

Construction and validation of an instrument to assess the comfort of adolescents undergoing chemotherapy



Construção e validação de um instrumento para avaliação do conforto de adolescentes em tratamento quimioterápico

Construcción y validación de un instrumento para evaluar el confort de adolescentes en quimioterapia

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ABSTRACT

Objective: To build and validate a self-report instrument to assess the comfort of adolescents with cancer undergoing chemotherapy.

Methods: This methodological study was developed in five stages: scoping review; qualitative study to characterize comfort from the perspective of adolescents with cancer undergoing chemotherapy; instrument construction; instrument content validation by experts; pre-test with a group of adolescents.

Results: In the scoping review, 20 comfort changes were identified; regarding the perspective of comfort for adolescents, it was possible to identify the effects on their daily lives and the impact on chemotherapy; in content validation, the index was 0.96 and Cronbach's Alpha 0.87. In the pre-test, the instrument obtained the final version with 37 items and Cronbach's Alpha 0.94.

Conclusions: The constructed and validated self-report instrument showed good reliability related to satisfactory psychometric parameters and can be used by nurses in clinical practice to assess and evidence comfort changes.

Keywords: Adolescent. Antineoplastic agents. Patient comfort. Medical oncology. Nursing methodology research.

RESUMO

Objetivo: Construir e validar um instrumento de autorrelato para avaliação do conforto de adolescentes com câncer em tratamento quimioterápico.

Métodos: Estudo metodológico desenvolvido em cinco etapas: revisão de escopo; estudo qualitativo para caracterização do conforto na perspectiva do adolescente com câncer em tratamento quimioterápico; construção do instrumento; validação de conteúdo do instrumento por experts; pré-teste com grupo de adolescentes.

Resultados: Na revisão de escopo, identificaram-se 20 alterações de conforto; quanto à perspectiva do conforto para o adolescente, foi possível identificar os efeitos em seu cotidiano e o impacto no tratamento quimioterápico; na validação de conteúdo, o índice foi de 0,96 e Alfa de Cronbach 0,87. No pré-teste, o instrumento obteve a versão final com 37 itens e Alfa de Cronbach 0,94.

Conclusões: O instrumento de autorrelato construído e validado apresentou boa confiabilidade relacionado aos parâmetros psicométricos satisfatórios, podendo ser utilizado pelo enfermeiro na prática clínica, para avaliação do conforto e evidenciar alterações.

Palavras-chave: Adolescente. Antineoplásicos. Conforto do paciente. Oncologia. Pesquisa metodológica em enfermagem.

RESUMEN

Objetivo: Construir y validar un instrumento de autoinforme para evaluar el confort de adolescentes con cáncer en quimioterapia.

Métodos: Estudio metodológico desarrollado en cinco etapas: revisión de alcance; estudio cualitativo para caracterizar el confort en la perspectiva de adolescentes con cáncer en quimioterapia; construcción de instrumentos; validación del contenido del instrumento por expertos; prueba previa con un grupo de adolescentes.

Resultados: En la revisión del alcance, se identificaron 20 cambios en la comodidad; en cuanto a la perspectiva de la comodidad de los adolescentes, fue posible identificar los efectos en su vida cotidiana y el impacto en el tratamiento de quimioterapia; en la validación de contenido el índice fue de 0,96 y el Alfa de Cronbach de 0,87. En el pretest, el instrumento obtuvo la versión final con 37 ítems y Alpha de Cronbach 0,94.

Conclusiones: El instrumento de autoinforme construído y validado mostró buena confiabilidad relacionada con parámetros psicométricos satisfactorios, y puede ser utilizado por enfermeros en la práctica clínica para evaluar el confort y evidenciar modificaciones.

Palabras clave: Adolescente. Antineoplásicos. Comodidad del paciente. Oncologiamédica. Investigación metodológica en enfermería.

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■ INTRODUCTION

Cancer in adolescence corresponds to a group of diseases that have in common the uncontrolled proliferation of abnormal cells transformed by the mutation of their genetics, which can occur anywhere in the body. Its highest incidence occurs in adolescents aged 15 to 19 years old, with prevalence of lymphomas (Hodgkin and non-Hodgkin), leukemia; tumors: brain, spinal cord, bone and testicle⁽¹⁾. It is estimated that, in Brazil, around 4,299 to 4,597 will be diagnosed, and worldwide, 131,494 to 136,133 new cases of cancer will be diagnosed in adolescents aged 10 to 19 years old, between the five-year period from 2020 to 2025⁽²⁾.

