Desempeño psicométrico e intervalos de referencia del WHOQOL-BREF en población sana, Medellín-Colombia

Psychometric performance and WHOQOL-BREF reference intervals in a healthy population, Medellín-Colombia

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Abstract

Introduction: The Quality of Life Instrument of the World Health Organization is widely used in healthy and sick people; however, few Colombian studies have analyzed its dimensions in a healthy population.

Objective: To evaluate the psychometric properties of the WHOQOL-BREF in a healthy population of Medellín and to estimate the reference intervals for it's four dimensions.

Methods: Cross-sectional study and psychometric evaluation in 1938 people. Reliability was evaluated with Cronbach's α, internal consistency and discriminant power with Spearman's Rho, content validity with λ coefficients and variance explained by means of an exploratory factor analysis with extraction by principal components. Aberrant values were eliminated using the Grubbs statistic, the global reference intervals were estimated for each dimension of the WHOQOL-BREF and the specific ones, according to demographic and socioeconomic variables, using 95% confidence intervals for the mean, and comparisons using Student's t and Anova. The analyzes were carried out in SPPS 27.0®.

Results: Excellent reliability, internal consistency, discriminating power, and content validity were found in the four dimensions of the instrument in a healthy population. The reference values were 64.3-65.6 in physical health, 70.8-72.0 in psychological health, 64.3-65.9 in social health and 60.5-61.6 in environmental health, with statistically significant differences according to demographic and socioeconomic characteristics

Conclusion: The excellent psychometric performance of the scale in the healthy population allowed the estimation of the reference intervals for the four dimensions, as well as the values for subgroups made up of demographic and socioeconomic variables, which is decisive for including the outcomes centered on people in medicine and public health programs, as well as suitable comparators for the sick population.

Palabras clave: Quality of life; health; scales; validity; reproducibility; psychometry; WHO; WHOQOL.

Resumen

Introducción: El instrumento de calidad de vida de la Organización Mundial de la Salud es ampliamente utilizado en personas sanas y enfermas; sin embargo, son pocos los estudios colombianos que han analizado sus dimensiones en población sana.

Objetivo: Evaluar las propiedades psicométricas del WHOQOL-BREF en población sana de Medellín, y estimar los intervalos de referencia para sus cuatro dimensiones.

Métodos: Estudio transversal y de evaluación psicométrica en 1938 personas. Se evaluó fiabilidad con el α de Cronbach, consistencia interna y poder discriminante con Rho de Spearman, validez de contenido con coeficientes λ y varianza explicada mediante un análisis factorial exploratorio con extracción por componentes principales. Se eliminaron valores aberrantes mediante el estadístico de Grubbs, se estimaron los intervalos de referencia globales para cada dimensión del WHOQOL-BREF y los específicos, según variables demográficas y socioeconómicas, mediante intervalos de confianza del 95% para la media, y comparaciones mediante T- Student y Anova. Los análisis se realizaron en SPPS 25.0®.

Resultados: Se halló una excelente fiabilidad, consistencia interna, poder discriminante y validez de contenido en las cuatro dimensiones del instrumento en población sana. Los valores de referencia fueron 64,3-65,6 en salud física, 70,8-72,0 en salud psicológica, 64,3-65,9 en salud social y 60,5-61,6 en salud ambiental, con diferencias estadísticamente significativas según las características demográficas y socioeconómicas

Conclusión: El excelente desempeño psicométrico de la escala en población sana, permitió la estimación de los intervalos de referencia para las cuatro dimensiones, así como los valores para subgrupos conformados por variables demográficas y socioeconómicas, lo que resulta determinante para incluir los desenlaces centrados en las personas en los programas de medicina

y salud pública, así como comparadores adecuados para población enferma.

1. Introduction

The concept of health-related quality of life (HRQoL) was introduced in medical literature in 1960, but only in the 1970s was it assumed as a central outcome for health care. HRQoL has been qualified as a new paradigm for health care for the following reasons: i) it constitutes a solution to some public policy problems that failed to tangibly and individually include some achievements of social progress (which should be reflected in a better QoL of people); ii) it is an ethical criteria, valid and useful to incorporate health technologies, and works as a mediation device in some moral-health crises derived from the exclusion of patients in their care; iii) it is one of the fields that has most affected the evaluation of health care and medical interventions; iv) it meets social demands in the health field, given that it is no longer enough to preserve life (avoid death) but that life can be lived with quality; v) it allows transcending the biological domain and the traditional epidemiological clinical outcomes (mortality, morbidity, disability, clinical improvement, etc.), rescuing the patients' perspective, and giving them the possibility of participating in decision making; vi) it is useful in the analysis of different problems and dilemmas of medical care, while improving the ethical positioning in the doctor-patient relationship, and vii) QoL is a clinical goal, an ethical right and a moral and social duty (1).

