Web prototype "Pressus v1.0" for the detection of depressed young people: Psychometric analysis of reliability and validity

Prototipo web "Pressus v1.0" para detección de jóvenes depresivos: Análisis psicométrico de confiabilidad y validez

MORALES-REYES, Eunice†*, DOMINGUEZ-CAMPOMANES, Margarita, GOMEZ-MANUEL, Esbeidy and KATT-MORALES, Luz Alondra

Universidad Tecnológica del Sureste de Veracruz, Av. Universidad Tecnológica Lote grande, Número 1, sin colonia, Nanchital, Veracruz

ID 1st Author: *Eunice, Morales-Reyes* / **ORC ID:** 0000-0003-0658-6957, **arXiv Author ID**: 2836978, **Researcher ID Thomson**: S-4739-2018, **CVU CONACYT ID**: 345179

ID 1st Co-author: *Margarita, Dominguez-Campomanes* / **Researcher ID Thomson:** G-5015-2019, **arXiv Author ID:** 2635670, **CVU CONACYT ID:** 947280

ID 2nd Co-author: *Esbeidy, Gomez-Manuel* / **ORC ID:** 0000-0003-0765-3402, **arXiv Author ID**: 2419916, **CVU CONACYT ID**: 599053

ID 3rd Co-author: *Luz Alondra, Katt-Morales* / **ORC ID:** 0000-0002-9982-8718, **Researcher ID Thomson:** S-6606-2018, **CVU CONACYT ID:** 412698

Abstract

Depression, according to the World Health Organization (WHO), is a common and treatable affective mental disorder. Currently, it is the main public mental health problem, being the leading cause of suicide in the world and the fourth as disability, in relation to the loss of years of healthy life. In Mexico, the National Institute of Statistics and Geography (INEGI) indicates that 29.9% of the inhabitants over 12 years of age suffer some level of occasional depression and that in 2018 alone there were 6,370 suicides. The present work aims to develop a Web tool called Pressus, which, based on an evaluation instrument for depression, developed and validated by experts, allows to identify particularities of young people, associating them with depressive disorder, with the intention of support in the timely diagnosis of this. The results can be used by Institutions, psychologists or patients with this condition, to offer support strategies, channeling, timely treatment and follow-up.

Depression in young people, Web tool, Screening instrument

Resumen

La depresión, según la Organización Mundial de la Salud (OMS), es un trastorno mental afectivo común y tratable. Actualmente, es el principal problema de salud mental pública, siendo la primera causa mundial de suicidio y la cuarta como discapacidad, en relación con la pérdida de años de vida saludable. En México, el Instituto Nacional de Estadística y Geografía (INEGI) señala que el 29.9% de los habitantes mayores de 12 años sufren algún nivel de depresión ocasional y que tan solo en 2018 se registraron 6,370 suicidios. El presente trabajo tiene como objetivo, desarrollar una herramienta Web denominada Pressus, que, a partir de un instrumento de evaluación para la depresión, elaborado y validado por expertos, permita, identificar particularidades de los jóvenes, asociándolas al trastorno depresivo, con la intención de apoyar en el diagnóstico oportuno de esté. Generando informes de resultados con índices de riesgos, recomendaciones y pautas a seguir. Los resultados pueden servir a Instituciones, psicólogos o pacientes con este padecimiento, para ofrecer estrategias de apoyo, canalización, tratamiento oportuno y seguimiento.

Depresión en jóvenes, Herramienta web, Instrumento de cribado

* Correspondence to Author: (E-mail: eunice.morales@utsv.edu.mx)
† Researcher contributed as first author.

Introduction

In recent years, studies of the various diseases that afflict humans have increased, especially those related to mental health, through which a high prevalence of schizophrenia is recorded with rates of 0.7 to 1.3 percent, depression with an annual rate of 4.8% and anxiety with an annual prevalence of 6.8% (Pardo A., Umbarila Z., & Sandoval D., 2004). Among the possible causes of such ailments, authors such as Gómez and Rodríguez (1997) affirm that their high rates may be due to current socioeconomic and political conditions, such as unemployment, violence, poverty, job uncertainty, and low occupational expectations. In the same way, Santacruz, Gómez, Posada and Viracachá (1995) point out that insecurity, high alcohol consumption and the lack of availability of treatment are other reasons that influence its development.

