Attitudes scale toward cancer-related cognitive changes – an initial Colombian validation

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Abstract. – **OBJECTIVE:** The aim of this study was to develop an initial valid tool to measure attitudes toward cancer-related cognitive changes.

SUBJECTS AND METHODS: After revising the literature, three main dimensions were hypothesized. Eight judges were contacted to obtain content validity evidence. A robust Exploratory Factor Analysis (EFA) was performed *via* a parallel analysis with an Unweighted Least Squares (ULS) estimator and polychoric correlations. The results were crossed with sociodemographic variables to find possible statistical differences and estimate the size effect. Analysis was performed in the software Factor and the statistical package R.

RESULTS: A sample of 374 participants was obtained, involving oncology patients, their caregivers, and people from the general community. A statistical fit was found in two dimensions: Awareness and Judgments [root mean squared error of approximation (RMSEA) = 0.042, standardized root mean square residual (SRMR) = 0.02, comparative fit index (CFI) = 0.99, Tucker-Lewis index (TLI) = 0.98] with a moderate correlation between them (r = 0.612). Optimal reliability indices were obtained for the total scale and its dimensions. No real statistical difference was found between sociodemographic variables; the interpretation norms were established *via* the quartiles.

CONCLUSIONS: The first attempt to measure the construct of interest was developed with two primary validity evidence based on the content and its internal structure. This instrument could help strengthen the prevention of cancer-related cognitive changes. More research is needed to adhere more valid evidence to the scale. Key Words:

Attitude, Cognitive-Dysfunction, Factor-Analysis, Prevention, Psychometrics, Colombia.

Introduction

Chemotherapy is a common treatment modality in cancer care aimed at curing cancer in combination with other treatment modalities or easing cancer symptoms by shrinking tumors. However, chemotherapy may damage healthy cells and tissues of the heart, kidney, bladder, lung, and nervous systems, thus, inducing several side effects with a significant negative impact on the quality of life^{1,2}

Among the side effects of chemotherapy, longterm cognitive impairment has been described, including changes in memory, attention, and executive functions in cancer patients and survivors; all these effects are grouped under the terms Chemobrain, Chemofog, or Cancer-Related Cognitive Impairment¹⁻⁸.

Several studies⁹⁻¹¹ have investigated the association between chemotherapy drugs and cognitive impairment⁹, and depending on the cancer diagnosis, the prevalence varies from 16% to 44%^{10,11}. Although the compelling evidence, cognitive changes are frequently underdiagnosed and underestimated in cancer care due, among other reasons, to their mild manifestation and the use of inappropriate tests for detection⁵⁻⁷. Some authors^{4,7,12} highlight the role of attitudes in granting relevance to cognitive symptoms and their timely detection. Attitudes are defined as the predisposition to assess an object as favorable or unfavorable, which brings together beliefs, perceptions, opinions, awareness, intentions, and feelings¹³⁻¹⁹.

The attitudes toward cancer-related cognitive changes could be relevant in understanding barriers and facilitators to prevent, diagnose and appropriately manage cognitive impairment in cancer patients. The available literature extensively describes the prevalence of symptoms of cognitive decline^{5,20,21}. We found one report²² on the prevalence of cognitive changes in 14 breast-cancer patients in Colombia and only one study²³ evaluating attitudes towards chemotherapy-induced-cognitive impairment but restricted to the perspective of health providers.

Due to the lack of studies and instruments to assess attitudes toward cancer-related cognitive changes, this study aimed to develop a psychometric tool to measure this construct in Colombian cancer patients, their caregivers, and people from the general community.

Subjects and Methods

An instrumental study was conducted between September 2022 and March 2023 and approved by the Ethics Committee at the University Hospital San Ignacio in Bogota, Colombia (Project Number: 104-2022). All participants signed an informed consent.

Participants Recruitment

A sequential non-probabilistic sample was obtained, including patients, caregivers, and individuals from the general population. The sample size followed the parameters for conducting Classic Theory Test analysis (CTT), dimension reduction analysis, and the subject-item ratio, including at least 300 participants²⁴⁻²⁷.

Data was collected in RedCap^{28,29} (1) online, distributed by social media directed to the general community, and (2) through pollsters (previously trained) in charge of surveying cancer patients and their caregivers attending the University Hospital San Ignacio, Bogotá, Colombia.