The use of HRQol has increased in the medical and philosophical literature, with a trajectory in which at least four periods can be identified: i) in the 1960s and 1970s, new medical technologies presented dilemmas to doctors, where QoL appeared as an important parameter for decision making on health issues, focusing attention on the design and evaluation (testing) of instruments; ii) in the 1980s, some consequentialist philosophers used QoL as the center of moral judgments regarding life and medical treatments; iii) in the 1990s, welfare philosophers associated the concept with health and happiness, with subsequent challenges to its definition and measurement; iv)

«... constituye una solución para algunos problemas de política pública que no lograban incluir de manera tangible e individual algunos logros del progreso social ...

nowadays, it is a construct whose use has permeated all types of medical and research practices (2).

Despite its philosophical, ethical, and political richness, and its versatility to solve medical, technological and economic problems, problems persist in its practical development to operationalize the concept. Thus, there has been an increase in instruments for measuring HRQoL and, at the same time, a diversity of underlying concepts that match it with health, well-being, state of health, perceived health, or others. A diffuse use of the concept can lead to its appearance in health plans, health programs, public policies, or other instances, without being translated into a better life for people (1).

Part of the conceptual complexity may be based on the fact that HRQoL takes up central aspects of the WHO (World Health Organization), which since 1948 indicates that "health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (3). Even pioneers in the field of QoL, such as Dijkers, refer to HRQoL as "well-being, utilities, achievements, and subjective evaluations and reactions". Thus, several literature reviews confirm the difficulty in finding a consistent use of the term or a clear structure for categorizing HRQoL measures. Despite the discrepancies, there is agreement in the health and social disciplines that it should at least include the following dimensions: physical functioning, mental state, and ability to function in normative social interactions (4).

In this context, in the mid-1980s the WHO began its work to conceptualize and measure subjective HRQoL, with the participation of 25 centers around the world, through consultation with specialists in medicine and social sciences, healthy and sick people, and qualitative studies to determine the importance of each cultural context; as a result of this work "quality of life was defined in terms of how the individual perceives their place in the cultural environment and value system in which they live, and in relation to their goals, expectations, criteria and concerns. All of this, of course, is qualified by their physical health, their psychological state, their degree of independence, their social relations, environmental factors, and their personal beliefs" (5,6). In this approach, it is not the objective or biological indicators of health that matter, nor the material goods, but rather how these are materialized in degrees of satisfaction in the individual.

In this way, the WHO instrument (WHOQoL-Bref) was developed to evaluate HRQoL in health care scenarios, in order to guide different therapeutic, research and educational decisions in health; improve care; compare the

benefits of different health technologies; promote cost-utility or cost-benefit studies to optimize the use of resources, among others (5,6).

In this regard, Colombia has had an incipient development of research with this questionnaire; there are few studies available, some in people subjected to surgical procedures in Medellín (7), subjects with HIV (8), sclerosis (9) or fibromyalgia in Medellín (10); people exposed to mining industries in Boyacá (11) and healthy people such as orthodontists (12) and institutionalized older adults from geriatric homes in Medellín (13); with few studies on its psychometric validity (14,15) and none that determine the reference intervals in healthy people, according to their sociodemographic conditions.

Therefore, the objective of this research was to evaluate the psychometric properties of the WHOQOL-Bref in the healthy population of Medellín, and to estimate the reference intervals for its four dimensions, according to sex, age group, socioeconomic status of housing, educational level, occupation, and marital status. This research, consistent with the versatility of QoL measurements, would make it possible, among other things, to have a baseline to determine the impact of different diseases on QoL, define therapeutic objectives, evaluate the success of different interventions aimed at improving QoL or one of its dimensions, and establish goals in health policies, plans, and programs.

2. Method

Type of study: Cross-sectional and psychometric evaluation.

