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Questionnaire validation to measure the lifestyle of university students within the framework of Nola Pender theory (EVEU)

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Keywords: *lifestyle, self-esteem, university students, reliability, validity, instrument.*

ABSTRACT

The present study shows the results of reliability and validity analysis of the instrument proposed by Nola Pender to measure Rosenberg's lifestyle and self-esteem scale (EAR). The pilot study was carried out with a sample of 60 students from the Rubén Darío University Campus. The results confirm a high internal consistency and a satisfactory temporal reliability. Likewise, the data support the validity (of the construct and of known groups) of the instrument. The easy application of this test and its acceptable psychometric characteristics constitute an important support for its use in university contexts.

INTRODUCTION

Lifestyles means the "general way of life" of people and groups. This includes not only the classically named "healthy habits" (healthy eating, physical exercise, moderate alcohol use, healthy sexual life, safe driving, stress management, not smoking) but also the ways of

thinking and behaving of people in their relationship with themselves, in the control of their lives and their life project, interpersonal relationships, the relationship with the environment, the repertoire of personal and social skills, etc. (Ozcoidi & Pérez Jarauta, February 2002)

It is important to recognize that there is no "optimal" lifestyle to which all people can ascribe. The culture, the income, the family structure, the age, the physical capacity, the domestic and work environment, will make more attractive, feasible and appropriate certain forms and conditions of life. Therefore, the strategy of creating favorable environments for health focuses to a great extent on the need to improve and change living conditions to support health (WHO, 1998).

There are some studies on lifestyles in which the domains of behaviors and preferences related to the type of food, physical activity, consumption of alcohol, tobacco or other drugs, responsibility for health, recreational activities, interpersonal relationships, sexual practices are integrated, labor activities and consumption patterns. (López-Carmona, Ariza-Andraca, Rodríguez-Moctezuma, & Munguía Miranda, 2003)

The few instruments available to measure lifestyle are generic, that is, built to apply to the general population and not to university students. Two of the best-known questionnaires of this type are the FANTASTIC10 and the Health-Promoting Lifestyle Profile (HPLP).

The HPLP instrument was validated in Spanish by Walker and collaborators on a sample of 541 Hispanic adults residing in the United States, mainly of Mexican origin and aged between 18 and 81 years, showing adequate properties for the assessment of health promoting behaviors. integrate a healthy lifestyle, with an internal consistency index of Cronbach's alpha for the full scale of 0.94, and with a range of 0.69 for the "stress management" dimension to 0.82 for "physical activity" and "spiritual growth". The subscales of stress management, interpersonal relationships and health responsibility had an alpha of 0.68, 0.77 and 0.78 respectively. (Casal, 2014)

Rosenberg's self-esteem scale is one of the most used scales for the global measurement of self-esteem. Originally developed by Rosenberg (1965) for the evaluation of self-esteem in adolescents, it includes ten items whose contents focus on feelings of respect and acceptance of oneself. Half of the items are positively stated and the other half negatively. Although initially designed as a Guttman scale, its score has subsequently been made common as a Likert-type scale, where the items are answered on a scale of four points (1=strongly agree, 2=agree, 3=disagree, 4=totally disagree). In this way, the total score of the scale fluctuates in a range of 10 to 40, with score 10 indicating the lowest self-esteem and score 40 the highest. (Morejòn, Jimènez Bòveda, & Vásquez Morejòn Jimènez, 2004).

It is important to highlight that in our context there are no instruments designed to measure lifestyles in university students, an instrument constructed for this purpose can facilitate the identification and measurement of lifestyle components to provide individual counseling in an appropriate and timely manner.

The objective of this research work is to study the reliability and validity of an adaptation of the questionnaire to measure the lifestyle of Nola Pender and the Rosenberg self-esteem scale (EAR) in a sample of 60 students from the Rubén Darío University Campus.

MATERIAL AND METHOD

After reviewing the literature on the methodology for the construction and validation of questionnaires, concepts and definition of lifestyle, domains that comprise it, and its association with personal factors, the first version of a self-management instrument was developed to measure the life style in university students.