According to WHO figures released in 2016, common mental disorders are on the rise worldwide. Between 1990 and 2013, the number of people with depression or anxiety has increased from 416 million to 615 million. About 10% of the world's population is affected, and mental disorders represent 30% of the global burden of non-fatal disease (Pan American Health Organization, 2017).

In Mexico, the National Institute of Statistics and Geography (INEGI) indicates that 29.9% of inhabitants over 12 years of age suffer some level of occasional depression and that in 2018 alone there were 6,370 suicides derived from this condition, identifying biological characteristics, very specific psychological and social experiences that people experience that lead them to suffer greater emotional difficulties. Characterizing the population of young people with their characteristics, risks and presence of disease is of singular importance for their integral education, significance as individuals and as future professionals. This research sought to identify particularities of this population and associate them with depressive disorder, with the intention of obtaining a validated instrument to support the diagnosis of depression in young people, which can be used through a web application called Pressus v1.0.

The application allows: 1) User registration, 2) Self-application of the test, 3) Generate the test results report in PDF, indicating the risk index of suffering from the disorder (low-medium-high) and the recommendations or guidelines to follow according to the level of diagnosis, this can be downloaded, printed or sent by email to the user, and 4) Consult the history of the results of the tests that were carried out by the user. In this first version, the user will be responsible for the timely management of their level of diagnosis since they will be able to decide what actions to take in the case of a medium-high diagnosis.

As future work, it is intended that Pressus be used as a support tool in educational institutions, especially in psychological counseling departments, since they could consult the results of the tests carried out by their students, to follow up, timely channel, counseling and psychological support, reducing possible causes that affect the psychosocial or academic performance of young people with this condition.

Literature review

Depression: concept and prevalence

Depression According to the World Health Organization (WHO, 2001), it is a very common mental disorder characterized by sadness, loss of interest or pleasure in activities, feelings of guilt, low self-esteem, thoughts of death and suicide, problems of sleep and appetite, loss of energy and low concentration.

Adolescent or youth depression

According to the WHO (2001), depression is present in adolescents in 5% from the age of 14. One of the main risk factors for the presence of depression is the fact of being a woman; for women, the probability of developing depression is almost double that of men from the age of 15 years. (Gómez L. & Aldana C., 2007).

Diagnostic criteria

The most widely used diagnostic criteria for depression, both clinically and in research, are those of the International Statistical Classification of Diseases and Related Health Problems (ICD) and those of the American Psychiatric Association (DSM) classification.

The ICD-10 (World Health Organization, 1992) classifies major depression within mood or affective disorders. The depressive episode must last for at least two weeks and at least two of the three symptoms considered typical of depression must always be present: depressed mood, loss of interest and the ability to enjoy and increased fatigue.

The DSM (American Psychiatric Association, 2013), is a classification system of mental disorders that provides descriptions of the diagnostic categories, in order that clinicians and researchers in the health sciences can diagnose, study, exchange information and treat various disorders.

Assessment and screening for depression

The evaluation of depression can have a diagnostic purpose, when the objective is to verify the presence or absence of diagnostic criteria (usually ICD or DSM), as well as to quantify the frequency and severity of the symptoms.

In depressive disorders, scales and interviews with different degrees of structure are used as instruments to measure the severity of depression and its response to treatment. Their objective is the symptomatic evaluation of the patient in a determined time frame, allowing the grading of each item and obtaining a final score. The most used are: The Beck Depression Inventory (BDI) (Beck, 1961; Jurado, Villegas, Méndez et al., 1998), the hetero-applied Hamilton Scale for depression (HRSD or HAM-D, Hamilton Rating Scale for Depression) (Hamilton, 1960), in both the objective is to detect the presence of depressive symptoms and quantify their severity, the Montgomery Asberg Depression Rating Scale (MADRS) (Montgomery and Asberg, 1979) is a scale hetero-applied by interview that consists of 10 items that assess the severity of depressive symptoms. The scale must be administered by a clinician, although there are self-administered versions that have shown a moderate / good correlation with the hetero-applied version and the Brief Patient Health Questionnaire (PHQ-9) is the self-administered version of the depression module of the PRIME-MD (Primary Care Evaluation of Mental Disorders Procedure). It consists of 9 items that assess the presence of depressive symptoms (corresponding to the DSM-IV criteria) present in the last 2 weeks.

