderate agreement. The others passed through an agreement equal to chance. In the intra-expert agreement analysis, using the Gwet’s AC2 test, the study observed excellent agreement for the three criteria: relevance (0.894; 95%CI 0.825-0.919), clarity (0.848; 95%CI 0.816-0.879) and pertinence (0.896; 95%CI % 0.870-0.923). The updated version of EJEdUS was sent to the adolescents who participated in the culture circles, in order to carry out validity by appearance. Thus, six adolescents reassessed the restructured instrument, according to their considerations and identifications with the scale items. The new suggestions were obtained from assessments, depending on whether or not the items were understood, and the scale was analyzed again, according to the Content Validity Index and Content Validity Coefficient of the total scale, linear weighted kappa index and Gwet AC2 test. Questions that did not reach the stipulated consensus were reviewed with adolescents, until all were understood and approved. In the analysis of intra-adolescent agreement, using the Gwet’s AC2 test, the study observed almost perfect agreement (0.96; 95%CI 0.917-1) and with acceptable agreement rates of Content Validity Index and Content Validity Coefficient, both with 0.91. Among the six adolescent evaluators, all combinations were statistically significant, with three moderate agreements, nine substantial agreements and three practically perfect agreements. Experts’ responses were analyzed for items that had low indices or coefficients. A total of 19 items were analyzed in order to clarify their construction.

## Discussion

The heterogeneity of studies on empowerment limits confirmation if the conceptual models available try to explain the association with this construct, namely in populations with psychosocial vulnerabilities, which tend to be at greater risk of social exclusion and with reduced access to health care compared to the general population.<sup>(19)</sup>

Given this context, determining the potential of empowerment interventions to be used in these groups, such as adolescents, based on the assessment of recognition and overcoming of vulnerabilities through health education, becomes an important construction for developing health literacy strategies.<sup>(8)</sup>

In a systematic review, few studies have provided a comprehensive assessment of the developmental properties of an empowerment measurement tool. There were significant deficiencies in the test of psychometric qualities, particularly with regard to the evidence to support the responsiveness and interpretability of the measurement tools.<sup>(8)</sup>

These shortcomings are minimized in EJEdUS based on the elaboration of the scale based on adolescents’ testimonies and understandings about empowerment, theoretical support and literature review as well as content and appearance validity.

The Youth Empowerment scale, even with the potential to be used with diverse sets of youth populations and a variety of social, demographic and health outcomes, has limitations, because it was developed from a data-driven approach rather than a concept-driven approach, and does not explicitly include any youth-specific items.<sup>(20)</sup>

EJEdUS reduces these limitations by associating, in addition to theory based on data, from culture circles, a literature review and the conceptual contribution of social class empowerment by Paulo Freire.

The scale was developed with adolescents and validated by them, so that there was an identity, emancipation process and their role. However, even though EJEdUS is anchored in liberation from education, more specifically in educational interventions in health, it has a limitation with regard

to economic, social and demographic phenomena, as they are not as strengthened as in the Youth Empowerment scale.

To assess specific control over well-being, the Locus of control specific to Well-Being (WB-LOC12), a multidimensional scale, is also considered by the authors as a potential indicator of the empowerment process, as effective strategies are internalized and perceived as being under the control of patients. However, it does not consider the perspective of health education as a guiding and strengthening purpose of this construct, in addition to not singling out the EJeduS' target population.<sup>(21)</sup>

Like the reproductive health literacy questionnaire for unmarried Chinese youth,<sup>(22,23)</sup> it is believed that EJeduS, developed to be applied after a health education intervention, can monitor, in the long term, attitudes after the empowerment process, facilitate the assessment of the effect of the health education intervention, in addition to helping to develop targeted actions to improve literacy in adolescent health in a context of vulnerabilities.

It is expected that EJeduS provides subsidies for the applicability of the empowerment construct in a social-critical perspective and can contribute to guide educational strategies mediated by dialogical and problematizing teaching approaches, which propel nursing professionals as promoters of the culture of peace.

It is also observed that the scale may have limits on understanding, due to the different realities found in the Brazilian scenario as well as the interferences that modify the vocabulary universe of adolescents between generations. The age range of participants from 10 to 19 years old may represent different interpretations or little understanding of some items on the scale, in addition to the extensive number of questions.

EJeduS promotes itself as a tool capable of measuring the development of initiatives for leading role, liberation and recognition of one's own needs as well as aligning itself with the prospection of studies for discriminant validity and factor analysis on the scale and analytical studies that can relate aspects of social determination and cultural adaptations.

## Conclusion

EJeduS is a valid instrument for measuring youth empowerment in the face of an educational intervention, with excellent agreement between experts and participating adolescents.

## Acknowledgments

To the *Universidade do Minho* and *Universidade de Coimbra* for the support and guidance for carrying out the study. To UFPE for the help to carry out the internationalization. To the Brazilian National Council for Scientific and Technological Development (CNPq - *Conselho Nacional de Desenvolvimento Científico e Tecnológico*).

## Collaborations

Barros MBSC, Rosário HRV, Martins SP, Galvão DMPG, Tenório SJS, Farias ACN, Goes PSA and Monteiro EMLM contributed to study design, data analysis and interpretation, article writing, relevant critical review of the intellectual content and approval of the version final to be published.

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