Chemotherapy is one of the types instituted in the treatment for cancer in adolescence⁽³⁾. However, cytotoxic drugs, by interfering with the cell cycle, compromise the synthesis mechanism of the enzymes responsible for their metabolism and trigger adverse effects and toxicities, in a systemic way in rapidly proliferating cells, such as those of the hematological tissue, the gastrointestinal mucosa, and not only in neoplastic cells⁽⁴⁾.

These effects in adolescents trigger manifestations such as: nausea, vomiting, weight loss, alopecia, bruises, epistaxis, mucositis, and diarrhea. These changes develop low self-esteem, due to the body image disorder, causing concern and sadness⁽³⁻⁵⁾. Such modifications cause discomfort and can evolve to comfort changes and negative outcomes in coping with and adapting to chemotherapy⁽⁶⁾.

In this sense, comfort is defined as the immediate experience of being met in the basic human needs of ease, relief and transcendence^(7,8). Thus, ease is the state of tranquility or contentment; relief is the experience of a patient who has had a need met; and, transcendence is defined as the state in which the patient rises above problems or pain^(7,8).

The human needs for comfort are in the four contexts of human experience, namely: Physical – concerning to body sensations and homeostatic mechanisms that may or may not be related to specific diagnoses; Psycho-spiritual – concerning to self-awareness, self-esteem, self-concept, the meaning of life and the relationship with a higher being or order; Sociocultural – concerning to interpersonal, family and social relationships; Environmental – concerning to the conditions and external influences, the light, noise and temperature of the environment in which the patient lives^(7,8).

Through the context of the theory presented, the knowledge of comfort changes by health professionals is indispensable to monitor adolescents undergoing chemotherapy, as the correct assessment of these changes provides contributions to reduce risks and complications for adolescents. With this, it is possible to reduce morbidity

and improve the comfort and quality of life of adolescents in adapting to treatment^(6,9).

For this reason, it is necessary to properly assess the comfort of adolescents undergoing chemotherapy, as this knowledge will support nurses in planning care, with interventions aimed at factors that changes comfort during treatment, in addition to enabling the promotion of a quality care targeted at this population^(10,11). Thus, the understanding of comfort by health professionals enables individualized and qualified care, focused on the adolescent and not only on the disease⁽¹¹⁾.

Despite the existence of studies^(6,9) that analyze the comfort of adolescents with cancer, a validated and reliable instrument to assess the comfort of adolescents undergoing chemotherapy treatment was not identified in the national and international literature. For this reason, the relevance of this research for construction and validation of an instrument for this public.

Given the importance of assessing the comfort of adolescents with cancer and how the effects caused by antineoplastic therapy may affect them, and the lack of instruments that assess these changes in this public, the following research question emerged: Does a self-report instrument to assess the comfort of adolescents with cancer undergoing chemotherapy present valid and reliable psychometric properties for its applicability in this population?

Thus, the objective of this study was to build and validate a self-report instrument to assess the comfort of adolescents with cancer undergoing chemotherapy.

■ METHOD

This is a methodological research, developed in five stages: scoping review; qualitative study to characterize comfort from the perspective of adolescents with cancer undergoing chemotherapy; instrument construction; instrument content validation by experts; pre-test with a group of adolescents. These stages were chosen based on the psychometric framework, which guides the construction of health measurement instruments^(12,13).

In the first stage, there was a search for changes in the comfort of adolescents with cancer undergoing chemotherapy, through a scoping review based on the Joanna Briggs Institute (JBI)⁽¹⁴⁾ framework, conducted from May to July 2020, through electronic information resources: Virtual Health Library; National Institutes of Health's National Library of Medicine; Cumulative Index to Nursing & Allied Health Literature; SciVerse Scopus; Latin American and Caribbean Health Sciences Literature; Web of Science; and Google Scholar.

The following health descriptors were used to retrieve published studies: *Adolescente* – “Adolescent”; *Neoplasias* – “Neoplasms”; *Câncer* – “Cancer”; *Oncologia* – “Medical Oncology”; *Tumor* – “Tumor”; *Conforto do Paciente* – “Patient Comfort”; *Bem-Estar do Adolescente* – “Adolescent Welfare”; *antineoplásicos* “Antineoplastic Agents”; *Quimioterapia* – “Chemotherapy”. For the search and selection of studies, the guiding question was established: What is the scientific evidence about the effects of chemotherapy on the comfort of adolescents with cancer?

