

REVIEW

Reliability of WHOQOL-BREF in studies conducted in women with breast cancer: integrative review


Confiability del WHOQOL-BREF en estudios realizados en mujeres con cáncer de mama: revisión integrativa

Confabilidade do WHOQOL-BREF em estudos realizados em mulheres com câncer de mama: revisão integrativa

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Abstract

Introduction: The quality of life in women with breast cancer due to its complex multidimensionality has been measured with both specific and generic questionnaires. **Objective:** Determine the reliability of the World Health Organization's Quality of Life Questionnaire in studies conducted in women with breast cancer. **Methodology:** Integrative review of original articles, in databases such as PubMed, SciELO, Virtual Health Library, Web of Science, with the descriptors Breast neoplasms, WHO's Quality of Life, along with the boolean AND. Articles that showed reliability of the World Health Organization's Quality of Life questionnaire were included; they were applied to women with breast cancer, free on the web, full text, in

English, Portuguese, or Spanish, published between 2009 and 2019. Studies in women with breast cancer with added pathology were excluded. A sample of 8 articles was obtained. **Results:** 37.5% of the studies assessed gave an overall Cronbach's alpha ranging between 0.72 and 0.84 with mean $\alpha=0.79$. The articles that performed the domains reported 0.77 as mean reliability in physical health, 0.77 in psychological health, 0.76 in social relationships, and 0.72 in environment, thus, demonstrating an appropriate reliability. **Conclusion:** The reliability through Cronbach's alpha for the domains of the Quality of Life Questionnaire does not varies depending on the stage of the disease process, indicating the relevance of using the questionnaire in women with breast cancer.

Key words: Breast cancer; Quality of Life; Nursing; Literature review (DeCS).

Resumen

Introducción: La calidad de vida en mujeres con cáncer de mama por su compleja multidimensionalidad ha requerido ser medida con cuestionarios tanto específicos como genéricos. **Objetivo:** Conocer la confiabilidad del cuestionario Calidad de Vida de la Organización Mundial de la Salud en estudios realizados en mujeres con cáncer de mama. **Metodología:** Revisión integrativa de artículos originales, en bases de datos PubMed, SciELO, Biblioteca Virtual en Salud, Web Of Science, con los descriptores Breast neoplasms, Calidad de Vida de la OMS, en conjugación con el boleano AND, se incluyeron artículos que mostraron confiabilidad del cuestionario Calidad de Vida de la Organización Mundial de la Salud, aplicado a mujeres con cáncer de mama, gratuitos en la web, texto completo, en idioma inglés, portugués o español, publicados entre 2009 y 2019. Se excluyeron estudios en mujeres con cáncer de mama con patología agregada. Se obtuvo muestra de 8 artículos. **Resultados:** Un 37.5% de los estudios analizaron alfa de Cronbach global en rangos entre 0.72 a 0.84 con media de $\alpha=0.79$. Los artículos que realizaron los dominios reportaron confiabilidad media en salud física 0.77, salud psicológica 0.77, relaciones sociales 0.76 y medio ambiente 0.72, demostrando confiabilidad apropiada. **Conclusión:** La confiabilidad a través del alfa de Cronbach para los dominios del cuestionario calidad de vida no difiere en función a la etapa del proceso de la enfermedad, lo que indica la pertinencia del uso del cuestionario en mujeres con cáncer de mama.

Palabras clave: Cáncer de mama; Calidad de vida; Enfermería; Literatura de revisión (DeCS).