After submitting the instrument to the consultation and judgment of experts, the questionnaire met the quality criteria, followed the design of a validation test. The criteria evaluated were the relevance, coherence, and clarity in the writing of the items.

When subjected to different procedures, the judges eliminated irrelevant aspects and supported the suggestion to incorporate those elements that are essential for this instrument and modify those items that required it.

This first version of the instrument was also applied to a pilot group of 60 university students to assess the level of comprehension, readability and reproducibility.

Once the instrument was reviewed by the group of experts and the pilot test was carried out, modifications were made to the drafting of the personal aspects item, eliminating 18 items.

For its application to the sample, the resulting instrument consists of 73 questions divided into 3 sessions to measure the lifestyle and the feeling of satisfaction that the person has of himself. Session I includes personal data of the student (sex, age, height, marital status, origin, number of children, diagnosed illnesses, student scholarship, disability, college, career, year, year of admission). Session II includes the profile of lifestyles divided into six dimensions (nutrition, exercise, responsibility in health, stress management, interpersonal support, self-updating). Session III has ten sections written positively and five negatively written in order to minimize the effect acquiescence.

Alpha cronbach was used for the assessment of internal consistency, and construct validation was carried out through factor analysis.

The letter of informed consent was also included (see Annex A), so that the student authorizes their participation and is aware that their data will be used exclusively for research and validation purposes, in addition to being treated confidentially.

RESULTS

Sixty undergraduate students of the RURD of UNAN Managua were able to participate in the validation. The instrument contains a section that gathers personal information, in order to obtain the personal characteristics of the participating student population.

The personal information of the students included 36.67% women of urban origin and 43.33% men of urban origin. (See figure 1).

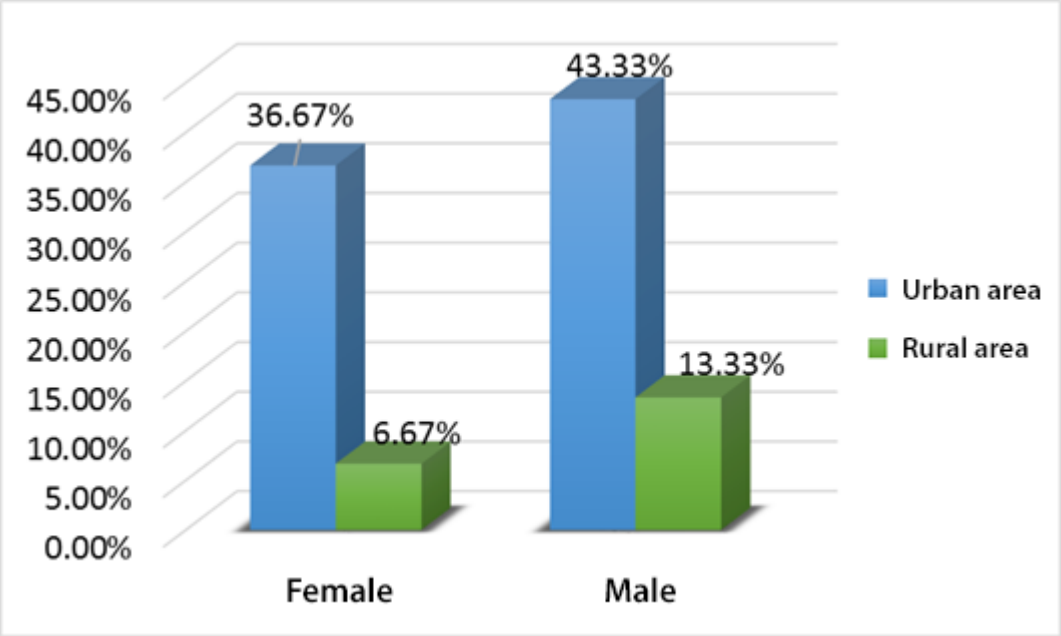

Figure 1. Sex according to the origin of the students of RURD UNAN–Managua. Source: student survey

Likewise with regard to the distribution of students by age group the sample was represented by 62% of male students aged 17-20, 32% aged 21-25 years, and 6% in the range of 26-27 years. Something similar happens with the female sex ranges of ages of 17-20 years is 61%, in the range of 21-25 years corresponds 35% and in the range of 26-27 years 4%.

