Anxiety and depression: a study of psychoaffective, family-related, and daily-life factors in celiac individuals

Quadros de ansiedade e depressão: estudo de fatores psicoafetivos, familiares e cotidianos em indivíduos celíacos

Cuadros de ansiedad y depresión: estudio de factores psicoafectivos, familiares y cotidianos en indivíduos celíacos

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ABSTRACT
Objective: To identify the prevalence of anxiety and depression and its association with psychoaffective, family-related, and daily-life variables of celiac individuals. **Methods:** Cross-sectional study, developed with 83 celiac patients in Fortaleza. An instrument was applied with variables grouped in the categories: psychoaffective, family-related, and daily-life. **Results:** It was found that 52 celiac patients (62.7%) had anxiety and 29 (34.9%) had depression. The clinical conditions found and the number of symptoms increased the chance of anxiety/depression. The predominant factors in those with anxiety were Lack of control of the celiac disease (98.1%), Perceived clinical condition (75.0%), Daily obstacles for maintaining a gluten-free diet (63.4%), and Daily activities (55.8%). In those with depression, there was a higher prevalence of Lack of control of the celiac disease (100.0%), Perceived clinical condition (82.2%), and Daily obstacles for maintaining a gluten-free diet (69.0%). **Conclusion**: Celiac individuals with anxiety and depression frameworks presented a higher frequency of Perceived clinical condition, Insufficient social support (psychoaffective factors) and Daily obstacles for maintaining a gluten-free diet (daily-life factor).
Descriptors: Celiac Disease; Chronic Disease; Diet, Gluten-Free; Depression; Anxiety.

RESUMO
Objetivo: Identificar a prevalência de ansiedade e depressão e a associação com variáveis psicoafetivas, familiares e cotidianas em celíacos. **Métodos:** Estudo transversal, desenvolvido com 83 celíacos, em Fortaleza. Aplicou-se instrumento com variáveis agrupadas nas categorias de fatores: psicoafetivos, familiares e cotidianos. **Resultados:** Ansiedade foi identificada em 52 celíacos (62,7%); e depressão, em 29 (34,9%). Condição clínica percebida e Quantidade de sintomas aumentam a chance para ansiedade/depressão. Descontrole da doença celíaca (98,1%), Condição clínica percebida (75,0%), Obstáculos diários para dieta livre de glúten (63,4%) e Atividades cotidianas (55,8%) foram os fatores mais predominantes naqueles com ansiedade. Na presença de depressão, houve maior prevalência de Descontrole da doença celíaca (100,0%), Condição clínica percebida (82,8%) e Obstáculos diários para dieta livre de glúten (69,0%). **Conclusão:** Celíacos com quadros de ansiedade e depressão apresentaram maior frequência de Condição clínica percebida e Apoio social insuficiente (fatores psicoafetivos) e Obstáculos diários para dieta livre de glúten (fator cotidiano).
Descritores: Doença Celíaca; Doença Crônica; Dieta Livre de Glúten; Depressão; Ansiedade.

RESUMEN
Objetivo: Identificar la prevalencia de ansiedad y depresión y la asociación con variables psicoafectivas, familiares y cotidianas en celíacos. **Métodos:** Estudio transversal, desarrollado con 83 celíacos, en Fortaleza. Se aplicó instrumento con variables agrupadas en las categorías de factores: psicoafectivos, familiares y cotidianos. **Resultados:** La ansiedad ha sido identificada en 52 celíacos (62,7%); y la depresión, en 29 (34,9%). Condición clínica percibida y Cantidad de síntomas aumentan la ocasión para ansiedad/depresión. Descontrol de la enfermedad celíaca (98,1%), Condición clínica percibida (75,0%), Obstáculos diarios para dieta sin gluten (63,4%) y Actividades cotidianas (55,8%) han sido los factores más predominantes en aquellos con ansiedad. En la presencia de depresión, hubo mayor prevalencia de Descontrol de la enfermedad celíaca (100,0%), Condición clínica percibida (82,8%) y Obstáculos diarios para dieta sin gluten (69,0%). **Conclusión:** Celíacos con cuadros de ansiedad y depresión presentaron mayor frecuencia de Condición clínica percibida y Apoyo social insuficiente (factores psicoafectivos) y Obstáculos diarios para dieta sin gluten (factor cotidiano).
Descriptores: Enfermedad Celíaca; Enfermedad Crónica; Dieta sin Gluten; Depresión; Ansiedad.

