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Construct validation: coping with HIV/AIDS in Primary Health Care

Validação de constructo: enfrentamento do hiv/aids na atenção primária à saúde

Validación de constructo: enfrentamiento del VIH/SIDA en la Atención Primaria de Salud

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ABSTRACT

Objective: To validate the construct and measure the trustworthiness of a questionnaire aimed at assessing HIV/AIDS coping actions developed by health professionals in Primary Health Care. **Method:** A methodological study carried out with 397 primary health care professionals in two municipalities in the Northeast region of Brazil. The construct validity was developed by the exploratory and confirmatory factor analysis, and the reliability analyzed by the reliability and reproducibility. **Results:** The validation determined six factors retention that composed the six domains of the questionnaire. Internal consistency was 0.91 and quality of the confirmatory analysis adjustment was 0.998 for Goodness of Fit Index. The domains presented Kappa values between 0.833 and 0.997. **Conclusions:** The final questionnaire was composed of 18 items and presented feasibility of application, and potential to evaluate actions for HIV/AIDS control in Primary Health Care.

Descriptors: Acquired Immunodeficiency Syndrome; HIV; Primary Health Care; Validation Studies; Health Evaluation.

RESUMO

Objetivo: Validar o constructo e mensurar a fidedignidade de questionário voltado para avaliar as ações de enfrentamento do HIV/Aids, desenvolvidas pelos profissionais de saúde na Atenção Primária à Saúde. **Método:** Estudo metodológico realizado com 397 profissionais de saúde da Atenção Primária em dois municípios da região do Nordeste do Brasil. A validade de constructo foi desenvolvida pela análise fatorial exploratória e confirmatória, e a fidedignidade analisada pela confiabilidade e reprodutibilidade. **Resultados:** A validação determinou a retenção de seis fatores que compuseram os seis domínios do questionário. A consistência interna foi 0,91 e a qualidade do ajustamento da análise confirmatória foi de 0,998 para *Goodness of Fit Index*. Os domínios apresentaram valores de *Kappa* entre 0,833 a 0,997. **Conclusões:** O questionário final foi composto por 18 itens, apresentou viabilidade de aplicação e potencial para avaliar as ações de controle ao HIV/Aids na Atenção Primária à Saúde.

Descritores: Síndrome de Imunodeficiência Adquirida; HIV; Atenção Primária à Saúde; Estudos de Validação; Avaliação em Saúde.

RESUMEN

Objetivo: Validar el constructo y medir la fiabilidad de un cuestionario orientado a evaluar las acciones de enfrentamiento del VIH/SIDA, desarrolladas por los profesionales de salud en la Atención Primaria de Salud. **Método:** Estudio metodológico realizado con 397 profesionales de salud de la Atención Primaria en dos municipios de la región del Nordeste de Brasil. La validad del constructo fue desarrollada por el análisis factorial exploratorio y confirmatorio, y la fiabilidad analizada por la confiabilidad y reproducibilidad. **Resultados:** La validación determinó la retención de seis factores que constituyeron los seis ámbitos del cuestionario. La consistencia interna fue 0,91 y la calidad del ajuste del análisis confirmatorio fue 0,998 para el *Goodness of Fit Index*. Los dominios presentaron valores de *Kappa* entre 0,833 y 0,997. **Conclusiones:** El cuestionario final fue compuesto por 18 elementos, presentó viabilidad de aplicación y potencial para evaluar las acciones de control al VIH/SIDA en la Atención Primaria de Salud.

Descriptores: Síndrome de Inmunodeficiencia Adquirida; VIH; Atención Primaria de Salud; Estudios de Validación; Evaluación en Salud.

INTRODUCTION

The Joint United Nations Program on HIV/AIDS (UNAIDS) reveals that in 2017 there were about 36.7 million People Living with HIV/AIDS (PLHA) in the world; and in Brazil, approximately 830 thousand people infected with the virus, with developing countries being the most affected[1].

In this context, UNAIDS and the World Health Organization (WHO) in 2014 proposed the HIV treatment cascade based on the '90-90-90' targets[2]. This should be achieved by 2020 and consists of detecting 90% of all people living with HIV, 90% of those diagnosed receiving Antiretroviral Therapy (ART) without interruption and 90% of all people being treated, achieving viral suppression[3]. However, its reach will only be possible through collective and universal work[4].

