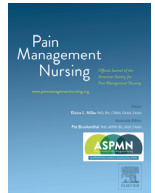




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Original Research

Chronic Pain and Depression are Increased in Outpatient Adults with Somatic Symptoms from Secondary Health Care Services

Ana Fresán^{*}, Thelma Beatriz González-Castro^{†,1}, Sherezada Pool-García[‡],
 Carlos Alfonso Tovilla-Zárate^{§,1}, Juan Pablo Sánchez de la Cruz[§],
 María Lilia López-Narváez^{||}, Rosa Giannina Castillo-Avila[¶], Miguel Ángel Ramos-Méndez[¶]

^{*} Subdirección de Investigaciones Clínicas, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Ciudad de México, México

[†] Universidad Juárez Autónoma de Tabasco, División Académica Multidisciplinaria de Jalpa de Méndez, Jalpa de Méndez, Tabasco, México

[‡] Hospital General de Comalcalco "Dr. Desiderio G. Rosado Carbajal", Secretaría de Salud, Comalcalco, Tabasco, México

[§] Universidad Juárez Autónoma de Tabasco, División Académica Multidisciplinaria de Comalcalco, Comalcalco, Tabasco, México

^{||} Hospital Chiapas Nos Une Dr. Gilberto Gómez Maza, Secretaría de Salud de Chiapas, Tuxtla Gutiérrez, Chiapas, México

[¶] Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias de la Salud, Villahermosa, Tabasco, México

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ABSTRACT

Background: Somatic symptom disorder is described as excessive thoughts, feelings, or behaviors related to physical symptoms. The presence of somatic symptoms has been associated with depression, alexithymia, and the presence of chronic pain. Individuals with somatic symptom disorder are frequent attenders of primary health care services.

Aim: We focused on investigating if the presence of psychological symptoms, alexithymia, or pain could be risk factors for somatic symptoms in a secondary health care service.

Methods: A cross-sectional and observational study. A total of 136 Mexican individuals who regularly attend a secondary health care service were recruited. The Visual Analogue Scale for Pain Assessment, the Symptom Checklist 90, and the Patient Health Questionnaire-15 were applied.

Results: Of all the participants, 45.2% showed somatic symptoms. We observed that these individuals more frequently presented with complaints of pain ($\chi^2 = 18.4$, $p < .001$), as well as more severe ($t = -4.6$, $p < .001$), and prolonged ($\chi^2 = 4.9$, $p = 0.02$). They also exhibited higher severity in all psychological dimensions assessed ($p < .001$). Finally, cardiovascular disease ($t = 2.52$, $p = .01$), pain intensity ($t = 2.94$, $p = .005$), and SCL-90 depression ($t = 7.58$, $p < .001$) were associated with somatic symptoms.

Conclusions: In this study, we observed a high frequency of somatic symptoms in outpatients attending secondary health care services. They may be accompanied by comorbid cardiovascular conditions, higher pain intensity, and other mental health-related symptoms, which may aggravate the general clinical picture presented by the patient seeking health care. The presence and severity of somatization should be taken into consideration in the first and second level health care services for an early mental state evaluation and treatment of these outpatients to have a better clinical assessment and health outcome.

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Somatic symptom disorder is described by the DSM-5 as excessive thoughts, feelings, or behaviors related to physical symptoms (American Psychiatric Association et al., 2013; Kurlansik et al., 2016); it is described by others as physical symptoms that are inconsistent or disproportionate to the physical examination, clinical

history, laboratory studies, and even research findings (Malas et al., 2017). The prevalence has been reported to be 4.4%-19% in the general population and 7.3 %-35% in individuals who attend primary and secondary health care services (Kurlansik et al., 2016). Current diagnostic criteria will depend on prior evaluation by appropriate personnel and identification of symptoms, such as excessive feelings, thoughts, or behaviors related to associated health problems, spending excessive energy and time on health problems, as well as the appearance of distressing symptoms that have a significant effect on daily life. The symptomatic state of the disease is persistent with a duration greater than six months; however, any symptom may not present continuously in patients (Henningsen, 2018).