Instrument Development

The development of the scale was based on the guidelines proposed by Muñíz and Fonseca-Pedrero³⁰. In order to establish the theoretical structure of the scale, we revised other empirical studies that have evaluated similar attitude objects aiming to identify: a) the country in which these constructs have been assessed, b) if there is a scale commonly used or, if the studies attempt primarily to create their questionnaires, c) the measurement models used (unidimensional or multidimensional) and relevant external variables assessed d) and the main statistical analysis performed in order to sustain the existence of the latent variable (if applied). Table I synthesizes the review performed.

Briefly: (a) the awareness/knowledge of the attitude's object was involved in the theoretical structure or was assessed as a convergent variable; (b) positive and negative judgments were involved in the assessment of the attitudes (benevolence, altruism, pessimism, stereotypes); (c) few studies did an Exploratory Factor Analysis (EFA) to prove the underlying structure, and the ones that performed it, did it *via* principal component analysis (PCA), an analysis that has been discouraged due its primary focus on the variance of factors, overestimation of its solutions, and incoherence with the reflective measurement models mainly used in behavioral sciences^{25,48,49}.

Once revised, three main dimensions were defined.

- 1) Awareness (A): the recognition of relevant terms related to cancer-related cognitive impairment, the correct identification of cognitive symptoms, and the knowledge of the relationship between cognitive changes and cancer/treatments.
- 2) *Positive judgment (PJ)*: the degree of acceptance of the impact of the cognitive changes on the daily life of patients, the need to attend to health care services if any of the cognitive symptoms appear, and the encouragement of preventive behaviors.
- 3) *Negative judgment (NJ)*: the degree of disapproval about the impact of the cognitive changes in the patient's daily life, the lack of interest in attending health care services if any of these symptoms appear, and the discouragement of prevention actions.

In total, 31 items with a 4-point Likert scale (1 = Totally disagree, 2 = Disagree, 3 = Agree, 4 = Totally agree) were created. The scale was revised by eight judges (with expertise in psychometrics, developmental psychology, oncology, neuroscience, and style correction) to obtain

Country/Study	Attitude object	Created a questionnaire?	Scale structure	Other variables assessed	Factor Analysis
China ³¹	Mild cognitive impairment (n = 1,253)	Created	Unidimensional	Knowledge Awareness	_
Saudi Arabia ²³	Chemotherapy-induced cognitive impairment & their intentions to provide information (n = 207)	Created	Unidimensional	Knowledge Awareness Perception	_
Aseer Region ³²	Alzheimer's disease (n = 1,374)	Created	Unidimensional	Awareness, Knowledge	_
Jordan ³³	Cancer (n = 1,157)	Translated the scale of South Korea ³⁴	Multidimensional	-	EFA (PCA)
South Korea ³⁴	Cancer (n = 1,200)	Created	Multidimensional	_	_
Greece ³⁵	Dementia (n = 212)	Validated the scale of O'Connor and Mcfadden ³⁶	Bi-dimensional	Dementia-Knowledge	EFA (PCA)
Brazil ³⁷	Cognitive Decline (n = 557)	Created	Bi-dimensional	Knowledge Preventive-Practices	_
Brazil ³⁸	Dementia (n = 152)	Created	Unidimensional	Knowledge	-
Germany ³⁹	Early Diagnosis of Dementia (n = 1,002)	Created	Unidimensional	_	_
Peru ⁴⁰	Older adults (n = 200)	Validated from Kogan41	Bi-dimensional	-	EFA (no statistics)
Turkey ⁴²	Ageism (n = 500)	Created	Multidimensional	-	EFA (PCA)
France ⁴³	Alzheimer's disease (n = 51)	Adapted from Taylor and Dear ⁴⁴	Multidimensional	Emotional-reactions Quality-of-life Caregiver's-sense of-burden	-
USA ⁴⁵	Hospitalized patients with dementia (n = 540)	Created	Unidimensional	Knowledge Medical-practices	_
USA ⁴⁶	Cancer Treatment and Cancer Prevention Trials (n = 312)	Created	Multidimensional	_	EFA (PCA)
Netherlands ⁴⁷	Adjuvant Chemotherapy (n =719)	Created	Unidimensional	-	-

Table I. Studies evaluating similar attitude subjects.