In the second stage, the adolescents and their family members were interviewed in a philanthropic pediatric cancer hospital, a reference in the treatment of pediatric cancer in southern Brazil, from August to September 2020. This action aimed to understand the meaning of comfort for adolescents with cancer undergoing chemotherapy.

The inclusion criteria of the participants were: adolescents diagnosed with cancer undergoing chemotherapy, aged between 10 and 19 years. This age group was selected according to the definitions of the World Health Organization, which establishes adolescence from ages 10 to 19 years⁽¹⁵⁾.

Adolescents with lowered level of consciousness, with impaired oral communication and auditory acuity, which made the interview not possible, were excluded. The selection of participants in the second stage took place through non-probabilistic convenience sampling. 10 adolescents were invited, and all agreed to participate in the research.

The interviews were scheduled and conducted in a private room in the inpatient unit, to ensure privacy and minimize interference. Based on prior consent of the adolescents and the authorization of their parents, the study proposal was presented and explained. All adolescents were interviewed individually and accompanied by their respective family members.

The interviews were conducted by the researchers, using a semi-structured interview script, which addressed questions related to the comfort of adolescents in their treatment process, such as: Could you tell us what you understand as comfort? What makes you comfortable in your day? What makes you uncomfortable or unwell in your daily life? Could you tell me how do you feel during and after the chemotherapy? The interviews were audio-recorded using a digital recorder, with an average length of 20 minutes.

The interviews ended when reaching data saturation⁽¹⁶⁾, since the researchers noticed the successive repetition of the content in the statements. For data analysis, it was used Bardin's content analysis technique⁽¹⁷⁾, through the following stages: I – pre-analysis, floating reading and organization of the material; II – material exploration, coding

and categorization of the participants' answers; III – results treatment, inferences and interpretation, with critical analysis of data obtained.

Afterwards, the data collected in the scoping review and in the interviews with the adolescents were categorized using the conceptual structure of comfort^(7,8) in the third stage. The items were set by the score in the Likert-type format, with six alternatives to be self-applicable of six points (or levels), ranging from: 0 – not applicable, 1 – totally comfortable, 2 – very comfortable, 3 – more or less comfortable, 4 – little comfortable and 5 – not comfortable at all.

It is noteworthy that the instrument has an open alternative, in case the participant wants to report something not addressed by the questions, or express additional feelings and discomforts that occurred during treatment. The self-report instrument was named: Holistic comfort scale for adolescents with cancer undergoing chemotherapy treatment “ECON-AD”, in its first version with 35 objective questions and one subjective question.

After construction of ECON-AD, the fourth stage took place, which consisted of Content Validation. This took place with the participation of experts, to assess the reliability of the instrument regarding its construction and applicability, allowing the reliable measurement of what is intended to assess^(12,13).

The inclusion criteria of the experts were adapted using Fehring's criteria⁽¹⁸⁾, which were: being a nurse – expert in the areas of adolescent health or pediatrics, oncology, or palliative care; master or doctor in nursing or in the field of health; have experience in adolescent health, children and youth oncology and have knowledge of the theory of comfort^(7,8).

A search was performed on the Lattes Platform (<http://lattes.cnpq.br/>) in December 2020 to select them. Initially, 350 resumes emerged, of which 85 were selected because they met the established inclusion criteria. From this, the first round began, by sending the invitation letter to those selected, requesting their collaboration in the ECON-AD validation process. Contact was made by email, with a link to the Google Forms® form to record participation and validate the instrument's content.

For ECON-AD Content Validation, it was opted to use the Delphi technique⁽¹⁹⁾, which is considered a tool that seeks a consensus of opinions among experts regarding a particular research object. At the end of the first round in February 2021, 15 participants returned the instrument.

Afterwards, the measured construct was verified, and the psychometric properties were assessed using the Content Validity Index (CVI). Each one of the questions had a Likert-type scale, with scores ranging from 1 to 4, where: 1 = not

appropriate; 2 = little appropriate; 3 = considerably appropriate and 4 = very appropriate. To calculate the CVI, the following formula was used: number of answers 3 or 4 divided by the total number of answers.