INTRODUCTION

Celiac disease is the fastest growing dietary restriction in the world — in the last few years, its incidence has grown exponentially. Its incidence is compared to an iceberg: it is only possible to evaluate a small number of individuals, those who have been diagnosed, when compared to the real amount of patients affected, due to the shortcomings in the screening of the population[1].

The treatment of the celiac disease is based around a diet, through the permanent exclusion of gluten. To guarantee its exclusion, the celiac person must know how to identify the ingredients present in the labels whenever they buy and use many products. Also, patients state that the restriction in the commercialization makes their diet tiresome, and the few products available have high prices, which is an obstacle against adhering to the diet[2-3].

Among the neuropsychiatric disorders associated with the celiac disease, anxiety and depression stand out. They may be comorbidities associated to the pathology, or symptoms resulting from the physiological changes that take place. The psychiatric changes tend to appear with the diagnostic of the celiac disease, and may have a strong influence on the adherence to gluten-free diets, leading the celiac person to more serious complications, which, in turn, increase the signs and symptoms of depression and/or anxiety. This cycle directly affects the quality of life and the prognosis of the celiac patient[4].

Anxiety and depression are frequent symptoms of the celiac disease and have been identified (one or both of them) in 41% of celiac patients, requiring attention from the health professionals who attend these patients. Furthermore, the celiac disease is associated to depressive and anxious behaviors, as a response to the physiopathology of the disease and to the psychosocial impairment it provokes[5-6].

Considering the frequent presence of psychiatric manifestations found in celiac individuals, the following questions emerged: What is the prevalence of anxious and depressive frameworks in celiac individuals? What are the psychoaffective, family related, and daily-life factors present in the lives of people with celiac disease? Is there an association of said factors with the development of depression and anxiety in celiac individuals?

As a result, the identification of factors that influence the development of depressive or anxious states in celiac patients has the potential to allow nurses and other health professionals to plan and implement actions to promote their health and empower them for the self-care process. The fact that these factors can trigger a worsening of the primary disease, as well as the development of other associated complications, both malignant and not, reiterate the relevance of identifying them.

OBJECTIVE

To identify the prevalence of anxiety and depression and its association with psychoaffective, family-related, and daily-life variables of celiac individuals.

METHODS

Ethical aspects

The study was approved by the Ethics Committee for Research with Human Beings. Additionally, all participants were informed about the application of the data collection instrument, which was done after the Free and Informed Consent Form was signed.

Design, period, and place of study

Cross-sectional, exploratory, and quantitative study, with 83 celiac patients registered in the Association of Brazilian Celiac Patients — Ceará Section (ACELBRA-CE), from Fortaleza, Ceará, Brazil, and/or who were members of the groups of the association in social networks such as Facebook® and WhatsApp®. Inclusion criteria was having received a definitive diagnostic of celiac disease; being 18 years old or older; and living in the state of Ceará. The criteria of exclusion only regarded celiac patients with some type of cognitive impairment which would prevent them from authentically responding to the instrument. No participant was excluded.

Study protocol

The celiac patients were searched, at first, with the help of the president of the ACELBRACE, who was asked for authorization to carry out the research with the associates of the ACELBRA-CE and/or with members from the groups of the institution in social networks and media, such as Facebook® and WhatsApp®. In a first contact with the patient, their name and telephone were registered, the date and time for the collection were scheduled, and the place for collection was selected according to the availability of both participant and researcher, so the instrument could be applied. The place of application of the instrument, varied according to the preference of the participant, varying from the house of the participant to public places, as long as privacy was guaranteed.

