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Adaptation of the Psychological Wellbeing Scale in Mexican medical students

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ABSTRACT

Introduction. The Ryff Scale of Psychological Well-Being is the most widely used instrument for assessing the eudemonic perspective of well-being. Although it has been adapted for the Spanish population, it has not been modified for health science students in the Mexican population. **Objective.** Adapt and obtain the psychometric properties of this scale for medical students in the Mexican population. **Method.** The study was conducted with 1,974 undergraduate students, 1,551 from the UNAM Medicine Faculty and 423 from the La Salle University Mexican School of Medicine. The analysis was undertaken using the IBM SPSS Statistics 21 and AMOS 21 SPSS programs. **Results.** An instrument with a robust structure derived from the exploratory and confirmatory factor analyses carried out was obtained, with satisfactory explained variance, adequate internal consistency obtained through the Cronbach's alpha coefficient, and appropriate discrimination. **Discussion and conclusion.** Our adaptation is a suitable version for Mexican medical students with four final dimensions; purpose in life, personal rejection and self-acceptance, personal control, and personal growth.

Keywords: Psychological well-being, medicine, students, public schools, private schools.

RESUMEN

Introducción. La Escala de Bienestar Psicológico de Carol Ryff es la más utilizada para evaluar la perspectiva eudaimónica de bienestar. Si bien se ha adaptado para población española no se ha adaptado para estudiantes de ciencias de la salud de población mexicana. **Objetivo.** Realizar adaptación y obtener propiedades psicométricas de esta escala para estudiantes de medicina de población mexicana. **Método.** El estudio se desarrolló con 1974 estudiantes de pregrado, 1551 de la Facultad de Medicina de la UNAM y 423 de la Escuela Mexicana de Medicina de la Universidad La Salle. El análisis desarrollado se realizó mediante el programa IBM SPSS Statistics 21 y AMOS 21 de SPSS. **Resultados.** Se obtuvo un instrumento con una estructura sólida derivada de los análisis factoriales exploratorios y confirmatorios desarrollados, con una varianza explicada satisfactoria, una consistencia interna obtenida mediante el coeficiente alfa de Cronbach adaptada y una discriminación favorable. **Discusión y conclusión.** El artículo es una adaptación del instrumento adecuada para estudiantes de medicina mexicanos con cuatro dimensiones finales; proyecto de vida, rechazo personal y auto aceptación, control personal y crecimiento personal.

Palabras clave: Bienestar psicológico, medicina, estudiantes, escuelas públicas, escuelas privadas.

INTRODUCTION

Psychological well-being is a critical element in students' performance, particularly in higher education. In the context of a medical degree, which is academically demanding, it can be a determining factor. The Ryff Psychological Well-Being Scale is the most widely used instrument for assessing the eudemonic perspective of well-being. Although it has been adapted for the Spanish population (Díaz et al, 2006), it has not been modified for health science students from the Mexican population.

In this regard, Freire, MarFerradás, Núñez, and Valle (2018) define psychological well-being as the acquisition of values that enable our self-fulfillment. It is a construct based on the Aristotelian conception of happiness, understood as the achievement of excellence or perfection in oneself, according to individual capabilities and potential.

Ryan and Deci (2001) identify two main strands in the literature: the hedonic tradition, associated with happiness, and the eudemonic tradition, linked to the development and expression of human potential, characterized by feeling positive and thinking constructively about oneself. The latter is characterized by its subjective, experiential, and relational nature, in which specific aspects of physical, mental, and social functioning are interrelated.

Psychological well-being (Cuadros, 2019) makes a person aware of their potential and enables them to cope with the concerns of life and undertake everyday tasks successfully, contributing to their community with a sense of reciprocity and self-fulfillment and acceptance.