Population: A total of 1,938 healthy persons (without a diagnosis of chronic diseases or reported illness in the last month) from the general population of the city of Medellín were included. The calculation of the initial sample size was 1843 subjects corresponding to a population over 14 years of age of 2,000,000 inhabitants, confidence of 95%, sampling error of 1%, expected deviation of 20 (on a scale of 0-100), sampling correction of 20%. Inclusion criteria were people older than 14 years of age, with a minimum of one year's residence in the city. Those who demanded some type of remuneration for their participation and those who refused to volunteer or sign the informed consent form were excluded.

Description of the WHOQOL-Bref health-related quality of life scale: It is a generic instrument for measuring quality of life derived from the WHO-QOL-100 (both available in Spanish). It contains 26 questions that refer to the twenty-four facets contained in the WHOQOL-100 and two global questions on quality of life and general health. Each question has five possible answers that are scored to generate a profile of 4 dimensions: physical health, psychological, social relationships, and environment. Four partial scores are obtained from 0 to 100, with zero being the worst quality of life. The instrument must be self-administered, except for those situations in which the person cannot read or write due to impediments related to his/her level of education or health. The instrument evaluates the responses on the individual's perceptions in the previous two weeks and for chronic diseases it can be extended to four weeks (16-18).

Data collection and bias control: Potential participants were contacted at the study site (school or university) or at work, with this initial group a snowball was made, guaranteeing shares for the sociodemographic variables of interest, requesting the delivery of the survey to a neighbor who was not a member of their family, until the sample size was completed. In order to control information bias, the instrument was self-completed, anonymous, and validated; in the design of the database there was an instruction manual with the operationalization of variables and a logical verification of the database was made.

Statistical analysis: To estimate the reference intervals of the four quality of life dimensions, outliers were initially identified using the box plot method and the Grubbs statistic. Subsequent to the elimination of outliers, the following psychometric properties were evaluated for each dimension (factor structure assessment) (19): reliability with Cronbach's α, internal consistency with Spearman's Rho for the score of each item with the score of the dimension to which it belongs, discriminant power with Spearman's Rho between each item and the three dimensions to which they do not belong, content validity with λ coefficients and variance explained by exploratory factor analysis with extraction by principal components (with goodness of fit by Bartle's test of sphericity and KMO) (20,21)

« El instrumento debe ser auto–administrado, exceptuando aquellas situaciones en que la persona no pueda leer o escribir por impedimentos relacionados con su nivel educativo o de salud.»

The study population was described using absolute (n) and relative (%) frequencies, reference intervals were estimated for each dimension of the WHOQOL-BREF, and specific intervals, according to demographic and socioeconomic variables, were estimated using 95% confidence intervals for the mean. The comparison of the mean scores of each dimension with the demographic and socioeconomic characteristics was performed with the t Student test (for sex) and Tukey's post hoc Anova (for age group, socioeconomic status of housing, educational level, occupation, and marital status). The analyses were performed in SPPS 27.0®.

Ethical aspects: The guidelines of the Declaration of Helsinki and resolution 8430 of 1993 of the Colombian Ministry of Health were applied. The project was endorsed by the bioethics committee of the Universidad Cooperativa de Colombia.

«SCon el fin de estimar los intervalos de referencia de las cuatro dimensiones de calidad de vida, inicialmente se identificaron los valores atípicos con el método gráfico (box plot) y el estadístico de Grubbs. »