¹ Address correspondence to Dr. Thelma Beatriz González Castro, Universidad Juárez Autónoma de Tabasco. División Académica Multidisciplinaria de Jalpa de Méndez, Jalpa de Méndez, Tabasco. Carretera Estatal Libre Villahermosa-Comalcalco Km. 27+000 s/n Ranchería Ribera Alta, C.P. 86205, Tabasco, México. Dr. Carlos Alfonso Tovilla-Zárate. División Académica Multidisciplinaria de Comalcalco, Ranchería Sur, Cuarta Sección, C.P. 86650, Comalcalco, Tabasco, México.

E-mail address: alfonso_tovillaz@yahoo.com.mx (C.A. Tovilla-Zárate).

Moreover, the presence of somatic symptoms has been associated with comorbid mental disorders, such as depression (D'Souza et al., 2019), alexithymia (Shim et al., 2018), and the presence of chronic pain (van Driel et al., 2018). Some studies indicate that somatic symptoms can appear before the onset of depressive disorders in up to 60% of patients and exacerbate the expression of pain (Shim et al., 2018). Thus, alexithymia was associated for the first time in patients seeking treatment due to psychosomatic symptoms and is characterized by an impaired ability to describe, identify one's own feelings, and be aware (Hogeveen et al., 2021).

Many patients do not receive a clear diagnosis that explains their physical discomforts (including continuous pain) and may be constantly looking for a medical explanation in different health care settings without receiving specific mental health evaluations that include the assessment of somatic symptomatology. Subsequently, this coming and going, plus uncertainty and physical discomfort, can exacerbate their psychological or even psychosomatic manifestations of chronic pain, if present (Ghiggia et al., 2017). In fact, it is frequently reported that patients with chronic pain exhibit many of the core features of alexithymia. This suggests that patients with pain-alexithymia may have a more diffuse communication style to describe their pain. Difficulties in the ability to identify somatic experiences are core features of the alexithymia basis (Cox et al., 1994; Lankes et al., 2020) and should be further studied. However, this should be considered for patients who continuously report having pain (though there may be no clinical evidence that their disease is related to pain, or perhaps their pain has been previously controlled by treatment but they still report extreme pain manifestations).

Few programs have been implemented to identify these patients in the secondary health care services. Consequently, individuals with somatic symptom disorder are frequent attenders of secondary health care services and increase institutional costs, especially through the use of laboratory testing (Hammerman et al., 2021).

It has been described that chronic pain is a frequent reason for consultation in the first and second level of health care and has a prevalence that ranges between 8%-30% among the adult world population (Camilloni et al., 2021). In this sense, it is important to carry out studies involving health personnel (nurses, in particular) because they are in direct contact with patients and are a fundamental part of patient care and evolution. Additionally, it has been described that the prescription of the practice is the domain of the experienced nurse and that it is necessary to continuously evaluate the prescription of the clinical practice in the staff (Scrafton et al., 2012). It is also necessary to consider the role of the triad that involves chronic pain, alexithymia, and somatic symptoms. Therefore, we hypothesized that a higher perception of pain intensity could be associated with somatic symptoms in individuals attending secondary health care services. Hence, our objectives were to compare psychological symptoms, alexithymia, and pain-related variables in outpatients with and without somatic symptoms, and further determine whether these variables affected the severity of somatic symptoms.

Methods

Study Design and Participants

We performed a cross-sectional comparative and correlational study (Hernández, Fernández, & Baptista, 2014). The present study used a non-probabilistic sampling approach, where individuals available and willing to participate were included. This study included 135 outpatient adults (74 without somatic symptoms and 61 with somatic symptoms). All participants were attending the

outpatient services of gynecology ($n = 27$), traumatology ($n = 25$), and internal medicine ($n = 83$) of the General Hospital of Comalcalco "Dr. Desiderio G. Rosado Carbajal" in Tabasco, Mexico. This study was carried out in the period from September-December 2019.

