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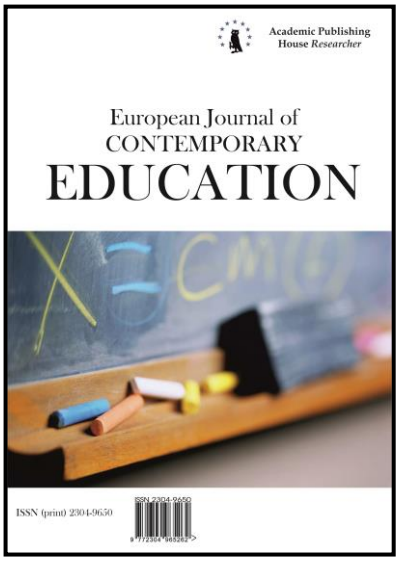

Psychometric Properties of the Scale of Mato and Muñoz-Vázquez in Medical Undergraduate Students Sample

Arturo García-Santillán [a, *], Rosalba Viridiana García-Cabrera [b], Violetta S. Molchanova [c, d], Valeria García-Cabrera [e]

[a] UCC Business School at Universidad Cristóbal Colón, Veracruz México
[b] Medical Dental, Universidad Cuauhtémoc de Aguascalientes, México
[c] International Network Center for Fundamental and Applied Research, Washington, USA
[d] Volgograd State University, Volgograd, Russian Federation
[e] Medical Surgeon, Universidad Autónoma de Aguascalientes, México

Abstract

The aim of this paper is to measure the anxiety toward mathematics of undergraduate medical students in a public university. In order to get the data were surveyed 208 students enrolled when the test was applied. The questionnaire used was the scale of Mato and Muñoz-Vázquez (2007). The statistical procedure was exploratory factorial analysis (EFA) with extraction method: Principal Component Analysis (PCA), Rotation Method: Varimax with Kaiser Normalization (KMO, Bartlett test of Sphericity, MSA, X^2 with df, $\alpha = <0.05$). The result suggests that the factor ANXTMSDL (0.933) is the largest factor load, which suggests that the profile of the medical student, generates greater anxiety when faced with operations in daily life and the factor (ANXTT 0.626) is the factor that has a lower factor load, which leads us to think that anxiety towards the temporality of assessments or exams is not present, perhaps because, in the curriculum of the majoring the topics of mathematics are not integrated.

Keywords: anxiety toward math, undergraduate medical student,

1. Introduction

According to Alvarado-Mateo (2007), mathematics is a universal language whose correct application makes them a practical tool to describe concrete and abstract realities; mathematics´ attributes that allow obtaining internationally accepted results. Because of its nature, it represents

* Corresponding author
E-mail addresses: agarcias@ucc.mx (A. García-Santillán), rosalbaviridianagc@outlook.com (R.V. García-Cabrera), v.molchanova_1991@list.ru (V.S. Molchanova), dra.valeriagarciacabrera@hotmail.com (V. García-Cabrera)

challenges and solutions, a reason for which it is useful in classrooms. In the same line of thought, Livio (2011) mentions that mathematics can be found both inside and outside of the world around us, in several professions, studies and occupations as well as in the daily life of people.

Therefore, the learning of mathematics encourages the integration of people to society (Tobías, 1993). Also, one of the issues that requires more attention from researchers is the relationship between the development of certain attitudes, emotions and beliefs towards mathematics regarding the educational and cultural context of reference, whose impact will have implications in the students´ performance of all the activities related to this subject (Núñez et al., 2005).

Besides the cognitive dimension present in the learning of Mathematics, the emotional dimension has acquired a higher importance, because as time passes there is an increase on the perception and conscience about the impact that emotional aspects have over education and its effect on school learning (Pérez-Tyteca et al., 2009).

