

Culture-bound syndromes in Spanish speaking Latin America: the case of *Nervios*, *Susto* and *Ataques de Nervios*

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Abstract

Background: Cultural issues are important for diagnostic validity between different countries; little has been addressed from Latin America and Caribbean countries (LAC). **Objective:** To identify LAC studies on culture-bound syndromes (CBS) and extract potential empirical evidence about *Susto*, *Nervios* and *Ataques de Nervios*. **Methods:** Search strategies were carried out in Medline, Embase, Lilacs, ISI and PsycINFO, covering 1992 to 2015. Inclusion criteria: studies on CBS conducted on populations residing in LAC, LAC articles on diagnostic classification and culture, where LAC has been included. Exclusion criteria: studies on Latin American migrants outside LAC. Content analysis used the system proposed by Guarnaccia and Rogler (1999): epidemiological, ethnographic and socio-demographic data and identification of comorbidities with other psychiatric disorders. **Results:** Thirty one articles were selected out of 1.090. These CBS were selected out of 1aphic data and identification of comorbidities with other ps proposed by Guarnaccia diagnostic classification and cun panic disorders and post-traumatic stress disorder and presented more psychosocial vulnerability. **Discussion:** Analysis showed that *Nervios*, *Susto* and *Ataques de Nervios* are important idioms of distress, associated with socio-economically vulnerable populations and comorbidities with other psychiatric conditions, particularly post-traumatic stress disorder. More studies are needed on their relation with stress and in more LAC countries.

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Introduction

In the current major classification systems, DSM-V¹ and ICD-10², the concepts of mental disorders are arbitrated by taking into account mainly the number and duration of mental symptoms, as well as impairment in overall functioning, with little or no inclusion of cultural variables.

A new paradigm of classification model is being developed, the Integrated Centered on the Individual Diagnosis³, where cultural components, personal values and the context of the patient are incorporated into the diagnostic process. The social and cultural aspects of mental disorders in different contexts have been widely considered by committees and associations from different countries and cultures⁴. Since there are no accepted pathophysiological mechanisms or biological markers for mental disorders, diagnostic validity across cultures is questionable. Psychiatric symptoms are not specific, and their understanding and assessment depends on the judgment of the examiner. Examiner bias depends on their own cultural background and theoretical references and it equally depends on the patient's ability to understand and communicate what they have experienced or is experiencing⁵. In this sense, the different way cultures express stress in terms of signs and symptoms can be called idioms of distress^{6,7}. Given that the form of expression of a psychological distress is particular to an individual and their culture, this description may or may not have to do with a condition which has been defined elsewhere.

As part of the preparation of DSM-IV⁸, an international panel of experts in diagnostic classification was created which produced a report to be integrated into the manual concerning the different cultural aspects that could influence the description of mental diseases. It also included the issue of the so-called culture-bound syndromes, sets of psychiatric symptoms and dysfunctional behaviors that are expressed in a particular way in a particular culture and that may or may not be related to other mental disorders already described in other countries/cultures⁹. However, the final version of the manual was criticized by various members of the panel as it included only a few of the reported cultural aspects and because of the decision to insert culture-bound syndromes only as an appendix to the manuals¹⁰⁻¹².

DSM-V¹, however, has shown improvements in this area adding a cultural glossary which includes the more important Culture Bound Syndromes and a Cultural Formulation Interview to guide users through cultural issues on patient Culture Bound Syndrome. Also some conditions in the main sections, such as in the case of depression, are referenced in the glossary to culturally linked syndromes particular to some groups. Cultural Idioms of Distress, ways of expressing distress which may not be linked to symptoms and syndromes, but are shared ways of experience and communicate individual and social concerns; and Cultural Explanations of Distress or Perceived Distress, labels and characteristics of an explanatory model related to culturally recognized meaning and etiology for symptoms, illness and distress.

In an attempt to improve diagnostic validity across cultures, different initiatives have been undertaken. Among them, different countries/regions have sought to produce local diagnostic manuals, taking into account their particular culture^{13,14}. The Latin American Guide to Psychiatric Diagnoses^{14,15} is one of these initiatives, in which the Latin American perspective on psychiatric diagnosis and its history is described. In addition the mental disorders belonging to the ICD-10² are discussed in relation to different manifestations that they may have in Latin American culture, and local culture bound syndromes are described.

In LAC, the main culture bound syndromes studied are *Nervios*, *Ataques de Nervios* and *Susto*^{1,15}. *Nervios* is described as episodes, usually chronic, of extreme sadness or anxiety associated with somatic symptoms such as headaches and/or muscle pain, nausea, loss of appetite, fatigue, insomnia and decreased reactivity. It is more common in women and associated with stress, emotional imbalance and low self-esteem. *Ataques de Nervios* are described as culturally acceptable responses to acute stressful experiences, particularly the loss of loved ones and family conflict or threat. It is characterized by tremors, a feeling of heat that starts in the chest and rises to the head, fainting and epileptic episodes. It is also accompanied by a sense of loss of control and may present a significant degree of agitation, suicidal gestures and auditory hallucinations. *Ataques de Nervios* are generally associated with inducing support from the individual's

social network which usually leads to the victim quickly regaining consciousness and previous functioning. *Susto* is described as chronic somatic symptoms attributed to "soul loss" and induced by an episode of intense fear experienced by the individual, usually related to a supernatural perspective. In some cases, *Susto* can be induced by witnessing others who are affected by this illness. Symptoms include fever, diarrhea, loss of appetite, restlessness, insomnia, mental confusion, apathy, depression and introversion.