In view of numerous challenges to combat the AIDS epidemic, Brazil has developed several actions aimed at improving strategies for the prevention and early detection of people living with HIV/AIDS (PLHA)[5-6]. In this context, the Family Health Strategy (FHS), a model of the Brazilian Primary Health Care (PHC), plays a salutary role in coping with this epidemic through health promotion and protection, prevention, early diagnosis, treatment and rehabilitation[7]. In addition, it should be responsible for its clinical management and maintenance of the line of care directed to PLHA[8-9].

Therefore, it is important to know the actions of coping of HIV/AIDS developed by health professionals in PHC. To do so, it is necessary to construct and validate a questionnaire to evaluate the performance of this service, allowing the development of situational diagnosis and rethinking practices and policies to address this problem, demonstrating the study's relevance on screen.

OBJECTIVE

To validate the construct and measure the trustworthiness of a questionnaire aimed at assessing coping actions of HIV/AIDS developed by PHC health professionals.

METHOD

Ethical aspects

The study was approved by the Ethics and Research Committee (ERC) of *Universidade Federal do Rio Grande do Norte* (UFRN).

Theoretical-methodological framework

The framework of the Enhancing the QUALITY and Transparency of health Research (equator network), used initially in the literature review to construct the questionnaire, was based on recommendations from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses - PRISMA guidelines. The following steps were understood: problem identification; research in the literature; evaluation and selection; analysis and presentation of data[10].

Design and place of study

This is a methodological study for construct validation and questionnaire reliability evaluation in two municipalities in the Northeast region of Brazil: Mossoró, Rio Grande do Norte State, population of 291,937 inhabitants and the municipality of Limoeiro do Norte, Ceará State, with 57,782 inhabitants[11]. The choice was made by both municipalities having 100% coverage of the FHS.

The study is part of a broader research involving previous stages that culminated in the construct validation and evaluation of its reliability. It began in February 2016, with the design and development of the research project followed by the questionnaire's construction phase that involved a comprehensive literature review, held in May and June 2016. Then, the content was validated by using two rounds with the use of the Delphi technique, between July and October 2016. Finally, the part that is presented in detail in this study includes the validation of construct and reliability assessment, with the field research developed from February to November 2017, followed by analysis and reconstruction of the questionnaire's final version.

Sample

A sample was established to be investigated for each of the two municipalities, taking into account health professionals as the target public who make up the FHS team: Community Health Agent (CHA), Dental Assistant/Technician (DA), nursing auxiliary/technician, nurse, physician (general practitioner or family health specialist) and dentist (dental surgeon or specialist). Participation in the FHS was taken as inclusion criterion for a period equal to or greater than six months and professionals who were in vacation or leave at the time of data collection were excluded.

The sample calculation for finite population was developed to meet the criteria established for the performance of factorial analysis, considering that, in order to obtain respondents that cover the latent trait studied, the proportion for each item of the questionnaire is ten respondents[12]. Thus, based on the total number of FHS professionals (Mossoró = 552, Limoeiro do Norte = 167), Confidence Interval of 95% (1.96); proportion of 0.50, established to obtain the largest possible sample size; and sample error of 0.05 (12), and sample of 397 respondents (Mossoró = 289; Limoeiro do Norte = 108), were defined.

Study protocol

The questionnaire was built through an extensive literature review, guided by the following question: what coping/control actions for HIV/AIDS are developed by the PHC? For this purpose, the following databases were used: Latin American and Caribbean Literature (LILACS); International Literature in Health and Biomedical Sciences (MEDLINE); Scopus and Cumulative Index to Nursing and Allied Health Literature (CINAHL). The following Health Sciences Descriptors (DeCS) were used: "Primary Health Care", "Acquired Immunodeficiency Syndrome" and "HIV", combined with the Boolean operator "AND". The following inclusion criteria were established: publications available in full, in Portuguese, English and Spanish, and that responded to the study's guiding question. The exclusion criteria were: editorials, review articles and repeated productions.

825 articles were found which, after reading the abstract, remained at 343. However, after applying the inclusion and exclusion criteria, there were a total of 27 articles that answered the

guiding question. Results were interpreted through the variables: methodology, study population, descriptors and thematic. Following the interpretation and comparison, relevant information and evidence were found that contributed to the questionnaire construction in its initial version.

After elaboration, the questionnaire items were submitted to analysis by a panel of specialists (n=20), composed of senior health professionals working in the FHS and professors with training in Health and experience with HIV/AIDS studies. The experts proposed changes in content, besides inclusion and exclusion of items.

Two sections composed the questionnaire. Socio-demographic data (gender, age, family income, marital status, profession, educational level, FHS time) conformed the first section, while the second, specific part, had 31 items presented on a five-point Likert scale (no, very little, so so/sometimes, quite/often and yes) distributed in six domains.

