Research

SPITZER QUALITY OF LIFE INDEX AND THE ELDERLY POPULATION: PSYCHOMETRIC PROPERTIES

ÍNDICE DE QUALIDADE DE VIDA DE SPITZER" NA POPULAÇÃO IDOSA: PROPRIEDADES PSICOMÉTRICAS

"ÍNDICE DE CALIDAD DE VIDA DE SPITZER" EN LA POBLACIÓN ANCIANA: PROPIEDADES PSICOMÉTRICAS

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ABSTRACT

Generic instruments to evaluate the quality of life in the elderly population are scarce and present limitations for this age range. To evaluate the reliability of the Spitzer quality of life index in elderly individuals in follow-up at outpatient clinic and discriminant validity in relation to the number of comorbidities and medication. Methodological research with 200 elderly individuals, between 60 and 89 years of age, through the following instruments: Characterization of subjects and Spitzer Quality of Life Index. The total average score of the Spitzer Quality of Life Index was 8.0 with Cronbach's alpha coefficient of 0.55. The instrument discriminated individuals in relation to the number of comorbidities (p=0.0011) and medication (p=0.0045). Conclusion: The study refers to further research so as to verify whether the instrument reliability shows high values in individuals with clinical conditions more severe than of the studied sample.

Keywords: Quality of Life; Psychometrics; Aged; Nursing.

RESUMO

Os instrumentos genéricos de avaliação da qualidade de vida para a população idosa são escassos e apresentam limitações para essa faixa etária. O objetivo com esta pesquisa foi avaliar a confiabilidade do índice de qualidade de vida de Spitzer em idosos em seguimento ambulatorial e a validade discriminante em relação ao número de comorbidades e medicações. Trata-se de pesquisa metodológica com 200 idosos entre 60 e 89 anos, utilizando os seguintes instrumentos: caracterização dos sujeitos e índice de qualidade de vida de Spitzer. A pontuação média do escore total do Índice de Qualidade de Vida de Spitzer foi 8,0, com coeficiente alfa de Cronbach 0,55. Por meio do instrumento os idosos foram avaliados em relação ao número de comorbidades (p=0,0011) e medicamentos (p=0,0045). O estudo remete a futuras investigações a fim de verificar se a confiabilidade desse instrumento mostra valores elevados em sujeitos em condições clínicas mais graves em relação à da amostra estudada.

Palavras-chave: *Qualidade de Vida; Psicometria; Idoso; Enfermagem.*

RESUMEN

Los instrumentos genéricos para medir la calidad de vida en la población de adultos mayores son escasos y presentan limitaciones para su aplicación en este grupo de edad. En este estudio se busca evaluar la confiabilidad del Índice de Calidad de Vida de Spitzer en adultos mayores en tratamiento ambulatorio y la validez discriminante según el número de comorbilidades y medicamentos. Se trata de una investigación metodológica, con 200 adultos mayores entre 60 y 89 años empleando los siguientes instrumentos: Caracterización de los Sujetos e Índice de Calidad de Vida de Spitzer. La puntuación media total del Índice de Calidad de Vida de Spitzer fue 8,0, y el coeficiente alfa de Cronbach 0,55. El instrumento discriminó los adultos mayores según el número de comorbilidades (p=0,0011) y medicamentos (p=0,0045). El estudio sugiere más investigaciones con miras a verificar si la confiabilidad de este instrumento indica valores más altos en los adultos mayores con condiciones clínicas más severas que los del muestreo.

Palabras clave: *Calidad de Vida; Psicometría; Anciano; Enfermería.*

INTRODUCTION

Physiological changes that may or not be associated to loss of social role and solitude, usually leading to loss of autonomy and independence, are peculiar to old age. Such process tends to reduce and impair the quality of life of the elderly population.[1]

Several studies have focused on the relationship between the physical and the emotional aspects related to aging and quality of life.[2] Therefore, the cure of a disease is no longer the main goal of the patient's care, but the patient's quality of life (QL).[3]

The World Health Organization (WHO) defines quality of life as "individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns". Such concept is subjective and multidimensional and can be positively or negative perceived. [4]

QUALITY OF LIFE RELATED TO HEALTH CARE

The analysis of quality of life related to health care enables the individual assessment of patients as well as the impact of illnesses, health and treatment by means of instruments that turn subjective numbers into objective data.[5]

The instrument that measures quality of life is selected according to its psychometric properties, reliability and validity. [6]

The instrument's reliability consists of the instrument's degree of coherence to measure an attribute. It is considered one of the most important properties in clinical research to confirm that evident changes result from adopted measures and not from limitations of the selected instrument.[7]

The most evaluated aspects of reliability are: reliability among other assessment tools, test-retest reliability and internal consistency[8]. Internal consistency may be measured by Cronobach alpha coefficient (α) whose value can vary from 0 to 1. The higher the value of alpha is, the greater the internal consistency of the instrument which indicates homogeneity of the measure.