3. Results

With the sampling strategy, 2,033 surveys were collected of which 95 were eliminated corresponding to outliers in some of the four dimensions **(Figure 1).**
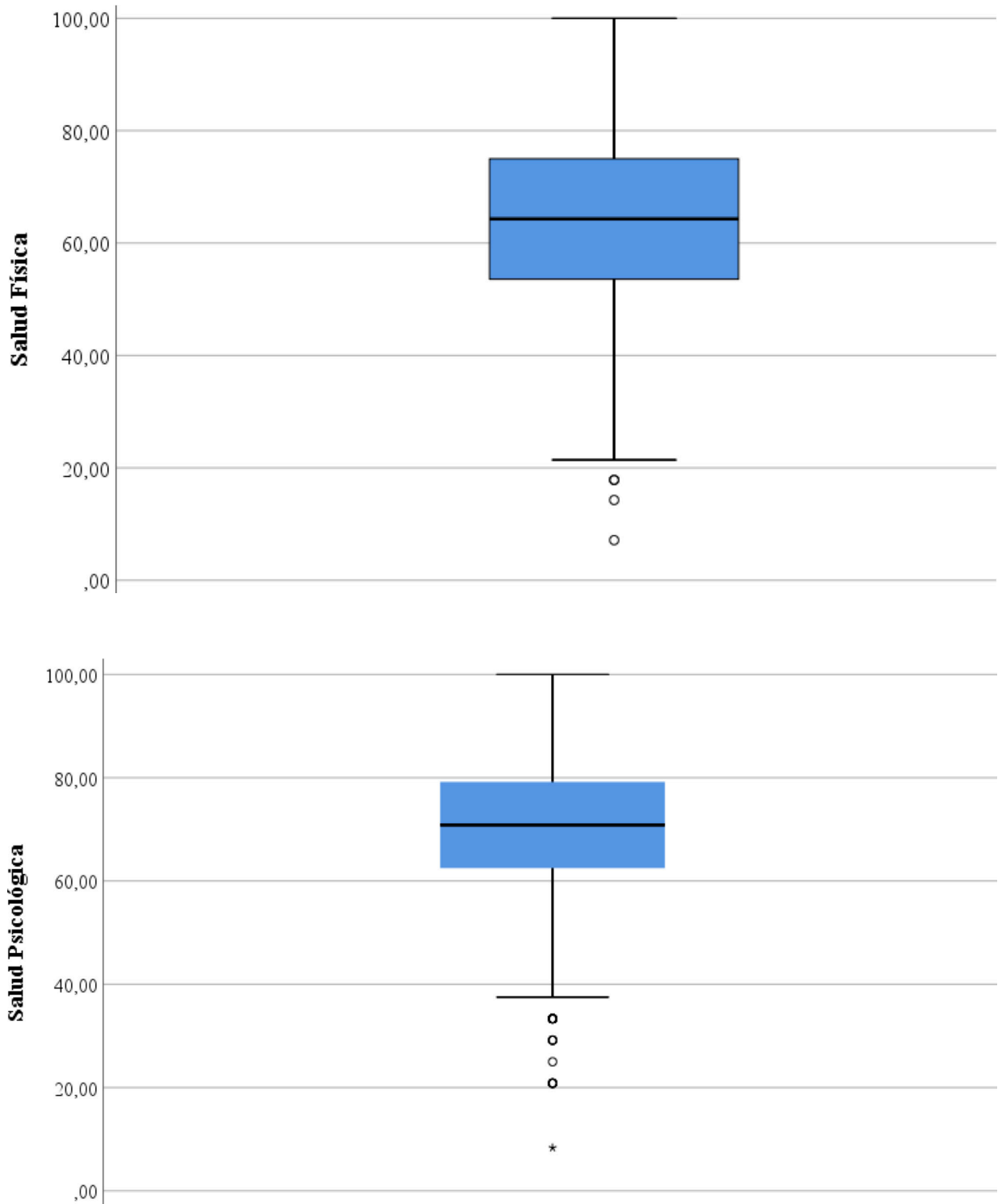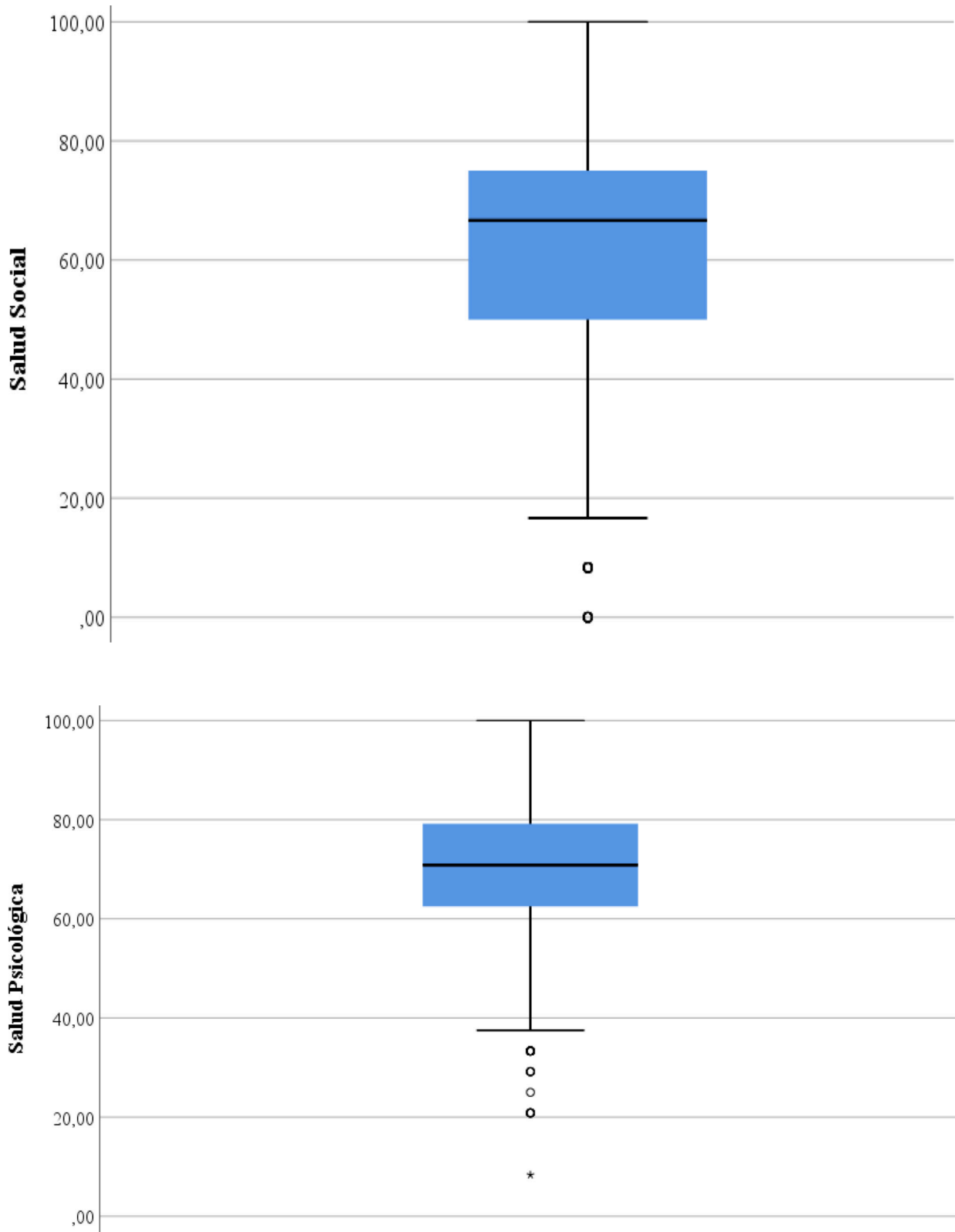
Figure 1. Identification of outliers using the graphical method and the Grubbs statistic.