For the acceptable agreement index, the standard of at least 0.80 or 80% was considered. To assess reliability and internal consistency, the Cronbach's Alpha test was used, establishing that scores > 0.70 were considered appropriate^(12,13). After two rounds of the instrument, the consensus was obtained among the experts, and the overall CVI and the expected reliability of the instrument were reached.

After the analysis, it was stated that some items did not reach the expected CVI and reliability scores, which pointed out the need to edit the instrument as recommended by the experts. The second round of ECON-AD Content Validation was performed for the proper adjustment of the instrument. Thus, in March 2021, the instrument was submitted to the selected experts. At the end of the second round, in April 2021, 12 experts returned the instrument. After two rounds, a consensus was reached among the experts and both the overall CVI and the reliability of the instrument were achieved.

Following the experts' validation, the instrument was submitted to the fifth stage, consisting of the application of the pre-test and assessment of the instrument's internal consistency, between June and August 2021. This stage aimed to verify whether the instrument's items are understood by the population that will use it^(12,13). To achieve this, the ECON-AD was submitted to adolescents with cancer undergoing chemotherapy, following the same requirements of the inclusion and exclusion criteria established in stage 2.

33 adolescents were selected according to the recommendations established by the methodological framework, which mentions that 30 target individuals with the characteristics to be assessed by the instrument are sufficient to meet the pre-test requirements^(12,13). At the end of this stage, the instrument did not need changes and was well accepted by the participants.

The project was approved by the Research Ethics Committee of the institution where the study was conducted, under Opinion no.4,151,488 and CAAE 30907220,2,0000,0098. Adolescent participants over 18 years old, family members and experts signed the Free and Informed Consent Form, and adolescents under 18 years old signed the Free and Informed Assent Form, complying with the national and international ethical guidelines for research involving human beings of the National Health Council. In addition, the anonymity of the participants was preserved, who were identified by the letter P (participant) followed by the order number of the comfort interview in the second stage. For example: P1, P2, P3 [...] and so on.

RESULTS

The results presented the five stages of the research: the first describes how the scoping review occurred; then, the characterization of comfort from the perspective of adolescents with cancer undergoing chemotherapy; the construction of the self-report instrument; instrument content validation by experts; and finally, the pre-test with the target audience.

The search for the scoping review resulted in 4295 articles, of which 20 studies made up the final sample for mapping the evidence. Among the selected articles, it was possible to identify 20 changes in comfort of adolescents with cancer undergoing chemotherapy for the construction of the instrument to be validated by the experts. It should be noted that comfort changes evidenced through the scoping review are available in a protocol on the Open Science Framework platform (OSF)⁽²⁰⁾, under the number OSF.IO/6A7Q9 and access link: <https://osf.io/6a7q9/>.

Next, there was an interview with 10 adolescents with cancer undergoing chemotherapy, aged between 10 and 18 years. In the content analysis of the participants' answers, two themes emerged that expressed the meaning of comfort for the adolescents: comfort in the daily life of adolescents with cancer undergoing chemotherapy and the impact on the comfort of adolescents with cancer undergoing chemotherapy, as shown in Chart 1.

The meanings of comfort, according to the participants, were positive regarding satisfaction, convenience, support from health professionals and the physical structure of the pleasant institution. As discomfort, they pointed out the development of symptoms, functional changes, and withdrawal from the support network of family and friends.

Based on the results of the scoping review and the interview, it was possible to build the items of the instrument and categorize them into the domains of the conceptual structure of comfort^(7,8), as shown in Figure 1.

For the Content Validation stage, there were in the first and second round, 15 and 12 experts, respectively. Regarding the profile characteristics of the participants, all were female (100%) and predominated in the first and second rounds, sequentially: aged 20 to 30 years – 6 (40%)/6 (50%); state of origin – Paraná 12 (80%)/9 (75%); title of graduate and master's degree – 12(80%)/8 (67%); working time in years $10 \pm 8/8.7 \pm 8.8$.