From the several emotional factors to be considered, anxiety is one of the main issues and the topic of this research since this factor is present on students, mainly when there are situations to evaluate the knowledge on that subject. There have been several studies which have taken anxiety towards this area as a main focus, refered in literature as anxiety towards Mathematics (Tobías, 1976; Wigfield,& Meece, 1988; Hembree, 1990; Jackson, Leffingwell, 1999; Ma, 1999; Perry, 2004).

The concept of anxiety towards Mathematics can be defined as the feeling that cause in the person tension, fear and uncertainty when there are situations that involve the use of mathematical learning, causing emotional and somatic disorders that disturb reasoning processes (Lewis, 1970; May 1977; Hembree, 1990).

Wood (1988) states that anxiety towards Mathematics is characterized by a feeling of dislike when the students perform activities related to the use of mathematical knowledge.

Other concepts regarding anxiety towards Mathematics are present in the research work by Richardson & Suinn (1972), who define is as a feeling related to the subject of Mathematics that is present in school activities as well as in daily life and which prevents the correct application of knowledge when facing a problem due to the experienced stress.

For Tobías & Weissbrod (1980), anxiety towards Mathematics is the feeling arising in the face of a mathematical problem and which causes in the person a number of negative emotions that block his/her knowledge. Fennema and Sherman (1976) consider that anxiety towards Mathematics is associated to physical as well as emotional and cognitive symptoms that will have relevance and arise when solving activities about that topic.

This phenomenon presents both in children and youths and adults (Tobías, 1980; Quilter, Harper, 1988), a reason for which this construct has been studied in different educational levels and considering several factors such as the problem of anxiety towards exams (Valero, 1999), where anxiety is analyzed with regard to the behavior of college students. The study of anxiety towards Mathematics is not new, since more than five decades ago, the studies about it started to appear and nonetheless, it is still a current issue nowadays.

Conversely, in order to pose a research problem, this study considers the results of the 2013 National Evaluation of Academic Achievement in School Centers (ENLACE for its acronym in Spanish), where it is possible to observe that in Mexico less than 50 % of sixth graders reached a good or excellent level in Mathematics, which places the other half, specifically 52 %, in an insufficient or basic level (Secretary of Public Education, 2013)

Furthermore, the Program for International Student Assessment (PISA) in 2012 made known that 50% of Mexican students do not achieve the minimum competence level in Mathematics, which points out to the existence of an approximate two-year delay in school level, compared to the average of countries marked by the Organization for Economic Cooperation and Development (OECD), even though from 2003 to 2012 Mexico has managed to reach and important improvement (Organization for Economic Cooperation and Development, 2012).

The afore-mentioned results of both studies prompt an interest about which are the factors related to low performance, as well as the analysis of the behavior that causes it. It is relevant to mention that the result of PISA in 2003 proved that a large amount of 15 years-old students who were evaluated present feelings of insecurity and emotional stress when facing Mathematics.

According to this study, students who feel anxiety tend to be uninterested in their studies and lose the interest in learning this subject. This subject is a consistent link in all the countries where

this phenomenon manifests, since it is a universal relationship pattern (Organization for Economic Cooperation and Development, 2004).

Given the strong presence of anxiety towards mathematics among students, the need to keep researching this issue is justified and so, the following question arises: what factors determine the level of anxiety towards Mathematics in the student? Hence, the aim of this study focuses on: Determine the level of anxiety in the student of Medicine. Also, if we considering that the correlation matrix is an identity matrix, Ho: $R_p=1$ the variables are not inter-correlated, Hi: $R_p \neq 1$ the variables are inter-correlated. Therefore, the hypotheses to be proved are:

Null Hypothesis H_O: There are no factors that allow us to understand the students' anxiety towards mathematics.

Alternative Hypothesis H_1: There are no factors that allow us to understand the students' anxiety towards mathematics.

A particular way, the hypotheses are:

H1: The evaluation is the factor that most explain the students' anxiety towards Math.

H2: The temporality is the factor that most explain the students' anxiety towards Math.

H3: The understanding of mathematical problems is the factor that most explain the students' anxiety towards Math.