Data collection took place through the filling of the data collection instrument during the interview, which was conducted by three students from the Nursing graduation course from a public university, together with a nurse who was a master's degree student in the same institution. Before data collection started, an eight-hour training course was carried out, to give clarifications to the interviewers about the celiac disease and the data collection instrument. Also, there was a pre-test, with 12 individuals, to evaluate the adequacy of the collection instrument. As a result, there were small changes in the instrument, but it was possible to keep the data from these pre-test individuals in the research.

The data collection instrument included: sociodemographic data; a topic regarding clinical variables, subdivided in psychoaffective, family related, and daily-life factors; Beck Depression Inventory; and Beck Anxiety Inventory[7-8]. There were also variables used in the elaboration of the factors, as such: psychoaffective (Not knowing the pathology, Perceived clinical condition, and Insufficient social support), family-related (Shared care and Family support), and daily-life ones (Lack of control of the celiac disease, Daily activities, and Daily obstacles for maintaining a gluten-free diet).

Analysis of results and statistics

Data was organized on spreadsheets from the software Excel for Windows, and analyzed using SPSS, version 22.0. The descriptive analyses of quantitative data regarding sociodemographic and psychoaffective, family-related, and daily-life variables were carried out through the calculation of absolute and relative frequencies, central tendency measures, and dispersion. The proportion of categoric variables was calculated with confidence intervals of 95%.

For the evaluation of the association of psychoaffective, family-related, and daily-life variables with the presence of depression and anxiety, the chi-squared test was used when expected frequencies were above 5; when this was not the case, Fisher's exact test was used. The prevalence ratio was measured based on the calculation of the prevalence ratio. In the analysis of the difference between the means, Kolmogorov-Smirnov's test was used to verify the normality of data, and the Levenes test to verify the homoscedasticity between the groups. Based on the results of these tests, Student's t or Mann-Whitney's tests were used to analyze the difference in the mean/median between the groups. Spearman's rho was used to evaluate the correlation between the means of the results of the variables and the scores of the depression and anxiety scales.

RESULTS

83 celiac patients who lived in the state of Ceará were evaluated. Most individuals were female (n = 73; 88%), of white color/race/ethnicity (n = 45; 54.2%); had no partner (n = 42; 50.6%); no children (n = 45; 54.2%); had a paid job (n = 63; 75.9%); lived in the city of Fortaleza (n = 73; 88%); and were members of support associations (n = 57; 62.7%).

Table 1 shows that the most frequent variables were: Lack of control of the celiac disease (n=79; 95.2%) and Perceived clinical conditions (n = 59; 71.1%). Most celiac patients had anxiety (n=52; 62.7%). Depression was found in 29 of the patients interviewed (34.9%). The lack of family support was found in 40 celiac patients (48.2%), and the Lack of knowledge about the pathology was absent in 83 individuals (100%). It stands out that there was an asymmetrical distribution (p>0.05) in the variables, indicating that social support was insufficient, which was also true in the affective dimension, and in the ones indicating positive emotional and social interactions, as well as in the total score of depression. As a result, it was found that half the celiac patients had sufficient support in the three dimensions evaluated, and mild depression, according to the scale.

According to Table 2, the individual with Perceived clinical condition (p = 0.009), Insufficient social support (p = 0.049), and Daily obstacles for maintaining a gluten-free diet (p = 0.007) had a higher mean of variable results in the scores of the depression scale.

Table 3 shows that, in the presence of anxiety, five variables were more prevalent: Lack of control of the celiac disease (n=51; 98.1%), Perceived clinical condition (n=39; 75%), Daily obstacles for maintaining a gluten-free diet (n=33; 63.4%), and Daily activities (n=29; 55.8%). No variable had a significant association with anxiety.