Regarding the CVI, the scores made by the experts ranged from 0.73 to 1.0 with a mean of 0.96. The instrument's internal consistency reached an overall Cronbach's alpha coefficient of 0.76, representing substantial consistency. It was observed that the 36 questions of the first round of Delphi obtained a

Theme: Comfort in the daily lives of adolescents with cancer undergoing chemotherapy	Theme: Impact on the comfort of adolescents with cancer undergoing chemotherapy
<i>Comfort is when you feel good somewhere. (P2)</i> <i>Nurses and physicians talk to me a lot, they give me a lot of attention and I feel cheerful and happy. (P5)</i> <i>The hospital makes me comfortable because it is very colorful. (P9)</i>	<i>When I undergo chemotherapy, I have nausea, vomiting, sickness, lack of appetite, weakness, and pain.(P3)</i> <i>I'm far away from friends and family.(P3)</i> <i>I feel sad for being far away from the family(P4)</i>

Chart 1 – Reports of the meanings of comfort for adolescents with cancer undergoing chemotherapy. Curitiba, Paraná, Brazil, 2020

Source: Research Data, 2020.

satisfactory result regarding the validation of the instrument's content, as shown in Table 1.

In the first round, item 13 "I like the peaceful hospital room" had to be excluded, as it did not reach a satisfactory CVI of at least 0.80. The experts also recommended modifying the items: 10, 11, 19, 25, 29 and 30, to direct them to the male and female genders; item 5, directing them to religious belief in general; item 14 was divided into two items "I feel good in the chemotherapy room" and "I feel good in the hospital bedroom"; item 22 was broken down into two items "I have diarrhea" and "I have constipation"; item 23 had the insertion of other catheter locations "The chemotherapy catheter bothers me (chest, arm or elsewhere)".

After the necessary adjustments, the ECON-AD consisted of 37 items (36 objective and one subjective, to provide the adolescent with different reports regarding the discomforts addressed so far). After that, it was submitted to the second round of evaluation by the experts. Regarding the CVI, the score ranged from 0.83 to 1.0 with a mean of 0.96.

As for the instrument's internal consistency, the overall Cronbach's Alpha coefficient resulted in 0.87, representing an almost perfect consistency. It was observed that the 37 questions of the second round of Delphi obtained satisfactory scores on validation of the instrument's content and reliability^(12,13), with the third round not being necessary.

Thus, after the two rounds, the instrument was submitted to a pre-test with the target audience, that is, adolescents with cancer undergoing chemotherapy. At this stage, 33 participants were recruited, predominantly male 18 (55%), with incomplete primary schooling 17 (52%) and white 22 (67%). As for the diagnosis, leukemia prevailed with 12 (37%) and the service sector predominated the ward with 17 (52%) hospitalized participants.

After participants filled in the instruments, there was no need for editing, as the interpretation of the instrument was clear and objective. In this way, there were no doubts

regarding their self-report of comfort in chemotherapy. As for reliability, the scores reached an overall Cronbach's alpha coefficient of 0.94, representing almost perfect consistency. It was observed that the 37 questions at this stage obtained satisfactory scores^(12,13).

It should be noted that the objective items of the instrument were constituted by the score in the Likert-type scale format, with six alternatives to be self-applicable with six points (or levels), ranging from: 0 – not applicable, 1 – totally comfortable, 2 – very comfortable, 3 – more or less comfortable, 4 – little comfortable and 5 – not comfortable at all. Each of the 36 items was increasingly adjusted, that is, the higher the value assigned to the items, the greater the degree of discomfort. It is noteworthy that the last item of the instrument has an open alternative, in case the adolescent wants to report something not addressed by the questions, or express additional feelings and discomforts during the treatment.

In each alternative, the nurse, in their evaluation, can mark the adolescent's comfort score or the patient themselves can report their sensation at the moment of the assessment, considering that the instrument was formulated for self-report of comfort.

In the experience of the authors, the construction of ECON-AD provided to elaborate an instrument that reflects the reports of comfort of adolescents with cancer undergoing chemotherapy, allowing it to be widely used in clinical practice. The application of ECON-AD allows nurses to support in the development of clinical reasoning in the assessment of adolescents undergoing chemotherapy, in the assessment of comfort and, through its alterations, to prepare an individualized care plan according to the needs of these patients.

The final version of the validated instrument is fully available and free at: <https://drive.google.com/file/d/18RQ58fu4yjNvJlvej5KMTa8k7HD2vkqp/view?usp=sharing>.