H4: The numbers and mathematical operations is the factor that most explain the students' anxiety towards Math.

H5: The mathematical situations in daily-life, is the factor that most explain the students' anxiety towards Math.

2. Review of literature

The concept of anxiety towards Mathematics has been explained in the seminal work by Fenema & Sherman (1976), Roberts & Bilderbak (1980), Tobías (1976), Wigfield & Meece (1988), McCall, Belli & Madjidi (1990), Schau, Stevens, Dauphine & Del Vecchio (1995), concluding that, among other factors, the following prevail: nerves, stress and even awkwardness in the student who presents anxiety towards Mathematics.

An example of this is specifically found in the work of Wigfield & Meece (1988), whom, in their study about anxiety towards Mathematics in elementary school students, concluded that females present more physical symptoms (nerves, stress, awkwardness) that men when performing mathematical tasks. This fact is in agreement with the seminal work by Fennema & Sherman (1976) and Tobías (1980), where the results matches in the difference of anxiety intensity in men and women, being the former the ones who experience this phenomenon with greater force.

McLeod (1993) claims that, the school level where anxiety towards Mathematics appears, is elementary school and it is a feeling that can stay with the students in their following studies afterwards. Karp (1991) considers it a critical stage to secure mathematical knowledge in a way that middle-school will be when the negative feelings toward this subject are consolidated. Therefore, it will be in teenage years when the intensity of the feeling can be easily observed in female students (Halpern, 1986).

In a study with talented students of elementary and middle school, LaLonde, Leedy & Runk (2003) found out that boys present lower anxiety towards Mathematics than girls. In accordance with these results, Valero studied college undergraduates of Psychology in the University of Málaga and the higher scores on anxiety levels were obtained by women.

Although other research such as the one by Hunt (1985) determine that there are significant differences between men and women, since the later show more anxiety towards Mathematics, there are other studies like the one made by Hyde, Fennema, Ryan, Frost & Hopp (1990), who state that these differences are not always present, but in the cases where they do exist, it is undeniable that it is in detriment of the female gender.

On the other hand, Perina (2002) questions such a claim since his research points out that the results are influenced by the fact that women usually are more prone to admit they suffer or have suffered feelings of anxiety towards Mathematics and share this experiences with others; a trait that is not as present in men.

The former is also ratified by the studies of Reyes (1984), where the conclusions show that women are more likely to share their feeling of anxiety in general. Furthermore, Frank & Rickard

(1988) and Auzmendi (1992) talk about the lack of previous Mathematics baggage in the student as the cause of the experienced anxiety, which prevents their performance in Mathematics.

On the other hand, research as the one by Hackett (1985) determined that anxiety towards Mathematics is a factor that can help to predict the behavior of students. So, qualified students in Mathematics can make the decision to avoid them, causing an important reduction on their choices of college major. Once again, this situation is more pronounced in the female gender (Hembree, 1990), gicen the effects of a higher intensity in the feelings of anxiety towards Mathematics.

The afore mentioned effect in the students´ population has promoted a special interest in the study of anxiety towards Mathematics, which has raised a special interest in the study of anxiety towards Mathematics and therefore, it has been chosen as an object of study in current research, despite being a phenomenon with a long historical significance.

Studies made by Jackson & Leffingwell (1999) observed that even though a significant amount of the analyzed subjects have developed their anxiety towards Mathematics in a time preceding college, 27% of them have experienced their first stressing situation towards Mathematics in the course of their first year of study in college.

Perry (2004) proceeded to define different kinds of anxiety towards Mathematics in college students, the first is related to normal anxiety (moderate) experienced during the process of mathematic activity; the second refers to the anxiety created by the influence of some teacher in the past and causes insecurities until the present day; and finally, the anxiety originated by a mechanic learning of Mathematics that eliminates inherent reasoning in the performance of activities.

Since this context, the objective of this research is focused to identify the level of anxiety towards mathematics in medical students in a public university.