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Table 1. Body mass index according to sex and origin

	Female				Male			
	Urban	Percentage	Rural	Percentage	Urban	Percentage	Rural	Percentage
Low Weight	1	4.54	0		4	15	1	12.5
Normal Weight	17	77.27	3	75	12	46.15	5	64
Overweight	3	13.6	1	25	7	27	1	12
Obesity class 1	0		0		0		0	
Obesity class 2	0		0		0		0	
Obesity class 3	1	4.54	0		3	12	1	12
Total	22	100	4	100	26	100	8	100

Source: Student survey

In relation to the Body Mass Index (BMI) according to sex and origin, the female population of the urban area was 77.27% in normal weight and 13.6% in overweight, in the same way the population of the rural area in 75% was in normal weight. The masculine sex of urban origin 46% was in normal weight, 27% in overweight, 12% in obesity grade 3, 15% in low weight. As for the rural population 64% with normal weight, 12% with overweight, 12% with obesity class 1, 12% obesity class 3. Of the total of students selected 57% do not possess any type of student scholarship, 15% is internal scholar, and 17% is an external grant holder.

Likewise, the lifestyle of the participating population is shown in Table 2, which shows that 53.3% of students find themselves with an inadequate lifestyle and 46% with an appropriate lifestyle.

Table 2. RURD Student lifestyle

	Frequency	Percentage
Inadequate lifestyle	32	53.3
Suitable lifestyle	28	46.7
Total	60	100.0

Source: Student survey

In regards to the lifestyle by sex and major it is shown in Table 3 that 16 female students representing 27% have an inadequate lifestyle, in the same way 16 students of the Male sex

who represent 27% have inadequate lifestyle. The major that presents the highest rate of inappropriate lifestyle in the female sex is medicine corresponding to 3 students and represents 5%, and in regards to the male sex 5 students equivalent to 8% of the topography major present an inadequate lifestyle. (See table 3).

Table 3. Lifestyle by sex and career students RURD

	Sex									
	Female				Male					
	Inadequate lifestyle		Suitable lifestyle		Inadequate lifestyle		Suitable lifestyle		Total	
Business administration	1	2%	0	0%	0	0%	0	0%	1	2%
Anesthesia and Resuscitation	2	3%	0	0%	2	3%	1	2%	5	8%
Banking and finances	0	0%	0	0%	1	2%	2	3%	3	5%
Clinical Bioanalysis	1	2%	0	0%	0	0%	2	3%	3	5%
Public accounting and financial management	2	3%	0	0%	0	0%	0	0%	2	3%
CC Nursing	1	2%	1	2%	2	3%	2	3%	6	10%
Mathematical Physics	0	0%	1	2%	3	5%	0	0%	4	7%
Physiotherapy	2	3%	1	2%	0	0%	2	3%	5	8%
Environmental management	2	3%	1	2%	1	2%	1	2%	5	8%
Mathematics	0	0%	0	0%	1	2%	1	2%	2	3%
Medicine	3	5%	2	3%	0	0%	4	7%	9	15%
Marketing	0	0%	0	0%	1	2%	1	2%	2	3%
Microbiology	1	2%	0	0%	0	0%	0	0%	1	2%
Nutrition	1	2%	4	7%	0	0%	0	0%	5	8%
Topography	0	0%	0	0%	5	8%	2	3%	7	12%
Total	16	27%	10	17%	16	27%	18	30%	60	100%

Source: student survey

As can be appreciated, figure 2 shows the self-esteem of the students surveyed in which only 2% of the students have low self-esteem and in the specific case corresponds to the male sex.