PHYSICAL DOMAIN
I'm able to sleep.
I'm able to eat.
I feel good about my body.
I feel short of breath.
I have nausea and/or vomiting
I have sores in my mouth that bother me.
I feel tired.
I miss my hair.
I'm in pain.
I have diarrhea or constipation.
The chemotherapy catheter "in the arm, neck and chest" bothers me.
PSYCHO-SPIRITUAL DOMAIN
I'm feeling confident.
God is helping me.
I'm hopeful about chemotherapy.
I'm afraid of chemotherapy.
I'm anxious.
I want to cry.
I'm feeling sad.
I'm ashamed.
I'm feeling down.
*I find it difficult to shower, clean and dress myself.
SOCIOCULTURAL DOMAIN
I can have fun or play.
I have support from family and friends.
I'm able to walk around.
I feel cared for by the hospital team.
I feel guided about chemotherapy treatment.
**Chemotherapy bothers me.
I find it difficult to study during chemotherapy.
ENVIRONMENTAL DOMAIN
I feel good when I am at home.
I like the peaceful hospital room.
I feel good in the chemotherapy room or in the bedroom.
I have enough privacy during chemotherapy in the outpatient clinic or in the bedroom.
†I'm cold.
I need a comfortable chair or bed during chemotherapy.
I don't like to stay in the isolation room.

Figure 1 – Categorization of instrument items in the domains of the conceptual structure of comfort^(7,8). Curitiba, Paraná, Brazil, 2021

Source: Research Data, 2021.

Notes: *Item related to the adolescent's awareness on their self-esteem and self-concept, through the difficulty in developing their self-care, related to their basic needs. **The highlighted item refers to the discomfort of adolescents in not being able to develop their interpersonal, social and cultural relationships, considering the restriction of chemotherapy. †The highlighted item was assigned in the environmental domain because it refers to the temperature conditions of the environment where the adolescent is.

Table 1 – ECON-AD items assessed by experts in the first round. Curitiba, Paraná, Brazil, 2021

Instrument Items		CVI*	Internal Consistency†
1	I'm able to sleep.	1.0	0.74
2	I'm able to eat.	1.0	0.73
3	I feel good about my body.	1.0	0.76
4	I'm feeling confident.	1.0	0.75
5	God is helping me.	0.86	0.80
6	I'm hopeful about chemotherapy.	0.93	0.75
7	I can have fun or play.	1.0	0.73
8	I have support from family and friends.	1.0	0.75
9	I'm able to walk around.	0.93	0.75
10	I feel cared for by the hospital team.	1.0	0.76
11	I feel guided about chemotherapy treatment.	1.0	0.75
12	I feel good when I am at home.	0.93	0.77
13	I like the peaceful hospital room.	0.73	0.74
14	I feel good in the chemotherapy room or in the bedroom.	0.86	0.74
15	I have enough privacy during chemotherapy in the outpatient clinic or in the room.	0.93	0.73
16	I feel short of breath.	1.0	0.76
17	I have nausea and/or vomiting	1.0	0.76
18	I have sores in my mouth that bother me.	1.0	0.75
19	I feel tired.	1.0	0.76
20	I miss my hair.	0.93	0.77
21	I'm in pain.	1.0	0.76
22	I have diarrhea or constipation.	0.80	0.74
23	The chemotherapy catheter "in the arm, neck and chest" bothers me.	0.93	0.73
24	I'm afraid of chemotherapy.	1.0	0.76
25	I'm anxious.	1.0	0.76
26	I want to cry.	1.0	0.76
27	I'm feeling sad.	1.0	0.76

Table 1 – Cont.

Instrument Items	CVI*	Internal Consistency†
28 I'm ashamed.	1.0	0.76
29 I'm feeling down.	1.0	0.76
30 I find it difficult to shower, clean and dress myself.	0.93	0.73
31 Chemotherapy bothers me.	0.93	0.74
32 I find it difficult to study during chemotherapy.	1.0	0.76
33 I'm cold.	1.0	0.76
34 I need a comfortable chair or bed during chemotherapy.	0.93	0.73
35 I don't like to stay in the isolation room.	1.0	0.76
36 Would you like to say something else? Write here.	1.0	0.76

Source: Research Data, 2021.
 Notes: *CVI: Content Validity Index. †Cronbach's alpha.

DISCUSSION

This research presented the stages of construction and validation of a self-report instrument to assess the comfort of adolescents with cancer undergoing chemotherapy, based on a consensus of experts in the field of knowledge and application of the pre-test to the target audience.