3. Methodology

In order develop the empirical study and to answer the research question, contrast the hypothesis test and achieve the goal of this study, the method that we follow is described next. The research it is non-experimental because we don't manipulate the independent variables that modify the effect (*Y*) and it is transversal considering that the field research was made in the month of October 2017. This is an explanatory study because it seeks to measure the levels of anxiety towards mathematics on medical student in a public university.

3.1. Population, sample and instrument

For the empirical study, the populations were medical students, reaching a total of 208 students enrolled. The used instrument was the scale designed by Muñoz and Mato-Vazquez (2007). This questionnaire has 24 questions grouped in five factors: Anxiety towards evaluation (ANXTE), anxiety towards temporality (ANXTT), Anxiety towards the understanding of mathematical problems (ANXTUMP), Anxiety towards numbers and mathematical operations (ANXTNMO) and Anxiety towards mathematical situations in daily-life (ANXTMSDL), as shown on Table 1. The scale used is Likert type, with values that range from: nothing=1, few times=2, neutral=3, most of the times=4 and always a lot=5

Table 1. Anxiety towards mathematics scale

Code	Dimensions	Items
ANXTE	Anxiety towards evaluation	1,2,8,10,11,14,15, 18,20, 22,23
ANXTT	Anxiety towards temporality	4,6,7,12
ANXTUMP	Anxiety towards the understanding of mathematical problems	5,17,19
ANXTNMO	Anxiety towards numbers and mathematical operations	3,13,16
ANXTMSDL	Anxiety towards mathematical situations in daily-life	9,21,24

Source: Taken from the Muñoz and Mato-Vázquez (2007) scale

3.2. Statistical procedure

For evaluation of the data, we use the statistical procedure of exploratory factor analysis (EFA), with extraction method: Principal Component Analysis (PCA), Rotation Method: Varimax with Kaiser Normalization. For this, we established the following criterion: Statistical hypothesis: Ho: ρ =0 there is no correlation, Hi: ρ≠0 there is a correlation. The statistical test is χ^2 and the Bartlett's test of Sphericity KMO (Kaiser-Meyer-Olkin), and additionally the value of MSA (Measure sample adequacy) for each variable of model. This statistical is asymptotically distributed with p(p-1)/2 freedom degrees, a significance level: α = 0.01, p<0.01 or <0.05 load factorial of 0.70 ; and loads increased to 0.55

Decision rule: Reject Ho if χ^2 calculated > χ^2 tables. Therefore, to place this research question in its theoretical and empiric reality, now the analysis and discussion of relevant literature on the subject of study is presented.

4. Data analysis

4.1. Test validation

Firstly the test used in the field research to collect data, was validated, obtaining Cronbach¨s alpha coefficient (table 2).

Table 2. Case Processing Summary and Reliability Statistics

	N	%	α
Valid cases	208	100.0	0.966
Excluded[(a)]	0	.0	24 items
Total	208	100.0	

a. List wise deletion based on all variables in the procedure.
Source: own

We may observe the reliability of the instrument is more than 0.9 and based on Cronbach's Alpha criterion (> 0.8), then we can say that the applied instruments have all the characteristics of consistency and reliability required (Hair, 1999). Now it shows in table 3 its means and its standard deviation in order to determine the coefficient of variation to identify the variables with the most variability with respect to others.

Table 3. Descriptive Statistics

	Means	Standard deviation	Analysis N	Variation coefficient VC= sd/means
ANXTE	25.6346	10.63315	208	41.48%
ANXTT	9.1635	4.19825	208	45.81%
ANXTUMP	6.3029	2.94385	208	46.71%
ANXTNMO	6.1635	3.07903	208	49.96%
ANXTMSDL	4.8221	2.25481	208	46.76%

Source: own

The results described in chart 3, show the variable ANXTNMO (49.96%) is the largest compared to the rest of the variables that show similar behavior. Afterwards, to validate the statistical technique, we first conducted a contrast from Bartlett's test of Sphericity with Kaiser (KMO) and Measure Sample Adequacy (MSA) to determine whether there is a correlation between the variables studied and whether the factor analysis technique may explain the phenomenon studied (see table 4 and 5).