In Table 4, it was found that, in the presence of depression, the variables Lack of control of the celiac disease (n=29; 100.0%), Daily obstacles for maintaining a gluten-free diet (n=20; 69.0%), and Perceived clinical condition (n=24; 82.8%) were the most prevalent. No variable showed statistical significance when associated with anxiety and depression.

Table 1 - Distribution of the presence of psychoaffective, family-related, and daily-life factors in celiac patients, Fortaleza, Ceará, Brazil, 2017 (N = 83)

Variables	n	%
1. Psychoaffective factors		
Lack of knowledge about the pathology		
No	83	100
Yes	0	0
Perceived clinical condition		
No	24	28.9
Yes	59	71.1
Insufficient social support		
No	68	81.9
Yes	15	18.1
2. Family-related factors		
Unsatisfactory shared care		
No	81	97.6
Yes	2	2.4
Family support		
No	40	48.2
Yes	43	51.8
3. Daily-life factors		
Lack of control of the celiac disease		
No	4	4.8
Yes	79	95.2
Daily activities		
No	36	43.4
Yes	47	56.6
Daily obstacles in the maintenance of the GFD		
No	37	44.6
Yes	46	55.4
4. Anxiety		
No	31	37.3
Yes	52	62.7
5. Depression		
No	54	65.1
Yes	29	34.9

	Medium	SD	Median	IIQ	p value*
6. Social support (affective)	4.80	0.598	5.0	0.0	0.000
7. Social support (positive social interaction)	4.49	0.806	5.0	0.7	0.000
8. Social support (emotional)	4.21	0.968	4.7	1.5	0.000
9. Total anxiety score	14.62	9.831	14.0	12.0	0.082
10. Total depression score	9.84	6.80	10.0	9.0	0.033

Note: mber of individuals; %: percentage; GFD: gluten-free diet; SD: standard deviation; IQI: interquartile interval; *Kolmogorov-Smirnov's test.

Table 2 - Distribution of means of the results in the psychoaffective, family-related, and daily factors, according to the total value of the scores in the scale of anxiety and depression, Fortaleza, Ceará, Brazil, 2017

Mean of the variable results	Anxiety scores	Depression scores	p value*
1. Lack of knowledge about the pathology			
Absent	19.88	20.63	†
Present	43.12	43.08	
2. Perceived clinical condition			
Absent	37.00	31.15	0.228
Present	44.03	46.42	0.009
3. Insufficient social support			
Absent	41.25	39.56	0.546
Present	45.40	53.07	0.049

To be continued

Table 2 (concluded)

Mean of the variable results	Anxiety scores	Depression scores	p value*
4. Unsatisfactory shared care			
Absent	42.46	41.98	0.271
Present	23.50	42.75	0.964
5. Family support			
Absent	47.18	45.69	0.059
Present	37.19	38.57	0.178
6. Lack of control of the CD			
Absent	19.88	20.63	0.060
Present	43.12	43.08	0.069
7. Daily activities			
Absent	41.03	43.14	0.748
Present	42.74	41.13	0.706
8. Daily obstacles in the maintenance of the GFD			
Absent	38.42	34.07	0.224
Present	44.88	48.38	0.007

Note: *Mann-Whitney's test; †No statistic could be calculated; CD: Celiac Disease; GFD: Gluten-free diet.