The table shows 15 main studies worldwide that assessed similar attitudinal objects. Most studies created questionnaires, which were used in the same proportion of unidimensional and multidimensional structures. The smallest sample size was 51 and the larger was 1,253 participants.: EFA = Exploratory Factor Analysis, PCA= Principal Component Analysis. "-" = Not reported by the study.

valid evidence that could reflect the quality of the item's content^{50,51}. All judges evaluated items from 1 to 4, considering the criteria of relevance (the degree to which items assess the content proposed), coherence (the logical relationship between items and dimensions) and clarity (content precision, the correct usage of terms for the objective sample).

Statistical Analysis

The degree of agreement was estimated using the Content Validity Index (CVI) proposed by Lawshee⁵² using the adjustment made by Tristán-López⁵³. For the descriptive statistics, the Homogeneity Index (HI) and the Measure of Sampling Adequacy (MSA) were obtained; values below 0.35 and 0.50, respectively, were cutoff criteria to exclude items^{54,55}.

The EFA, considering the sample size and the categorical nature of data, was performed a parallel analysis with its optimal implementation based on polychoric correlations with an Unweighted Least Squares (ULS) estimator^{24,49,56-58}. Besides its theoretical coherence, to accept the model, the following cutoff values were considered: root mean squared error of approximation (RMSEA) ≤ 0.06 , standardized root mean square residual (SRMR) ≤ 0.08 , comparative fit index (CFI) $\geq 0.95^{56,59-61}$, Tucker-Lewis index (TLI) ≥ 0.95 .

Reliability estimates were obtained using Cronbach's Alpha (α) and McDonald's Omega (ω), which were aimed at establishing the items' internal consistency. As a complement, the Factor Determinacy (FDI), the Latent Construct Reliability (H_{lat}) and the Observed Construct Reliability (H_{obs}) were obtained. The first shows how the factor scores are reasonable estimates of individual differences given a specific factor^{62,63}. The H_{lat} assesses how well the factor can be identified by the continuous latent response variables that underlie the observed item scores. The H_{obs} measures how well the latent variable can be identified from the observed item scores⁶⁴. These indexes have been reported in previous studies⁶⁵, including Colombian samples.

A descriptive analysis was done to define the interpretation norms. Results of the final structure were crossed with the sociodemographic variables in search of differences *via* a Kruskal-Wallis Test (H-test) (if an abnormal distribution was found). The size effect was calculated with the epsilon squared coefficient $(E_p^2)^{66}$.

For all analyses, a p-value of 0.05 was considered for statistical significance. The EFA was

implemented with FACTOR 12.02.01⁶⁴, and the rest of the analysis were performed in R software (The R Foundation for Statistical Computing, Vienna, Austria)⁶⁷ using the packages: "readxl"⁶⁸, "dplyr"⁶⁹, "summarytools"⁷⁰, "psychometric"⁷¹, "psych"⁷² and "usf"⁷³.

Results

Participants

A sample of 374 participants was obtained (Mean = 46.12 years, SD = 17.78 years), 60.7% were women, 74.87% were from Bogotá, 54.5% with bachelor's or high-school education, 54.5% with medium-income. Overall 44.7% of participants were from the general population, 19.5% were caregivers, and 35.8% were cancer patients. Among cancer patients, 91.0% have received chemotherapy, and 63.4% self-reported at least one cognitive change during the previous six months (forgetfulness, concentration difficulties, language adversities, or alterations in some executive functions).

Statistical-Psychometric Analysis

Content validity evidence

A score above 0.64 on the CVI by 8 judges was sufficient to consider the essentiality of an item⁵³. In this case, 15 items (48%) were preserved without modification. Considering the CVI's means and the judge's qualitative recommendations, 10 items (32%) were adjusted, 3 items (10%) were restructured, and 2 items (6.4%) from the PJ dimension were excluded (**Supplementary Table I**).

Exploratory factor analysis

Overall 15 items were removed from the analysis due to the results of the HI, leaving 5 items for dimension A, 5 for the PJ, and 4 for the NJ. These items had optimal MSA measures, and also, it was found an optimal Kaiser-Meyer-Olkin test for sampling adecuacy (KMO) (0.88) and a significant result in the Bartlett's Sphericity test (p < 0.001). These results confirm the polychoric matrix adequacy to perform an EFA.