Abstrato

Introdução: A qualidade de vida em mulheres com câncer de mama, devido à sua complexa multidimensionalidade, deve ser mensurada com questionários específicos e genéricos. **Objetivo:** Determinar a confiabilidade do questionário de Qualidade de Vida da Organização Mundial da Saúde em estudos realizados em mulheres com câncer de mama. **Metodologia:** Revisão integrativa de artigos originais, nas bases de dados PubMed, SciELO, Biblioteca Virtual em Saúde, Web of Science, com os descriptores Breastneoplasms, WHO Quality of Life, em conjugação com o boleano AND, foram incluídos artigos que apresentaram confiabilidade da Quality Questionário da Vida da Organização Mundial da Saúde, aplicado a mulheres com câncer de mama, gratuito na web, texto completo, nos idiomas inglês, português ou espanhol, publicado entre 2009 e 2019. Foram excluídos estudos em mulheres com câncer de mama



com patologia adicionada. Obteve-se uma amostra de 8 artigos. **Resultados:** 37,5% dos estudos analisaram o alfa de Cronbach global em intervalos entre 0,72 a 0,84 com média $\alpha=0,79$. Os artigos que realizaram os domínios relataram confiabilidade média em saúde física 0,77, saúde psicológica 0,77, relações sociais 0,76 e meio ambiente 0,72, demonstrando confiabilidade adequada. **Conclusões.** A confiabilidade por meio do alfa de Cronbach para os domínios do questionário de qualidade de vida não difere de acordo com o estágio do processo da doença, indicando a relevância do uso do questionário em mulheres com câncer de mama.

Palavras-chave: Câncer de mama; Qualidade de vida; Enfermagem; Revisão de literatura (DeCS).

Introduction

The definition of quality of life (QOL) according to the World Health Organization (WHO) is: "the individuals' perception of their position in life within the cultural context and value system in which they live and with respect to their goals, expectations, norms, and concerns" ⁽¹⁾. This complex multidimensionality of quality of life implies certain difficulties in its measurement and evaluation, which in turn has facilitated advances in different health interventions ⁽²⁾.

In women with breast cancer, their quality of life intimately affects their self-esteem, sexuality and femininity, due to the organ directly involved; they face during the stages of the disease and treatment emotional, physical, mental, and social imbalances that become potential experiences where they themselves are strengthened and motivated to seek other ways to cope with their pathological condition ⁽³⁾. This generates in health professionals the need to measure the quality of life of women who are in different stages of the disease, in order to understand the vital needs and have more elements to incorporate a nursing care plan.

Different questionnaires, both generic and specific, have been used to measure quality of life ⁽⁴⁾. The WHO created the WHO Quality of Life questionnaire (WHOQOL-BREF) as a generic measure of quality of life, seeking to adopt more comprehensive and humanistic measurements. This questionnaire was developed taking into account translation and cultural adaptation and provides consistent information in the different versions ⁽⁵⁾. The WHOQOL-BREF measures quality of life regardless of cultural differences around the world; countries such as Argentina, Brazil, and Panama designed it simultaneously, and it is



currently available in more than 30 languages in 40 countries ⁽⁶⁾. The questionnaire consists of 26 Likert-type questions, including one question on global quality of life and another on general health satisfaction, the remaining questions comprise the four domains: physical health (7 items), psychological health (6 items), social relationships (3 items) and environment (8 items) ⁽⁷⁾.

To use a questionnaire reliably, it is necessary to test what it measures, consistently and constantly in the same circumstances ⁽⁸⁾. Reliability can be defined, according to classical theory, as the degree to which a multi-item instrument coherently measures a population sample ⁽⁹⁾. In addition, Cronbach's alpha formula is the one most commonly used to check a consistent measurement; this popular use can be attributed to its importance in psychometric practice, giving great importance to the reliability of measurements ⁽¹⁰⁾. The internal consistency of a questionnaire considers that the minimum satisfactory value for this coefficient is 0.7; this value indicates that the questionnaire presents an acceptable reliability ⁽¹¹⁾.