The contributions of Latin America on psychiatric diagnoses and in particular the main local culture bound syndromes *Susto*, *Nervios* and *Ataques de Nervios*, may contribute to the development of a more comprehensive and valid diagnostic process in Latin America.

Method

Search strategies were conducted in the main electronic scientific databases: Medline, Embase, Lilacs, ISI and PsychINFO. These strategies (Strategy 1) were performed using descriptors which covered mental disorders, culture, cross-cultural syndromes and Latin America. The searches were limited to human studies in the period 1992 to 2015.

Another set of search strategies (Strategy 2) were the use of the terms *Susto*, *Nervios* and *Ataques de Nervios*, separately and as single words, in the Medline, Lilacs and PsychINFO databases.

Inclusion criteria for articles were: 1) articles related to cross-cultural syndromes that have been conducted in Latin America or by researchers affiliated with a Latin American institution and that have used a local population sample. Despite being an unincorporated territory of the United States, studies from Puerto Rico were included because of its Latin American culture and history; 2) studies that address cultural issues related to diagnostic classifications in which Latin America has been included; 3) articles in English, Spanish, Portuguese, French or Italian.

The following exclusion criteria Latin American studies on immigration and acculturation that included only populations from Latin America living in countries outside Latin America, articles on treatment of cross-cultural syndromes and revisions of these syndromes that do not show empirical data.

The selection of articles was performed by analyses of the abstracts by two independent researchers whose disagreements were discussed until a consensus was found. To measure agreement among the researchers, a calculation of the kappa was conducted.

In addition to these searches strategies, a manual search for articles was conducted through the references cited in the selected articles and through search engines of journals on the subject of medicine and culture, transcultural psychiatry and social medicine machines. The journals surveyed were: Anthropology and Medicine; Culture, Medicine and Psychiatry; Transcultural Psychiatry; Social Psychiatry and Psychiatric Epidemiology; International Journal of Social Psychiatry; Cross Cultural Research; Medical Anthropology Quarterly.

The content analysis of the selected articles was made using a script based on the proposed review of culture bound syndromes by Guarnaccia and Rogler¹⁶: a) description of the characteristics of culture bound syndromes based on ethnographic and epidemiological data; b) socio-demographic characterization of those affected by culture bound syndromes; c) identification of comorbidities among individuals affected by culture bound syndromes and other psychiatric disorders.

Results

Table 1 shows the frequency of articles in databases obtained by Strategy 1. Disagreements between researchers were resolved after discussion. Duplicate articles were removed.

Strategy 1 resulted in 889 references, of which 13 met the inclusion criteria. Two references were excluded because they were duplicated. The resulting 11 articles were equivalent to approximately 1.2% of the total articles obtained by the strategy. The references of two of these articles could not be obtained in full text. Thus, the strategy resulted in 9 articles for analysis, 6 of them obtained through Medline and Embase, equivalent to 67% of the selected articles, 3 obtained from PsychINFO, while Lilacs database did not contribute any study.

Strategy 2 obtained 201 studies, 18 of them fulfilling the inclusion criteria, after excluding duplicate articles.

Overall, both strategies resulted in 1090 references to articles, of which 27 met the inclusion criteria. Four more references were added by a hand search and through references of the selected articles, totaling 31 articles selected for analysis.

These studies are summarized in tables 2, 3 and 4.

Fifty articles were excluded because they were about populations of Latin American migrants in countries outside Latin America, most of them living in the United States. There were 60% more articles published on Latin American populations living outside Latin America than on populations within Latin America itself.

From the selected articles, 23 of them were about *Nervios* and *Ataques de Nervios* and 7 of them about *Susto*. Ten articles studied Mexican populations and nine articles studied Puerto Rican populations, equivalent to 61% of the articles (Table 2 and Table 3).

The articles were analyzed using according the following criteria developed by Guarnaccia and Rogler (1999)¹⁶:

a. Description of the characteristics of cross-cultural syndromes based on ethnographic data (description of the syndrome from the culture in which it was first described) and epidemiological data

Among the 31 selected references, 23 studies focused on *Ataques de Nervios* and *Nervios* (Table 1). Eight were qualitative studies^{17-23,24} focused on the characterization of the causes, symptoms, and treatments as described by those affected by the conditions. Among the selected references, seven were about *Susto* (Table 3), four of them were qualitative studies²⁵⁻²⁸, three focused on the causes, symptoms and treatment of *Susto*^{24,26,28} and one focused only on the causes of *Susto*²⁵.