In the study population, the majority of the subjects were women (68.4%), aged between 21 and 44 years (52.2%), from stratum 3 (48.5%), university students (31.2%), employed (45.8%) and married (48.6%) **(Table 1)**.

Table 1. Description of the study population.

		n	%
Gender	Male	612	31,6
	Female	1326	68,4
Age group	16 to 20 years old	336	17,3
	21 to 44 years old	1012	52,2
	45 to 60 years old	414	21,4
	Over 60 years old	176	9,1
Socioeconomic level	Low-Low (one)	112	5,8
	Low (two)	667	34,4
	Medium-Low (three)	939	48,5
	Medium (four)	173	8,9
	High-High (five)	47	2,4
Educational level	None	27	1,4
	Elementary school	200	10,3
	High school and middle school	447	23,1
	Technical or technological	345	17,8
	University without degree	605	31,2
	University with degree	168	8,7
	Postgraduate with degree	146	7,5
Occupation	Employee	888	45,8
	Unemployed	41	2,1
	Student	548	28,3
	Home occupations	378	19,5
	Other activity	51	2,6
	Permanently disabled	32	1,7
Marital status	Single	801	41,3
	Married or in common-law marriage	942	48,6
	Separated or divorced	135	7,0
	Widowed	60	3,1

The scale presented excellent psychometric properties in its factorial structure, that is, in the relationship of the items that account for each construct or dimension of quality of life, with 100% in the properties of reproducibility (reliability, internal consistency and discriminant power) and content validity **(Table 2)**.

Table 2. Psychometric properties of the four dimensions of the WHO-QOL-BREF in the Colombian general population.