Table 3 - Distribution of the celiac patients, according to psychoaffective, family-related, and daily factors and the presence of anxiety, Fortaleza, Ceará, Brazil, 2017 (N = 83)

Variables	Anxiety				Statistics
	Ausente		Presente		
	n	%	n	%	
1. Lack of knowledge about the pathology					
Absent	31	100	52	100	
Present	0	0	0	0	*
Total	31	100.0	52	100.0	
2. Perceived clinical condition					
Absent	11	35.5	13	25	p = 0.308†
Present	20	64.5	39	75	OR = 1.650
Total	31	100.0	52	100.0	IC 95%: 0.627-4.340
3. Insufficient social support					
Absent	27	87.1	41	78.9	p = 0.345†
Present	4	12.9	11	21.1	OR = 1.811
Total	31	100.0	52	100.0	IC 95%: 0.522-6.278
4. Unsatisfactory shared care					
Absent	30	96.8	51	98.1	p = 1.00‡
Present	1	3.2	1	1.9	OR = 0.588
Total	31	100.0	52	100.0	IC 95%: 0.035-9.753
5. Family support					
Absent	11	35.5	29	55.8	p = 0.351†
Present	20	64.5	23	44.2	OR = 0.650
Total	31	100.0	52	100.0	IC 95%: 0.262-1.611
6. Lack of control of the CD					
Absent	3	9.7	1	1.9	p = 0.144‡
Present	28	90.3	51	98.1	OR = 5.464
Total	31	100.0	52	100.0	IC 95%: 0.543-55.03
7. Daily activities					
Absent	13	41.9	23	44.2	p = 0.838† OR = 0.911
Present	18	58.1	29	55.8	
Total	31	100.0	52	100.0	IC 95%: 0.371-2.238
8. Daily obstacles in the maintenance of the GFD					
Absent	18	58.1	19	36.5	p = 0.056†
Present	13	41.9	33	63.4	OR = 2.405
Total	31	100.0	52	100.0	IC 95%: 0.968-5.972

Note: number of individuals; %: percentage; OR: odds ratio; CI 95%: confidence interval of 95%; CD: Celiac Disease; GFD: Gluten-free diet; *No statistic could be calculated. †Chi-squared test. ‡Fisher's exact test.

Table 4 - Distribution of the celiac patients, according to psychoaffective, family-related, and daily factors and the presence of depression, Fortaleza, Ceará, Brazil, 2017 (N = 83)

Variables	Depression				Statistics
	Absent		Present		
	n	%	n	%	
1. Lack of knowledge about the pathology					
Absent	54	100.0	29	100.0	*
Present	0	0.0	0	0.0	
Total	54	100.0	29	100.0	
2. Perceived clinical condition					
Absent	19	35.2	5	17.2	p = 0.086†
Present	35	64.8	24	82.8	OR = 2.606
Total	54	100.0	29	100.0	IC 95%: 0.856-7.936
3. Insufficient social support					
Absent	47	87.0	21	72.4	p = 0.099†
Present	7	13.0	8	27.6	OR = 2.558
Total	54	100.0	29	100.0	IC 95%: 0.820-7.977
4. Unsatisfactory shared care					
Absent	53	98.1	28	96.5	p = 1.000‡
Present	1	1.9	1	3.5	OR = 1.893
Total	54	100.0	29	100.0	IC 95%: 0.114-31.421
5. Family support					
Absent	24	44.4	16	55.2	p = 0.351†
Present	30	55.6	13	44.8	OR = 0.650
Total	54	100.0	29	100.0	IC 95%: 0.262-1.611
6. Lack of control of the CD					
Absent	4	7.4	0	0.0	
Present	50	92.6	29	100.0	p = 0.292‡
Total	54	100.0	29	100.0	
7. Daily activities					
Absent	21	38.9	15	51.7	p = 0.261†
Present	33	61.1	14	48.3	OR = 0.594
Total	54	100.0	29	100.0	IC 95%: 0.239-1.477
8. Daily obstacles in the maintenance of the GFD					
Absent	28	51.9	9	31.0	p = 0.069†
Present	26	48.1	20	69.0	OR = 2.393
Total	54	100.0	29	100.0	IC 95%: 0.925-6.192

Note: number of individuals; %: percentage; OR: odds ratio; CI 95%: confidence interval of 95%; CD: Celiac Disease; GFD: Gluten-free diet; *No statistic could be calculated. †Chi-squared test. ‡Fisher's exact test.