a.1) Causes of *Ataques de Nervios*, *Nervios* and *Susto*

Interviews with the affected individuals found that *Ataques de Nervios*, *Nervios* e *Susto* were related to different types of stress through interviews with the affected individuals^{17-19,21,23-25,27,29}. *Nervios* was related to exposure to stressful events over a period of years, while *Ataques de Nervios* and *Susto* were related to exposure to specific events triggering the symptoms^{17,19}. The causative stressors of *Ataques de Nervios* and *Nervios* were often described as major threats to significant social relationships^{18,19,21,23,27,29}.

a.2) Symptoms of *Ataques de Nervios*, *Nervios* and *Susto*

Regarding *Nervios*, the authors concluded (Table 2) that it was best characterized by somatic disorders such as headaches and muscle aches, sadness, difficulty sleeping, insomnia, decreased reactivity, loss of appetite, fatigue, tension, worry and agitation. *Ataques de Nervios* was characterized as (Table 2) tremors, palpitations, uncontrollable screaming, crying, feeling of heat rising from chest to head, distemper,

Table 1. Distribution of the studies obtained from the five databases by Strategy 1

	Medline	Embase	Lilacs	ISI	PsychINFO	Total
References obtained	237	130	289	109	124	889
References selected	5	4	1	1	3	12
Total without duplicates	5	3	1	1	2	10
Total of references with full text	4	2	0	1	2	9

Table 2. Studies on the Culture Bound Syndromes *Nervios e Ataques de Nervios*

Author	Title	Country	Abstract
Baer et al. (2003) ¹⁷	A cross cultural approach to the study of the folk illness <i>nervios</i>	Mexico, Guatemala	Four different populations were studied, two North-American, one Mexican, and one Guatemalan A qualitative study that has found concordance in the answers of different country populations on the causes and symptoms of <i>Nervios</i> and <i>Susto</i> .
Norris et al. (2001) ²⁰	A qualitative analysis of posttraumatic stress among Mexican victims of disaster	Mexico	24 Mexicans victims of natural disasters in Mexico and Florida were interviewed. The answers have been analyzed looking for PTSD symptoms. A cluster of <i>Ataques de Nervios</i> symptoms were found.
Pineros et al. (1998) ²¹	An epidemic of collective conversion and dissociation disorder in an indigenous group of Colombia: its relation to cultural change	Colombia	Nine native Colombians suffering from <i>Ataques de locura</i> were interviewed. The <i>Ataques de locura</i> present symptoms similar to <i>Ataques de Nervios</i> with the exception of visual hallucinations.
Guarnaccia et al. (2005) ²⁹	Are <i>ataques de nervios</i> in Puerto Rican children associated with psychiatric disorder?	Puerto Rico	2651 children and their caretakers were assessed because they heir caretakers were a <i>Ataques de Nervios</i> and other psychiatric diagnoses in relation to their social-demographic profile. Parents with a history of <i>Ataques de Nervios</i> were connected to children with more <i>Ataques</i> , and with higher levels of anxiety disorders, depression, externalized disorders, and greater poverty.
Guarnaccia (1993) ³²	<i>Ataques de nervios</i> in Puerto Rico: culture-bound syndrome or popular illness?	Porto Rico	Based on previous epidemiological data on <i>Ataques de Nervios</i> in Puerto Rico, the author stands for the hypothesis that such syndromes must be understood as a popular disease, more than as a cross-cultural syndrome.
Cintron et al. (2006) ³⁴	<i>Ataques de nervios</i> in relation to anxiety sensitivity among island Puerto Ricans	Porto Rico	177 Puerto Ricans were analyzed in order to study the relation between sensitivity to anxiety symptoms and <i>Ataques de Nervios</i> . Individuals with greater sensitivity presented similar rates of anxiety symptoms and depression compared to individuals with <i>Ataques de Nervios</i> .
Ortega et al. (2004) ³¹	Parental mental health, childhood psychiatric disorders, and asthma attacks in island Puerto Rican youth	Porto Rico	1981 Puerto Rican children and their families were assessed to correlate history of asthma attacks and psychiatric history. Parents with history of <i>Ataques de Nervios</i> were linked to greater number of asthma attacks in their children.
Weller et al. (2008) ³³	<i>Susto</i> and <i>nervios</i> : expressions for stress and depression	Mexico	200 Mexicans were interviewed in order to study stress history, <i>Nervios</i> , <i>Susto</i> , and depressive symptoms. Having <i>Nervios</i> in the past indicated 19 times more chances of having depression in the past.
Guarnaccia et al. (1996) ¹⁸	The experiences of <i>ataques de nervios</i> : towards an anthropology of emotions in Puerto Rico	Porto Rico	The author has interviewed 121 Puerto Ricans for <i>Ataques de Nervios</i> characterization, and he has concluded that it encompasses the sensation of a major loss of control closely related to social stressors.
Guarnaccia et al. (1993) ³⁰	The prevalence of <i>ataques de nervios</i> in the Puerto Rico disaster study. The role of culture in psychiatric epidemiology	Porto Rico	In an epidemiological study in Puerto Rico a question on <i>Ataques de Nervios</i> was included. In this study, 16% of the Puerto Rican population referred to have suffered <i>Ataques de Nervios</i> in the past. Such result was linked with a greater frequency of depression, anxiety, female and low educational level.
Snyder et al. (2000) ²⁹	The prevalence of <i>nervios</i> and associated symptomatology among inhabitants of Mexican rural communities	Mities	942 Mexicans were assessed to know the prevalence of some mental diseases. Fifteen percent of the population referred to have suffered <i>Nervios</i> in the past.
Dickson-Gomez (2002) ²³	The sound of barking dogs: violence and terror among Salvadoran families in the postwar	El Salvador	Ethnographic study to analyze the cross-generational transmission of psychic trauma after war conflicts, and concluded that <i>Nervios</i> are one of the expressions of suffering.
Guarnaccia et al. (2003) ¹⁹	Toward a Puerto Rican popular nosology: <i>nervios</i> and <i>ataque de nervios</i>	Porto Rico	121 Puerto Ricans were interviewed to explore the <i>Ataques de Nervios</i> experiences, concluding that they are processes accepted by the local population, and not necessarily are linked to a disease.
Hinton and Hofmann (2014) ⁴⁰	Cross-Cultural Aspects of Anxiety Disorders	-	Identify and works the concepts of ethnopsychology and ethnophysiology to study the relation between symptom expression and culture in anxiety disorders.
Lopez et al. (2011) ⁴⁷	<i>Ataques de Nervios</i> and somatic complaints among island and mainland Puerto Rican children	Puerto Rico	Puerto Rican children 1353 living in Puerto Rico and 1138 in New York were compared in relation to <i>Ataques de Nervios</i> , clinical history and risk for injuries. Children with <i>Ataques</i> showed more risks but across sites risks showed to be different.
Lopez et al. (2009) ³⁵	<i>Ataques de Nervios</i> and their psychiatric correlates in Puerto Rican children from different contexts	Puerto Rico	2491 Puerto Rican children from Puerto Rico and New York were analyzed showing relation between <i>Ataques de Nervios</i> , global impairment and more exposure to violence.
Smith, 2009 (37)	Ethnomedical syndromes and treatment-seeking behavior among Mayan Refugees in Chiapas, Mexico	Mexico	1546 Guatemalan refugees living in Mexico were analyzed through the Rapid Demographic Assessment and ethnomedical syndromes. Fifty-nine percent from the adults showed history of <i>Ataques de Nervios</i> , with association with PTSD.
Canino et al. (2014) ³⁶	The role of peers in the relation between hurricane exposure and <i>Ataques de Nervios</i> among Puerto Rican adolescents	Puerto Rico	905 adolescents from Puerto Rico were analyzed, 12 to 27 months after a hurricane, where <i>Ataques de Nervios</i> were associated independently with previous peer violence and exposure to the hurricane.