The quality of life in women with breast cancer has traditionally been measured through generic instruments; however, the usefulness of these instruments in specific conditions has been questioned due to the lack of knowledge of the symptoms of the disease ⁽¹²⁾. Therefore, the objective of this integrative review was to determine the reliability of the WHOQOL-BREF questionnaire in studies conducted in breast cancer. The aim of this objective is to motivate the nursing staff to visualize the importance of quality of life as a focal point in the care of women with breast cancer, as well as to provide sufficient elements for the selection of a valid, consistent and applicable questionnaire to the Spanish-speaking population, which will therefore facilitate a reliable evaluation of the quality of life variable in the various research studies, whether experimental (intervention) or non-experimental (descriptive - correlational).

Methodology

The design corresponds to an integrative review, which allows the incorporation of evidence into clinical practice ⁽¹³⁾. This review is recognized by Evidence-Based Nursing (EBN) because it provides results that benefit nursing care, represents another resource for the construction of knowledge, development and



precision of clinical practice and its interventions ⁽¹⁴⁾. The following guiding PICO question was posed: What is the reliability of the WHOQOL-BREF questionnaire used in studies conducted in women with breast cancer? Therefore, a literature search was conducted during the months of October and November 2019, using the following descriptors and Boolean, always adhering to the same order: Breast neoplasms AND Quality of life AND WHOQOL BREF questionnaire, available in databases such as: the United States National Library of Medicine (PubMed), Scientific Electronic Library Online (SciELO), Biblioteca Virtual en Salud (BVS), Web of Science (WOS), Trip medical Database (Trip), CINAHL Complete and Elsevier ScienceDirect. Inclusion criteria were: articles demonstrating the reliability of the WHOQOL-BREF questionnaire applied to women with breast cancer, freely available on the web, full text, in English, Portuguese or Spanish languages, published between 2009 and 2019. Exclusion criteria were: studies of women with breast cancer with added pathology. We found 190 original publications after the application of the filters specific to each database (Table 1).

Table 1: Filters used in the databases, (2019).

Databases	PubMed	BVS	Web of Science
Filters	Last 10 years. Human. Language [Spanish, Portuguese or English]. Age [Adults: 19 or older].	Type of document [article]. Year of publication [2009-2019]. Language [English, Portuguese or Spanish].	Type of document [article]. Year of publication [2009-2019].

Source: prepared by the authors

The SciELO database was searched separately for the three languages; in Tripdatabase, CINAHL Complete and Elsevier Science-Direct no filters were used due to the small number of results. After applying the inclusion and exclusion criteria, elimination of duplicates and complete reading, 8 articles were obtained for review (Figure 1).