Validity is related to the extent of whatever the instrument measures. It has different domains and assessment methods: content validity, related to criteria, and construct.[9-10]

Construct validity is based on the measure in which a test measures a domain of a theoretical construct. It may be verified by discriminative validity, convergent or divergent validity and factorial analysis. Discriminative validity consists of testing the difference between the properties that are being measured in two or more groups of people. Such validity is proved when the difference between the groups is significantly confirmed. [11]

In the elderly population, QL generic assessment instruments are World Health Organization Quality of life Assessment Bref (WHOQOL- BREF) and Medical Outcomes Study 36-item Short Form Health Survey (SF-36), both adapted to the Brazilian Portuguese language.[12,13]

Surveys that applied those instruments in the elderly consider them appropriate for such age range once they undergo changes that include aspects inherent to ageing.[14-17]

Recently, the generic tool Spitzer Quality of Life Index was culturally adapted to the Brazilian Portuguese language, in a survey with adults and elderly people suffering from chronic lumbar pain. Reliability evaluation showed satisfactory internal consistency (Cronbach $\alpha = 0.76$).[18]

Taking into account the limitations of the generic instruments available in national literature to be used with the elderly and the availability of the Spitzer Quality of Life Index, this study aimed at verifying whether such tool is satisfactorily reliable to assess quality of life related to health care amongst elderly populations.

SPITZER QUALITY OF LIFE INDEX: CONSIDERATIONS ON THE INSTRUMENT

The Spitzer Quality of Life Index (QL-Index) was originally developed to be used by physicians to assess patients with cancer and other chronic diseases, clinical follow –up and scientific research. The QL- Index proved to be reliable: Cronbach's coefficient alpha of 0.775 and Spearman intra-class correlation coefficient of 0,810; both with statistical significance ($p < 0,01$). It is a concise and easy to use instrument that measures different QL domains.[19]

A comparative study between the Spitzer Index and the Karnofsky Performance Scale with patients suffering from gastric cancer, average age 65,3, showed large correlation between those two instruments (Spearman correlation coefficient – 0,72 and $p < 0,01$).[20]

The Spiltzer Quality of Life Index has been successfully used to measure QL in surveys with cancer patients and other clinical conditions. It also enables the distinction between ill and healthy people and between patients in different stages of cancer. Furthermore, it is an effective tool to validate other instruments. [21]

In the cultural adaptation to the Brazilian Portuguese language, the QL- Index score revealed significant correlations with SF -36 and the *Roland Morris*. The study provides evidence that the QL-Index is important to assess QL and health in patients with chronic diseases.[18]

THE OBJECTIVES

The study aims at evaluating the QL- Index reliability in ambulatory follow-up of elderly people as well as its capacity of discriminating such group in ambulatory follow-up, in relation to the number of co-morbidities and continuous medication use.

MATERIAL AND METHODOLOGY

Study site

This is a methodological research that enables the investigation of data collection, organization and analysis methods. It includes elaboration, validation and evaluation of instruments and research techniques.[10]. It was carried out at the ischemic cardiopathy and hypertension outpatient units of a large university hospital in the State of São Paulo. Patients attending this hospital belong to the Unified Health System (SUS) and live within the coverage area. These units were selected because of the large number of elderly people undergoing therapeutic follow-up.[22]

Population sample

Two hundred elderly patients aged between sixty and eighty-nine years old, whose cognitive status allowed understanding and verbal communication, were the research subjects.

Sample size was established according to the number of variables of interest. [23]

Data collection

Data were collected between January and March 2008 via individual private interviews. One of this study's authors interviewed the patients prior to their medical consultation. Patients meeting the inclusion criteria were asked to participate in the study after reading, understanding and signing the Term of Free and informed Consent.

The interviews lasted between 15 and 25 minutes, being 20 minutes the average time. The application of the instruments described below followed the same sequence, starting with the characterization of subjects followed by the QL – Index.

Instruments for data collection

a. characterization of subjects: contains personal data and self-reported clinical information (main diagnosis, co morbidities and continuous-use medication).
b. QL – Index [18] It comprises five domains that consider different aspects of the QL: performance in occupational and domestic activities; daily activities; self-perceived health; support from family and friends and emotional condition respecting their perspectives on life.

Each domain includes five questions that may vary; each of them with scores between 0 and 2. The total score is the sum of all the scores of each domain and may vary from 2 to 10. The highest score shows the best QL. [19]

Data Analysis

The statistical analysis was carried out with the support of the Research Commission of Statistical Service of the School of Medicine of the University of Campinas (Unicamp).