The questionnaire domains were: Domain 1 (Health Education) - Comprised of seven items aimed at the performance of health education for HIV/STIs prevention by Primary Health Care Units (PHCU) professionals and their area of comprehensiveness; Domain 2 (Diagnosis) - Containing eight items that dealt with the accomplishment/request of diagnostic tests for HIV infection in pregnant women; people susceptible to infection and with clinical signs of STI infection, and availability and rapid HIV test at the PHCU, followed by pre- and post-test counseling; Domain 3 (Continuity of Care) - Provided in four items pertaining to notification of STIs/HIV in the *Sistema de Informação de Agravos de Notificação* (SINAN - Notification of Injury Information System), reference of persons diagnosed with HIV infection for specialized services in the Health Care Network (RAS - *Rede de Atenção à Saúde*) and longitudinality of care for people with HIV by the PHCU; Domain 4 (Availability of Material Resources and Physical Space) - Composed of four items referring to the physical space of the PHCU for the performance of collective actions of health education and availability of inputs for prevention and diagnosis of STIs/HIV; Domain 5 (Accessibility) - With four items aimed at investigating the accessibility of the population of the area of coverage of HIV prevention and diagnosis inputs, as well as consultations with professionals from the PHCU; Domain 6 (Knowledge of Professionals) - represented by four items with questions about availability and accessibility of STIs/HIV/AIDS handbooks and protocols, participation in lifelong learning in the last five years, and training for rapid tests for Sexually Transmitted Infections.

It was decided to develop the research in all PHCU of the two municipalities, since the selection of some PHCU could limit the reach of number of participants by considering the number of subjects who refuse to participate, and exclusion of respondents according to established criteria.

The construct validity was measured by Exploratory Factor Analysis (EFA), used to analyze the existing linear relationships within the set of items, to reduce dimensionality and to know the factors that measure the construct. After that, the Factorial Confirmatory Analysis (FCA) was developed to correct deficiencies of the exploratory model and to test hypothesis established by EFA. The questionnaire's reliability assessment verified reliability and reproducibility[13-14].

Data analysis

EFA was obtained by factor matrix or components matrix (correlation matrix) and slope diagram (scree plot rule), considering the Kaiser-Meyer-Olkim criterion (KMO) and Bartlett's Test of Sphericity. KMO examines the correlation between variables (the questionnaire items), which can assume values from 0 to 1, being 0.9 and 1, excellent; 0.8 to 0.89, good; 0.7 to 0.79, acceptable; 0.60 to 0.69, mediocre; 0.5 to 0.59, poor; <0.50, unsuitable. The Bartlett's Test of Sphericity also serves to test whether or not questionnaire variables are correlated to the target population for which the tested tool is intended. Thus, it is indicated if the factorial model is adequate[15].

In the correlation matrix, it is recommended that only items with coefficients equal to or greater than 0.4 remain in the scale. Scree plot items have to be considered all above 1, with a variance of at least 60.0%[15]. The model predicted by EFA was adjusted by FCA, as it allows the correction of the exploratory model, and leads to a greater certainty of hypotheses[12]. The model's goodness diagnosis, important to establish the construct validity, was developed through measures of model adjustment, adjustment increments and parsimony adjustment[14].

Adjustment measures used were: Ratio x^2/dof (degrees of freedom), adopting a value equal to or less than 3.0 of the Ratio x^2/dof; the Root Mean Square Error of Approximation (RMSEA), with its 90% Confidence Interval (90% CI), assuming as ideal values between 0.05 and 0.08. The Goodness of Fit Index (GFI), which assumes the following values: less than 0.9 indicates models with poor adjustment, between 0.9 and 0.95 are indicators of good adjustment, values above 0.95 represent a very good; already GFI = 1 indicates perfect fit[14].

Another adjustment of the model by the FCA was the Adjusted Goodness of Fit Index (AGFI), representing a measure of adjustment increment. The AGFI was calculated to avoid the bias of the larger the sample, the higher the GFI value[14]. The parsimony was evaluated through the Parsimony Comparative Fit Index (PCFI) and the *Parsimony-Adjusted* Normed Fit *Index* (PNFI). It was adopted as PNFI and PCFI> 0.6[12].

Commonalities (portion of the variance that a variable shares with all other variables considered) were evaluated for each variable, noting whether it met the acceptable levels of explanation (p> 0.5) and their contribution to the research. We observed a matrix of residues (correlations observed less estimated correlations) with more than 50.0% of residues with absolute value <0.05 as an indicator of well-adjusted factorial model[14].