Statement of the problema

In Mexico, the number of adolescents and young people between 12 and 24 years of age with depression is approximately 2.5 million, and 9.9 out of every 100,000 have had suicidal ideas, according to UNAM specialists.

The manifestations of depression in young people vary according to the adolescent's sex, value system, emotional adjustment, intellectual and educational level, as well as the context and environment where it develops (Craig, 1997); Furthermore, they are easily confused with the mood swings, aggressiveness, isolation, disinterest and exhaustion typical of this stage (Schwob, 1995).

The confusion regarding the adolescent's own changes and the possibility of suffering depression generates difficulties for its diagnosis despite the use of the different instruments and techniques that are used. In this sense, many of the instruments most used to measure depression take very little into account the ideological and cultural characteristics of the population in which they are used (García and Ros, 2005); specifically, the Mexican population has cultural peculiarities for its manifestation (Díaz Guerrero and Pacheco, 1994; Vallejo and Gastó, 2000).

Kleiman (cf. Chinchilla, 1997) points out that the use of instruments and scales in cultural settings other than where they were developed can lead to false diagnostic categories, skew information, or over-diagnose affective disorders.

Another important fact to highlight is that few instruments measure depression exclusively at this stage of life. Such is the case of the Reynolds Scale of Depression in Adolescents (Reynolds and Mazza, 1998), which covers ages between 13 and 18 years, or the MMPI-A, which has the depression subscale, but which is very laborious when answered when adolescent depression is suspected. Therefore, on many occasions, instruments are used that are aimed at the adult population, which can lead to obtaining erroneous, biased or unreliable information (Cohen and Swerdlik, 2001).

It is based on the above, that the objective of this research was to develop a self-applied psychometric instrument on a web page, which allows evaluating the symptoms associated with depression in young people, allowing to identify possible risks of suffering from depression, identifying them to starting from cutoff points .

The use of information technologies for the automation of this test will allow a considerable saving of paper, the reduction of the processing time and information analysis, the possibility of storing and controlling clinical files digitally, accessing them in the moment it is required, among others.

Method

- Participants

We worked with a non-probabilistic sample of an intentional type made up of 781 young people, students from the following Institutions: CBTIS 213 (49) from Minatitlán, Veracruz, CBTIS 85 (100), Universidad Veracruzana (4) both from Coatzacoalcos, Veracruz, COBAEV 43 (41) from Las Choapas, Veracruz, COBAEV 34 (117) and Universidad Tecnológica del Sureste de Veracruz (470) from Nanchital, Veracruz; whose ages ranged between 15 and 35 years, with an average of 19.11, of which 46.6% were female, 53.1% male, and 0.3% preferred not to say so.

- Instrument

To carry out the research, a Likert-type scale was generated in Google Forms, with four response options in which it was selected how often the stimulus presented, during the last two weeks. It was made up of 86 items, considering the following clinical characteristics defined for the diagnosis of depression: behavioral, cognitive, affective, somatic and one called spiritual. The clinical characteristics were presented randomly, to avoid bias in the responses.

- Procedure

The design of the instrument was generated by professionals in the field of mental health, carrying out a comparative analysis of the most used scales to measure depression in young people: The Statistical and Diagnostic Manual of Mental Disorders (DSM-V), Research Diagnostic Criteria (RDC) suggested by Spitzer, Endicott and Robins (1978), the Weinberg Criteria (Weinberg et al., 1973) used for the diagnosis of childhood depression and the Reynolds Scale of Depression in Adolescents (EDAR) by Reynolds and Mazza (1998) . For content validation, the expert judgment procedure was used, who made the pertinent observations, which were subjected to a concordance analysis, through Cohen's Kappa measure, with these results, the second version of the instrument that was used for the pilot test.

The instrument was applied to the young people using a form designed in Google Forms, at the end, the data were exported to the IBM SPSS Statistics Version 28.0.0.0 (190) Software for processing and analysis. The reliability of the instrument was obtained from Cronbach's alpha coefficient, and the item-scale correlation indices were evaluated to verify its internal consistency.

