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RESEARCH ARTICLE

THE ASSOCIATION BETWEEN LABOR, SOCIAL AND FAMILY DISABILITY WITH SEVERITY OF DEPRESSIVE DISORDER AND REMISSION

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ABSTRACT

Background: The prevalence of depression in the world population is 4.4% and has implications for the emotional, social and physical functions of the individual. According to WHO, this was associated throughout 50 million years - life with disabilities 2015. **Objective:** Determine the association of social-labor and family disability with the status of referral and severity of depression at the beginning of treatment and three months later. **Methodology:** Observational, comparative, and longitudinal study in patients with depression. Functional disability was measured at the beginning with Sheehan Disability Scale and severity of depression with Hamilton Depression Rating Scale at the beginning and three months later. Statistical analysis with Chi-square, t student, U Mann-Whitney, odds ratios and confidence intervals at 95%. **Results:** 250 patients were included, those with HDRS >7 had 11.6 ± 8.6 disability versus 4.3 ± 5.2 of which obtained HDRS ≤ 7 ($p < .001$). 170 (79.4%) patients presented disability and their HDRS punctuation was 11.2 ± 5.7 at the baseline and 8.6 ± 5.1 at three months, while 44 (20.6%) patients did not present disability and had a SDS punctuation of 7.0 ± 4.3 at the baseline and 5.3 ± 3.8 at three months ($p < .001$). OR 3.7 CI 95% (1.9 – 7.5) y OR 3.1, CI 95% (1.5 – 6.6) with baseline and final measurements of the HDRS. **Conclusions:** Functional disability, perceived stress y social support, are associated with depression, its referral and degree of severity.

INTRODUCTION

Depression is a frequent mental health disorder; it has an estimated prevalence of 4.4% throughout the world (World Health Organization, 2007).In Mexico, depression is considered a public health issue that affects 4.8% of individuals between 18 and 65 years old and it is reported that 9.2% of the Mexican population has had a depressive disorder (Wagner *et al.,* 2012). Depression can manifest itself through a variety of symptoms, including; low mood, loss of interest and excitement for things, appetite and sleep problems, tiredness or fatigue and feelings of worthlessness, hate and guilt; (American Psychiatric Association 2013) the neurobiological underpinnings of depression, (Czamy *et al.,* 2018) its risk factors and relation to suicide and comorbidities have been identified; (Schnaas, 2017) however, the variety of symptoms arising from depression have impact on physical capacity, quality of life and social, work and family functions of the individual, and is considered to be a leading cause of disability in people from 15 years of age (Siu, 2016). A follow up of 6 years, shows an increase of disability to perform the activities of daily living and mobility of older adults with depression compared to a group without depression (Penninx *et al.,* 1999). Gomes NC et al, found that depressed patients presented limitations in the components of quality of life and that an intervention of multidisciplinary care is effective for the clinical improvement of depression and the quality of life of the patients (Gomes *et al.,* 2015). Paz V, found that the depressive episode was significantly associated with physical illness, accidents, emotional problems, wanting to die, personal dissatisfaction and psychosocial stressors (Paz, 2015). The concept of functionality in mental disorders is wide and integrates domains that include work, social and family abilities; (Romera *et al.,* 2013) it is defined for Endicott J and Durries KM (Endicott, 2009) as "the capacity of an individual to do activities or tasks the way is expected or needed" and instruments have been made to allow its measurement

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(Sheehan *et al.,* 1996). Lin EHB (2000) et al, refer that mean scores of 2.01, 2.02 and 2.08 have been obtained for disability for work, social life and family with the Sheehan Disability Scale (SDS) in normal populations, while Harnett-Sheehan K & Sheehan DV, (Harnett-Sheehan, 2008) obtained values of 6, 6.8 and 6.3 in the three respective subscales and a score of 23.1 in the overall assessment of patients presenting depression. Sheehan et al. (2016) showed that results of antidepressant treatment are associated with improvement in the dimensions of functionality. Achieving remission is the main goal of treatment and is usually defined as the absence of symptoms, objectively measured through instruments such as the Hamilton Depression Rating Scale (HDRS) or Remission from Depression Questionnaire (RDQ) (Montoya *et al.,* 2016). Also it has been reported that optimism, self-confidence, the ability to carry out normal activities and normal operations were selected by patients with depression as the most important characteristics of remission, as well as the absence of symptoms (Zimmerman *et al.,* 2016). Therefore, the objective of the present study is to determine the association of the individual's functional disability with the severity or state of initial remission of depression and three months after follow-up.