Inclusion and exclusion criteria

Inclusion criteria: a) individuals who were 18 years of age or older, b) who could read and write or were accompanied by someone who could support them in answering the instruments, c) both sexes, and d) secondary health services outpatients.

Exclusion criteria: a) individuals who showed evidence of cognitive impairment while answering the instruments and b) individuals who reported any mental health diagnosis.

Procedure for evaluations

Before the enrollment of participants, aims and procedures of the study were fully explained to potential candidates and those who verbally agreed to participate signed written informed consent. Participation in this study did not affect access to medical services at the second-level care hospital, and participants did not receive any economical compensation. Psychiatric diagnoses and clinical histories were made through interviews, assessment, and visual inspection by two psychiatric specialists from our team (Fresán and Sherezada-Pool). In addition, application of the surveys was carried out and sociodemographic data was obtained.

Sociodemographic information

After the individuals gave their written informed consent to participate, they were interviewed by one of the researchers in order to obtain sociodemographic information (age, sex, marital status, years of education, and socioeconomic and job status) and the current medical condition related to their hospital attendance. After the interview, the following instruments were given to each participant to be answered.

Visual Analogue Scale for Pain Assessment

The Visual Analogue Scale for Pain Assessment (VAS-P) consists of a line of approximately 10-15 centimeters in length. On the extreme left side of the line, with a value of "0", the legend "No pain" appears with a smiling face image; on the right side of the line, with a value of "10", the legend "The worst, unbearable pain ever" with a frowning face image appears. Intermediate values from 1-9 include face-images reflecting different pain intensities. The person selects the face-image or number that reflects their current pain (Noguez, 2011). Test-retest reliability has shown adequate psychometric properties for its use (González-Estavillo et al., 2018). In addition to the VAS-P, individuals were asked to mention the body area where they felt pain and how long they had experienced it.

Toronto Alexithymia Scale-20 (TAS-20)

The Toronto Alexithymia Scale-20 (TAS-20) was also used. It comprises 20 self-reported items scored on a Likert agreement scale from 1 (strongly disagree)-5 (strongly agree) that reflects a global total alexithymia score and three specific dimensions: 1) difficulty identifying feelings, which refers to the ability to identify feelings and separate them from somatic sensations; 2) difficulty describing feelings, which reflects the capacity to describe one's own feelings to other persons; and 3) externally-oriented thinking aimed to assess the person's preference to analyze situations and problems rather than to describe them. The total score and first two factors have shown adequate internal consistency (Cronbach's $\alpha > 0.80$); however, the third factor has shown low consistency values (Cronbach's $\alpha = 0.53$) in the Mexican population (Moral de la Rubia, 2008). Cut-off scores ≥ 61 were used to identify

individuals with probable or definite alexithymia. We determined the Cronbach's alpha in the present sample from moderate (identifying feelings dimension $\alpha = 0.71$ and total TAS score = 0.72)-low values (describing feelings dimension $\alpha = 0.45$ and externally oriented thinking $\alpha = 0.57$).

Symptom Checklist 90

For the assessment of psychological symptoms, the Symptom Checklist 90 (SCL-90) was used. This is a 90-item self-report inventory that assesses the level of distress recently experienced in terms of nine main dimensions: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism, and a general severity index (GSI). The SCL-90 has shown adequate validity and reliability values in the Mexican population (Cruz Fuentes et al., 2005). For the present study, the somatization dimension was not included in the analysis, as it was assessed separately with the Patient Health Questionnaire-15 (PHQ-15).

Patient Health Questionnaire-15

The PHQ-15 was used to assess the presence of somatic symptoms in our sample (Kroenke et al., 2002). The total score ranges from 0-30. The PHQ-15 has shown adequate validity and reliability values in the Mexican population (González et al., 2006). For the present study, our sample was divided into individuals without or with mild somatic symptoms (scores ranging from 0-9) and individuals with moderate to severe somatic symptoms (scores ≥ 10).