The validity of the construct was carried out from factor analysis with varimax rotation, which allowed grouping the items from the study of their corresponding intercorrelations. For the development of the website, the SCRUM methodology was used. This methodology was divided into 4 main Sprint, as shown in Figure 1.
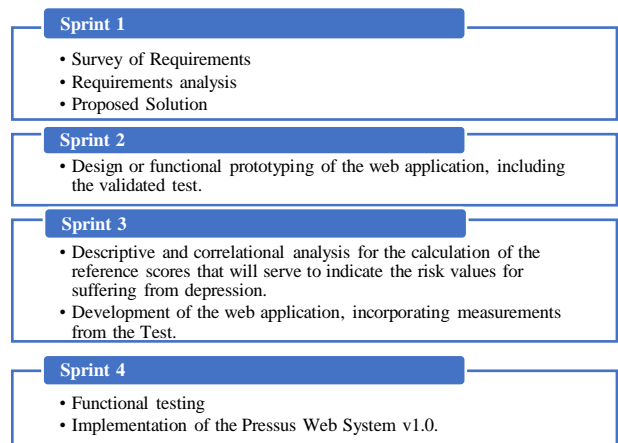

Sprint 1
- Survey of Requirements
- Requirements analysis
- Proposed Solution

Sprint 2
- Design or functional prototyping of the web application, including the validated test.

Sprint 3
- Descriptive and correlational analysis for the calculation of the reference scores that will serve to indicate the risk values for suffering from depression.
- Development of the web application, incorporating measurements from the Test.

Sprint 4
- Functional testing
- Implementation of the Pressus Web System v1.0.

Figure 1 SCRUM methodology diagram applied to the project: Pressus.
Source: Own elaboration

Results

a) Instrument

The development of Pressus v1.0, has as its primary objective, to offer a technological tool that provides a contribution in the psychological evaluation processes, therefore, to design the instrument used, a psychometric framework for the development of objective tests was used, with its corresponding assessment of reliability and validity.

The main reliability and validity findings of Pressus are presented below, in its pilot version application.

In this study, the reliability calculation and the validity analysis based on the internal consistency of the items have been considered of great relevance. For this research, Cronbach's Alpha was selected, since the items on the scale assumed a polytomous rating system (with four degrees of response).

The Cronbach's Alpha index obtained was equal to 0.940 in the first test carried out, which according to Mateo (2012), the correlations located between the interval 0.8 and 1, are considered very high and, consequently, would denote high levels of reliability. However, when performing the item correlation analysis, it was observed that there were values with a score lower than 0.3, so they were eliminated. In a 3rd test, the reliability value increased to 0.974, which indicates that the instrument shows high reliability, the total results and by component are presented in Table 1.

Component	Cronbach's Alpha	N of elements	Mean correlation between variables
1. Low self-esteem	0.951	14	0.591
2. Somatic	0.933	11	0.564
3. Negative affectivity	0.930	10	0.574
4. Cognitive	0.903	7	0.570
5. Aggression	0.856	4	0.600
6. Beliefs	0.867	3	0.685
Total Reliability	0.974	49	0.443

Table 1 3rd. Test - Cronbach's Alpha by component and total test
Source: Own elaboration

Descriptive analysis of the behavior of the items was also carried out, observing that the calculated averages are between 1 and 4 for each of them, corresponding to the original qualification degrees: "Almost never", "Rarely", "Sometimes "or" Almost always. " These results allowed us to observe which ones reflected the higher prevalence of depression, being the items: P8, P3, P5, P1, P43, P15, P18, P33, P45, P4, P41, P20, P21, P17, P22 and P13.

Kaiser-Meyer-Olkin measure of sampling adequacy		0.957
Bartlett's test of sphericity	Approx. Chi squared	33511.506
	gl	1176
	S.I.G.	0.0000

Table 2 KMO and Bartlett test
Source: Own elaboration

Bartlett's test of sphericity tests the null hypothesis that the observed correlation matrix is actually an identity matrix. Assuming that the data come from a multivariate normal distribution, the Bartlett statistic is approximately distributed according to the chi-square probability model and is a transformation of the determinant of the correlation matrix. If the critical level (Sig.) Is greater than 0.05, we cannot reject the null hypothesis of sphericity and, consequently, we cannot ensure that the factorial model is adequate to explain the data.