DISCUSSION

Brazil has been presenting a change in the epidemiological profile, characterized by the transition from infectious and parasitic diseases into a growing number of chronic diseases. This profile is an important public health problem, since it leads to a diminution in the quality of life and to a growing number of precocious deaths, in addition to provoking limitations in the individuals affected[9-10].

In the context of chronic diseases, certain types of care must be continuous; as a result, adherence to the therapies is indispensable to maintain health. This behavior is directly related to the daily quality of life, and can compromise and/or affect the psychological and physical wellbeing of the patients[11].

The celiac disease, similarly to other chronic diseases, demands permanent care, which can generate negative impacts in the lives of individuals, making them feel different from others when a social context is considered[4]. Studies have informed that the psychological quality of life of the celiac patient is lower than that of the rest of the population. This can be justified by the

presence of symptoms associated to the lack of adherence to the gluten free diet, or to the difficulties in following this diet, since there is a significant change in the eating and social habits of the celiac individual[6,12].

Anxiety was present in 62.7% (n =52) of the celiac individuals, similarly to the result found by a Mexican study, in which 65% (n = 52) of the sample showed anxiety[13]. Other researches also found the presence of anxiety related to the CD, with 41.2% (n = 28), and an 84.8% prevalence [5,14]. A research carried out in Germany and Italy also confirms the presence of anxious and depressive symptoms connected to the CD and to the GFD[14].

Considering the finding that 29 (34.9%) of the celiac individuals were classified as depressed, this data corroborates that of international studies, which also found a high prevalence of depression (n = 48; 60%) in a similar population[13]. Depression is a common disease in the world, and has been increasing globally, affecting more than 300 million people, regardless of the income level of the country[15].

Insufficient social support was absent in 68 individuals (81.9%), indicating that most receive support; however, when associated to adequate social support, there was a prevalence of 78.9% (n = 41) individuals with anxiety and 72.4% (n = 21) individuals with depression. Therefore, the presence of social support in chronic diseases is a positive factor in the prevention of the development of anxiety[16].

In this study, there were higher scores of depression in celiac patients with Perceived clinical condition. This relationship between the perception of health and the presence of depression was also found in other researches[17-18]. The perception of the health condition in chronic diseases, which stems from exacerbated symptoms associated with the presence of depression, may justify this finding[18].

Family support was present in 51.8% of celiac patients — this presence, with daily involvement, positively contributes to the adherence to the diet, in addition to diminishing feelings of insecurity[13]. Unsatisfactory shared care was absent in 97.6% (n=81), showing that most individuals had satisfactory care, as opposed to the findings of a study that described the presence of care in 49.5% of its sample[19].

The presence of Daily obstacles for maintaining a gluten-free diet was present in 55.4% of celiac patients (n=46). This variable also showed significance when associated to the total score of depression. Among the most common obstacles found, are the ambiguity in the labels (n = 52; 62.6%); commercialization restrictions (n = 40; 48.2%); the price of gluten-free products (n = 50; 60.2%); and the contamination in the domestic environment (n = 38; 45.8%). In agreement with the results presented, a study carried out in Canada with 2,681 celiac patients showed that 44% of its sample had difficulties in following the diet, and the most cited obstacles were the difficulties in determining whether the foods were gluten-free (85%) and the difficulty in finding gluten-free products in the market (83%)[2]. The difficulties in adhering to the therapy due to cross contamination and to the high cost of the products were also cited[20].

The category Daily activities was present in 56.6% (n=47) of the celiac individuals, indicating that most mention difficulties in treating and controlling the disease due to the excessive number of daily obligations, which may lead to a lack of adherence to the therapy. This behavior may have consequences such as not finding

the benefits expected, diminishing the quality of life, and an increased financial cost to the health system and to the patient[20].