In this study, the instrument's items were categorized according to the conceptual structure of comfort^(7,8), which reflect the multidimensionality of comfort as observed in other studies involving adolescents with cancer undergoing chemotherapy, conducted in Turkey and Sweden. In them, the authors observed that the promotion of comfort implies reconciling sensitivity, rationality and material conditions in the care for adolescents and their entire family such as: pleasant hospital environment, support from family and health professionals, as well as psychological support and spiritual to face the chemotherapy treatment^(9,21).

After constructing the ECON-AD, the content validation by the experts was an important stage, as at that moment it was verified whether the instrument really measured what it was intended to^(12,13). The adjustments of the questions contributed to not have two questions in a single item, which could impair the choice of answers by the target population.

Considering that the number of experts recommended by the literature was respected, and that the minimum agreement between the evaluators was equal to or greater than 0.80⁽¹²⁾, it can be stated that these values were acceptable

to guarantee the relevance and representativeness of the content of each item^(12,13).

In this sense, the CVI scores obtained in this research corroborate with a cross-cultural validation study of the Brazilian version of the General Comfort Questionnaire, in which it was evaluated by 22 judges regarding clarity, understanding, relevance, association with comfort and classification of items in the domains. Thus, it becomes valid to measure comfort, since the overall CVI was 0.81⁽²²⁾.

As for the evaluation of reliability, the literature points out that ideal Cronbach's alpha values should remain between 0.70 and 1.0^(12,13). Therefore, the total scores presented by the experts in this research were satisfactory (0.87), reinforcing that the evaluators' answers obtained a good correlation regarding the agreement of the ECON-AD items.

These findings are similar to the Spanish version of the Hospice Comfort Questionnaire, which assesses the comfort of patients in palliative care. It presented, in the content validation, internal consistency with Cronbach's Alpha of 0.89 in its cross-cultural adaptation study⁽²³⁾. Therefore, the results presented in the content validation conducted with the experts indicate that the items of the ECON-AD instrument have the necessary pertinence and are appropriate to be used in the assessment of self-reported comfort of adolescents with cancer undergoing chemotherapy.

The detailing of the items contributed to the adolescents not having interpretation difficulties, which was evidenced by the lack of observations by the pre-test participants. It was

found that the instrument had a high internal consistency index, showing potential to be used in clinical practice with adolescents with cancer undergoing chemotherapy, which reached an overall Cronbach's alpha of 0.94.

This score was higher than the pre-test found in the Brazilian version of the General Comfort Questionnaire for chronic kidney patients, which was 0.80⁽²⁴⁾. Therefore, it is stated that the results of this research were satisfactory, reinforcing the power of the tool in measuring what is actually proposed.

This study represents a breakthrough for research since the methodological stages of construction and validation of the ECON-AD rigorously followed all scientific recommendations, using consolidated statistical tests to make the tool reliable and appropriate^(12,13,18,19).

In addition, the application of this instrument will allow adolescents with cancer undergoing chemotherapy to report changes and feelings of comfort that may impact their treatment process, supporting nurses and other health professionals to measure this construct and plan care aimed at comfort and quality of care.

■ CONCLUSIONS

This study achieved its objective of build and validate a self-report instrument to assess the comfort of adolescents with cancer undergoing chemotherapy, through consensus among experts and application of the pre-test to the target audience. The scores obtained in the content validation and pre-test of this study are similar to validation research of comfort measurement instruments. Thus, it was evidenced the quality and reliability of this instrument.

The ECON-AD represents an advance in the construction of a measurement instrument that can support nurses and other health professionals to reflect and understand the situations of comfort and discomfort experienced by adolescents with cancer undergoing chemotherapy. In addition, the results from its application will contribute to the evaluation of the effectiveness of care in promoting the comfort of these patients, since it can direct decision-making for health interventions.

This research has some limitations. To compose the pre-test sample, the literature recommendations were followed; the recruitment of adolescents was conducted in a single hospital institution, which limits to generalize results. Additional investigations will be needed to check the psychometric properties of the ECON-AD in other populations of adolescents with cancer undergoing chemotherapy, as well as the clinical validation of the instrument. These limitations may configure the possibility of future research.

However, the ECON-AD is an assessment tool that will contribute to the clinical practice of nurses, in evidence comfort changes and developing specific and individualized nursing interventions for adolescents with cancer undergoing chemotherapy. It can also be used in the areas of training, research and extension, as well as in health institutions, as it offers support for the management of adolescent care, to promote the quality of nursing care and improve the adherence of these patients in chemotherapy treatment.

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