Medina (2015) defines it as "functioning or doing well" as opposed to just "feeling well". In 1989, Ryff proposed the Psychological Well-Being (PWB) scale in a study conducted with 321 subjects, in which she proposed a final structure, in a Likert question format evaluating six dimensions; 1. Self-acceptance, 2. Environmental mastery, 3. Positive relations with others, 4. Personal growth, 5. Autonomy, and 6. Purpose in life. These dimensions are characterized as follows (Ryff & Keyes, 1995):

- *Self-acceptance*: people are characterized by a positive attitude towards themselves, accepting the different aspects of their personality, including negative ones, and feeling good about their past.
- *Environmental mastery*: refers to the management of the opportunities and demands of the environment to satisfy one's capacities and needs, obtaining a greater sense of control over the world and its environment.
- *Positive relationships*: characterized by quality relationships with others and support networks, which are satisfactory, warm and based on trust. In addition, people care about the well-being of others and empathize with them.
- *Personal growth*: consists of utilizing one's talents, abilities and potentialities, which enable a person to grow in the midst of difficulties. They are also open to new experiences.
- *Autonomy*: the feeling of choosing for yourself, and making your own decisions, even if they differ from the general consensus. People can resist social pressure and regulate their behavior by being more independent.
- *Purpose in life*: a person gives purpose and meaning to their life based on objectives and goals.

Growing interest in measuring psychological well-being has led to parts of the world adapting this scale with various samples and countries. Particularly with students, this has required both translating the scale into Spanish and adapting it, with an emphasis on specific dimensions depending on the social context of the subjects (Bahamón, Alarcón-Vásquez, Cudris Torres, Trejos-Herrera, & Campo Aráuz, 2019; Loera-Malvaez, Balcázar-Nava, Trejo-González, Gurrola-Peña, & Bonilla-Muñoz, 2008; Millán de Lange, García-Álvarez, & D'Aubeterre López, 2014; Véliz-Burgos, 2012; Medina-Calvillo, Gutiérrez-Hernández, & Padrós-Blázquez, 2013; Díaz et al., 2006; Lindfors, Bertson, & Lundberg, 2006; Kishida et al., 2004; van Dierendonck, 2004).

Given the goal of adapting the scale to Mexican medical students, the study conducted by Díaz et al. (2006) and undertaken by the universities of Madrid and Rotterdam with 467 students is of interest. The two institutions adopted the van Dierendonck version of the psychological well-being scales proposed by Carol Ryff. Since a satisfactory fit was not obtained with the six original dimensions, it was reduced to twenty-nine items that allowed a better fit of the model (van Dierendonck, 2004).

Aranguren and Irazabal (2015) subsequently conducted a psychometric analysis of the scale adapted by van Dierendonck, and the scale adapted by Díaz and collaborators, in 396 Argentine students, since the original version proved unsuitable for either population. A twenty-nine-item proposal was designed, comprising three dimensions: autonomy, positive relationships with others and competence, with an adequate fit and reliability values.

Pineda and collaborators evaluated the psychometric quality of a thirty-nine-item version used with a sample of 727 Colombian young adults. They obtained adequate psychometric values and found that the instrument was sensitive enough to discriminate between the results obtained based on educational attainment, gender, and socioeconomic status in several of the dimensions of the scale (Pineda Roa, Castro Muñoz, & Chaparro Clavijo, 2018).

More recently, Meier and Oros adapted the version modified by Diez and collaborators in two stages: first with eighty adolescents to determine the linguistic coherence be-

tween Spain and Argentina and second with 825 adolescents to determine its psychometric quality. They obtained a twenty-item structure with four factors: a) Self-acceptance, b) Personal Growth and Purpose in Life, c) Autonomy and d) Positive Relationships with Other People (Meier & Oros, 2019).

In Mexico, Dominguez and collaborators used the original version of the Ryff Psychological Well-Being Scale with 1,700 students from Veracruz, analyzed the different structures proposed in the literature, and only reported a better fit in a one-dimensional model (Dominguez-Lara et al., 2019).

Psychological well-being is one of the main elements linked to academic performance as reported in various studies, in that it is a multidimensional phenomenon with extra-academic aspects that impact students (Cuadros, 2019; Dominguez-Lara & Navarro-Loli, 2018).

It is also a determining factor in the achievement of the personal and professional goals of university students and their best academic performance (Cuadros, 2019; Correa Reyes, Cuevas Martínez, & Villaseñor Ponce, 2017).