Table 3. Studies on the Culture Bound Syndrome *Susto*

Logan (1993) ⁵¹	New lines of inquiry on the illness of <i>susto</i>		Review of the <i>Susto</i> syndrome using information published up to now.
Lee and Balick (2003) ⁵²	Stealing the soul, <i>soumwahu en nianik</i> and <i>susto</i> : understanding culturally-specific illness, their origins and treatments		Essay on the literary characteristics utilizing cross-cultural syndromes to mark the importance of inclusion of culture in the study of diseases, mainly the mental diseases.
Glazer et al. (2004) ²⁵	<i>Susto</i> and Soul loss in Mexicans and Mexican Americans	Mexico	850 Mexicans living in Texas and 50 living in Guadalajara were interviewed on the causes of <i>Susto</i> , wherein a major portion of the interviewed do not recognize n of the inteiving in Guadala <i>Susto</i> .
Weller et al. (2002) ²⁶	Regional variation in Latino descriptions of <i>susto</i>	Mexico, Guatemala	Populations of Mexicans in Texas and in Mexico, and Guatemalans were studied on the causes, symptoms, risks and treatment of <i>Susto</i> . The three populations presented major homogeneity of answers respecting causes and symptoms of <i>Susto</i> .
Flaskerud and Calvillo (2007) ⁵³	Psyche and soma: <i>susto</i> and diabetes		Opinion text where the Author endorse the importance of pairing the ideas of psych and soma, clarifying with the difficult of treating diabetes when the individual believes that their diabetes is caused by <i>Susto</i> .
Castro and Eroza (1998) ²⁷	Research notes on social order and subjectivity individuals experience of <i>susto</i> and fallen fontanelle in a rural community in central Mexico	Mral Mexico	Anthropological study to analyze <i>Susto</i> , Soul loss and Fallen Fontanelle experiences of a Mexican community from a sociological point of view.
Quinlan (2010) ⁵⁴	Ethnomedicine and ethnobotany of fright, a Caribbean culture-bound psychiatric syndrome	Dominica	Qualitative data were collected with key informants from a village in Domenica about <i>Susto</i> . <i>Susto</i> were highly recognized by the interviews and described as triggered by stressors.
Thomas et al. (2009) ²⁸	<i>Susto</i> etiology and treatment according to Bolivian Trinitario people	Bolivia	Semi structured interviews were used with key informants and household information gathered in two communities from Trinitario, Bolivia. <i>Susto</i> was described almost as important as fever, diarrhea and cough, and more common in children.