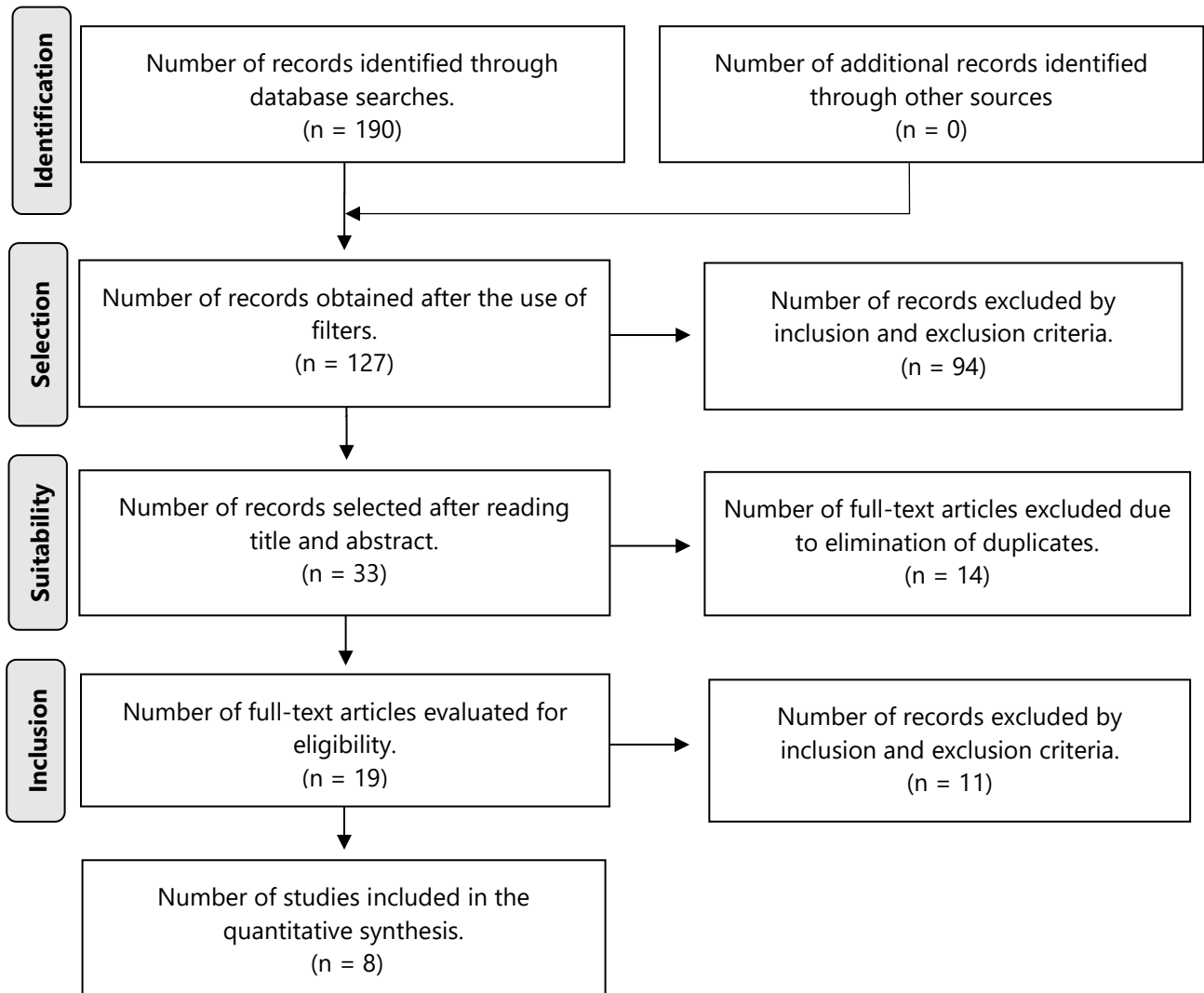
Results

For the eight articles included in the study, data summary cards were used to synthesize relevant data and facilitate analysis of the results. The data were duly referenced, identifying the authors. Based on the source of the article, 37.5% of them were indexed in PubMed⁽¹⁵⁻¹⁷⁾ and VHL⁽¹⁸⁻²⁰⁾, and 25% in SciELO^(21, 22). 75% of the studies were published between 2009 and 2014^(18, 21, 22), and between 2016 and 2018^(15, 16, 20), 25% were published in 2015^(17, 19). Regarding the locations where the research was conducted, 37.5% were conducted in Brazil^(18, 20, 22), and 12.5% in India⁽¹⁵⁾, Indonesia⁽¹⁶⁾, Japan⁽¹⁷⁾, Mexico⁽¹⁹⁾ and Chile⁽²¹⁾. The type of study was quantitative; 62.5% of the studies had a cross-sectional correlational design^(15, 17, 18, 21, 22) and 12.5% were cross-sectional descriptive⁽²⁰⁾, comparative⁽¹⁶⁾ and pre-experimental⁽¹⁹⁾.