Due to the above and in the context of medical degrees, it is important to have an instrument specifically adapted for its assessment. From the moment they begin their degree course, high school students face major challenges and are forced to adapt. Although they are usually high-performing students, many of them drop out or fall behind in the first two years of their degree because of the demands and academic workload involved. Unlike other professions, the atypical conditions of training in clinical settings have a major impact on the psychological well-being of students during the clinical cycle, undergraduate internship and graduation, and even during their social service.

The objective of this study is therefore to adapt the Psychological Well-Being Scale in the version modified by Díaz and collaborators for students pursuing a bachelor's degree in medicine at the medical faculty of the National Autonomous University of Mexico (Universidad Nacional Autónoma de México, UNAM) and the Mexican School of Medicine at La Salle University.

METHOD

Study design

This is a non-experimental study, designed to adapt and validate the Psychological Well-Being Scale for undergraduate medical students through a pilot administration of the scale.

Subjects/sample description

The project involved the administration of 1,974 instruments to undergraduate students, 1,551 enrolled at UNAM and 423 at La Salle University, obtained through convenience sampling.

Sites

UNAM Faculty of Medicine and Mexican Faculty of Medicine of La Salle University.

Measurements

The scale was administered through Google Forms for both institutions, using student ID numbers and emails as controls to avoid duplicating data.

At the end of the institutional evaluation processes undertaken in 2021 and 2022, the purpose of the study was explained to students, who were told that answering it was optional and that anyone who wished could answer it. They were sent the Google Form link, in which test results were concentrated for their subsequent analysis.

Statistical analysis

Once the scales had been administered, they were concentrated for analysis using the IBM SPSS Statistics 21 program and SPSS AMOS 21. The descriptive statistics of the characteristic variables of the evaluated sample were determined, and the adjustment and psychometric structure of the scale identified through two factor analyses, one exploratory and one confirmatory. The resulting structure was used to determine internal consistency using Cronbach's Alpha for the instrument as a whole and for each resulting dimension, discriminating between them using the Student's t-test.

Ethical considerations

The identity of the subjects was respected and data use was indirect. The protocol is supported by the Ethics and Research Commission of the Research Division of the Faculty of Medicine, registration number FM/DI/114/2020.

RESULTS

The instrument was answered by 1,974 students, 63.7% of whom were women and 36.3% men, with a mean age of 23.6 ± 1.75 years, within an age range of seventeen to twenty-seven. Cronbach's alpha coefficient was calculated to determine the reliability of the instrument, with a standardized value of α equal to .89 being obtained for the instrument as a whole.

An exploratory factor analysis of principal components with Varimax rotation was subsequently performed to determine its structure. The use of orthogonal rather than oblique rotation is due to the fact that as a construct, psychological well-being has various dimensions, characterized by a set of indicators that would theoretically be assumed to be independent of each other.

Table 1
Structure of the instrument

Previous structure	Item No.	Item	Factor				Cronbach's Alpha	Discrimination
			1	2	3	4		
3	13	I have a plan for what I want to do with my life over the next few years	.889					
3	14	I have a life plan that gives direction and guides my actions	.882					
3	12	I have clear goals about what I want to do with my life	.867			.893	r < .01	
3	15	I have set myself several goals	.806					
1	6	If I work hard, I achieve what I want	.617					
5	22	It is important to make plans to achieve what I want	.549					
6	25	I hate my way of being	7	.776				
4	19	I hate my flaws		.761				
6	26	I would like to have another character		.737				
6	24	I hate my character		.723		.689	r < .01	
4	16	I love myself with all my flaws		-.684				
4	18	I would like to have a different body		.672				
4	17	I accept my flaws		-.669				
7	28	I can control my impulses			.902	.859		
7	27	I can control my behavior even if I am annoyed			.871		r < .01	
7	29	I can easily control my character			.864			
1	3	I am interested in improving my skills				-.856		
1	2	I am open to new experiences that will contribute to my personal training				-.851		
1	4	I have an attitude of openness to knowledge and innovation				-.848	.887	
1	1	I am interested in acquiring new skills				-.827	r < .01	
1	5	I study to know more and cope with the challenges of life				-.755		
2	9	I find it hard to relate to people						
2	8	I find it difficult to make new friends						
5	21	Deciding on your purpose in life is a waste of time						
5	20	Planning for the future is a waste of time.						
2	10	I have good relationships with my colleagues						
2	11	I get along well with my classmates						
2	7	I easily get along with people my age						
5	23	If I strive to attain my goals, I will achieve them						

Note: The table shows the dimensions obtained from the adaptation of the instrument with their respective associated psychometric values.