Properties	Physical	Psychologi-cal	Social	Environ-mental
Reliability				
Cronbach's α	0,68	0,69	0,65	0,69
Internal consistency				
Range of correlations Spearman's Rho	0,47-0,67	0,48-0,72	0,73-0,81	0,42-0,63
% of success [a]	100	100	100	100
Discriminant power				
Range of correlations Spearman's Rho	0,03-0,50	0,12-0,52	0,29-0,50	0,15-0,48
% of success [b]	100	100	100	100
Content validity				
Range of communalities values	0,66-0,88	0,20-0,59	0,56-0,64	0,12-0,41
Range of factor loadings (λ)	0,38-0,82	0,45-0,77	0,75-0,80	0,34-0,64
% of success [c]	100	100	100	100
Explained variance	38%	42%	60%	33%
Bartlett's sphericity (p)	0,000	0,000	0,000	0,000
Kaiser Meyer Olkin	0,76	0,74	0,66	0,74

[a] Spearman's Rho correlations item-dimension to which it belongs ≥0,40.

[b] Spearman's Rho item-dimension correlations to which it belongs greater than the Spearman's Rho correlation between the item-the three dimensions to which it does not belong.

[c] Factor loading (coefficient λ) ≥0,30

The reference values in the general population were 64.3 to 65.6 in physical health, 70.8 to 72.0 in psychological health, 64.3 to 65.9 in social health and 60.5 to 61.6 in environmental health, with statistically significant differences according to demographic and socioeconomic characteristics, as follows (Table 3):

i. Physical and psychological health were statistically higher in males (t Student $p<0.01$), in subjects aged 16-20 years (Tukey $p<0.01$), middle stratum (Tukey $p<0.01$), university students (Tukey $p<0.01$), student occupation (Tukey $p<0.01$) and single (Tukey $p<0.01$).

ii. Social health was statistically equal in both sexes and statistically higher in subjects with age between 16 and 20 years (Tukey $p<0.01$), high stratum (Tukey $p<0.01$) university students (Tukey $p<0.01$), student occupation (Tukey $p<0.01$), and married (Tukey $p<0.01$).

iii. Environmental health was statistically equal between both sexes and age groups, and statistically higher in the high stratum, with postgraduates, employees, houseworkers and married (Tukey $p<0.01$).

Table 3. General reference intervals for dimension scores and specific reference intervals by demographic and socioeconomic groups.