Ethical statement

The study objectives and procedures were approved by the Ethics and Research Committee of the Universidad Juárez Autónoma de Tabasco and the authorities of the hospital where the study was conducted (General Hospital of Comalcalco "Dr. Desiderio G. Rosado Carbajal", Tabasco, Mexico).

Statistical Analysis

Descriptive statistics were used, including frequencies and percentages for the description of categorical variables and means and standard deviations (SDs) for continuous variables. Skewness and kurtosis of the TAS-20, SCL-90, and PHQ-15 were evaluated to assess multivariate normality. West et al. (1995) suggest that skewness >2 and kurtosis >7 are indicative of moderate or serious non-normality. The skewness range was between -0.26 and 1.71 , while for kurtosis it was between -0.94 and 3.72 . For the comparison between patients with and without somatization, Chi square tests (χ^2) were used for the contrasts between categorical variables, and independent samples *t* tests were used for the contrasts of continuous variables. To determine size effects, Cramer's V for χ^2 tests and Cohen's *d* for *t* tests were computed. Both were interpreted as small (0.2), medium (0.5), and large (≥ 0.8).

Those variables where significant differences arose in comparative analyses were included as independent variables in a linear regression model with the backward method and the total score of the PHQ-15 as the dependent variable using the whole sample of the study.

β -coefficients were used as effect size indicators of variables with the highest association with the total score of the PHQ-15. For all analyses, the *p* value was deemed significant at ≤ 0.05 .

Results

Sample Description: Demographic and Clinical Features

A total of 135 individuals were included in the study. Most participants were women (89.6%, $n = 121$). The mean age of the

sample was 41.5 years (SD = 13.4, range 18-77) with 7.5 years of education (SD = 3.8, range 0-16). Most participants were married (76.3%, $n = 103$) and performed household activities (77.8%, $n = 105$), followed by those with an economic remunerated activity (15.6%, $n = 21$), unemployed (4.4%, $n = 6$), and students (2.2%, $n = 3$). Participants had mainly medium (71.1%, $n = 96$) and low (28.1%, $n = 38$) socioeconomic statuses.

Only 60.0% ($n = 81$) of participants could clearly identify the medical reason for their hospital attendance. Of those, 39.5% ($n = 32$) reported having a cardiovascular disease, 27.2% ($n = 22$) a gynecological-obstetric disease, 20.0% ($n = 16$) a metabolic disease, 13.6% ($n = 11$) a chronic disease, 7.4% ($n = 6$) a respiratory disease, and 4.9% ($n = 4$) an infectious disease. The mean body mass index (BMI) of the sample was 29.7 (SD = 6.3, range 17.0-50.2), which reflects that most individuals were overweight or obese.

The total score of the PHQ-15 was 9.9 (SD = 5.7, range 1-29). Using the proposed cut-off point of 10 on the PHQ-15 total score to identify patients with moderate to severe somatic symptoms, 45.2% ($n = 61$) of the sample was classified into the group with somatic symptoms and the remaining 54.8% ($n = 74$) was classified into the group without somatic symptoms. Also, no significant differences between groups arose when comparing demographic features. In terms of current medical disease, both groups were similar except for cardiovascular diseases, which were more frequent in individuals with somatic symptoms.

Variables Related to Pain

We measured variables possibly related to pain. In this sense, we noted participants who were experiencing pain ($n = 97$, 71.9%) as individuals without somatic symptoms ($n = 42$, 56.8%) and individuals with somatic symptoms ($n = 55$, 90.2%). We found statistically significant differences between current pain and study groups ($\chi^2 = 18.4$, $p < .001$, Cramer's V = 0.37). In addition, the intensity of pain between the study groups was 2.6 in individuals without somatic symptoms and 5.3 in individuals with somatic symptoms. We observed statistically significant differences between the study groups ($t = -4.6$, $p < .001$, Cohen's *d* = 0.96).