In relation to the results of the factor analysis carried out on the instrument, we can identify in Table 2 that the Kaiser-Meyer-Olkin criterion of sample adequacy and the Bartlett criterion of sphericity are met, being 99% significant. The Chi-square approximation indicates that the null hypothesis is rejected, indicating a high association between variables.

The factor analysis with varimax rotation is shown in table 3, the results yielded a total of six components with Eigen values greater than 1, in a total of 49 items and that explained 66.79% of the variance.

Ítems	Componente					
	1	2	3	4	5	6
P34 [I would like to die]	0.843					
P32 [I think it would be better to be dead]	0.829					
P25 [I don't think I'm worth anything]	0.731					
P40 [I want to hurt myself]	0.709					
P35 [I don't feel loved]	0.704					
P29 [I consider myself a hindrance]	0.699					
P44 [I don't think my parents care about me]	0.679					
P19 [It seems to me that I am useless]	0.641					
P39 [Everything that happens is my fault]	0.638					
P30 [I feel like nothing I do helps me]	0.604					
P16 [I want to run away]	0.583					
P38 [I feel like life is unfair]	0.553					
P42 [I feel like I have no future]	0.547					
P36 [I am not interested in others]	0.513					
P46 [I feel dizzy]		0.793				
P31 [I feel nauseous]		0.763				
P11 [I feel faint]		0.753				
P23 [I have chest pain]		0.733				
P28 [I have hot flashes (sudden feeling of heat) or chills]		0.671				
P7 [I feel pressure in my chest]		0.643				
P21 [I have a headache]		0.595				
P22 [I tire easily]		0.550				
P14 [I spend my time crying]		0.547				
P48 [I have digestive problems]		0.540				
P24 [I feel desperate]		0.479				
P5 [I feel frustrated]			0.656			
P3 [I feel discouraged]			0.648			
P4 [I feel Disappointed]			0.622			
P13 [I feel alone]			0.594			
P17 [I feel sad]			0.567			
P9 [I feel unmotivated]			0.565			
P1 [I feel Disappointed]			0.564			
P18 [I feel insecure]			0.531			
P12 [I feel empty]			0.516			
P33 [I feel homesick]			0.459			
P37 [I don't want to do anything]				0.640		
P20 [I can't concentrate on my daily activities: school, work, etc.]				0.631		
P15 [I think I'm very distracted]				0.575		
P43 [I have trouble making decisions]				0.525		
P27 [Nothing satisfies me]				0.510		
P49 [I have a hard time concentrating when talking to someone]				0.510		
P47 [I lose track of time and space]				0.499		
P2 [I feel hate]					0.775	
P6 [I feel resentment]					0.716	
P10 [I feel angry]					0.713	
P26 [I feel angry]					0.565	
P45 [I ask God to help me feel good]						0.870
P41 [I think that God will give me peace of mind]						0.854
P8 [I think of God, when I'm sad]						0.829

Table 3 Results of factor analysis with varimax rotation
Source: Own elaboration

Due to the content of the items, the components were named, namely: Component 1, low self-esteem; Component 2, somatic; Component 3, negative affectivity; Component 4, cognitive; Component 5, aggressiveness; and Component 6, beliefs.

b) Web application: Pressus v1.0.

Regarding the web application, the development of the project is in Sprint 2: Design or Functional Prototyping of the Project. Its main interface is shown in figure 2. The functionality of this interface allows the user to:

- Access the web application, as long as you have the user registration and correct authentication.

- See information about depression.

- Consult the information of the Psychologists and Psychiatrists specialized in the treatment of depression, located in the southern part of the State of Veracruz.

- Take the Test to identify your risk index for depression.

- Consult the history of the tests carried out for downloading and printing in PDF.