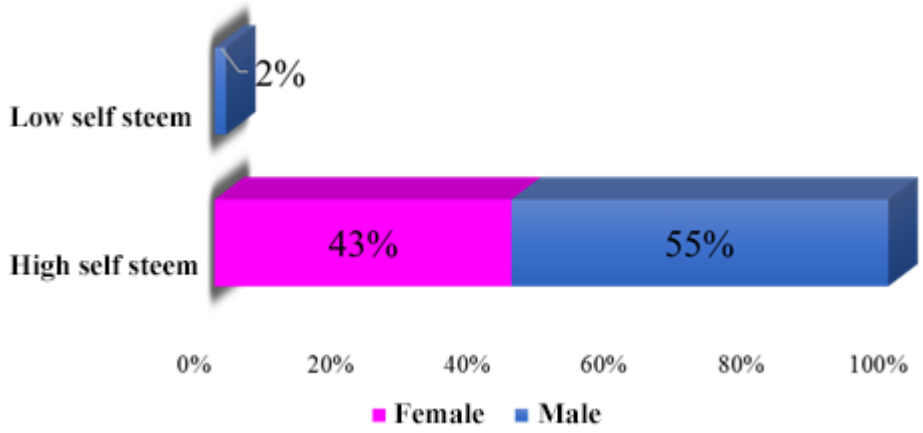

Figure 2. Self-esteem of students of the RURD UNAN - Managua

The internal consistency analysis of the seven dimensions included in the University Students Lifestyle Questionnaire (EVEU) was carried out; Table 4 shows the total Cronbach alpha coefficient of the instrument was 0.908 exceeding the value of 0.70 minimum value suggested by Frías-Navarro, 2004). It is considered excellent to be used in research that wants to measure lifestyle, The number of elements corresponds to the number of questions considered in the instrument. Similarly table 2 shows the reliability by dimensions.

Table 4. Reliability statistics

Cronbach alpha	Cronbach's alpha based on the typified elements	Number of elements
0,908	0,908	60

Source: student survey

Table 5. Reliability statistic by Dimensions.

Dimensions		Number of elements
Cronbach's alpha based on the typified elements		
Nutrition	0.776	6
Exercise	0.700	5
Health Responsibility	0.765	9
Stress management	0.684	6
Interpersonal support	0.813	9
Self-actualization	0.883	13
Self- esteem	0.794	10

Source: Student survey

To verify the construct validity of the instrument, the Kaiser-Meyer-Olkin (KMO) sample adequacy measure was studied, which is an index that compares the magnitude of the correlation coefficients observed with the magnitude of the partial correlation coefficients, showing whether or not the instrument has construct validity. A factorial analysis was performed with the KMO oblique normalization method. This method analyzed the sample adequacy measure of Kaiser-Meyer-Olkin and gave a result of .811, therefore it is greater than 0.5, this indicates that it is acceptable for the factorial analysis and the closer it gets to 1 is better.

The Bartlett sphericity test (.000) tells us that the null hypothesis of incorrect initial variables is not significant, therefore it is less than 0.05, which makes the factorial analysis appropriate to be carry out. Table 6

Table 6. KMO and Bartlett test.

Kaiser-Meyer-Olkin measure of sampling adequacy		.811
Bartlett's test of sphericity tests	Aprox. Chi-cuadrado	184.974
	Gl	21
	Sig.	.000

Source: Student survey

It can be seen in table 7 that there are components that are fairly well represented with the factorial solution such as self-esteem, 0.848, stress management 0.760, interpersonal support 0.710. And other items that are less represented.

Table 7. Comunalities

	Inicial	**Extracción**
Nutrition	1.000	.657
Exercise	1.000	.389
Health Responsibility	1.000	.694
Stress management	1.000	.760
Interpersonal support	1.000	.710
Self-actualization	1.000	.709
Rosenberg Self-esteem	1.000	.848
Extraction method: analysis of main components.		

Source: Student survey

Table 8 shows that two main components were identified which explain 68% of the variance of the original variables.