The parallel analysis yielded 2 main factors; when revising the factor loadings, communalities, and the presence of residuals, items from the NJ dimension were excluded. The resulting structure was composed of 2 factors, explaining the 64.65% of the variance, RMSEA = 0.042, SRMR = 0.02, CFI = 0.99, TLI = 0.98. All items had adequate

communalities (Mean = 0.562, Min = 0.430, Max = 0.817) and optimal factor loadings (Mean = 0.748, Min = 0.481, Max = 0.896). We found good internal consistency indices for the total score ($\alpha = 0.88 \omega = 0.88$). Table II shows the resulting scale structure, which includes the final 10 items, its factors loadings, communalities, the results of the HI, and the mean. The last two analyses were included to give global evidence of the descriptive behavior of items as its recommended³⁰.

Awareness (F1) and the renamed factor Judgments (F2) had a moderate internal-factor correlation of 0.61. The two dimensions had optimal internal consistency indices. Also, in the score of the FDI, both factors can be considered good estimates of individual differences. Regarding the H indices, both latent and observed were good. However, the H_{obs} of the F2 judgment were lower, suggesting that this dimension's items can be improved to infer a latent variable adequately.

Univariate analysis

After the resulting structure, the score of the items was summed to obtain a total score for the

Table II. Attitude scale final structure.

Items		F1	F2	Com	н	М
El cáncer es una enfermedad cuyo tratamiento puede traer consig la afectación de la atención o concetración. [Cancer is a disease whose treatment can affect attention or concentration].	go	.835		.664	.681	2.81
Algunos de los tratamientos contra el cáncer pueden causar disminución en las habilidades cognitivas como la concentración [Some of the cancer treatments can cause a decrease in cognitive abilities such as concentration]	n .	.896		.817	.715	2.89
El cáncer puede reducir algunas habilidades mentales como la m [Cancer can reduce some mental abilities, such as memory]	emoria.	.763		.658	.663	2.84
El tratamiento que recibe un paciente oncológico puede afectar su capacidad para resolver problemas de la vida cotidiana. [The treatment that a cancer patient receives can affect their ability to solve problems of daily life.]		.792		.537	.595	2.67
La pérdida de memoria de un paciente oncológico podría estar relacionada con la quimioterapia que recibe. [The memory loss o a cancer patient could be related to the chemotherapy they receive]	f.	.672		.468	.575	2.79
Los pacientes con cáncer deberían hacer actividades recreativas o al aire libre para reforzar la agilidad mental. [Cancer patients should do recreational or outdoor activities to enhance mental aler	tness.]		.864	.630	.580	3.34
Es necesario que el gobierno destine dinero para realizar campaí de concientización acerca de los cambios cognitivos en pacientes con cáncer [It is necessary that the government allocate money to c out awareness campaigns about cognitive changes in cancer patien	ias carry nts]		.707	.439	.494	3.57
Es necesario pedir una cita médica si una persona con cáncer con a presentar pérdida de memoria. [A medical appointment is neces if a person with cancer begins to have memory loss.]	nienza ssary		.765	.530	.549	3.44
El oncólogo debe saber si su paciente presenta dificultades para concentrarse. [The oncologist should know if his patient has difficulty concentrating].			.481	.344	.430	3.34
Es importante que el oncólogo les informe a sus pacientes acerca los efectos cognitivos que puede tener el tratamiento de su enfer [It is important that the oncologist informs his patients about the cog effects that the treatment of their disease can have.]	de medad. gnitive		.709	.540	.548	3.39
Reliability indices	$\begin{array}{c} \boldsymbol{\alpha} & 0 \\ \boldsymbol{\omega} & 0 \\ \mathbf{FDI} & 0 \\ \mathbf{H}_{\text{lat}} & 0 \\ \mathbf{H}_{\text{obs}} & 0 \end{array}$.84 .85 .96 .92 .81	0.75 0.77 0.93 0.86 0.69			

The final structure of the scale includes 10 items regarding 2 main factors, F1 = Awareness, F2 = Judgments. It is included the factor loading, communality (Com), Homogeneity Index (HI) and the mean (M). Also, for each dimension are included their reliability indices. The items are presented in Spanish, and their exact translation is in English.

		Total Attitudes Scale		(F1) Awa	areness	(F2) Juc	Igments
		Score	Interp.	Score	Interp.	Score	Interp.
	Min	10	Low	5	Low	5	Nagatina
	Q1	29	LOW	13	LOW	16	Neguiive
Quartiles	Q2	31	Mild	15	Mild	17	Neutral
	Q3	34	High	16	High	19	Positiva
	Max	40	nngn	20	mgn	20	1 0511110

Table III. Cut off criteria of the total score and its dimensions.