MATERIALS AND METHODS

An observational, comparative, and longitudinal study was done from July 2017 to June 2018 in adolescents and adults affiliated with the Hospital of High Specialty of Veracruz of the Secretary of Marine diagnosed with depressive disorder using American Psychiatric Association criteria; people who had chronic comorbidities, bipolar disorder, schizoaffective disorder or other serious psychiatric disorders and cognitive deficiencies were excluded. The calculated sample was of 59 subjects, it was estimated using the formula for contrast of means with a 95% confidence interval, statistical power of 90% and a 3.99 precision based on results of previous studies. An initial clinical interview was made to the patient in the psychiatric outpatient basis that included his overall assessment and in case the diagnosis of depressive disorder was established, the patient was invited to participate in the study.

Measurements: Once the diagnosis was established,a questionnaire about socio-demographic characteristics, medical history and treatment, HDRS and SDS instruments were applied during the first interview. In a second interview three months after the intervention started, a second application of the HDRS was done. We applied HDRS to quantitatively assess the severity of the depression symptoms in patients who were previously diagnosed with this condition; it was also applied to determine the status of remission of the disease. In our study we applied the 17 items version of HDRS that explore depressed mood, feelings of guilt, suicide, insomnia: early in the night, middle of the night and early hours of the morning, work and activities, psychomotor retardation, psychomotor agitation, psychic and somatic anxiety, gastrointestinal, genital, and general somatic symptoms, hypochondriasis, weight loss and insight; each item has three to five possible responses with a score of 0 - 4 and a maximum total for all the instrument, 52. We applied the cut-off points recommended by the Guide to Clinical Practice drawn up by National Institute for Clinical Excellence, which includes the categories of non-depressed (0 - 7), slight/minor depression (Gomes *et al.,* 2015; Paz, 2015; Romera *et al.,* 2013; Endicott, 2009; Sheehan, 1996; Lin, 2000), moderate depression (Harnett-Sheehan, 2008; Sheehan, 2016; Montoya *et al.,* 2016; Zimmerman, 2016; National Institute for Clinical Excellence, 2004), severe depression (Ramos-Brieva, 1988; Luciano *et al.,* 210; Collard, 2018) and very severe depression (> 23).(18) The Spanish version of HDRS-17 items that we used in the present study, has acceptable reliability and validity, an inter-observer reliability of r = 0.99 and reliability with Cronbach alpha r=0.72. To determine the remission status, we considered the recommendations published by Frank E et al (1991), which established as a cut-off point a ≤ 7 HDRS score (Ramos-Brieva, 1988). The SDS is made out of three self-rating questions we use to assess first, the functional deterioration in work or study, both paid and unpaid; second, family and home life and third, social life in the week prior to the interview. Uses a Likert-type visual scale with a range of response from 0 to 10, where 10 represent extreme disability to perform any activity.

It also includes a measurement of the perceived stress that evaluates to what extent have stressful events made life difficult for the patient since his last visit and the social support he referred as the percentage of aid that the patient has obtained with regard to what he needed. Respondents had the option to skip the job functionality evaluation if they had not worked or studied in the last week for reasons not connected with the disease such as unemployment or retirement. Each of the three dimensions were calculated separately but the overall score that combines the three subscales with range of 0 to 30 was also estimated.

The SDS allows classifying functional disability degree in each of the three dimensions in the following categories: absence of disability (score 0), mild or low disability (World Health Organization, 2017; Wagner *et al.,* 2012; American Psychiatric Association. 2013) moderate disability (4-6), marked or major disability (Penninx *et al.,* 1999; Gomes *et al.,* 2015; Paz, 2015) and extreme disability (score 10). Considering the combined valuation of the three subscales, a total score of ≤ 6 is normal while a score of 30 indicates the highest disability degree. In our study we applied the Spanish version validated with good internal consistency (α = 0.83), significantly associated with mental and physical components of quality of life measured by the SF-12, sensitivity of 81.6% and specificity of 70.6% (Luciano *et al.,* 2010).