Table 8. Total variance explained

Component	Auto initial values			Sums of removal of loads squared			Sums of rotation of loads squared		
	Total	Variance	Cumulative Variance	Total	Variance	Cumulative Variance	Total	Variance	Cumulative Variance
1	3.742	53.456	53.456	3.742	53.456	53.456	3.446	49.222	49.222
2	1.025	14.641	68.097	1.025	14.641	68.097	1.321	18.876	68.097
3	.806	11.511	79.608						
4	.578	8.259	87.868						
5	.393	5.620	93.488						
6	.240	3.430	96.918						
7	.216	3.082	100.000						
Extraction method: analysis of main components.									

Source: Student survey

DISCUSSION

The validation results previously presented are related to those found by Walker and collaborators showing adequate properties for the evaluation of health promoting behaviors that integrate a healthy lifestyle. In the same way the study carried out by (Jaimes & Gómez Díaz, 2014), showing that the instrument has the reliability coefficient for the total scale of 0.93 and test - retest reliability of 0.86; similarly the Cronbach alpha coefficients of the subscales ranged from 0.70 to 0.87.

Regarding the student population surveyed in the pilot test, they present personal characteristics similar to studies related to risk factors of the juvenile population, finding predominance of male students from the urban area, with an average age of 17-20 years, in As for the body mass index, they are overweight, and obesity class 1, 2, and 3, with similar results to those found in the study (Jaimes & Gómez Díaz, 2014), Therefore the lifestyle of most of the students is inadequate, being the medicine and topography careers those that present higher percentages.

Regarding self-esteem, it was found that most students have high self-esteem.

The results demonstrated the validity of the questionnaire, so it can be applied to similar samples of university students.

CONCLUSIONS

This is the first study to validate the health promoter lifestyle in university students in our context, submitting the survey to expert judgment, bearing in mind that it has already been validated in other countries such as Spain, the United States, in Colombia, Mexico , in diabetic patients, hypertensive. For the sake of this new version of the EVEU, it is similar to the original version, the validation process has followed what was recommended by Dr. José Supo (Supo, 2013).

The design of instruments and their corresponding items, either for evaluation or testing must go through the entire process to ensure that the information obtained is valid and allows effective decision making.

The items should have as a starting point a theoretical construct, backed by expert judges and statistical analysis that validate the instruments, otherwise, it would be inducing to offer incongruent solutions or affecting a student population.

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ANNEX A

National Autonomous University of Nicaragua
Health Research and Studies Center
Public Health School of Nicaragua

Informed consent

Title of the Project

Healthy lifestyles and their association with personal factors in University Students at UNAN - Managua 2017

Researcher

MSc. Marta Lorena Espinoza Ph.D. student in Health Sciences from the Research Center in Health Studies, CIES, UNAN-Managua.

Introduction / Purpose

The objective of the study is to determine if there is an association between lifestyles and personal, family and social factors in university students at UNAN- MANAGUA 2017

The purpose of this study is to sensitize the students about the importance of adopting healthy lifestyles that allow them to have an adequate nutritional status that allows a positive impact on the health of each participants of the study; in the same way it will be possible to elaborate strategies aimed at the adoption of healthy lifestyles in university students.

Participation

Students from all the faculties of the Rubén Darío University Campus will participate.

Procedures

A lifestyles survey will be applied that will only take an approximate time of 25 to 30 minutes.

Risks / discomforts

There will be no unfavorable consequences, in case of not accepting the invitation. You will not have to spend any money during the study.

Benefits

The benefit you will get from participating in the study is to receive timely and updated information about the lifestyles and nutritional status of university students.

Confidentiality of information

The data obtained throughout this study is completely confidential, so that it will only be used to meet the objectives described above. No names of any kind will be published. So we can guarantee absolute confidentiality.

Consent / Voluntary participation

I agree to participate in the study: I have read the information provided, or it has been read to me. I have had the opportunity to ask questions about it and I have been answered satisfactorily. I voluntarily consent to participate in this study and I understand that I have the right to withdraw at any time from the interview without being affected in any way.

Names and signatures of the participant

Name and signature of the participant: _____