The questionnaire reliability was verified by reliability and reproducibility. Reliability was verified by Cronbach's α, a coefficient that produces values between 0 and 1, that is, between 0 and 100%. When values are greater than 60%, it can be emphasized that there was reliability of measurements, so an alpha greater than 0.6 was adopted[14].

The technique used to evaluate reproducibility was the re-test test. The questionnaire was applied to the same population, by the same researcher, at two different times, with a 30-day interval. Data were analyzed using the Kappa coefficient to measure the level of concordance of responses at two moments. This ranges from +1 to -1 (0.81 to 1.0, excellent, 0.61 to 0.8, substantial, 0.6 to 0.41, moderate, 0.4 to 0.21, suffering, 0.209 at 1, weak; <0.0, poor). Kappa value was considered as a criterion for permanence of questions ranging from moderate, substantial and excellent[16].

RESULTS

A total of 397 health professionals working at the FHS participated in the study: 222 CHA (55.9%), 25 DA (6.3%), 27 dentists (6.8%), 53 nurses (13.4%), 24 6.0%) and 46 nursing technicians (11.6%). The data were considered adequate for the development of EFA with the 31 items, presenting significant Bartlett's Test of Sphericity (p <0.001) and KMO = 0.91. In factors analysis by main components performed in EFA, the best model presented 13 items with factorial loads and low commonalities (<0.40), being excluded from the questionnaire, as stated in Chart 1.

Chart 1 - Issues excluded in adjustments after analysis of major component factors

Item	Questions
1	After confirmation of pregnancy by women who sought health services, is the prenatal visit performed as quickly as possible?
2	Does the unit have physical space available for educational activities?
3	Is the rapid or serological test offered to partners of people diagnosed with HIV/AIDS?
4	Does delivery of the condom (male condom) happen outside the physical space of the health unit?
5	Are people diagnosed with HIV/AIDS followed-up by the health unit?
6	Are there information and awareness campaigns for HIV/AIDS prevention in social facilities under the scope of the health unit?
7	When pregnancy test result is positive, are exams recommended by the Ministry of Health requested at the first visit?
8	Is the rapid or serological HIV test required for women who have complaints suggestive of gynecological infection?
9	Is the amount of condoms (male condoms) that the unit receives per month enough to meet demand?
10	Is an active search conducted for people whose HIV diagnosis was positive and did not return to receive the result?
11	At the first prenatal visit, is the HIV/AIDS serology requested?
12	Is the HIV rapid or serological test offered to users of this unit?
13	Is pre-test counseling and rapid post-test for HIV/AIDS performed?

The remaining 18 items presented requisites required for the development of EFA with KMO=0.98 and significant Bartlett's Test of Sphericity (p <0.001), indicating rejection of the null hypothesis of the identity correlation matrix and confirming the existence of correlations between variables. In relation to the main components analysis (p <0.001), there were six components with eigenvalues greater than 1.0, explaining a total variance of 88.50%. Later, to confirm this finding, the scree plot was analyzed, which also suggested that only the first six factors should be considered (Figure 1).

The component matrix's performance by varimax rotation revealed that all variables (items) presented a factorial load greater than 0.4 only for one factor (domain), expressing that no item behaved as a confounding factor, as shown in Table 1. The Cronbach's general α was 0.91. In Table 1, commonalities, eigenvalues, explained variance for each factor and Cronbach's α is presented.

The adjusted FCA model offered the following indices: Ratio x^2/dof = 1.94; RMSEA=0.064 (CI 90% = 0.050-0.078); and GFI=0.946. The AGFI adjustment increment was 0.924. PNFI and PCFI values were, respectively 0.64 and 0.7. Reproducibility of the tool by the test-retest was performed with 318 professionals (80.1% of the participating population). As shown in Table 2, six factors presented Kappa values ranging from 0.833 to 0.997, classified as excellent.