Mean IC95%	Physical	Psychological	Social	Environmental
General	65,0 (64,3-65,6)	71,4 (70,8-72,0)	65,1 (64,3-65,9)	61,1 (60,5-61,6)
Gender				
Male	68,0 (66,9-69,2)	72,6 (71,5-73,7)	64,6 (63,2-66,0)	60,5 (59,5-61,5)
Female	63,6 (62,8-64,4)	70,2 (68,8-71,5)	65,3 (64,4-66,3)	61,4 (60,7-62,0)
Age group				
16 to 20 years old	68,5 (67,0-70,0)	73,7 (72,1-75,3)	67,8 (65,9-69,8)	60,5 (59,2-61,9)
21 to 44 years old	64,0 (63,1-64,8)	71,3 (70,5-72,1)	66,4 (65,3-67,5)	61,3 (60,6-62,1)
45 to 60 years old	65,5 (64,0-67,0)	70,5 (69,2-71,7)	63,0 (61,4-64,7)	60,6 (59,5-61,7)
> 60 years old	63,2 (60,8-65,6)	70,1 (68,1-72,1)	57,5 (55,0-60,1)	61,8 (59,9-63,6)
Stratum				
Low-Low	62,9 (60,0-65,8)	69,7 (67,3-72,1)	63,5 (59,9-67,0)	58,6 (56,2-61,0)
Low	63,0 (61,9-64,0)	70,4 (69,4-71,4)	64,9 (63,6-66,3)	59,4 (58,4-60,3)
Medium-Low	65,7 (64,8-66,6)	71,3 (70,4-72,1)	64,4 (63,3-65,5)	61,5 (60,8-62,3)
Medium	70,0 (67,7-72,3)	76,1 (74,1-78,0)	68,8 (66,4-71,2)	65,5 (63,9-67,0)
High-High	66,1 (61,7-70,5)	74,3 (70,1-78,5)	72,3 (67,5-77,1)	66,5 (62,6-70,4)
Educational level				
None	54,4 (48,5-60,2)	65,0 (59,9-70,0)	57,4 (51,5-63,3)	58,1 (52,3-63,9)
Primary	63,4 (61,3-65,5)	68,0 (66,1-69,8)	57,7 (55,4-60,0)	57,9 (56,4-59,5)
Secondary	65,4 (64,0-66,8)	70,4 (69,3-71,6)	63,8 (62,1-65,5)	61,1 (60,0-62,3)
Technical	62,1 (60,6-63,6)	71,1 (69,7-72,4)	64,5 (62,7-66,3)	62,4 (61,1-63,6)
University without degree	68,3 (67,2-69,3)	73,7 (72,5-74,8)	68,0 (66,5-69,4)	59,3 (58,3-60,3)
University with degree	64,9 (62,6-67,2)	71,7 (69,8-73,5)	66,9 (64,4-69,4)	62,3 (63,5-67,0)
Postgraduate	61,4 (59,3-63,5)	71,3 (69,4-73,2)	68,4 (65,8-70,9)	65,3 (63,6-67,0)
Occupation				
Student	68,6 (67,4-69,7)	74,2 (72,9-75,4)	68,4 (66,9-69,9)	59,0 (57,9-60,1)
Employee	65,0 (64,0-66,0)	71,4 (70,6-72,2)	64,9 (63,8-66,1)	62,2 (61,5-63,0)
Home occupations	61,7 (60,3-63,1)	69,5 (68,3-70,7)	64,0 (62,2-65,7)	62,1 (60,9-63,2)
Other activity	62,9 (58,6-67,1)	68,6 (65,1-72,1)	50,3 (45,7-55,0)	59,9 (56,8-62,9)
Unemployed	60,4 (56,7-64,0)	63,5 (59,6-67,4)	58,7 (53,3-61,2)	56,7 (53,2-60,2)
Permanently disabled	52,9 (46,6-49,2)	60,9 (55,3-66,6)	58,3 (61,5-65,2)	60,2 (55,1-65,4)
Marital Status				
Single	67,5 (66,5-68,5)	72,7 (71,7-73,7)	65,3 (64,0-66,5)	59,6 (58,7-60,4)
Married	63,5 (62,5-64,5)	70,8 (70,0-71,6)	66,3 (65,2-67,3)	62,5 (61,8-63,3)
Separated	62,4 (59,7-65,1)	69,2 (66,8-71,6)	60,2 (67,0-63,4)	60,1 (57,9-62,3)
Widowed	60,2 (56,0-64,3)	68,6 (65,4-71,8)	56,0 (51,8-60,2)	61,2 (57,9-64,4)

4. Discussion

The scale presented excellent psychometric properties in its factorial structure, with 100% success in the reproducibility properties (reliability, internal consistency, and discriminant power) and content validity. Although these results are difficult to contrast given the scarce number of similar studies in the Colombian population, it is appropriate to highlight some similar results of other research. Casamali's group demonstrated excellent concordance and reproducibility properties for the electronic and paper version in older adults (22); in older women in Brazil, the excellent reliability of the questionnaire was confirmed, as well as its moderate convergence with the SF-36, resulting in a better WHOQOL-Bref to evaluate changes in the quality of life of this group; (23) and in older adults in Chile, its factorial structure and excellent internal consistency were confirmed (24).

In the Colombian context, several studies have demonstrated the validity of the instrument with different methodologies and properties. In 510 older adults in Bucaramanga and Manizales, Rasch analyses of response category adjustment, item and person adjustment, item differential functioning, unidimensionality and reliability reported satisfactory results in all the parameters evaluated (15). In 565 adults in Rionegro-Colombia, the WHOQOL-Bref had a good psychometric performance (14) and in 220 older adults excellent reliability, internal consistency and discriminant validity were reported (25). Although it should be noted that most of the studies do not present a complete evaluation of the properties (reliability assessment predominates) and are developed in very specific populations, mainly older adults, which highlights the value of this research to promote the use of this scale in different populations and programs.

The reference values in the general population were 64-66 in physical health, 71-72 in psychological health, 64-66 in social health and 60-62 in environmental health. This represents a HRQoL profile different from a similar study conducted with Chilean adults, where the healthy group (without chronic diseases) recorded scores of 69 in the physical dimension, 67 in the psychological and social dimension, and 61 in the environmental dimension (26). This comparison allows us to infer several issues: i) the differences in

«In the Colombian context, several studies have demonstrated the validity of the instrument with different methodologies and properties.

the scores are slight, and overall, the dimensions in healthy persons generate scores between 60-72; ii) Given that the variation between dimensions is less than 10% of the possible range (in addition to the psychometric findings), it is feasible to use the WHOQOL-Bref as an overall HRQoL score, a multidimensional construct, and even as separate scores for each dimension, iii) between the highest and lowest scoring dimension, both studies found a difference of close to 10 points, which could constitute a reference to allude to clinically or epidemiologically important differences; iv) each population scored better on some dimension (there is no consistency in the best or worst perceived HRQoL dimensions), indicating that the instrument captures particular social preferences for each population.