4.2. First result with grouped variables.

Table 4. KMO and Barttlet test of Sphericity

		KMO.	0.884	df	Sig.
Bartlett test of Sphericity	Chi-squared approximated		1035.152	10	0.00

Source: own

Table 5. Correlations matrix [(a)]

Correlations	ANXTE	ANXTT	ANXTUMP	ANXTNMO	ANXTMSDL
ANXTE	1.000				
ANXTT	.897	1.000			
ANXTUMP	.838	.839	1.000		
ANXTNMO	.834	.853	.829	1.000	
ANXTMSDL	.541	.571	.586	.651	1.000

[a] Determinant = .006
Source: own

Table 4 shows the results of Bartlett's test of Sphericity, KMO, MSA, $\chi 2$, with $p < 0.01$ significance. The $\chi 2$ valued is 1035.152 with 10 degree of freedom, which is acceptable. The KMO adequacy measurement is 0.884 and since it is higher than 0.5, therefore, shows that there are correlation among variables. Table 5 shows the correlation matrix, in which can be observed that the values reflect correlation among variables and thus factorial analysis may be carried out. Also, we must remember that, with low determinant criteria the correlation is higher, while with a higher determinant, the correlation is low.

Therefore we can predict the degree of inter-correlation between the variables studied. Thus, the determinant value of .006 it is close to 0, which indicated high correlation among variables.

Now in table 6 shows the anti-image matrix in which we may see that the all values in the diagonal are greater than 0.5, which means that there is a strong relationship among variables, therefore it is appropriate to carry out factorial analysis. The values of the diagonal correspond to values Measure of Sampling Adequacy (MSA) for each variable grouped. Those values are ranged 0.855[a] and 0.922[a] which confirm that exploratory factorial analysis may explain the phenomenon studied.

Table 6. Anti-image matrix

	ANXTE	ANXTT	ANXTUMP	ANXTNMO	ANXTMSDL
ANXTE	.857[(a)]				
ANXTT	-.547	.855[(a)]			
ANXTUMP	-.275	-.213	.922[(a)]		
ANXTNMO	-.194	-.299	-.269	.891[(a)]	
ANXTMSDL	.070	-.028	-.117	-.330	.915[(a)]

a. Measure sampling adequacy
Source: own

Table 7. Component and communalities matrix [(a)]

	Component 1	Communalities
ANXTE	.929	.863
ANXTT	.939	.883
ANXTUMP	.922	.850

ANXTNMO	.937	.878
ANXTMSDL	.729	.531
Eigenvalue	4.005	
Total variance	∑Ψ/no. Ítems = 4.005/5 =.801= 80.10%	

Extraction Method: Principal Component Analysis
a. 1 extracted component
Source: own

Table 8. Total variance explained

Component	Initial eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.005	80.091	80.091	4.005	80.091	80.091
2	.559	11.185	91.276			
3	.178	3.560	94.836			
4	.157	3.140	97.976			
5	.101	2.024	100.000			

Extraction Method: Principal Component Analysis
Source: own

As we can see in tables 7 and 8 the component and communalities matrix, as well the total variance explained by the extracted component (respectively). In table 7 we may note that the extracted component comprises five variables grouped, being anxiety toward temporality (ANXTT 0.939) being the factor with the highest factor load, followed by the factor anxiety towards numbers and mathematical operations (ANXTNMO 0.937), anxiety towards evaluation (ANXTE 0.929), anxiety towards the understanding of mathematical problems (ANXTUMP 0.922) and finally, with less load factor we have the factor, anxiety towards mathematical situations in daily-life (ANXTMSDL 0.729)

All these factors with their corresponding commonalities represent the proportion of the variance per factor. Is the result of the square of each factorial weight which, in sum, is the total of the variance obtained of 80.10 % that explains the phenomenon under study (table 8).