The total score of the scale and its dimensions were interpreted in three categories according to the quartiles (Low, Mild and High). In the case of (F2) Judgments dimension, other 3 categories were created: Negative, Neutral, and Positive, because of their theoretical coherence and meaning to the scale.

dimensions and the global scale. Also, the quantiles were obtained to establish the interpretation norms of the instrument. The scores between the minimum and Q1 were considered low, scores between Q1 and Q3 (IQR = Interquartile Range) were considered mild, and the scores between Q3 and the maximum were interpreted as high. Table III shows in more detail the results.

Bivariate analysis

The results of the Shapiro-Wilk-Francia normality test showed an abnormal distribution (p <0.001) for the total score and its dimensions. The Kruskal-Wallis test was used to find significant differences in any sociodemographic variable. Differences in the variable of age and type of participant were found in the total score. Significant differences in awareness were found only in socioeconomic status. Significant differences were found between the type of participants for the judgment dimensions. However, a small (almost null) size effect was found in all mentioned characteristics. Table IV shows the baseline characteristics of the study population crossed with the results of the total scores and its dimensions; also, the *p*-value (of the H test) and the size effect result are reported.

Discussion

This study represents the first attempt to measure the attitudes toward cognitive changes associated with cancer, resulting in a scale with valid content evidence. Although the former is not usually reported in health studies⁵¹, it was helpful to adjust the items to the target population regarding clarity and considering the coherence of the theoretical dimensions with its items.

Due to the implementation of an EFA instead of a PCA, we could find more precisely two main factors with a moderate correlation between them, optimal internal consistency indices, adequate factor determinacy measures, and good latent construct reliabilities; however, this structure was different from what was initially hypothesized. The awareness dimension fitted in the final structure almost as planned because this component is theoretically essential in attitude formation^{14,19}.

Regarding the Negative-Judgment component, its items had optimal MSA measures. However, they were suppressed due to insufficient statistical and theoretical support. This dimension was composed of "reverse items", items known for being inappropriate to be included in a scale because they question the construct's interpretability⁷⁴. As a consequence, it was necessary to revise the Positive-Judgment dimension, renamed "Judgments" because of two main reasons: (a) it was not coherent to maintain a "positive dimension" without having an opposite, and (b) theoretically, the attitude's judgments do not acquire the quality of positive or negative a priori; instead they get some of these interpretations a posteriori, mainly influenced by the context in which they are stated⁷⁵. Hence, it is more precise to interpret "negative judgments" and "positive judgments" as low and high scores respective to a single dimension, representing all levels of the latent variable measured^{76,77}.

We expected to find differences between education levels and socioeconomic status regarding the total attitude score⁷. Although low scores were found for these categories, a few significant differences were observed, and the affirmative cases had almost null-size effects. This situation occurred with almost all sociodemographic vari-