Table 4. Studies on Diagnostic Classification and Culture

Berganza et al. (2002) ¹³	Latin American Guide for Psychiatric Diagnosis (GLDP).	Guide produced by Latin American experts on the theme of Diagnostic Classification in Psychiatry to extend the validity of diagnoses made in the area based on ICD-10. The author presents a diagnostic proposal based on axis.
Guarnaccia and Rogler (1999) ¹⁶	Research on culture-bound syndromes: New directions.	The Author presents a methodology proposal for the study of cross-cultural syndromes in four steps.
Berganza et al. (2001) ¹⁴	The Latin American guide for psychiatric diagnosis. A cultural overview.	The Author tries to discuss the importance of increasing the diagnosis validity ways of the International Statistical Classifications of Diseases and Related Health Problems, ICD and DSM, highlighting GLDP.
Razzouk et al. (2011) ⁴⁹	The contribution of Latin American and Caribbean countries on culture bound syndromes studies for the ICD-10 revision: key findings from a working in progress.	A review was realized on the Medline, Embase, Lilacs and PsychINFO databases about cultural issues on psychiatric diagnostic, from Latin America. It points the scarcity of studies in this area and possible reasons for this.
Evans et al. (2013) ⁵⁰	Psychologists' perspectives on the diagnostic classification of mental disorders: results from the WHO-IUPyS Global Survey .	2155 psychologists from 23 countries contributed answering that 60% of them use routinely a formal diagnostic classification, 51% of them using frequently the ICD-10. However, most of them reported important cultural issues on applicability of the classification, particularly in countries outside USA and Europe.

distress, depression, feeling of suffocation, cold sweat, epileptic episodes, blurred vision, feeling of loss of control, dissociative episodes, hysteria and auditory hallucinations. *Susto* (Table 3) was described as fever, diarrhea, abdominal pain, loss of appetite, trembling, fear, crying, drowsiness or sleeplessness, feeling weak, tired, pale, nightmares and lack of motivation.

Weller et al.²⁶ and Baer et al.^{17,26} evaluated the homogeneity of the descriptions of symptoms, causes and treatments of *Susto* and *Nervios* between populations from different Latin American countries. The homogeneity of responses was assessed by statistical tests performed using data from the interviews. In the Puerto Rican, Mexican and Guatemalan populations, 40% to 50% homogeneity in the description of *Susto* and *Nervios* was found¹⁷.

a.3) Epidemiology of *Ataques de Nervios*, *Nervios* and *Susto*

Regarding the epidemiological aspects related to the frequency of these syndromes three articles²⁹⁻³¹ were identified. Snyder et al.²⁹ found a frequency of 15% for *Nervios* in a Mexican sample, measured

by personal report of being affected in the past. Guarnaccia³² added to a Puerto Rican population study the question of being affected by *Ataques de Nervios* in the past, finding that 16% of the population responded affirmatively, 12% of whom reported severe effects and need for medical care. A similar frequency, 15%, was found by Ortega et al.^{28,31} in a Puerto Rican sample for *Ataques de Nervios*.

All studies identified positive cases of *Ataques de Nervios* and *Nervios* through dichotomous questions (presence/absence of *Ataques de Nervios/Niervos/Susto*, with no characterization of symptomatology), directly addressed to the local population.

b. Socio-demographic characterization of the affected by the cross-cultural syndromes

With respect to socio-demographic description, seven studies^{17,19,23,27,29,33,34} were identified. Four^{17,29,33,34} showed a higher proportion of female victims of *Ataques de Nervios* and *Nervios*. In these studies, 76% to 78% of those affected were female. Psychosocial vulnerability, understood as the subjects undergoing major social and

economic difficulties, was identified as characteristic of the affected in four studies^{16,19,23,29,35,36}. In these, Mexicans, Puerto Ricans and Salvadorans affected by *Ataques de Nervios* were characterized by open interviews as individuals exposed to high stress, responsibility, violence and with lack of social support.

c. Identification of comorbidities among individuals affected by cross-cultural syndromes and other psychiatric disorders

Four studies showed a relationship between posttraumatic stress disorder (PTSD) and *Nervios/Ataques de Nervios*^{19,20,23,37}. Norris et al.²⁰ studied Mexican victims of natural disasters, residents of Florida and Mexico itself, encoding the answers through consensus among different raters. Seventy-nine percent of the sample reported one to nine symptoms of PTSD. Fifty percent of the interviewees reported hyper vigilance. Those symptoms not able to be coded in PTSD symptoms were grouped into clusters. One of these clusters was *Ataques de Nervios*, characterized by hysteria, nervousness and despair, where hysteria to the interviewees meant cry and scream, stress out more, to desperate. Guarnaccia et al.¹⁹ in an epidemiological study in Puerto Rico found that, compared to individuals without a history of *Ataques de Nervios*, 17% of those who had *Ataques de Nervios* also had PTSD. In the same study it was also found that individuals with a history of *Ataques de Nervios* were 5 times more likely to experience PTSD compared with those without a history of *Ataques de Nervios*.