Data were collected in Excel for Windows 98 and in SAS (Statistical Analysis System), for Windows version 9.1.3, for the following analysis:

1. **descriptive:** using tables of frequency, measures of position (average, mean, minimum and maximum) and dispersion (standard deviation);
2. **reliability:** Cronbach's alpha reliability coefficient was used to verify homogeneity or accuracy in each item of the QL – Index, i.e., intra-individual concordance. Values above 0.60 were defined[24] for indicating internal consistency.
3. **comparison:** use of the analysis of variance (ANOVA) with the rank transformation, [25,26] to verify discriminatory power of the Q L- Index total score in relation to:
   - the number of co morbidities: Group I (1-3), Group II (4-6), Group III (over 6);
   - the number of continuous drug use: Group A (1-3), Group B (4-6), Group C (above 6).

The number of co morbidities and drugs in each group is based on studies carried out in the same institution with elderly patients during follow-up. [27]

The significance level for statistical tests was 5%.

Ethical aspects

The confidentiality of hospital records and other medical information and the anonymity of research subjects were observed. The research project was approved by the Ethics Committee of the FCM – Unicamp, under Resolution No 346/2007.

RESULTS

Average age of the 200 elderly patients interviewed was 70. 1 (±6.6) years old and they were predominantly female (57.5%). Approximately half was married (56.0%); most of the subjects lived with at least one member of the family (86.9%); average schooling was 4.2 (±4.2) years, with reported average household income of R$ 837,22, equivalent to 2.2 minimum wages. Clinical characterization showed an average co morbidity rate of 4.5 (± 1.9) and an average rate of 5.5 (±2.6) for drugs used on a continuous basis (Table 1).

Average score of total score = 8.0 when using QL-Index. The QL domain "self-perceived health" scored lowest = 1.2 average score, being considered the worst. "Daily activities", the best, scored highest = 1.8 average score (Table 2).

Table 1 - Socio demographic and clinical features of elderly patients in ambulatory follow-up (n=200) – Campinas, 2008

Variable	Average (±dp)	Mean	Variable observed	Distribution category	n	%
Age (years old)	70,1 (±6,6)	70,0	60,0-89,0	–	–	–
Sex	–	–	–	Male	85	42,5
				Female	115	57,5
Marital status	–	–	–	Married	112	56,0
				Single/Widow/widower Separated	86	43,0
				Consensual union	2	1,0
Lives with	–	–	–	Relative	173	86,9
				Alone	26	13,1
Schooling (years)	4,2 (±4,2)	4,0	0,0 – 23,0	–	–	–
Household income (in MW*)	2,2 (±2,2)	1,5	1,0 – 21,0	–	–	–
Main diagnosis	–	–	–	Cardiopathy	117	58,5
				Hypertension	83	41,5
Number of Co morbidities	4,5 (±1,9)	4,0	1 – 10	–	–	–
Number of drugs	5,5 (±2,6)	5,0	1 – 13	–	–	–

* MW: Minimum wage. Value of the minimum wage: R$ 380.00.
Source: the authors based on survey data.

Table 2 - QL domains according to Spiltzer QL – Index Scores for the 200 elderly patients interviewed – Campinas, 2008

Domains	Average (±dp)	Mean	Observed variation	Possible variation
Job	1,6 (±0,7)	2,0	0,0 – 2,0	0,0 – 2,0
Daily activities	1,8 (±0,4)	2,0	0,0 – 2,0	0,0 – 2,0
Health	1,2 (±0,7)	1,0	0,0 – 2,0	0,0 – 2,0
Support from family and friends	1,7 (±0,6)	2,0	0,0 – 2,0	0,0 – 2,0
Emotional condition	1,6 (±0,5)	2,0	0,0 – 2,0	0,0-2,0
Total	7,9 (±1,8)		3,0 – 10,0	0,0 – 10,0

Source: the authors' based on survey data.

Table 3 - Cronbach alpha coefficient by domains according to Spitzer Quality of Life Index – Campinas, 2008

Domains	Cronbach alpha (α)
Job	0,54
Daily activities	0,49
Health	0,36
Support from family and friends	0,58
Emotional condition	0,46
Total	0,55

Source: the authors based on survey data.

Table 4 - QL-Index of the elderly: descriptive statistics according to distribution in groups by number of co morbidities – Campinas, 2008

Groups			QV-Index			
			Average (±dp)	Mean	Observed Variation	*p*-value
I	1 a 3	65	8,5 (±1,8)	9,0	4,0-10,0	0,0011
II	4 a 6	105	8,0 (±1,8)	8,0	4,0-10,0	
III	Over 6	30	7,1 (±1,82)	7,0	3,0-10,0	

Source: the authors based on survey data.