The presence of psychoaffective, family-related, and daily-life factors was found to be associated with the presence of anxiety and depression. This result ratifies the findings of another study, which states that the presence of factors may imply the celiac disease in the development of psychological symptoms, or be implied by it[6]. Therefore, the importance of the actions of the nurse with regards to chronic diseases stand out, as it promotes emotional support, clarifications with regard to the pathology and therapies, and respecting the subjectivity of each individual[4].

Finally, the results of this study are in accordance to other researches, which found depressive and anxious states in individuals with chronic diseases. These psychiatric states have specific factors that can negatively compromise the prognosis of the celiac patient, consequently triggering negative effects in the quality of life of this public. Therefore, individual care, based on the identification of variables associated with anxiety and depression, and on the perception of the multidimensionality of each individual, may positively contribute for improving the quality of life and the prognosis of the celiac patient[21].

Study limitations

Although this study has the potential of contributing to the identification of anxiety and depression, and their association with psychoaffective, family-related, and daily-life variables, its generalization is limited, since it is a specific sample including only celiac individuals. Finally, it stands out that part of the data collection took place in public locations, which may have affected the attention of the celiac patients.

Contributions to the fields of Nursing, Health or Public Policy

The identification of the factors and of their possible relations is expected to help nurses and other health workers in their process of planning and implementing actions that promote the self-care and mental health of individuals with celiac disease.

CONCLUSION

The presence of anxiety was found in 62.7% (n=52) of the celiac patients, while depression was found in 34.9% (n=29). When the psychoaffective, family-related, and daily-life factors were analyzed, the variables Perceived clinical condition, Insufficient social support, and Daily obstacles for maintaining a gluten-free diet had statistically significant associations with the total score of the depression scale. In the presence of these variables, the celiac patients showed higher means in the scores of the depression scale.

The restrictions in the scientific production on the theme addressed here have the potential of disseminating the findings of this investigation. This study suggests that further clinical studies should be carried out that better explain the relation between psychological disorders and the celiac disease. In addition, nurses and other health workers must take hold of the factors related to the care for chronic diseases, including psychiatric ones, and their implications in the quality of life of the celiac patients.

REFERENCES

1. Bai JC, Fried M, Corazza GR, Schuppan D, Farthing M, Catassi C, et al. World Gastroenterology Organisation global guidelines on celiac disease. J Clin Gastroenterol. 2013;47(2):121-6. doi: 10.1097/MCG.0b013e31827a6f83

2. Araújo HMC, Araújo WMC, Botelho RBA, Zandonadi RP. Celiac disease, eating habits and practices and life quality of life. Rev Nutr, Campinas. 2010;23(3):467-74. doi: 10.1590/S1415-52732010000300014

3. Fasano A, Catassi C. Current approaches to diagnosis and treatment of celiac disease: an evolving spectrum. Gastroenterol. 2001;120(3):636-51. doi: 10.1053/gast.2001.22123

4. Rocha S, Gandolfi L, Santos JE. The psychosocial impacts caused by diagnosis and treatment of Coeliac Disease. Rev Esc Enferm USP. 2016;50(1):65-70. doi: 10.1590/S0080-623420160000100009

5. Cannings-John R, Butler CC, Prout H, Owen D, Williams D, Hood K, et al. A case-control study of presentations in general practice before diagnosis of coeliac disease. Br J Gen Pract [Internet]. 2007 [cited 2019 Feb 18];57(541):636-42. Available from: https://bjgp.org/content/57/541/636/tab-pdf

6. Smith DF, Gerdes LU. Meta-analysis on anxiety and depression in adult celiac disease. Acta Psychiatr Scand. 2012;125(3):189-93. doi: 10.1111/j.1600-0447.2011.01795.x

7. Campos RC, Gonçalves B. The Portuguese version of the Beck Depression Inventory-II (BDI-II). Eur J Psychol Assess. 2011;27(4):258-64. doi: 10.1027/1015-5759/a000072.