As for the sample of women with breast cancer, they were found in the different stages of the disease: women with symptoms but without definitive diagnosis⁽¹⁶⁾, women survivors⁽¹⁷⁾, women in active treatment or chemotherapy⁽¹⁸⁻²¹⁾, women who underwent surgery^(18, 22) and women hospitalized for infiltrating cancer⁽¹⁵⁾. The total population studied was 1031 women with breast cancer, to whom the WHOQOL-BREF instrument was applied; 87.1% of these women were in treatment or were survivors and 12.8% presented breast symptoms, but without a definitive diagnosis. In these studied populations, the questionnaire showed an overall Cronbach's α coefficient within accepted limits (37.5%), the included studies showed a variation between 0.72 and 0.84, with a mean of 0.79^(19, 20, 22) and 62.5% did not mention overall reliability^(15-18, 21). Regarding the internal consistency of the questionnaire by domain, 75% of the studies reported internal consistency^(15-18, 20-21), variable reliability was found in all domains, with the majority grouped in α values between 0.70 and 0.85, and mean reliability from highest to lowest, as follows: physical health 0.77, psychological health 0.77, social relationships 0.76 and environment 0.72 (Table 2).



Figure 1: Flow chart for article selection.



Source: Own development



Table 2: Sample size and reliability of the WHOQOL- BREF questionnaire in the reviewed articles, 2019, (n=8).

Author	Sample	Reliability with Cronbach's α coefficient	
		Global	By domain
Gangane N, Khairkar P, San Sebastián M. ⁽¹⁵⁾	208 women	Not identified	0.78 Physical health 0.75 Psychological health 0.87 Social relationships 0.76 Environment
Setyowibowo H, Purba FD, Hunfeld JA, Iskandarsyah A, Sadarjoen SS, Passchier J, et al. ⁽¹⁶⁾	Women with symptoms of breast cancer (n=132)	Not identified	0.70 Physical health 0.78 Psychological health 0.57 Social relationships 0.75 Environment
Miyashita M, Ohno S, Kataoka A, Tokunaga E, Masuda N, Shien T, et al. ⁽¹⁷⁾	163 women	Not identified	Japanese version, α coefficient in domains from 0.66 to 0.84 0.71 Physical health 0.69 Psychological health, 0.84 Social relationships 0.66 Environment
Oliveira IS, Costa LC, Manzoni AC, Cabral CM. ⁽¹⁸⁾	106 women	Not identified	0.83 Physical health 0.78 Psychological health 0.68 Social relationships 0.75 Environment
González A, González A, Estrada B. ⁽¹⁹⁾	15 women	0.83	No domains
Binotto M, Daltoé T, Formolo F, Spada P. ⁽²⁰⁾	272 women	0.84	0.82 Physical health 0.80 Psychological health 0.84 Social relationships 0.81 Environment
Mera P, Ortíz M. ⁽²¹⁾	25 women	Not identified	0.80 Physical health 0.82 Psychological health 0.76 Social relationships 0.61 Environment (0.59 was initially obtained but increased when item 25 was removed due to low reliability).
Ribeiro HP, Siani S, Duarte MJ, Mendes A, Costa M. ⁽²²⁾	110 women	0.72	No domains

Source: Own development

Discussion

The objective of this review was to know the reliability of the WHOQOL-BREF questionnaire used specifically in women with breast cancer. The findings in this investigation revealed several important aspects: The WHOQOL-BREF questionnaire has been used considerably in several countries of the world ^(23, 24), as



confirmed in this review that incorporates studies in India, Indonesia, Japan, Mexico, Chile, and Brazil; a growing interest is shown since it identified its use in almost a third of the literature ^(18, 20, 22); likewise, greater use was observed in studies of the correlational type. Since the concept of quality of life has probably taken on great importance in people's lives these days, it encourages the ability to act in different situations and offers a positive feeling about life. In this sense, the emotional state of a person with breast cancer results from the sum of different factors such as the previous quality of life and their different social roles, together with the emotions and feelings present during diagnosis and treatment, which generate a negative impact when facing different types of losses such as: loss of health, loss of employment, loss of hair, loss of breast, among others; in addition, they face different fears and anxieties such as the feeling of imminent death. This requires professional and family support to recover and maintain their quality of life ⁽²⁵⁾.