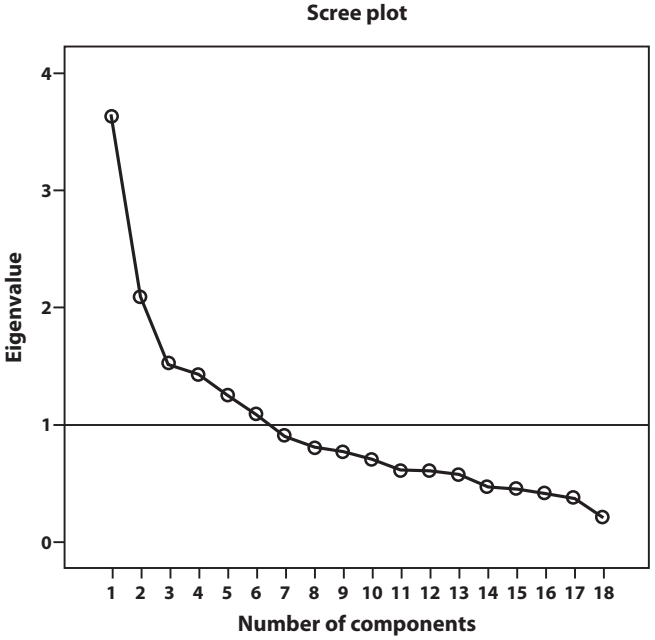

Figure 1 – Scree plot considering eigenvalues and number of scale components

Table 1 - Questionnaire with retained factors, factorial loads, commonalities, eigenvalues, explained variance and Cronbach's α

Variables	Factors (Domains)						
	I	II	III	IV	V	VI	h^2
Are collective educational actions aimed at the population related to prevention of Sexually Transmitted Infections (STIs)?	0.81	0.13	0.28	0.00	0.02	0.08	0.81
Are educational actions carried out for the information and prevention of Sexually Transmitted Infections - STIs in the physical space of the health unit?	0.87	0.20	0.12	0.02	-0.08	0.05	0.87
Is health education carried out on healthy living habits in social facilities under the area covered by the unit?	0.82	0.01	0.10	0.05	0.38	0.01	0.82
Are HIV/AIDS educational actions developed without hindrance?	0.86	0.11	-0.11	0.25	0.27	0.12	0.86
Are people diagnosed with HIV/AIDS referred by the unit?	-0.03	0.87	-0.10	0.16	0.23	0.14	0.87
Is the active search conducted to partners when the diagnosis of HIV/AIDS was positive?	0.32	0.80	0.00	-0.02	-0.12	0.12	0.80

To be continued

Table 1 (concluded)

Variables	Factors (Domains)						
	I	II	III	IV	V	VI	h^2
Is SINAN notified on Sexually Transmitted Infections - STIs and injuries?	0.09	0.81	0.39	-0.11	0.13	-0.19	0.81
Do people suggestive of HIV infection seeking the basic unit have the opportunity to perform the diagnostic test in the health network?	0.14	0.83	-0.15	0.07	0.10	-0.12	0.83
Is the delivery of condoms (male condom) conducted with guidance for its use?	0.07	0.00	0.86	0.07	-0.09	0.07	0.86
Are there information and awareness campaigns on risk behaviors for HIV infection in the health area?	0.26	-0.13	0.84	0.03	0.16	0.04	0.84
Does the unit provide teaching materials for educational actions?	0.00	-0.01	0.80	0.14	0.38	0.34	0.80
Do they have access to manuals and notebooks of the Ministry of Health regarding the management of Sexually Transmitted Infections - STIs?	-0.04	0.03	0.03	0.86	-0.05	0.05	0.86
Are they aware of manuals contents provided by the Ministry of Health regarding the measures used to control HIV/AIDS in Primary Care?	0.35	0.10	-0.01	0.80	-0.03	-0.04	0.80
Have they participated in training/specialization on issues related to HIV/AIDS control in the last five years?	-0.01	-0.06	0.39	0.83	0.34	0.02	0.83
Is the result of the 1st and 2nd HIV serology requested in prenatal care delivered to the pregnant woman?	0.13	0.08	0.16	0.05	0.84	-0.06	0.84
Are pregnant women identified with HIV/AIDS who were referred to medium and high complexity services followed up by the health unit?	0.04	0.38	-0.16	-0.12	0.88	-0.01	0.88
Does the health facility provide material for rapid HIV/AIDS testing?	0.20	-0.15	-0.07	-0.11	0.09	0.86	0.86
Have they received training to conduct HIV rapid tests?	0.07	0.16	0.22	0.15	-0.20	0.80	0.80
Eigenvalue	3.64	2.10	1.53	1.42	1.25	1.09	
% Total Variance Explained	80.26	81.66	88.50	77.92	76.99	86.10	
α *Cronbach*	0.91	0.86	0.81	0.84	0.81	0.88	

Note: h^2: communality.