8. Cunha JA. Manual da versão em português das escalas Beck. São Paulo: Casa do Psicólogo; 2001.

9. Malta DC, Moura LD, Prado RR, Escalante JC, Schmidt MI, Duncan BB. Chronic non-communicable disease mortality in Brazil and its regions, 2000-2011. Epidemiol Serv Saude. 2014;23(4):599-608. doi: 10.5123/S1679-49742014000400002

10. Tavares NU, Luiza VL, Oliveira MA, Costa KS, Mengue SS, Arrais PS, Ramos LR, Farias MR, Pizzol TD, Bertoldi AD. Free access to medicines for the treatment of chronic diseases in Brazil. Rev Saude Publica. 2016;50(2):1-10. doi: 10.1590/S1518-8787.2016050006118

11. Avelar AM, Derchain SF, Camargo CP, Sarian LO, Yoshida A. Quality of life, anxiety and depression in breast cancer women before and after surgery. Rev Ciên Med. 2012;15(1):11-20. Available from: http://seer.sis.puc-campinas.edu.br/seer/index.php/cienciasmedicas/article/viewFile/1131/1106

12. Pimenta-Martins A, Pinto E, Gomes MP. Self-perception of health status and quality of life in a Portuguese sample of celiac patients. GE Port J Gastroenterol. 2014;21(3):109-16. doi: 10.1016/j.jpg.2013.09.006

13. Ramírez-Cervantes KL, Remes-Troche JM, Milke-García MP, Romero V, Uscanga LF. Characteristics and factors related to quality of life in Mexican Mestizo patients with celiac disease. BMC Gastroenterology. 2015;15(4):1-7. doi: https://doi.org/10.1186/s12876-015-0229-y

14. Häuser W, Janke KH, Klump B, Gregor M, Hinz A. Anxiety and depression in adult patients with celiac disease on a gluten-free diet. World J Gastroenterol. 2010;16(22):2780. doi: https://doi.org/10.3748/wjg.v16.i22.2780

15. World Health Organization. Depression [Internet]. 2018[cited 2019 Feb 18]. Available from: http://www.who.int/news-room/fact-sheets/detail/depression

16. Dunbar M, Ford G, Hunt K. Why is the receipt of social support associated with increased psychological distress? an examination of three hypotheses. J Psychol Health. 1996;13(3):527-44. doi: 10.1080/08870449808407308

17. Maciel ACC, Guerra RO. Prevalence and associated factors of depressive simptomatology in elderly residents in the Northeast of Brazil. J Bras Psiquiatr. 2006;55(1):26-33. doi: 10.1590/S0047-20852006000100004

18. Berber JSS, Kupek E, Berber SC. Prevalence of depression and its relationship with quality of life in patients with fibromyalgia syndrome. Rev Bras Reumatol. 2005;45(2):47-54. doi: 10.1590/S0482-50042005000200002

19. Duca GF, Thumé E, Hallal PC. Prevalence and factors associated with home care among older adults. Rev Saude Publica [Internet]. 2010[cited 2019 Feb 18];45:113-20. Available from: https://www.scielosp.org/pdf/rsp/2011.v45n1/106-112/pt

20. Bessa CC, Silva LA, Sousa TM, Silva VM, Galvão MTG, Guedes NG. Health control for celiac patients: an analysis according to the Pender health promotion model. Texto Contexto Enferm. 2020;29:e20180420. doi: 10.1590/1980-265x-tce-2018-0420

21. Loureiro RA, Suzuki NM, Uchida RR, Pinheiro MCP, Aoki T, Cordeiro Q, Sanches M. Depressive and anxiety symptoms among patients admitted to a Gynecology Ward. Arq Med Hosp Fac Cienc Med Santa Casa São Paulo [Internet]. 2012 [cited 2019 Dec 14];57(1):29-9. Available from: http://arquivosmedicos.fcmsantacasasp.edu.br/index.php/AMSCSP/article/view/268