4.3. Second result with rotated component matrix

Now we can see in the table 9 that, the component matrix is made up by two components: one that integrates the five grouped variables (ANXTE, ANXTT, ANXTUMP, ANXTNMO, and ANXTMSDL) and another in which only identifies the variable ANXTMS (0.680). However with the extraction method (Principal component analysis) and with the rotation method (Varimax Normalization with Kaiser), we may observed in table 10 that the rotated component matrix presents five factors, being ANXTMSDL (0.933) the largest factor load and (ANXTT 0.626) the factor that has a lower factor load.

Table 9. Component matrix[(a)]

	Component				
	1	2	3	4	5
ANXTT	.939				
ANXTNMO	.937				
ANXTE	.929				
ANXTUMP	.922				
ANXTMSDL	.729	.680			

Extraction Method: Principal Component Analysis ([a]5 extracted component, only two with factorial weigh >.5)
Source: own

Table 10. Rotated component matrix [(a)]

	Component				
	1	2	3	4	5
ANXTE	.794				
ANXTMSDL		.933			
ANXTUMP			.779		
ANXTNMO				.718	
ANXTT	.522				.626

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
[a] Rotation converges in 5 interactions.
Source: own

Finally, in table 11 we can observe the percentage of variance obtained after rotation of components. The three columns of Total Variance Explained show the most important information about this chart that we may interpret as follows:

The first and second columns: show one factor (components) according to eigenvalue criterion. That is, the analysis assumes that the 24 original variables of Muñoz and Mato-Vázquez (2007) instrument can be reduced to 1 underlying factor. That is, the number of components selected has been determined by the Kaiser criterion. The initial eigenvalues and extraction sums of squared loadings show one component that explains 80.10 % of the variance in the data. The third column denominated Extraction Sums of Squared Loadings of rotation show the five factors, but only three are greater than 1, thus, under eigenvalue criterion (>1) these factors explains 70.37 % of the total variance.

Table 11. Total Variance explained

Compo-nent	Initial eigenvalues			Extraction Sums of Squared Loadings			Extraction Sums of Squared Loadings of rotation		
	Total	Total	% of Variance	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.005	80.091	80.091	4.005	80.091	80.091	1.250	25.007	25.007
2	.559	11.185	91.276	.559	11.185	91.276	1.201	24.014	49.021
3	.178	3.560	94.836	.178	3.560	94.836	1.068	21.351	70.372
4	.157	3.140	97.976	.157	3.140	97.976	.872	17.444	87.816
5	.101	2.024	100.000	.101	2.024	100.000	.609	12.184	100.000

Extraction Method: Principal Component Analysis
Source: own

5. Discussion and conclusion

As we can see, in table 7 we show the extracted component of the five variables grouped, being Anxiety toward temporality (ANXTT 0.939) the factor with the highest factor load, followed by the factor Anxiety towards numbers and mathematical operations (ANXTNMO 0.937), Anxiety towards evaluation (ANXTE 0.929), Anxiety towards the understanding of mathematical problems (ANXTUMP 0.922) and finally, with less load factor, Anxiety towards mathematical situations in daily-life (ANXTMSDL 0.729). These factors with their corresponding commonalities represent the proportion of the variance per factor. Is the result of the square of each factorial weight which, in

sum, is the total of the variance obtained of 80.10 % that explains the phenomenon under study (table 8).

However, with the extraction method (PCA) and with the rotation method (Varimax Normalization with Kaiser), it can be observed in table 10 that the rotated component matrix presents five factors, being ANXTMSDL (0.933) the largest factor load, which suggests that the profile of the medical student, generates greater anxiety when faced with operations in daily life and (ANXTT 0.626) the factor that has a lower factor load, which leads us to think that anxiety towards the temporality of assessments or exams is not present, perhaps because in the curriculum of the career are not integrated into the curriculum grid.