Table 2 - Kappa statistics and classification of items that make up the questionnaire's final version

Factors (Domains)	Variables (items)	K*	Classification
Health Education	Are collective educational actions aimed at the population related to prevention of Sexually Transmitted Infections (STIs)?	0.987	Excellent
	Are educational actions carried out for the information and prevention of Sexually Transmitted Infections - STIs in the physical space of the health unit?	0.890	Excellent
	Is health education carried out on healthy living habits in social facilities under the area covered by the unit?	0.964	Excellent
	Are HIV/AIDS educational actions developed without hindrance?	0.837	Excellent
Diagnóstico Precoce e Continuidade da Atenção	Are people diagnosed with HIV/AIDS referred by the unit?	0.893	Excellent
	Is the active search conducted to partners when the diagnosis of HIV/AIDS was positive?	0.961	Excellent
	Is SINAN notified on Sexually Transmitted Infections - STIs and injuries?	0.847	Excellent
	Do people suggestive of HIV infection seeking the basic unit have the opportunity to perform the diagnostic test in the health network?	0.991	Excellent
Prevention of Sexually Transmitted Infections	Is the delivery of condoms (male condom) conducted with guidance for its use?	0.895	Excellent
	Are there information and awareness campaigns on risk behaviors for HIV infection in the health area?	0.994	Excellent
	Does the unit provide teaching materials for educational actions?	0.891	Excellent
Permanent Education in Health	Do they have access to manuals and notebooks of the Ministry of Health regarding the management of Sexually Transmitted Infections - STIs?	0.947	Excellent
	Are they aware of manuals contents provided by the Ministry of Health regarding the measures used to control HIV/AIDS in Primary Care?	0.899	Excellent
	Have they participated in training/specialization on issues related to HIV/AIDS control in the last five years?	0.874	Excellent
Prevention of Vertical Transmission of HIV	Is the result of the 1st and 2nd HIV serology requested in prenatal care delivered to the pregnant woman?	0.833	Excellent
	Are pregnant women identified with HIV/AIDS who were referred to medium and high complexity services followed up by the health unit?	0.939	Excellent
HIV/AIDS Testing	Does the health facility provide material for rapid HIV/AIDS testing?	0.997	Excellent
	Have they received training to conduct HIV rapid tests?	0.855	Excellent

*Note: *Kappa coefficient.*

DISCUSSION

The questionnaire, initially composed of 31 items, was reduced to a total of 18 items, satisfying all necessary conditions for EFA. The factorial solution was able to explain the theoretical model, since it has items that correlate with each other, evaluating the HIV/AIDS epidemic control in the PHC, with fewer possible variables. They carry an accumulated amount of variance at 88.50%, above the set value of 60.0%[15].

The reliability analysis provided acceptable Cronbach's α values[16], ranging from 0.81 to 0.91. It was emphasized that all the factors presented an excellent level of reliability (≥0.8), demonstrating optimal reliability and internal consistency of the questionnaire.

After the statistical tests, the questionnaire was organized into six domains that were renamed: 1 - Health Education; 2 - Early diagnosis and continuity of care; 3 - Prevention of Sexually Transmitted Infections; 4 - Permanent Education in Health; 5 - Prevention of Vertical Transmission of HIV; 6 - Testing for HIV.

In Brazil, currently, care directed to people living with HIV/AIDS in Primary Care, as well as their monitoring, is guided by protocols[17-18] made available by the Ministry of Health. These protocols address the reorganization of the health care model in the management of HIV infection at all levels of care, but especially at this level of complexity. The axis of reorientation of this model is the concept of care, responding to a conception of health centered not only on patient care but, above all, on the promotion of quality of life and intervention in the factors that put it at risk, by the incorporation of actions programs in a more comprehensive way and the development of intersectoral actions. However, it is important to emphasize that municipalities have freedom in the construction of their municipal protocols, since they face distinct sanitary realities and have autonomy in the adequacy of ministerial suggestions.

In Brazil, the only questionnaire developed, validated and used by the Ministry of Health to control HIV/AIDS called "*qualiaids*". This was adopted as an official tool for assessing the quality of the outpatient services of SUS that assist people living with HIV, starting in 2007. The tool presented by researchers in the PHE present study differs from the one used by the MS, because while the first one can be applied to any PHC professional, the "*qualiaids*" can only be answered by local managers, with questions about availability of resources, organization of ambulatory care and management process, not contemplating actions, such as health education, disease prevention, Permanent Health Education and early diagnosis[19].

It should be highlighted that the questionnaire presented in the present study addresses the following aspects: health education, HIV/AIDS prevention actions and strategies, safe infection diagnosis, antiretroviral therapy, prevention of vertical transmission, which assess the technical conducts of the PHC health professionals. In addition, it is in agreement with the development of actions that meet the '90-90-90' targets established as a strategy for HIV/AIDS control in Brazil by the *Departamento de Vigilância Prevenção e Controle das IST, do HIV/Aids e das Hepatites Virais* (DIAHV - Department of Surveillance Prevention and Control of STIs, HIV/AIDS and Viral Hepatitis)[4,6].