QV-Index reliability assessed by the internal consistency and calculated by Cronbach alpha coefficient (α), showed 0.55 total score. "Support from family and friends" scored highest (α= 0.58) and "Health" scored lowest (α= 0.36) (Table 3).

QL-Index enabled the discrimination of the elderly according to the number of co morbidities and drugs. Table 4 shows a statistical description of the instrument related to groups of elderly people, according to the number of co morbidities.

The elderly with one and three co morbidities (Group I) and between four and six (Group II) showed significant statistical difference in QL compared to those with co morbidities over six (Group III) (p-value= 0.0011).

Table 5 shows the statistical description of the QL – Index according to groups of subjects by number of drugs.

The elderly who took between one and three drugs (Group A) presented significant statistical difference of QL compared to those who took more than six drugs (Group C) (p-value = 0.0045). No significant statistical difference was observed in Group B compared to the others.

Table 5 - QL-Index of the elderly: descriptive statistics according to the number of drugs used on a continuous basis – Campinas, 2008

Groups			QV-Index			
			Average (±dp)	Mean	Observed Variation	*p*-value
A	1 a 3	48	8,7 (±1,6)	9,0	4,0-10,0	0,0045
B	4 a 6	93	8,0 (±1,8)	8,0	4,0-10,0	
C	Over 6	58	7,5 (±2,0)	8,0	3,0-10,0	

Source: the authors based on survey data.

DISCUSSION

Literature has highlighted the use of adequate and reliable questionnaires and scales for a certain population aiming at a correct evaluation of the psychometric properties of the measurement instruments. [28-30]

Validity and reliability are particularly important in the election of instruments used for research and clinical practice.[31] It is important, however, to emphasize that validity and reliability are not static qualities of an instrument but should be re-evaluated for each study population.[29, 32]

In this research, the internal consistency of QL-Index in total score (α=0.55) was lower than the values obtained from the original study (α=0.77) developed with adult patients with cancer and other chronic diseases [19] and from the cultural adaptation (α=0.77) carried out with adult patients suffering from chronic lumbar pain.[18]

Even though internal consistency of QL- Index (α=0.55) was lower than that mentioned above and the one recommended by literature (α=0.70), it was close to the criteria established for the study (α=0.60)[24] and coherent with the minimum standard recommended for comparison between groups ($0.50 < \alpha > 0.70$).[33]

Literature points out several factors that can alter the psychometric properties of the measurement instruments: how the interviews are conducted (personal, self-applied, by telephone), clinical and socio demographic features of the research population, sample size, among others.[30,32,34] Some of this factors may be related to the obtained value (α=0.55), which shows the lack of homogeneity in the subjects' answers to the items of the questionnaire.

QL-Index includes five domains, each of them with three possible answers that consider several activities and perceptions of the subjects. Such composition of the instrument, as well as its application mode, hampered the patients' comprehension.

Literature points out that such application mode is adequate to adults and the elderly.[18,34,35] Furthermore, it is recommended that items should be brief, easy to understand, with only one question each[30], which is not the case of the QL-Index.

Given that reliability increases according to the number of items,[30,3] assessment of Cronbach alpha coefficient (α) does not seem appropriate for scales with a single domain or for a group of domains that measure different constructs.[32] It should be also considered that reliability is necessary but not enough to determine validity.[32]

Elderly patients, although suffering from chronic diseases, revealed high score of QL in almost all the dimensions of the instrument, except in self-perceived health. For them, in the assessment of general health there were options ranging from "feeling well/ excellent" (42.0%), "lack of energy" (41.5%) to "feeling sick/useless" (16.5%). Such feature of the sample may partially justify the value obtained for reliability of the QL-Index. High scores in other areas are probably related to the independence pointed out by the subjects since it apparently showed clinical compensation.

The purpose of the application [30,32] should also be considered and verified in the assessment of health care measurement instruments. Measures can be categorized, according to its application purpose, in discriminative, predictive and evaluative. Instruments are generally used to discriminate subjects in relation to health, illness or disability, to predict outcomes or point out changes in patients' condition during clinical follow up. [36]

QL-Index presented capacity of discriminating the elderly patients according to the number of co morbidities and drugs. Such feature should be considered when selecting this instrument for the elderly population, in research or in clinical practice.[30] In the original study the authors also showed QL-Index ability to discriminate differences between groups of healthy people and groups of people with cancer or with other chronic diseases.[19] Other studies corroborate these findings, i.e, the characteristic of QL- Index to function as criteria to discriminate patients according to surgery[35], in different stages of cancer,[21,34] between healthy and sick people,[21] depending on the number of co morbidities and drugs used on a continuous basis.[30]

CONCLUSION

The performance of QL-Index in this study highlights the need for future research among elderly populations with other clinical features. Instrument reliability should be evaluated in order to verify if it displays higher values in subjects presenting worse clinical conditions.

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