Statistical Analysis: A descriptive statistical analysis with calculation of absolute and relative frequencies for the categorical variables; estimation of central tendency measures (mean and median) and dispersion measures (standard deviation and range) were performed to represent the numerical variables such as age, functionality score and severity of depression. A Pearson correlation test was applied to determine the measure of correlation between the punctuations of functionality and severity of depression. The inferential analysis was performed using a Chi square test with Yates correction, Fisher's exact test, Mann-Whitney U test, Wilcoxon signed-rank test, and Student's Ttest for independent and paired samples with a significance level of 0.05. The study also included an analysis with association measures between the functional disability and the status of remission of depression categories using odds ratio and 95% confidence intervals. The statistical procedures will be carried out with Excel spreadsheets and SPSS package v22.0.

Ethical considerations: Selected patients were asked for authorization to participate in the study; objectives, procedures and risks were explained and they were asked to signletters of consent. The project was authorized by the Ethics and Research Committees of the Research Department at the Veracruz' High Specialty Hospital(SEMAR).

RESULTS

The study included 214 patients with ages of 55.5 ± 13.7 years, 152 (71.0%) were positioned in the Group of 45 to 70 years; 21(9.8%) were male and 193 (90.2%) female, 166 (77.6%) were engaged in household chores and 161 (75.2%) have a junior high school or lower educational level. The established clinical diagnoses were 87 (40.7%) patients with major depression disorder, 67 (31.3%) patients with depressive disorder with anxiety, 47 (22.0%) patients with persistent depressive disorder and 13 (6.1%) patients with depressive disorder with other psychiatric conditions. A general analysis of the studied population showed an overall score of SDS 8.6 ± 8.2 and 2.6 ± 2.9 for occupational disability, 3.0 ± 3.2 for social disability, 3.0 ± 3.2 for family and 3.9 ± 3.1 in perceived stress; social support scored 64.0 34.7 ±. Self-Rating Depression Scale showed that among 137 (64.0%), 140 (65.4%) and 142 (66.4%) patients presented functionality impaired in labor, social or family dimensions respectively and presence of perceived stress in 179 (83.6%) individuals waspresented. The severity of the depression as assessed by HDRS, obtained a score of 10.3 ± 5.7 at the baseline of the study. Correlation analysis of the dimensions of functionality with the baseline score in severity of depression showed r =.403 for occupational dysfunction, r =.469 for social dysfunction, r =.528 for family deterioration, r =.518 with perceived stress, and r = -.329 for social support. The obtained correlation of global disability with severity of depression was of r =.528 (Fig. 1). Three months later in the second evaluation, a score of 7.9 HDRS ± 5.0 was obtained and the correlation values with global disability measured at the beginning of the study was of r =. 501 and r =. 422, r =. 424, r =. 485, r =.502 and r = -.270 for labor, social disability, perceived stress, social support and family respectively; the correlation with global functionality was r =. 501.

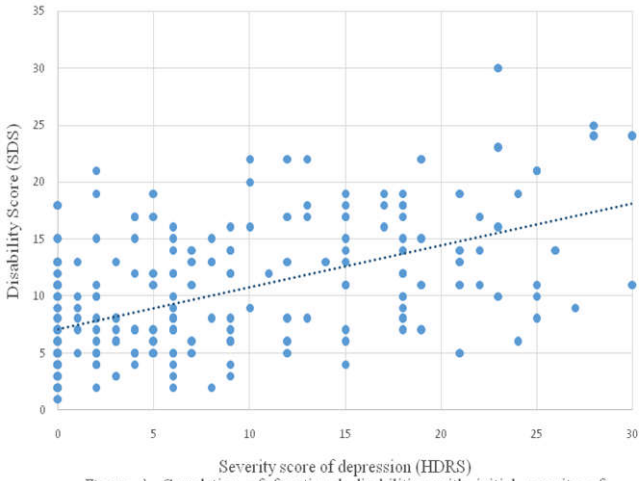

Figure 1. Correlation of functional disabilities with initial severity of depression according to the Hamilton Depression Rating Scale score.