Finally, we measured the duration of pain: a) up to three months: 30 (71.4%) in subjects without somatic symptoms and 27 (49.1%) in subjects with somatic symptoms; and b) more than three months: 12 (28.6%) in subjects without somatic symptoms and 28 (50.9%) in subjects with somatic symptoms. Statistical differences were observed ($\chi^2 = 4.9$, $p = .02$, Cramer's V = 0.22).

Pain in medically ill individuals

A high percentage of participants were described to be experiencing pain (71.9%, $n = 97$). Of those, 58.8% ($n = 56$) reported experiencing pain for three months or less, while the remaining 41.2% ($n = 40$) had been experiencing pain for more than three months. Pain was more frequently experienced in the trunk (spine and visceral pain, 61.9%, $n = 60$), extremities (arms and legs, 21.6%, $n = 21$), head 8.2% ($n = 8$), and mixed areas 8.2% ($n = 8$). Mean pain intensity assessed with the VAS-P was 4.1 (SD = 3.1, range 1-10), equivalent to a persistent, uncomfortable pain.

Almost all participants from the somatic symptoms group were currently experiencing pain (90.2% vs. 56.8%) and the pain intensity was more severe in this group. In addition, more than half of individuals who were experiencing pain in the somatic symptoms group had had pain for more than three months.

Alexithymia and Psychological Symptoms

The mean scores for the TAS-20 dimensions were similar in both study groups (difficulty describing feelings and externally ori-

Table 1
Alexithymia and Psychological Symptoms in Individuals With and Without Somatization

Scale	Total sample (n=135)	Without somatic symptoms (n=74)	With somatic symptoms (n=61)	Statistic
TAS-20 Alexithymia Scale				
Difficulty describing feelings	15.2 ± 5.1	14.5 ± 5.3	16.0 ± 4.7	t=-1.7, p = .08, Cohen's d=0.29
Difficulty identifying feelings	20.9 ± 7.2	19.0 ± 7.2	23.2 ± 6.7	t=-3.4, p = .001, Cohen's d=0.60
Externally-oriented thinking	20.4 ± 4.9	20.9 ± 5.3	19.8 ± 4.3	t=1.2, p = .19
TAS-20 Total score	56.6 ± 12.7	54.5 ± 13.2	59.1 ± 11.5	t=-2.1, p = .03, Cohen's d=0.37
SCL-90 Scale				
Obsessive-compulsive	1.0 ± 0.7	0.7 ± 0.5	1.3 ± 0.7	t=-4.6, p < .001, Cohen's d=0.98
Interpersonal sensitivity	0.6 ± 0.6	0.5 ± 0.5	0.7 ± 0.6	t=-2.8, p = .006, Cohen's d=0.36
Depression	0.7 ± 0.6	0.5 ± 0.4	1.1 ± 0.6	t=-6.3, p < .001, Cohen's d=1.17
Anxiety	0.7 ± 0.6	0.4 ± 0.4	1.1 ± 0.7	t=-6.4, p < .001, Cohen's d=1.22
Hostility	0.5 ± 0.5	0.4 ± 0.4	0.7 ± 0.6	t=-3.6, p < .001, Cohen's d=0.58
Phobic anxiety	0.7 ± 0.7	0.6 ± 0.6	0.8 ± 0.8	t=-2.0, p = .03, Cohen's d=0.28
Paranoid ideation	0.6 ± 0.7	0.4 ± 0.6	0.7 ± 0.7	t=-2.7, p = .006, Cohen's d=0.46
Psychoticism	0.4 ± 0.4	0.3 ± 0.3	0.6 ± 0.5	t = -3.7, p < .001, Cohen's d=0.72
General severity index (GSI)	0.7 ± 0.5	0.5 ± 0.3	1.0 ± 0.5	t=-6.6, p < .001, Cohen's d=1.21

Data are expressed as means and standard deviation.