An analysis of the correlation matrix yielded low to moderate correlations, showing that there was no collinearity between the items. The values of the fit to the structure obtained were adequate, with a KMO of .902, which was significant. Regarding communalities, it was observed that the proportion of explained variance for each item was greater than .40, except for item 23: "If I strive to achieve my goals, I will achieve them," which only achieved .34, which is why it was removed from the proposed version.

The values of the reproduced correlation matrix, determined by the factor solution, are a reliable indicator that the resulting model was good, and that there were an appropriate number of factors when 100% of the results of the extraction of each statement were reproduced, yielding residuals equal to zero.

In regard to total explained variance, the first four factors were taken into account with a percentage of 54.89%, with the values for each dimension being 30.52%, 11.42%,

7.57% and 5.37% respectively. A four-dimensional structure was obtained, as can be seen in Table 1, showing the dimensions, component items, and factor loads of reliability and discrimination by factor. Items 7, 8, 9, 10, 11, 20, and 21 are not integrated into any factor.

Discrimination was determined by establishing a cut-off point at the .33 and .66 percentiles. A lower group was obtained in which 651 records were located, with an average of 52.81 ± 5.03 points over the raw score, and a higher group, comprising 742 records, with a mean of 69.27 ± 3.22 . Both groups were contrasted using a Student's t-test, with a significant discrimination of the instrument of [$t = -67.18$, $r < .01$] being found. When discrimination was analyzed for each dimension and each of the twenty-one statements comprising the adapted version of the instrument, significant discrimination was found with $r < .01$ for each of them.

A confirmatory factor analysis was undertaken using a structural equations model developed with AMOS, obtain-

Table 2
Adjustments to the adapted version in Mexican students enrolled in the Medical Degree Course for Surgeons

<i>Original factor</i>	<i>Previous structure</i>	<i>Factor obtained</i>	<i>Item</i>	<i>Resulting modifications</i>
Purpose in life	3	13	I have a plan for what I want to do with my life for the next few years	The original factor of purpose in life is maintained and is enriched with two items from factors one and five that talk about effort directed towards achievement and achievement associated with planning, which is conceptually consistent (it goes from being factor 3 to 1 in the adapted version).
	3	14	I have a life plan that gives direction to and guides my actions	
	3	12	I have clear goals about what I want to do with my life	
	3	15	I have set myself several goals	
	1	6	If I strive hard, I achieve what I want	
	5	22	To achieve what I want, it is important to make plans	
Personal rejection	6	25	I hate my way of being	Factors 4 and 6 in the original version are combined into a single one in this adapted version, which is consistent as they are complementary, merging elements of personal rejection and self-acceptance.
	4	19	I hate my flaws	
	6	26	I would like to have another character	
	6	24	I hate my character	
Self-acceptance	4	16	I love myself with all my flaws	
	4	18	I would like to have a different body	
	4	17	I hate my flaws	
Personal control	7	28	I can control my impulses	Factor 7 of personal control remains intact, becoming factor 3 in the adapted version.
	7	27	I control my behavior, even if I am upset	
	7	29	I easily control my character	
Personal growth	1	3	I am interested in honing my skills	The original structure is maintained for this dimension except for one item that is incorporated into factor 1 resulting from the purpose in life (it goes from being factor 1 to factor 3 in the new structure).
	1	2	I am open to new experiences that will contribute to my personal development	
	1	4	I have an open attitude to knowledge and innovation	
	1	1	I am interested in acquiring new skills	
	1	5	I study to know more and cope with the challenges of life	
Positive relationships with others, original factor 2 and plans for the future, original factor 5	2	9	I have difficulty relating to people	The factor 2 items of positive relationships with others are not grouped together nor do they have loads in any of the dimensions obtained. Factor 5, comprising plans for the future, except for one item recovered in factor 1, does not present loads or grouping as an independent factor either.
	2	8	I find it difficult to make new friends	
	5	21	Finding your life's purpose is a waste of time	
	5	20	Planning for the future is a waste of time.	
	2	10	I have good relationships with my colleagues	
	2	11	I get along well with my classmates	
	2	7	I get along easily with people my age	
5	23	If I strive to achieve my goals, I will attain them		