In the initial evaluation, 127 (59.3%) of the patients presented HDRS > 7, age of 53.6 ± 15.0 years, 119 (93.7%) female and functionality measurements of 3.5 ± 3.1 for occupational disability, 3.9 ± 3.3 for social, 4.2 ± 3.3 for family and 5.0 ± 3.1 for perceived stress while its global disability score was 11.6 ± 8.6 and 56.9 ± 35.9 for social support. In comparison, 87 (40.7%) patients had HDRS ≤ 7, age of 58.3 ± 11.1 years (p =. 01), 74 (85.1%) female (p =. 06), overall score of SDS of 4.3 ± 5.2 (p < .001) and work functionality of 1.4 ± 2.0 (p <. 001), social 1.6 ± 2.4 (p <. 001), family 1.3 ± 1.9 (p <. 001), and perceived stress of 2.3 ± 2.4 (p < .001), their social support was of 74.5 ± 30.1 (p < .001). The group with depression and HDRS baseline > 7, 91 (69.5%) patients presented occupational disability versus 46 (52.9%) individuals with HDRS ≤ 7 (p =. 007), social dysfunction 100 (76.3%) versus 40 (46.0%) (p< .001), family dysfunction 102 (80.3%) compared to 40 (46.0%) (p< .001) and perceived stress of 116 (91.3%) versus 63 (72.4%) (p< .001). Measurements after three months of follow-up, presented 116 (54.2%) patients with remission of depressive disorder and 98 (45.8%) remained without remission. Patients without remission had an age of 53.7 ± 14.4 years compared with 57.0 ± 12.9 years in the remission group (p = 0.108) and showed no statistically significant differences for sex, marital status, occupation and educational level (p ≥. 05) (Table 1).

Patients with remission at follow-up had a score of 1.8 ± 2.5 for working functionality, of which 64 (55.2%) had some degree of deterioration in their functionality to work compared with 3.6 ± 3.0 and 73 (74.5%) from the group without remission (p <.001). In the dimension of social functionality, a score of 1.9 ± 2.6 and 60 (51.7%) patients with different degrees of disability was obtained in the group with remission in contrast to 4.2 ± 3.3 and 80 (81.6%) patients in the group without remission (p <. 001). In the dimension of family disability, the group of patients with remission obtained a score of 1.8 ± 2.6 and 62 (53.4%) patients presented dysfunction versus the group without remission with a score of 4.5 ± 3.2 and 80 (81.6%) patients with deterioration of family functionality (p< .001).Perceived stress reached a score of 2.6 ± 2.6 versus 5.4 ± 3.0 in groups with remission and and without remission and 86 (74.1%) compared with 93 (94.9%) patients presented different categories of stress in one and the other group respectively (p<.001). On the other hand, social support had scores of 72.4 ± 32.2 in patients with remission and 54.1 ± 35.0 in those without remission (p< 0.001). Global functional disability score was of 5.5 ± 6.7 in patients with remission after three months of follow-up and 12.3 ± 8.4 in the group without remission (p< 0.001) (table 2).

170 (79.4%) patients, showed labor, social and family disability and 44 (20.6%) absence of functionality deterioration. The HDRS score of patients with disability was 11.2 ± 5.7 at the initial evaluation and 8.6 ± 5.1 in the three moths follow-up (p< .001), while the group with no disability initially showed a score of 7.0 ± 4.3 and 5.3 ± 3.8 at three months (p< .001). The difference between groups was statistically significant in both measurements (p< .001). In the group with no disability, initially with 29 (65.9%) and 33 (75.0%) at the end were in remission of the depressive disorder (p= .483); in comparison, in the group with disability, 58 (34.1%) in the basal measurement and 83 (48.8%) at three months were in remission (p= .008). The difference between groups with and without disability was statistically significant in basal measurement (p< .001) and at three months (p= .003) (Fig. 2). The association analysis between disability and status without remission in the initial evaluation, obtained an OR of 3.7 and a 95% CI (1.9 – 7.5) and an OR of 3.1 with a 95% CI at three months of follow-up.