Dickson-Gomez²³ interviewed a Salvadoran population, victims of conflict of war in the region. In this study, *Ataques de Nervios* and PTSD have been found as expressions of stress experienced during the war. In Guatemalan refugees living in Mexico, 34% of the adults reported *Ataques de Nervios*, 8 times more likely to present also PTSD.

Five studies showed the relationship between depressive disorder and *Nervios/Ataques de Nervios*. Individuals who reported having *Nervios* or *Ataques de Nervios* were also identified as having suffered from depression, according to their responses to different mental health questionnaires. Snyder et al.²⁹ used a questionnaire of symptoms based on the Composite International Diagnostic Interview (CIDI) while Cintron et al.³⁴ and Weller et al.³³ used the Beck Depression Inventory (BDI). Guarnaccia et al.¹⁹, in an epidemiological study in Puerto Rico, found that individuals who reported *Ataques de Nervios* were 9 times more likely to have depressive symptoms compared to individuals without a history of *Ataques de Nervios*. In Guatemalan refugees, based on DSM-IV³⁸ criteria, adults reporting *Ataques de Nervios* were 15 times more likely to also have depression history.

Susto was also studied in the same way. Weller et al.³³ studied the correlation between the number of individuals who report *Susto* with a significant number of depressive symptoms measured using the BDI, Zung and CES-D scales. In this study, individuals who reported having had *Susto* or *Nervios* in the past were 19 times more likely to have been affected by depression in the past compared to those who did not report having had *Susto* or *Nervios*.

In the Mexican and Puerto Rican populations a correlation was found between anxiety disorders and *Nervios/Ataques de Nervios*. Individuals who reported having had *Nervios* or *Ataques de Nervios* in the past in these populations showed higher levels of anxiety^{29,34} and anticipation of anxiety symptoms³⁴. Puerto Ricans with a history of *Ataques de Nervios* also had 3 times more risk of experiencing generalized anxiety disorder and were 25 times more likely to have panic disorders, when compared with individuals with no history of *Ataques de Nervios*³². Children with parents with a history of *Ataques de Nervios* showed about 5 times more chance of having anxiety disorders³⁹.

Discussion

From the 23 articles on *Nervios*, *Susto* and *Ataques de Nervios*, 56% were qualitative studies^{17-21,23-27,29,33,40}. These studies were conducted directly with the local population to ascertain the conception of these syndromes or conducted with people affected by them and describ-

ing their symptoms. One study evaluated the homogeneity of the description of *Susto* and *Nervios* among populations in Guatemala, Puerto Rico, Mexico and Mexicans living in the U.S. The results were 40%-50% homogenous in regard to the descriptions of symptoms and causes¹⁷ of *Nervios* and *Susto*, although the personal descriptions analyzed may have been affected by different research.

With respect to the causes of these syndromes, eight of the analyzed articles described causes identifiable by the respondents, and these were psychosocial stressors, generally described as threats and/or losses in the stability and maintenance of family relationships or physical threats made to or witnessed by the respondents^{17-19,21,23,25,27,29,36}. *Nervios* was described as linked to stressful events experienced over a continuum of time and *Susto* and *Ataques de Nervios* linked to specific, acute and usually identifiable stressors^{17,19}.

In this sense, *Susto*, *Nervios* and *Ataques de Nervios* are concepts of language of distress and are used as culturally acceptable labels for different mental and somatic changes triggered by psychosocial suffering/stressors^{5-7,40}. In the event of continuous exposure to stress, *Nervios* might be a culturally constructed way to communicate a vulnerability, or exposure to factors that are difficult to cope with. Other authors approximate the concept of idioms of distress with *Susto*, *Nervios* and *Ataques de Nervios* syndromes in the same way, within the analyzed articles^{18,19}. Guarnaccia et al.¹⁹ proposes, additionally, the creation of a popular nosology for the Puerto Rican population to cope with stressful situations. The author separates designations such as *ser nervioso*, *padecer de los nervios* and *tener ataques de nervios*, based on the cultural construct of stress coping states in Puerto Rico, with different characteristics, severity, ways of seeking help and having symptoms that overlap with different psychiatric syndromes.

The understanding of such syndromes as idioms of distress and the proposal of a popular nosology for stress questions the validity of the formulation of guidelines for psychiatric diagnoses for certain areas/cultures, such as the *Guia Latino Americano de Diagnostico Psiquiatrico* (Latin American Guide of Psychiatric Diagnosis)¹⁵. As long as regional manuals and guidelines take as their starting point diagnoses which have been defined by other cultural groups, they may perpetuate problems of diagnostic validity and concepts that have little relationship with local forms of psychiatric illness and local cultural variables.