The international literature indicates as indicators for the monitoring of people living with HIV/AIDS: commitment and national action, focusing on the political, strategic and financial inputs for the prevention of HIV infection; behavior and knowledge, with indicators related to products, results and program coverage; and national impact, with a view to expressing the success of each program in reducing HIV infection rates[1,20].

A US study has demonstrated how successful the following ways of monitoring people living with HIV/AIDS, namely: expanding access of the population to health services; harm reduction program, targeting drug users, continued clinical protection practices through immunization for Hepatitis B; epidemiological monitoring of the key population and region of the program; control over the work done by agents in the field; long duration of the program (sustainability) in relation to STIs[21].

Domain 1, *Health Education*, presented only items classified as "substantial", and it can be inferred that stability, even considered adequate, presented a greater disagreement between the test-retest. However, it is conjectured that this episode was evidenced by being a dimension that addresses aspects of collective action of the health team and that are not available.

However, this factor is of paramount importance, since health education is an inherent practice of the FHS, being developed dynamically, collectively and in multiple production spaces in health and social facilities, promoting health promotion and prevention of HIV/AIDS and other STIs[17].

And when we specify the preventive actions of HIV/AIDS and STIs, it is recognized that the barriers increase due to the stigmas that still surround the issue. Although with so many technological advances, prevention is still the key to AIDS control[22]. Recognizing how health education actions are performed at PHC is a basic tool for recognizing the quality of this service.

In Domain 2, *Early Diagnosis and Continuity of Care*, we identified items considered excellent and substantial, not presenting the same quality standard for all variables. However, all the questions are primordial for investigation of the care practice focused on PLHA in PHC. Access to HIV/AIDS diagnosis should be performed in any health service provided in the care network. However, PHC as the preferred and sanctioning portal of SUS is closer and has a link with users. Therefore, it is easier to approach and actively search for these patients[17].

Recently, rapid testing for HIV, Syphilis and Hepatitis B and C was implemented in the PHC, which should facilitate access to early diagnosis and, consequently, the institution of treatment in a timely manner. However, in practice, there are difficulties in diagnosis, as well as adherence to treatment, compromising and weakening the line of care for PLHA[18].

In this sense, this factor corroborates with the actions of prevention and treatment of HIV/AIDS, besides being included as a primary factor in the reach of cascade treatment of the '90-90-90' targets[4,6]. However, in order for this goal to be achieved, it is necessary to intensify existing actions through the continuous care of patients, in addition to include new work tools[19].

Therefore, one of the most important aspects to achieve this goal is the early diagnosis and initiation of treatment with antiretroviral agents which would lead to a decrease in mortality and complications in PLHA[20].

About Domain 3, *Prevention of Sexually Transmitted Infections*, the questionnaire scores factors present in the routine of the FHS. However, there is currently a new strategy for preventive activities: combined prevention. This activity implements in PHC, health education actions, dispensing of condoms and distribution of harm reduction kits. There is also rapid counseling and testing, and treatment strategies such as prevention (TASP) through Post Exposure Prophylaxis (PEP) and Pre-Exposure Prophylaxis (PrEP)[6,21].

Therefore, the association of preventive actions, rapid diagnosis and adequate treatment, helps to control the epidemic and reduce the transmissibility of HIV, besides enabling the effectiveness of the assistance directed to PLHA[23].

Domain 4, *Permanent Health Education (PHE)*, presented all items with Kappa values classified as "excellent". This classification is attributed to the prerogative that the factor addresses issues directly related to the degree of knowledge of the health professional about the topic and its participation for a continuing health education, that is, it refers to particular aspects, easily perceived by the participant.

Checking essential questions for professional qualification, EPS is a continuous process of qualification that starts from the needs of the work process, through the creation of collective spaces of knowledge construction. PHE contributes to the transformation of the organization of care and professional practices, being required daily by the FHS professionals in view of the complexity of the cases followed[24], in addition to being encouraged by the Ministry of Health of Brazil.

Although the Domain 5, *Prevention of Vertical Transmission of HIV/AIDS*, has shown the least reliability, it is important for the evaluation of the phenomenon, as established by EFA. This factor presents items that directly refer to the control of HIV in PHC, considering prenatal care and prevention of vertical transmission of STIs, especially HIV, one of the focuses of PHC. It is unveiled by the Ministry of Health's recommendation regarding the first and third trimester of pregnancy to request HIV serology and the orientation to refer those who are diagnosed with HIV to the specialized services, without however leaving to follow them up[25].