Table 1. Socio-demographic characteristics of patients with and without remission of depressive disorder

	Group with Remission n = 116	Group without Remission n = 98	p-value
Age(means ± SD years)	57.0 ± 12.9	53.7 ± 14.4	0.108
Sex			0.151
Male	15 (12.9%)	6 (6.1%)	
Female	101 (87.1%)	92 (93.9%)	
Marital status (%)			0.479
Single	11 (9.5%)	15 (15.3%)	
Married	78 (67.2%)	63 (64.3%)	
Separate / divorced	15 (12.9%)	7 (7.1%)	
Widowed	11 (9.5%)	9 (9.2%)	
Free union	1 (0.9%)	4 (4.1%)	
Occupation			0.581
Domestic occupations	88 (75.9%)	78 (79.6%)	
Student	4 (3.4%)	6 (6.1%)	
Employee	12 (10.3%)	11 (11.2%)	
Retired	9 (7.8%)	2 (2.0%)	
Unemployed	3 (2.6%)	1 (1.0%)	
Education			0.154
No studies	31 (26.7%)	21 (21.4%)	
Elementary	21 (18.1%)	30 (30.6%)	
Junior high	37 (31.9%)	21 (21.4%)	
High school	9 (7.8%)	14 (14.3%)	
Technical studies	6 (5.2%)	7 (7.1%)	
Bachelor's degree or more	12 (10.3%)	5 (5.1%)	

Values expressed in absolute frequencies (percentage), except age p-values obtained with Yates' chi-square test, except age (Mann-Whitney U test)

Table 2. Functional deterioration in work, social, family, perceived stress and social support in patients with and without remission of depression

	Group with remission n = 116	Group without remission n = 98	p-values
Work disability			< .001
Absence	52 (44.8%)	25 (25.5%)	
Mild or low	44 (37.9%)	26 (26.5%)	
Moderate	11 (9.5%)	25 (25.5%)	
Market	7 (6.0%)	20 (20.4%)	
Extreme	2 (1.7%)	2 (2.0%)	
Social disability			< .001
Absence	56 (48.3%)	18 (18.4%)	
Mild or low	36 (31.0%)	28 (28.6%)	
Moderate	13 (11.2%)	21 (21.4%)	
Market	9 (7.8%)	25 (25.5%)	
Extreme	2 (1.7%)	6 (6.1%)	
Family disability			< .001
Absence	54 (46.6%)	18 (18.4%)	
Mild or low	39 (33.6%)	21 (21.4%)	
Moderate	14 (12.1%)	30 (30.6%)	
Market	7 (6.0%)	22 (22.4%)	
Extreme	2 (1.7%)	7 (7.1%)	
Perceived stress			< .001
Absence	30 (25.9%)	5 (5.1%)	
Mild or low	54 (46.6%)	25 (25.5%)	
Moderate	17 (14.7%)	30 (30.6%)	
Market	14 (12.1%)	29 (29.6%)	
Extreme	1 (0.9%)	9 (9.2%)	
Social support	72.4 ± 32.2	54.1 ± 35.0	< .001

p-values obtained with Yates' chi-square test, exceptsocial support. Social support expressed in means ± SD of score of SDS, p-values obtained with U de Mann – Whitney test

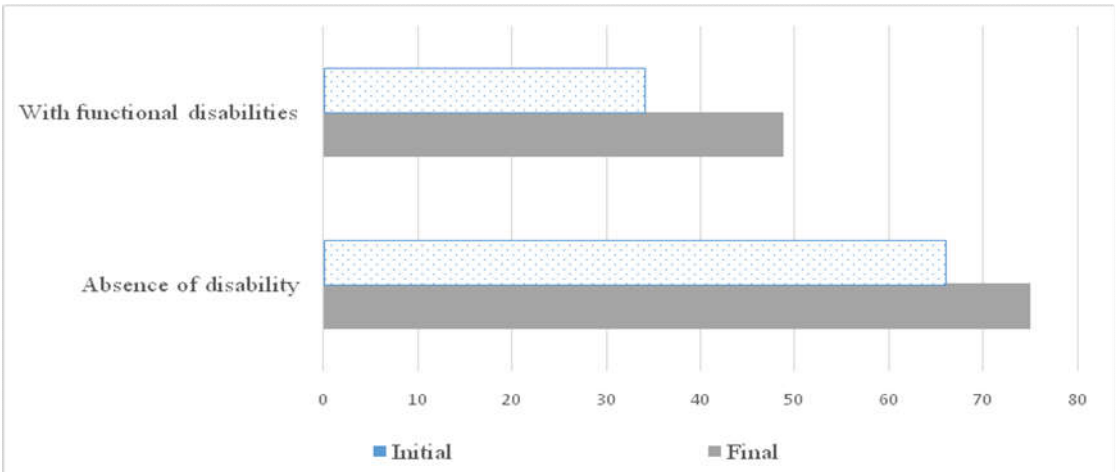

Figure 2. Distribution of patients with and without functional disabilities who presented remission of depressive disorder in the initial assessment and three months after treatment