In ICD-10² the diagnoses that allow for a correlation between behavioral and somatic changes caused by stressor events are acute stress reaction, adjustment disorder, and PTSD. Two studies tried to connect *Nervios* and *Ataques de Nervios* to PTSD by means of qualitative researches^{20,23}. Dickson-Gomez²³ studied victims of war conflicts, while Norris et al.²⁰ studied victims of natural disasters. Norris et al.²⁰ looked for PTSD symptoms using open interviews and found symptoms that could not be fitted into the diagnosis currently used for PTSD on DSM-IV³⁸. Such symptoms were named by the local population as *Nervios/Ataques de Nervios* symptoms, composed by hysteria, nervousness and despair. Thus, *Nervios/Ataques de Nervios* could still be nosological entities different from PTSD, but also could be PTSD with symptoms not yet included in the current PTSD description. This can be connected to the concept of PTSD itself, which could be still flawed or incomplete, or because the pattern of symptoms/behaviors triggered by stress are culturally mediated and PTSD was not originally described in cultures linked to the culture bound syndromes *Susto*, *Nervios* and *Ataques de Nervios*.

Stressor events described for *Nervios/Ataque de Nervios* and *Susto* are the same as those described for the diagnosis of PTSD on ICD-10² and on DSM-IV³⁸: exposure to situations of real or perceived physical or psychological menace to oneself or to others, for instance; assault, rape, serious accidents, natural disasters, torture, loss of a loved one or witnessing a stressor event. The possibility of loss or breakup of a close relationship is frequently associated with *Ataques de Nervios*^{17-19,23,29}, which could distinguish it from the concept of PTSD, since its description in DSM-IV⁸ is more linked with situations

of higher vulnerability, threat, risk and aggressiveness. However, the literature suggests a broader concept of stress situations which could be connected to PTSD, as the perception of a significant stressor event is individually and culturally mediated⁴¹⁻⁴³. The adoption of this concept could make the PTSD triggering events more like those connected to *Susto*, *Nervios* and *Ataques de Nervios*. In this sense, stressing factors are situations in which the individual perceives an important gap in their control of the situation, in its predictability and relative success in being able to minimize damages to oneself and to others⁴².

In its recent version, the DSM-V¹ has extended the criteria A1 of PTSD, about trauma description, to include being informed about a traumatic event that happened to someone close and chronic exposure to stressful situations as possible triggers to PTSD. The same situations appear in the descriptions of *Ataques de Nervios* and *Susto*, approximating these concepts. However, the DSM-V introduced a glossary about cultural diagnostic formulation where *Ataques de Nervios* was linked to depression, describing depression as a western cultural language of distress. This is a different understanding about depression compared to that in DSM-IV⁸ where depression was described as not linked to triggering situations. Maintaining this concept, and the similarity between triggering events, *Ataques de Nervios* would be more approximate to PTSD than depression. To clarify this difference more studies on different levels of impairment, symptomatology and different outcomes linked to these syndromes are necessary.

The articles reviewed indicate that the patients reporting having suffered *Susto*, *Nervios* or *Ataques de Nervios* present increased chances of having suffered depression, anxiety, panic disorders and PTSD^{19,20,23,29,33,34,37}. However, the way these articles evaluate this is based on the reports of the individuals about their past, and so it carries the bias of memory and interpretation. This communication contrasts cultural differences as well as differences in training, education and world view between the interviewer and the interviewee. Kleinmann argues this in his books⁵, giving as an example the case of a Mrs. Lin, a woman of Chinese origin, whose diagnosis, according to North-Americans, would be depression based on the anamnesis of fatigue, feebleness and diffuse somatic symptoms. However, for the patient herself and for the local psychiatrists, the condition of the patient is understood as neurasthenia, taking into consideration other culturally significant aspects such as demoralization, neurasthenia being an accepted and described local diagnosis. The understanding of her case within the local cultural conditions is that a diagnosis of depression only describes part of the patients condition.

However, the higher chances of comorbid conditions occurring during the lifetime of an individual with *Nervios*, *Susto* or *Ataques de Nervios*, compared to individuals with other psychiatric disorders, may indicate significantly increased suffering for these populations. This means that these populations are specifically naming certain mental and somatic complaints, whose correlates would be different psychiatric diagnoses according to the main diagnostic manuals, without necessarily corresponding to the same disease, but indicating a condition of suffering and/or indicating a psychic and somatic vulnerability of these populations.

Other data that corroborate the significance of these conditions are those on the frequency of these syndromes. In the demographic studies of Mexico and Puerto Rico on *Ataques de Nervios* the frequency of reports of having suffered from this syndrome was between 15% and 16%^{30,31}, similar to the recent 15% in a demographic study on Hispanics living in the USA⁴⁴.

An individual's point of view is important from an ethnographic perspective, because the self-perception of one's condition and its naming and judgment is essential to the understanding of a specific phenomenon, which is different from those experienced in other cultures. However, the personal point of view may cause distortions in the estimation of symptom frequencies, because different symptoms can be named the same way, and counted as being the same. Reviewing the last 25 years of epidemiological studies conducted in

Puerto Rico, Canino⁴⁵, pointed out that the first publications on the subject, in Puerto Rico, in the 1960s and 1970s, showed high levels of mental disease in the Puerto Rican population, and such a result brought criticism from the scientific community due to the low validity of the instruments employed, and to the cultural specificities of the population. In these studies, local expressions of stress were directly linked to psychiatric diagnoses, leaving aside semantic and cultural issues. It was only later that the instruments used for evaluation of psychiatric symptoms began to be translated and validated for local populations with a consequent increase in diagnostic validity, notwithstanding that these diagnostic instrument validations also present problems, as they depend on the interpretation by the interviewer of what is expressed by the patient in a particular culture⁵, as well as the validation of the diagnostic instrument used depending on the cultural interpretation of those undertaking the diagnostic instrument adaptation⁴⁶.