Note: The table shows items in the original version and the way they are grouped together in the adapted version with the description of the associated changes in the dimensions obtained from the adaptation of the instrument.

ing a Chi² value of 4.12 ($r < .01$). The items comprising each dimension achieved significant standardized regression weights, ranging from .571 to .978. The value of the root mean square error of approximation, RMSEA, was considered since, according to [Hair, Anderson, Tatham, and Black \(2007\)](#), it corrects the tendency of the Chi² value to reject models with a large n. It has an expected goodness of fit value with the population, obtaining a value of .033 (which is acceptable, since it is less than .08) while the normal fit index (NFI) obtained was .912 (which is adequate, since it is close to 1).

When the version obtained was contrasted with the original structure proposed by [Díaz et al. \(2006\)](#) in the items comprising each factor, the following changes were observed for the adapted version, as shown in table 2.

DISCUSSION AND CONCLUSION

It is important to note that any assessment instrument must be suitable for the target population. Hence the importance of adapting, adjusting or validating the instruments according to the needs of the different protocols, and to ensure that they comply with certain psychometric standards that guarantee their impact on the target population, in this case medical students.

This is borne out by the various versions derived from the construction of the Ryff Psychological Well-Being Scale, foremost among which are the following:

- Vera analyzed the original structure of the instrument, obtaining factorial structures where only the first-order analysis fits the six dimensions in the original proposal, which, as he explained, could be

associated with the types of samples and populations used. The study was conducted with 1,646 people aged between 18 and 90 (Vera-Villarroel, Urzua, Silva, Pavez, & Celis-Atenas, 2013).

- Medina et al. used the thirty-nine-item version with 447 Mexican students and 256 subjects from the general population, noting that the scale did not adapt to the six dimensions proposed, even though the data obtained show an adequate fit (Medina-Calvillo et al., 2013).
- Valenzuela analyzed the factor structure of a Spanish version produced by Diaz and collaborators with 1,060 university students. He used confirmatory factorial analysis to show that the model did not fit the data, since it failed to validate the originally proposed six-dimensional structure, and only obtained two dimensions: personal growth, and self-acceptance (Medina, 2015).

Having a scale with these characteristics is important, since psychological well-being affects the variables directly related to student performance, such as stress, coping, motivation, life satisfaction, social well-being, and depression (Moreta, Gabior, & Barrera, 2017; Correa Reyes et al., 2017; Matalinares et al., 2016).

Although there are multiple proposals, the fact that every instrument must be appropriate for the characteristics of the target population must be considered, to prevent biases and unsupported interpretations in the interpretation of results, particularly in the area of health, given the profile of the future professionals evaluated and the impact of their practice on the population.

The data obtained in this research allow us to present the adapted version of the Psychological Well-being Scale as a standardized instrument for the population of Mexican medical students in public and private settings for which there is solid evidence of reliability and validity. A four-dimensional structure was obtained, which can be defined as follows:

- *Purpose in life*: characterized by planning for the future, with an impact on the establishment of personal goals, as well as actions designed to achieve it.
- *Personal rejection and self-acceptance*: comprises favorable and self-critical elements, linked to a person's way of being, flaws, character, and body image.
- *Personal control*: refers to the control of the impulses, behaviors, emotions and character of those evaluated.
- *Personal growth*: involves the development of greater competence, the search for training experiences and knowledge acquisition, the incorpora-

tion of innovation aspects, and training as a means of coping.

These dimensions are pertinent and adapted to the environment of undergraduate medicine students, enabling one to have a standardized instrument that contributes to a better assessment of Mexican medical students in regard to critical variables from their admission to their graduation. They can contribute to the development of lines of research and the psychoeducational and training context in training scenarios in both an academic and/or clinical context that will enhance the development of various lines of research.

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Conflict of interest

The authors declare that they have no conflicts of interest.

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