Furthermore, in the rotated component matrix (table 10) one component show two measures (ANXTE 0.794 and ANXTT 0.522) which represent in sum, the largest factor load, which suggest that the medical student generates greater anxiety when faced with evaluation and temporality.

After analysis carry out, we may say that the factors: Anxiety towards evaluation, Anxiety towards temporality, Anxiety towards the understanding of mathematical problems, Anxiety towards numbers and mathematical operations, Anxiety towards mathematical situations in daily-life help us to understand the student's anxiety toward mathematics. The findings are consistent with Muñoz and Mato-Vázquez (2007), whose are seminal authors of the scale used in this work. In support of the formerly, the empirical studies carried out by García-Santillán, Mato-Vázquez, Escalera-Chávez and Moreno-García (2016), García-Santillán, Mato-Vázquez, Muñoz-Cantero and Ortega (2016), demonstrated that the five factors of the scale, make up a set of latent variables that allow explaining the level of student anxiety.

In their study, they mention that the subject of mathematics could be analyzed from several perspectives: in its contents, in the perception and attitudes of the student, from the teacher's opinion, from the educational system, from the teaching model and the curricula of study, among others. Furthermore, they also point out that in the case of students it is important to consider their needs, their expectations about the usefulness of mathematics in their daily-life and, in their future (García-Santillán et al., 2016).

Nowadays, with globalization a very important need for specialization of the different profiles that companies demand at work, is derived. Therefore, it is necessary to find new forms of teaching and learning process that allow, from the basic levels of education, to stimulate students' interest in developing greater skills and competences in mathematics. As a result, students would be expected to appreciate the broad application of the field of mathematics. Living the learning process with a positive attitude, that generates enjoyment and satisfaction and not frustration or anxiety towards mathematics.

Limitations of study

Since this work focused on measuring the medical student's emotions with respect to mathematics, based on the ideas of seminal authors as Richardson y Suinn (1972), Fenema & Sherman (1976), Tobías (1976), Roberts & Bilderbak (1980), Wigfield & Meece (1988), Alexander y Martray (1989), McCall, Belli & Madjidi (1990), McLeod (1993), Schau, Stevens, Dauphine & Del Vecchio (1995), who concluded that, among other factors, prevail: nerves, stress and even awkwardness in the student who presents anxiety towards Mathematics. Also, they emphasize the need to incorporate the affective side in the analysis in order to have a broader view to understand the complexity of the subject.

It is also a great limitation, since, in the application of the instrument, the student could be a certain state of mind. For example, if the exams date is near, the students react in a different way, this, from some opinions expressed by the students when the survey, was applied.

However, these scales have shown very significant psychometric properties from their design and later, in their application in several studies that have replicated them.

Final remarks

Finally, we may say that the research question is answered and the objective is achieved, since, there is a set of latent variables that explain the phenomenon studied, based on the five dimensions of the scale designed by Muñoz and Mato-Vázquez (2007). The five dimensions show significant factor loading under the latent root criterion > 1. This contributes to the total variance explained (80.09 %) of the phenomenon studied.

Likewise, with the hypothesis test carried out, each one of the factors showed significant factor loads, which makes it possible identify the factor that most contributes to the total explained variance of the phenomenon under study, being, "Anxiety towards mathematical situations in daily-life ANXTMSDL (0.933)" the largest. This allows demonstrating hypothesis H5, consequently H1 to H4 are not the ones that more explain the variance, although, contribute of very significant way.

Relevance of finding

Probably the most significant finding that we report in this study is the polarity of the factors that showed the highest and lowest load factor, respectively. ANXTMSDL (0.933) the largest factor load, which suggests that the profile of the medical student, generates greater anxiety when faced with operations in daily life and (ANXTT 0.626) the factor that has a lower factor load, which leads us to think that anxiety towards the temporality of assessments or exams is not present, perhaps because, in the curriculum of the career, the topics of mathematics are not integrated into the curriculum.

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