Figure 2 Main interface of the project: Pressus v1.0
Source: Own elaboration

Figure 3 shows the interface that shows the instrument generated and validated by expert judgment and derived from the reliability and validity analysis.
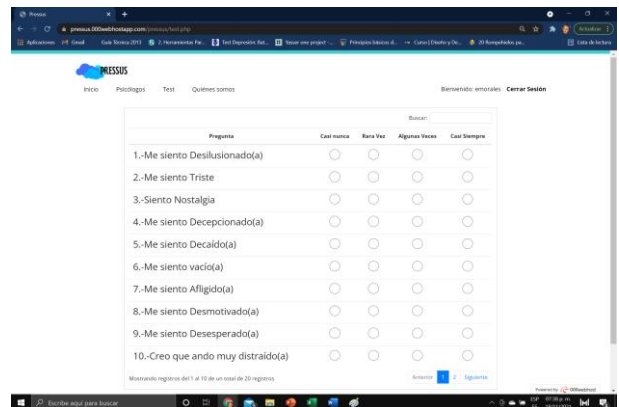

Figure 3 Task: Perform test in Pressus v1.0.
Source: Task: Perform test in Pressus v1.0

Gratitude

I infinitely thank the Professor, Ing. Antonio Gilbón Aburto, the students, San Martín Jiménez Amsy Jehieli, López Castillo Carlos Josué and Aparicio Ixtepan Geraldi Alexandra, collaborators in the development of the web prototype.

I also thank the Health Professionals, who, with their experiences in the management of depressive patients, made it possible to generate an instrument, which will be used as a support tool to identify this condition in a timely manner.

Conclusions

Depression is a real phenomenon in young people and a form of psychopathology that cannot be relieved without intervention. Programs to identify young people with symptoms of depression must be implemented in educational institutions, society and themselves, to reduce destructive risks.

The reliability and validity results obtained allow us to appreciate that the instrument has the appropriate psychometric characteristics to be applied in young Mexicans. The components defined in the construct show an important correlation between its items and in general, however, it has been observed that many of the manifestations of depressed young people can be very easily confused with the characteristics of the stage in which they are found. . Likewise, it is important to note that the instrument allows to reflect the main manifestations of depression in young people and opens the possibility of considering the search for spiritual support as an important manifestation of depression, which is undoubtedly a cultural expression of Mexicans (Paz , 1950; Valdez, 1994, 1996). It is important to emphasize that this instrument will indicate a level of risk of suffering from depression, however, the young person must confirm it with a health professional.

The implementation of the Pressus v1.0 web system, aims to offer greater accessibility to young people at risk, when using Information Technologies, they can feel safe to respond honestly, which will allow obtaining a better indicator of the level of risk.

As future work, it is intended that educational institutions, health personnel, or support associations, can have access to the information of their students or patients. In the case of educational institutions, this would allow them to identify students with higher risk levels, who could be affected in their academic and personal activities, representing a threat of dropping out or school failure. Likewise, it would serve as support for mental health professionals, counselors, social workers, nurses, etc. to identify young people with possible depressive symptoms for their subsequent referral, timely treatment and follow-up of their patients.

References

Alonso F., F. (1986). *Clinical model of depression composed of four semiological dimensions.* [Modelo clínico de depresión integrado por cuatro dimensiones semiológicas]. Paper presented at the International Symposium on Diagnosis and Classification of Depression. Madrid: SIDCD.

American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders*: *DSM-5*. Arlington (VA): American Psychiatric Association.

Beck, A.T. (1961). *An inventory for measuring depression. Archives of General Psychiatry*, 4, 561-571.

Butcher, J.N., William, C.L., Graham., J.R., Archer, R.P., Telklegen, A., Ben-Porath, Y.S. y Kaemmer, B. (1992*). Minnesota Multiphasic Personality Inventory for Adolescents.* [Inventario Multifásico de la Personalidad de Minnesota para Adolescentes]. Madrid: TEA Ediciones, S.A.

Chinchilla M., A. (1997). *Treatment of depressions.* [Tratamiento de las depresiones]. Barcelona: Masson.

Cohen, R.J. y Swedlik, M.E. (2001). *Psychological testing and evaluation. Introduction to measurement tests.* [Pruebas y evaluación psicológicas. Introducción las pruebas de medición]. México: McGraw-Hill.

Craig, G.J. (1997). *Psychological development.* [Desarrollo psicológico]. Barcelona: Prentice-Hall.

Díaz-Guerrero, R. y Pacheco A., M. (1994). *Etnopsicología: Scientia Nova*. Santo Domingo (Dominican Republic): Professional and Scientific Services, Inc.