DISCUSSION AND CONCLUSION

In our study involving young people and adults with a diagnosis of depressive disorder, the average age corresponded to the sixth decade of life with a predominance of female sex, domestic activities and educational level of secondary school or less and showed an average severity of depression that was ranked in the category of light depression, both on the baseline and three months later. It was found that the studied population, showed global disability and a low level of disability in areas such as labor, social and family. Nevertheless, in some individuals it reached moderate, significant or extreme levels; eight out of ten of studied patients presented perceived stress in categories from light to extreme while social support was of 64.5%. Global disability, SDS subscales and perceived stress scores, showed positive moderate correlation with the severity of depression measured with HDRS in contrast with negative correlation with social support.

Initially, the measurement of severity of depression, more than half of the patients presented mild or greater levels and their disability score was from low to moderate and significantly greater than patients in remission who had labor, social and family functionality ranked in the category of absence of disability; this difference remained after the three months of follow-up. Patients who showed labor, social and family disability had values significantly greater in severity of depression and one statistically significant smaller proportion of patients with remission of depressive disorder. The possibility of no remission of depressive disorder of patients with disabilities was not more than three times greater than those who showed absence of dysfunction. The validity and reliability of the SDS, as well as the sample size of the study are strengths that validated the findings, however, research projects with follow-up design of a cohort with early exposure to the disable state, may determine with greater strength how it modifies its association with results of the therapeutic management.

In a review of studies that measured disability in several psychiatric disorders, Harnett-Sheehan et al, show that depressive disorder, such as our results, are related to social, work and family disability (Harnett-Sheehan, 2008) However, unlike them, dysfunction was less so in patients of the population we studied. In the same way, our patients who presented remission had values of disability comparable to those reported by Lin EHB et al for normal population of patients in primary care. The differences with these studies are only established in terms of severity of labor, social and family dysfunction, in any case, lower in our population (Lin *et al.,* 2000). The results in our study also coincide with Sheehan DV et al. (2016) who found statistically significant differences in final scores of SDS by grouping patients according to sickness diversity; these authors also demonstrated higher reduction of disability with treatment. In our study, SDS scores in population with depression was lower, nevertheless, it also showed a reduction after three months of follow-up with pharmacological treatment and psychotherapy. Likewise, the relation presented in our results between remission of depression and functionality, are similar to the findings of Collard et al. (2018) who applied WHODAS 2.0 instrument and demonstrated in a cohort study that remission of depression was accompanied by improvements in functionality.

In this case, considering cognition, mobility, self-care, relations, daily activities, and participation dimensions. By contrast, Montoya et al. (2016) did not find association between a score in rank of remission after 6 months of treatment and functional disability; in contrast with our study, results did not show possibilities of being associated with remission. There weren't significant statistical differences in both research works in basal sociodemographic characteristics of subjects that showed or not, remission. However, our studied sample was of older age and presented higher scores at six months with the HDRS scale; furthermore, the group of patients that did not have remission, the score of severity of depression was discretely lower in our study. Additional elements such as social support could explain the differences in the association of labor, social and family functionality with the final state of severity of depression. Findings in our study allow us to identify the importance of the state of labor, social and family functionality in the evaluation of the patient with depressive disorder and its effect in the result of their treatment. This weighing acquires more relevance if we consider that under this perspective, besides from the physical changes, dimensions related with social aspects of the disorder and the individual functionality in significant components of activity and social interaction are considered. Its application must represent a fundamental part on the clinical actions, primary care of mental disorders in particular, due to its enablement to establish functional disability, perceived stress and social support associated to depressive disorder, its remission status and severity degree.

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