Domain 6, *HIV Testing*, corroborates with Domain 2, *Early Diagnosis and Continuity of Care*. Access to the rapid HIV/AIDS test is the best strategy available at PHC, by the speed of its outcome, especially in the most vulnerable segments of the population. This test allows early identification of HIV positive pregnant women, implementing early intervention and immediate treatment, in order to avoid transmission of the virus in a timely manner[26]. However, the greatest risk to vertical transmission of HIV/AIDS is the lack of adherence to prenatal care, not acceptance of the problem, which induces low adherence to prophylaxis and indicated treatment, and difficulty accessing high complexity services[25].

Therefore, HIV testing is the most accessible diagnostic strategy in PHC, since it is also a central factor in the Prevention of Vertical Transmission to HIV and Early Diagnosis and Continuity of Care, contributing consubstantially to the reduction of HIV transmission. It assumes a crucial role in the prevention of HIV/AIDS and consists in the accomplishment of the safe early diagnosis, going beyond the practice of testing, conducting counseling to the patient and family members. It allows greater resolvability and quality in care, as well as providing restructuring and expansion of the network of care for people living with HIV/AIDS, from th reception, health education activities and even prevention and health care[26]. Implementing the principle of decentralization of SUS and increasing the resolution in PHC[20], covering the whole population and not only the specific group of pregnant women[18].

In a study carried out in São Paulo, weaknesses in the care provided to people living with HIV/AIDS (PLHA) were observed, focusing on clinical and biological activities aimed at stabilizing the disease and preventing the spread of the virus. Furthermore, the research highlights the importance of advancing the construction of comprehensive care, integrated with PHC, according to the needs of individuals, considering the complexity of HIV/AIDS and its characteristic of chronic condition[27].

Due to the advance of PLHA care, in addition to the simplification of antiretroviral treatment and chronicity of the disease, the model focused only on specialized units showed deficiencies. Currently, the ideal care line is the redirection of the work process between the various points of care. It starts to count on new services and strategies, such as the support of specialized services to Primary Care and the shared care among them[28].

Shared management of PLHA care between the primary and secondary network is the key to improving care for this individual in Brazil, ensuring greater access of users to the health system. It should be noted that the fact that FHU is close to patients, allows for earlier intervention in cases of treatment withdrawal and possible side effects of the drug[29].

However, for the success of clinical management of HIV in Primary Care, it is necessary to consider several aspects, such as the establishment of a patient risk stratification model; qualification of professionals; guarantee of technical support to professionals; provision of CD4 and viral load tests; and facilitating access to antiretroviral agents[3]. It is also necessary to strengthen the Health Care Network and its professionals for the biological management of the disease and, above all, to meet biopsychosocial demands of PLHA that arise in the process of care[30].

Study limiations

The study presents as a limitation the fact that it was evaluated only by professionals from the Northeast region of Brazil. Studies with greater heterogeneity of regions would allow to evaluate the consistency of the results found and obtain a better evaluation of the tool.

Contributions to Nursing, Health and Public Policy

The questionnaire presents itself as a possible tool to be considered by managers and health professionals to develop a situational diagnosis of the potentialities and fragilities of Primary Health Care in relation to HIV/AIDS control. This tool can subsidize them in the definition of a strategic planning. It contributes, therefore to changes in the epidemiological framework, resulting in benefits for the family, community and Health Care Network users.

CONCLUSION

The constructed questionnaire was validated in a final version with 18 items. It is organized in domains considered fundamental

to the practice developed in the PHC, discussing issues transversal to the assistance to PLHA, in addition to being related to the protocols instituted by the Ministry of Health.

It should be emphasized that the fields covered in the study bring transversal discussions and present in the professional practice of Primary Care. This fact approximates the questionnaire of the reality experienced in the health services, highlighting crucial issues such as prevention and early diagnosis, which currently assume a central and central role in coping with the HIV/AIDS epidemic. It is also emphasized that they are related and complementary in terms of technical knowledge and are present in the daily routine of the PHC.

The tool is capable of evaluating the actions of coping with HIV/AIDS, developed by PHC health professionals, since it is based scientifically and close to the reality of care developed and recommended in Primary Care. Therefore, it can be applied to health professionals, discussing pertinent issues and capable of evaluating the actions developed in the FHS regarding HIV/AIDS coping. The central role of PHC in the development of these actions is confirmed.

However, it is recommended that other construct validation studies with 31 initial items be developed in other realities, with distinct social and demographic characteristics. However, the adequacy of the validated questionnaire to different regions and health realities is emphasized.

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