Data on vulnerability, besides those on comorbidity and frequency, corroborate the idea of a significant impact on these populations. The analyzed articles link individuals prone to these syndromes to individuals more exposed to stress situations, with more socioeconomic difficulties and with less social support^{16,19,23,28,30,35,47}. Snyder *et al.*²⁹ found an association, in the Mexican sample studied, between susceptibility to *Nervios* and being a woman with poor educational levels or a housewife with more than four children under their care. Guarnaccia *et al.*¹⁹, in his analysis of Puerto Ricans also found an association between *Nervios* and adverse socioeconomic conditions. He suggested that this might be explained by the process of rapid industrialization leading to instability in the social support networks of individuals, with the subsequent feeling of increased vulnerability resulting in the expression of *Nervios*. However, other factors might confound the analysis of socioeconomic vulnerability, among them the fact that worse socioeconomic indicators are related to a higher prevalence of common mental disorders in low and medium income countries, as most of the LAC countries are⁴⁸. This review of epidemiological studies of low and medium income countries showed that low education, hunger, housing and financial problems, and socioeconomic status were related to higher rates of common mental diseases, defined as depression, anxiety and somatoform disorders, whose symptoms overlap with those presented by the culture bound syndromes *Susto*, *Nervios* and *Ataques de Nervios*.

Also, *Susto*, *Nervios* and *Ataques de Nervios* were associated with female gender^{17,29,33,34}. However, the vulnerability and social stress experienced by women in the countries studied might be higher than that experienced by men due to the continued existence of the stricter patriarchal frameworks found in those countries. At the same time, women in general are already linked to a higher incidence of diagnoses of depressive, anxiety and somatoform disorders, whose symptoms, as mentioned before, overlap with those from the culture bound syndromes studied.

As for the symptoms describing the *Nervios*, *Susto* and *Ataques de Nervios* syndromes in the analyzed articles^{17,18,20,26} they do not disagree with those listed in DSM-IV⁸ and DSM-V¹ and in the *Guía Latino Americano de Diagnóstico Psiquiátrico*¹⁵. Thus, *Nervios* might be described as a somatic disorder with emotional symptoms and impairment in functioning.

In respect of the limitations of this analysis, the selected studies originated from only 5 of the 21 countries belonging to LAC which combines a heterogeneous set of cultures. Another limitation is the narrower inclusion criteria used in this study, in which studies on populations outside the LAC were excluded. However, living in countries outside Latin America introduces specific factors which can influence individuals and change the way they behave and their history of illness. They are exposed to the acculturation phenomenon, changing their patterns of behavior over time and dependent on the kind of relationship established with the culture in which they are inserted. Data on a North American sample of Hispanics indicate that those with higher levels of acculturation showed a higher prevalence of *Ataques de Nervios* episodes⁴⁴, which might indicate

the influence of acculturation on culture bound syndromes. There is also no uniformity in the excluded articles about level of acculturation. Moreover, according to Guarnaccia and Rogler¹⁶, culture bound syndromes should be described in relation to the cultures where they have originally arisen.

Another limitation to this study is the low scientific production, only 1.0% of the articles in Strategy 1 and 3.5% in Strategy 2 could be included in the analysis. Strategy 1 used database MeSH terms, while Strategy 2 used *Nervios*, *Susto* and *Ataques de Nervios* separately and as single words, in the electronic databases. This difference could indicate limitations in the use of MeSH terms to easily access articles, probably because of difficulties in the classification of these types of articles and lack of specific descriptors on the subject of culture bound syndromes. However, as no articles were found using the Lilacs database, which is a Latin-American database, this can strengthen the hypothesis that the scientific production might be low in Latin American countries. Another hypothesis for the low scientific production might be the potential low interest in this topic, difficulty to get research funding and no academic interest in getting their work published in journals with a lower impact factor or not database-indexed.

Conclusions

The Latin-American studies on *Susto*, *Nervios* and *Ataques de Nervios* published between 1992 and 2015 suggested that these syndromes are important idioms of distress in the Central America region, with a significant rate of comorbidities and are often found in vulnerable populations. These syndromes present significant comorbidity with depressive, anxiety, panic and somatological disorders, but may present a stronger correlation with PTSD and other psychiatric diagnosis linked to triggering identifiable stressor events. More studies are needed about psychiatric conditions related to stress, such as PTSD, and the culture bound syndromes *Nervios*, *Susto* and *Ataques de Nervios*, as well as studies about these syndromes in other LAC.

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Conflict of interest

Authors state no personal or financial conflicts in regards with this article.

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