Gómez L., M. E., & Aldana C., E. (2007). Psychological alterations in women with high-risk pregnancy. *Psychology and Health*. [Psicología y Salud]*, 17*(001), pp.53-61. Obtained from https://www.redalyc.org/pdf/291/29117106.pdf

Gómez, C., & Rodríguez, N. (1997). 114 / 5000 Hamilton, M.A. (1960). *A rating scale for depression.* Journal of Neurological and Neurosurgery Psychiatry, 23, 56-62.

Jurado, S., Villegas, M.E., Méndez, L., Rodríguez, F., Loperena, V. y Varela, R. (1998). *The standardization of the Beck depression inventory for residents of Mexico City.* [La estandarización del inventario de depresión de Beck para los residentes de la Ciudad de México]. *Mental health*, *21*(3), 26-31.

Mateo, J. (2012). *The ex post fact investigation.* [La investigación ex postfacto]. In R. Bisquerra (coord.), Educational Research Methodology. Madrid: The Wall.

Montgomery, S. y Asberg, M. (1979). *A new depression scale designed to be sensitive to change.* British Journal of Psychiatry, 134, 382-389.

Pan American Health Organization (2017). *Depression and other common mental disorders. Global health estimates.* [Depresión y otros trastornos mentales comunes. Estimaciones sanitarias mundiales]. Washington, D.C.: World Health Organization. Obtained from: https://iris.paho.org/bitstream/handle/106 65.2/34006/PAHONMH17005-spa.pdf

Pardo A., G., Umbarila Z., D., & Sandoval D., A. (2004). Adolescence and depression. *Colombian Journal of Psychology* [Revista Colombiana de Psicología]*, 13*(1), 13-28.
Paz, O. (1950). *The Labyrinth of Solitude.* [El laberinto de la soledad]. Mexico: Economic Culture Fund.

Pérez F., J.M., Durán, C. y Gómez M., E.L. (2003). A study on the temporal stability of the MMPI-A with a testretest design in Mexican students. [Un estudio sobre la estabilidad temporal del MMPI-A con un diseño testretest en estudiantes mexicanos]. *Mental health*, *26*(2), 59-66.

Reed GM, J. M-C, Esparza P, Saxena S, Maj M (2011). The WPA-WHO Global Survey of Psychiatrists' Attitudes Towards Mental Disorders Classification. World Psychiatry.10(2):118-31.

Reynolds, M.W. y Mazza, J.J.(1998). Reliability and validity of the Reynolds Adolescent Depression Scale with young adolescents. *Journal of School Psychology*, *36*(3), 295-312.

Risk factors associated with depressive syndrome in the Colombian population. Colombian Journal of Psychiatry, [Revista Colombiana de Psiquiatría] 26 (1), 23-35.

Santacruz, C., Goméz. R, C., Posada, V. J., & Viracachá, P. (1995). *Regarding a secondary analysis of the national survey on mental health and psychoactive substance use*. [A propósito de un análisis secundario de la encuesta nacional de salud mental y consumo de sustancias psicoactivas]. Bogotá: Ministry of Health-Pontifical. Javeriana University.

Schwob, M. (1995). *How to beat depression.* [Cómo vencer la depresión]. Bogota: San Pablo.
Valdez M., J.L. (1996). The psychological meaning of the real and ideal Mexican. *Social Psychology in Mexico*. [La Psicología Social en México], VI, 98-103.

Valdez M., J.L. (1994). *The Mexican self-concept: validation studies.* [El autoconcepto del mexicano: estudios de validación]. Doctoral thesis. Mexico: National Autonomous University of Mexico. Mexico.

Vallejo, R.J. y Gastó, F.C. (2000). *Affective disorders: anxiety and depression.* [Trastornos afectivos: ansiedad y depresión]. Barcelona: Salvat.

World Health Organization (1992). *Tenth Revision of the International Classification of Diseases. ICD-10. Mental and behavioral disorders*. [Décima Revisión de la Clasificación Internacional de Enfermedades. CIE-10. Trastornos mentales y del comportamiento]. Madrid: Meditor.

World Health Organization [WHO] (2001). *The World Health Report 2001-Mental Health: New Understanding, New Hope*. World Health Organization. Consultado el 10 de abril del 2010. Obtained from: http://www.who.int/whr/2001/en/index.html.

Zung (1965). WWK. Self-report depression scale. *Archives of General Psychiatry*, 12, 63-70.