Physical and psychological health were statistically higher in men, in subjects aged between 16 and 20 years, middle stratum, university students and single. The finding of sex differs from the results obtained in Chilean adults, while the results by age match (26), denoting the importance of studies in each locality that intends to incorporate HRQoL metrics for decision making, given the impossibility of extrapolating evidence from previous studies (due to the diversity in HRQoL profiles). It is important to highlight that when finding better scores in the physical and psychological dimension for the same population subgroups, there is evidence of simultaneity and feedback relationships between both dimensions, that is, the individuals with less pain and dependence on medicine, and with greater energy, mobility, work capacity, and with better sleep-rest and performance in their daily activities; they are those who reported better self-esteem, satisfaction with body image, positive feelings and concentration (or vice versa) (18). This synergism has been documented from Hippocratic medicine to the present day, particularly with recent evidence from the field of psychoneuroimmunoendocrinology (27); moreover, it is a central element of the WHOQoL-Bref factor structure (18).

Social health was statistically equal in both sexes and statistically higher in subjects aged between 16 and 20 years, high stratum, university students and married; findings different from Urzúa's study (26), which shows different degrees of satisfaction with social relationships, sexual activity, and group support. This finding is relevant for several reasons: i) it shows that the WHOQoL-Bref captures relevant domains of HRQoL, according to the perception of adolescents, despite the particularities of this group which have led to the construction of specific scales such as the KIDSCREEN (28); ii) finding better results in subjects of higher socioeconomic status shows the convergen-

«La salud física y psicológica fueron estadísticamente mayores en los hombres, en los sujetos con edad entre 16 y 20 años, estrato medio, universitarios y solteros.

ce between better economic conditions and good social health, evidencing that the material world and the symbolic-perceptual world are not separated (as some objectivist or subjectivist currents claim); It also converges with the study of Rondón's group, where good social relations result in a better state of health and the frequency of encounters with others decreased with age (29); iii) the higher scores in university students and married couples show the relevance of these two social institutions for improving HRQoL, subjective wellbeing and health (30, 31).

Environmental health was statistically equal between both sexes and age groups, and statistically higher in the high stratum, with postgraduates, employed and married; showing that these groups perceive better the level of safety, physical environment, availability of economic resources, access to information, leisure spaces, home, transportation, and health care sites in their places of residence (18). This dimension is key to the HRQoL and is one of the least included in the different instruments available, despite the extensive evidence on the importance of the environment for daily life (32, 35).

Among the limitations of the study are the difficulty in carrying out a probabilistic sampling, partly due to the difficulties in obtaining funding for this type of study, given that the city has its own QoL index (centered on material conditions); the inclusion of institutionalized populations in the educational sector or companies, so the results are not representative of the city. Despite the limitations, this research is one of the few studies aimed at defining reference values for HRQoL, which is decisive for public management and health care. It should not be forgotten that the HRQoL construct is a worldwide standard for evaluating the quality of a health system or intervention; in addition, due to the positioning of the HRQoL, greater attention was paid to issues such as the mobility of paraplegics and other problems in the field of rehabilitation, care for the elderly; The value of independence, autonomy, mental health and everyday life; institutional changes and educational initiatives were promoted; a conceptual and empirical structure was generated to evaluate the success of different programs, the need to incorporate health technologies or to take a critical stance on socioeconomic progress (1).

Conclusion:

The excellent psychometric performance of the scale in the general population allowed the estimation of reference values for the four dimensions, as well as values for subgroups formed by demographic and socioeconomic variables, which is decisive for the inclusion of person-centered outcomes in medical and public health programs, as well as adequate comparators in the sick population. This is decisive when bearing in mind that HRQoL is a clinical and social goal, is a point of articulation of different social, economic and health problems, is an important solution to different ethical and moral problems and is a key factor in the development of a new approach to health care.

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