In recent years, the application of the WHOQOL-BREF questionnaire has progressively increased in the population of women with breast cancer, obtaining heterogeneity in the time of resolution of the disease, ranging from diagnosis and survival to comparison with women without breast cancer ⁽¹⁶⁾. In this regard, the National Institute of Public Health of Mexico tries to highlight the importance of seeking strategies for training health personnel in the diagnosis and approach to breast cancer; undoubtedly, great efforts are required to achieve an organized social response and address breast cancer as a public health problem ⁽²⁶⁾. However, despite therapeutic advances, cancer survival does not guarantee that women with breast cancer have a good quality of life; the current approach is based on continuous surveillance and control treatment, no specific actions and health regulations are identified for the comprehensive management of sequelae that women may present in the survival stage ⁽²⁷⁾.

Regarding the internal consistency of the questionnaire, the studies showed variable reliability in all domains for each selected article, most of them grouped in Cronbach's alpha values between 0.70 and 0.85. The process of validation of the various measurement instruments is an ongoing process; cumulative evidence of validity is needed if any inference and interpretation of instrument scores is to be supported



(28). In this regard, researchers ⁽²⁹⁾ indicate that the interpretation and use of Cronbach's alpha can lead to errors, omissions and inaccuracies, as with other psychometric properties in the literature in the English language; the reliability or internal consistency does not lie in the instrument itself but in the scores obtained through it. Cronbach's α coefficients have certain minimum values to consider them from unacceptable to excellent: $\alpha \geq .90$ is excellent; $\alpha \geq .80$ is good; $\alpha \geq .70$ is acceptable; $\alpha \geq .60$ is questionable; $\alpha \geq .50$ is poor; and $\alpha < .50$ is unacceptable ⁽²⁹⁾.

The reliability identified in the review was considered appropriate in the different studies, demonstrating that the domains and their respective questions were related and provided an appropriate description of the quality of life of the population studied ⁽³⁰⁾. This was corroborated by comparing the results and visualizing the correspondence between the mean of the global average of reliability with the means of the analysis by domains. The results of this study coincide with the results reported by Kalfoss and collaborators ⁽²⁸⁾, who found that the WHOQOL-BREF questionnaire is one of the most generic and well-known questionnaires for assessing quality of life, both in healthy and sick populations, identifying an adequate use in the general population of Norway. Likewise, the research supported the quality of life (QoL) construct by providing evidence of acceptable convergent and discriminant validity, and internal consistency of the physical, psychological, and environmental domains, as well as invariant factor loadings across gender, education, and age.

The main limitation of the study is considered to be the lack of uniformity in the reporting of reliability with Cronbach's alpha coefficient within the studies included in this review, which prevented a more in-depth general analysis. However, this article seeks to motivate nursing staff to see the importance of quality of life as a focal point in the care of women with breast cancer, as well as to provide sufficient elements for the choice of a reliable questionnaire applicable to the Spanish-speaking population, which consequently facilitates a concise evaluation of the QoL variable in the various research studies, whether experimental (intervention) or non-experimental (descriptive - correlational).



Conclusions

The most important findings showed that the reliability through Cronbach's alpha for the domains comprising the WHOQOL-BREF questionnaire does not differ according to the stage of the disease, which indicates the relevance of its use in women with breast cancer because it is generic. Breast cancer in women represents an alteration in their health, image and relationship with their environment, producing great changes in the different domains of their being: functional, family, emotional and social, which reaffirms the need to measure quality of life with reliable questionnaires such as the WHOQOL- BREF. One of the strengths of the WHOQOL- BREF questionnaire is that it includes the main domains that are affected by breast cancer, which influence the decrease in quality of life. It should be noted, with respect to the stated objective, that the literature is still scarce, so it is necessary to further develop this line of research.

Conflict of interest

The authors declare that they have no conflicts of interest.

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