Table 2
Clinical Features and Psychological Symptoms Associated with Somatization in Medically Ill Individuals

	Effect size β coefficient	95% CI β	Significance
<i>First regression model</i> Goodness-of-fit, adjusted R ² = 0.57, F= 6.4 (p < .001)			
Cardiovascular disease	2.10	-0.12 - 4.34	.06
Pain intensity	0.26	-0.17 - 0.69	.23
Duration of pain	0.36	-0.21 - 0.93	.20
TAS-20 Difficulty identifying feelings	-0.05	-0.36 - 0.25	.72
TAS-20 Total score	0.06	-0.12 - 0.25	.50
SCL-90 obsessive-compulsive	-1.33	-4.44 - 1.78	.39
SCL-90 interpersonal sensitivity	-0.72	-4.11 - 2.67	.67
SCL-90 depression	2.20	-2.70 - 7.10	.37
SCL-90 anxiety	-2.40	-6.82 - 2.02	.28
SCL-90 hostility	-1.19	-4.33 - 1.94	.44
SCL-90 phobic anxiety	-1.02	-2.99 - 0.95	.30
SCL-90 paranoid ideation	-0.63	-3.21 - 1.95	.62
SCL-90 psychoticism	-2.93	-6.39 - 0.52	.09
SCL-90 general severity index	13.72	0.85 - 26.59	.03
Cardiovascular disease	2.56	0.53 - 4.59	.01
Pain intensity	0.48	0.15 - 0.81	.005
SCL-90 depression	6.00	4.42 - 7.58	<.001

ented thinking dimensions). However, higher scores were found in the somatization group (difficulty identifying feelings dimension) and the total score (TAS-20 scale) (Table 1).

Although the severity of symptoms assessed with the SCL-90 was not clinically relevant, individuals in the somatic symptoms group reported higher severity in all the dimensions when compared to those without somatic symptoms, including the general severity index (Table 1).

Logistic Regression Analysis

We consider clinical and psychological symptoms associated with medical somatic symptoms in individuals using two regression models. The results of the linear regression models are shown in Table 2. In this sense, the following variables were included in the first regression model: cardiovascular disease, pain intensity, duration of pain, the alexithymia dimension difficulty identifying feelings, the total score of the TAS-20 alexithymia scale, SCL-90 obsessive-compulsive dimension, SCL-90 interpersonal sensitivity dimension, SCL-90 depression dimension, SCL-90 anxiety dimension, SCL-90 hostility dimension, SCL-90 phobic anxiety dimension, SCL-90 paranoid ideation dimension, SCL-90 psychoticism dimension, and the SCL-90 general severity index. In the results, we observed statistical significance in the general severity index of the SCL-90 (t = 2.14, p = .03) (Table 2).

In addition, in the second regression model, statistically significant differences were observed in the included variables: cardiovascular disease (t = 2.52, p = .01), pain intensity (t = 2.94, p = .005), and SCL-90 depression (t = 7.58, p ≤ .001) (Table 2).

Discussion

The importance of assessing psychosocial factors in medically ill individuals has already been recognized in the literature (Roy et al., 2020; Tang et al., 2020). In fact, it has been hypothesized that there is a relationship between pain and psychological symptoms, such as depression, somatic symptoms, and anxiety (Buchberger et al., 2016). To address this issue, we compared psychological symptoms, alexithymia, and pain-related variables between individuals with and without somatic symptoms.