Variables		N (%)	Total Attitude Scale			(F1) Awareness			(F2	nts	
			Mean	P	E_R^2	Mean	P	E_R^2	Mean	Р	E_R^2
	Early-adulthoods	58 (15.55)	32.12			14.67			17.46		
Age	Adulthoods	198 (53.1)	31.19	.027	.019	14.14	.159	-	17.04	.249	-
8-	Late-adulthoods	117(31.2)	30.93			13.72			17.20		
Sov	Men	147 (39.3)	30.78	217		13.93	.280	-	16.85	.141	
Sex	Women	227 (60.7)	31.55	.217	-	14.19			17.35		-
City of residence	Bogota	280 (74.9)	31.27	870		14.12	020		17.16	666	$ \frac{nts}{E_R^2} $ 036
City of residence	Other	94 (25.13)	31.16	.079	-	14.01	.929	-	17.16	.000	
	Elementary-school	36 (9.6)	31.44			14.22			17.22		
	Mild-school	21 (5.6)	31.76			14.52			17.23		
Education	High-school	89 (23.8)	31.69	406		14.29	526		17.40	126	
	Technical/Technician	54 (14.4)	30.64	.490	-	14.14	.550	-	16.50	.130	-
	Bachelor	115 (30.8)	30.97			13.68			17.28		
	Postgraduate formation	57 (15.2)	31.49			14.35			17.14		
	Women $227 (60.7)$ 31.55 11.7 14.19 1200 17.35 InceBogota Other $280 (74.9)$ 31.27 $94 (25.13)$ 879 31.16 14.12 14.01 929 929 17.16 17.16 Elementary-school $36 (9.6)$ 31.44 14.22 17.22 Mild-school $21 (5.6)$ 31.76 14.52 14.52 17.23 High-school $89 (23.8)$ 31.69 16.67 14.52 17.40 Bachelor $115 (30.8)$ 30.97 13.68 17.28 Postgraduate formation $57 (15.2)$ 31.49 14.35 17.14 Low- income $107 (28.6)$ 32.12 14.74 17.38 Net statusMedium- income $204 (55.5)$ 30.97 $.108$ $ 13.77$ $.017$ $.022$ 17.19 High-income $63 (16.8)$ 30.68 14.05 16.67 17.45 Patients $134 (35.8)$ 31.38 13.92 17.45										
Socio economic status	Medium- income	204 (55.5)	30.97	.108	-	13.77	.017	.022	17.19	.755	-
	High- income	63 (16.8)	30.68			14.05			16.67		
	Patients	134 (35.8)	31.38			13.92			17.45		
Participant	Caregivers	73 (19.5)	30.47	.013	.023	13.98	.394	-	16.49	.001	.036
	General community	167 (44.7)	31.48			14.27			17.2		

Table IV. Average Total score and its dimensions compared to baseline characteristics of the study population.

Average results were found in the Total Attitude score. Relating the Awareness dimension, late adulthoods, bachelor-educated participants, medium-income participants, caregivers and patients had lower scores than other participants (highlighted in bold). For the Judgment dimensions, men, technical/technician-educated participants, and caregivers showed lower scores (highlighted in bold). Significant differences were found; however, the size effect was almost null. It is important to note that the size effect was not calculated in the cases in which significant differences were not obtained.

ables similar to previous reports⁷⁸ on different attitudinal objects. These findings could be explained by the fact that this construct may not be restricted to a particular segment.

Despite the consistency of our findings, the low scores observed in the awareness and judgment dimensions in late adulthood, patients, and caregivers should not be dismissed. The results on age and type of participant may represent different experiences and perceptions around cognitive changes, even more, if related to cancer. Likewise, Jansen et al⁴⁷ found that cancer patients familiar with treatment modalities and disease tend to have different attitudes compared to inexperienced patients regarding the disease and the treatment effectiveness.

In general, attitudes might be crucial to grant relevance to cognitive symptoms and their timely detection^{4,7,12}. Indeed, some reports⁷⁹ suggest that negative attitudes toward cognitive decline are usually associated with unfriendly behaviours. Accordingly, our study may help implement preventive interventions involving patients and caregivers aimed at the timely detection of cognitive impairment and reducing the chance of harmful behaviors with a negative impact on the patient's well-being.

Although the results of the study can contribute to the medical literature corpus, some limitations should be considered, which include the no-probabilistic sample, the sample size, and the lack of a Confirmatory Factor Analysis or an Exploratory Structural Equations Model to confirm the resulting structure of the EFA. Also, there is a need for convergent or divergent and criterion-based validity evidence to compare the scores found in this scale with a diagnosis of cognitive mental decline in cancer patients or even with subjective cognitive decline self-reported complains⁸⁰. The results of the H_{obs} in the Judgment dimension suggest that the latent variable needs to be more well-defined by its observed variables.

Conclusions

As a result, a psychometric tool to measure attitudes toward cancer-related cognitive changes was obtained, with two main valid evidence (content and internal structure). This study is the first successful attempt to measure this construct. There was not any real significant difference between sociodemographic variables. More research is needed to obtain more valid evidence to help fully interpret the score obtained in the scale.

Ethics Approval

This study involving human participants was conducted in accordance with the amended Declaration of Helsinki. The Ethics Committee at the University Hospital San Ignacio in Bogota, Colombia (Project Number: 104-2022) approved the study.

Informed Consent

All participants and their parents or legal guardians provided informed consent for participation in the study.

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Authors' Contributions

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Conflict of Interest

The authors declare no conflict of interest.

Data Availability

The datasets generated during the project and analyzed during the current study are available in the Repository Open Science Framework [available at: https://osf.io/r2a3h/files/osfstorage].

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