Firstly, our findings revealed a high prevalence of somatic symptoms in our sample (45.2%). Moreover, this prevalence is higher than what has been reported in other Latin American populations (Tofoli et al., 2011). The present study also revealed that somatization was directly associated with pain intensity and duration of pain. It has been observed that these symptoms in this type of outpatient are occasionally more persistent because of a probable amplification of transient pain sensation (Karkkola et al., 2019). The perception of physical symptoms results from a complex interaction of somatic symptoms and psychological and en-

environmental factors (Rief et al., 2010). Greater intensity and duration of pain are among the most worrying issues that somatic individuals experience, potentially disrupting their normal activities and leading to depressive symptoms (Karkkola et al., 2019). According to this evidence, in our sample, individuals with somatic symptoms had a higher predisposition to present more depressive symptoms than those without somatization. The main concern regarding depressed individuals with somatic symptoms is that they are more likely to discontinue their medications as they show more side effects which, in turn, can lead to unfavorable clinical outcomes (Klengel et al., 2011). Consequently, it is suitable to suggest that the management of primary health care services should be complemented with behavioral treatment in order to achieve better health outcomes. Treating depression is an especially important issue in any medical condition; for instance, in hospitalized individuals with depression, longer convalescence, higher costs, and misdiagnoses have been observed, which could have fatal consequences in some cases (Gameroff et al., 2006). Regarding medical costs, many of the individuals who exhibit somatic symptoms are treated by their general physician, in a medical unit, or at a general hospital and only a few of them are referred to a psychiatrist (Chandra et al., 2013; Lillienegren et al., 2020). As our sample shows a high prevalence of somatic symptoms, we suggest the simultaneous treatment of psychological symptoms and medical illness in order to reduce the flow of somatic individuals in the outpatient clinics. In fact, this practice has already provided effective results (Lillienegren et al., 2020). For example, there was a prospective study in a German population that evaluated the effect of cognitive-behavioral treatment and the use of health care services by individuals with a somatoform disorder. This study found that, according to health insurance companies, these individuals decreased their use of health care services (Hiller et al., 2003).

Based on previous findings, it might reflect the importance of mental health interventions (in terms of psychotherapy or treatment with antidepressants) for those patients with somatic symptoms. In this sense, it is possible to assume that, whether psychotherapeutic or pharmacological, treatments may be effective in improving depression and, in turn, symptoms; in addition, these treatments potentially have direct analgesic effects on pain (Creed et al., 2005; Lankes et al., 2020). Future studies warrant continuing with this line of research to improve patients' quality of life. Pain management is one of the principal functions of health workers, such as nurses (Tetteh et al., 2021). Therefore, nurses must provide timely and effective care to patients, particularly those in pain, and consider that psychological symptoms and alexithymia can occur in individuals with somatic symptoms. It is necessary to be aware that these patients require special care and comprehensive support that allows them to improve their quality of life. Likewise, communication and teamwork among the nursing group are key elements in raising awareness of effective pain management and evolution with these patients.

Nursing teams are in direct contact with patients and are part of the first line of care at all levels of health care. We recommend that nurses be aware of patients who present somatic symptoms among those who come in for consultations. In addition, the multidisciplinary management of health personnel is essential, involving the support of nursing personnel for timely detection and implementation of strategies in order to refer patients to psychiatric services.

Limitations

We want to highlight that the present study has some limitations. First (and one of the most important limitations) were

the low values of reliability obtained in the TAS-20 for this sample. Future studies should perform specific analyses for its validation in different populations. Therefore, our results should be taken with caution. Second, the small sample size limits the generalization of our results and large-scale studies including other primary health care settings are required. However, our outcomes are important, as they further support what has been observed in studies from other countries and identifies evidence of somatization in the Mexican population. Furthermore, it should be taken in consideration that the analysis was performed based on the exclusive use of self-report measures, which may under-reflect or exaggerate symptomatology. Also, there were imminent limitations related to the cross-sectional design of the study.

Conclusions

In conclusion, we found that individuals with somatic symptoms have a high prevalence of depressive symptoms and perceived pain of high intensity due to their illnesses. Therefore, an early mental health evaluation by secondary health care services is necessary. This may help decrease the costs associated with frequent use of primary health care services, as well as improve patient outcomes.

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