REVISTA DE ENFERMAGEM REFERÊNCIA
homepage: https://rr.esenfc.pt/rr/
ISSNe: 2182.2883

RESEARCH ARTICLE (ORIGINAL)

# Prevalence of depression, anxiety, and stress in patients of a family health unit in northern Portugal

*Prevalência da depressão, ansiedade e stress numa unidade de saúde familiar do norte de Portugal*

*Prevalencia de la depresión, la ansiedad y el estrés en una unidad de salud familiar del norte de Portugal*

Fabiana Freitas Chyczij[1]
https://orcid.org/0000-0002-7051-4600

Clara Ramos[1]
http://orcid.org/0000-0001-8432-6240

Ana Luísa Santos[1]
http://orcid.org/0000-0002-8458-6162

Lisete Jesus[1]
http://orcid.org/0000-0002-7345-7605

José Pereira Alexandre[2]
http://orcid.org/0000-0002-4113-4916

[1]Cluster of Healthcare Centers of Douro I - Marão and Douro Norte, Vila Real, Portugal

[2]Cluster of Healthcare Centers Lisboa Central, Lisboa, Portugal

**Corresponding author:**
Clara Ramos
Email: claralbr80@gmail.com

Received: 24.11.19
Accepted: 15.04.20

**Abstract**

**Background:** Depression, anxiety, and stress are a public health issue with high prevalence in Portugal.
**Objectives:** To determine the prevalence of depression, anxiety, and stress, as well as to analyze differences between gender, age, education level, occupational status, intake of psychotropic drugs, and perceived health status regarding levels of depression, anxiety, and stress.
**Methodology:** A cross-sectional descriptive-correlational study was conducted with a sample of 207 users using non-probabilistic and convenience sampling. A biographical questionnaire and the Portuguese version of the Depression, Anxiety, and Stress Scale (DASS-21) were applied.
**Results:** In this sample, 64.5% to 79.9% of users had *normal* to *mild* depression, anxiety, and stress; 6.6% to 18% of users had a *moderate* level; and 10.5% to 17.5% of users had a *severe* to *extremely severe* level. Depression, anxiety, and stress were more prevalent in individuals aged over 65 years, those who perceived their health as poor, and those who took psychotropic drugs. Anxiety was frequent in women. Depression was higher in individuals with a low education level. Anxiety and depression were frequent in people who were professionally inactive.
**Conclusion:** Given the high prevalence of depression, anxiety, and stress, preventive strategies are urgent.

**Keywords:** depression; anxiety; stress; mental health

**Resumo**

**Enquadramento:** A depressão, ansiedade e *stress*, têm elevada prevalência em Portugal sendo um problema de saúde pública.
**Objetivos:** Determinar a prevalência da depressão, ansiedade e *stress*; Analisar diferenças entre género, idade, escolaridade, situação profissional, toma de psicofármacos, e perceção do estado de saúde relativamente aos níveis de depressão, ansiedade e *stress*.
**Metodologia:** Estudo descritivo-correlacional transversal, amostra 207 utentes, amostragem não probabilística e por conveniência. Aplicado questionário biográfico e versão portuguesa *Depression, Anxiety and Stress Scale* (DASS21).
**Resultados:** Entre 64,5% e 79,9% apresentam nível de depressão, ansiedade e *stress normal* a *leve*; entre 6,6% e 18% nível *moderado* e entre 10,5% e 17,5% nível *severo* a *muito severo*. Depressão, ansiedade e *stress* apresentam maior prevalência acima 65 anos, nas pessoas com fraca perceção do seu estado de saúde e que tomam psicofármacos; ansiedade é frequente nas mulheres; depressão maior expressão na baixa escolaridade; ansiedade e depressão frequentes nas pessoas não ativas profissionalmente.
**Conclusão:** Resultados demonstraram uma prevalência de depressão, ansiedade e stress sobre a qual urge a definição de estratégias preventivas.

**Palavras-chave:** depressão; ansiedade; *stress*; saúde mental

**Resumen**

**Marco contextual:** La depresión, la ansiedad y el estrés son muy frecuentes en Portugal y constituyen un problema de salud pública.
**Objetivos:** Determinar la prevalencia de la depresión, la ansiedad y el estrés; analizar las diferencias entre el sexo, la edad, la escolaridad, la situación laboral, el consumo de psicofármacos y la percepción del estado de salud en relación con los niveles de depresión, ansiedad y estrés.
**Metodología:** Estudio descriptivo-correlacional transversal, muestra de 207 usuarios, muestreo no probabilístico y por conveniencia. Se aplicó el cuestionario biográfico y la versión portuguesa de la *Depression, Anxiety and Stress Scale (DASS21).*
**Resultados:** Entre el 64,5% y el 79,9% tienen un nivel de depresión, ansiedad y estrés de *normal* a *leve*; entre el 6,6% y el 18% un nivel *moderado*, y entre el 10,5% y el 17,5% un nivel de *grave* a *muy grave*. La depresión, la ansiedad y el estrés son más frecuentes a partir de los 65 años en las personas con una mala percepción de su salud y que toman psicofármacos; la ansiedad es frecuente en las mujeres; la depresión es más frecuente en las personas con baja escolaridad; la ansiedad y la depresión son frecuentes en las personas no activas profesionalmente.
**Conclusión:** Los resultados mostraron una prevalencia de la depresión, la ansiedad y el estrés sobre la que deben definirse estrategias preventivas.

**Palabras clave:** depresión; ansiedad; estrés; salud mental

**How to cite this article:** Chyczij, F. F., Ramos, C. L., Santos, A. L., Jesus, L. A., & Alexandre, J. M. (2020). Prevalence of depression, anxiety, and stress in patients of a family health unit in northern Portugal. *Revista de Enfermagem Referência, 5*(2), e19094. doi:10.12707/RIV19094

## Introduction

According to the World Health Organization (WHO), in 2015, depression affected more than 300 million people worldwide, which is equivalent to 4.4% of the world's population, and anxiety disorders affected almost the same number of people (Word Health Organization, 2017).
The Portuguese National Health Plan identified Mental Health as an issue that deserves greater attention from Primary Health Care (PHC), stressing its role in health promotion and prevention of mental illness (Direção-Geral da Saúde [DGS], 2017b). In 2017, the report of the National Mental Health Program published by DGS indicated that 21% of the Portuguese population had an anxiety disorder and 17% suffered from depression (DGS, 2017a). Both disorders are more prevalent in women and more severe in at least one-third of all cases of patients with moderate to severe symptoms, with a profound negative impact on modern society, not only on the health but also on the social and occupational functioning of the individuals, resulting in job loss due to absenteeism and premature death (DGS, 2017c).
Depression symptoms are highly associated with an increased use of health resources, mainly in PHC where this problem is underestimated, which ends up being materialized in other types of diseases (Apóstolo, Ventura, Caetano, & Costa, 2008; Apóstolo, Figueiredo, Mendes, & Rodrigues, 2011). Several factors can contribute to the development of anxiety, depression, and stress. Thus, their identification and evaluation through instruments such as the 21-item Depression, Anxiety and Stress Scale (DASS-21) are important to improve clinical practice and adjust local interventions, particularly to the population's needs (Apóstolo et al., 2008; Apóstolo, Figueiredo, et al., 2011; Bonafé, Carvalho, & Campos, 2016; Pinto, Martins, Pinheiro, & Oliveira, 2015). Yet, only few studies have been conducted in PHC settings, as evidenced in a review conducted by Murcho, Pacheco, and Jesus (2016).
Therefore, it was important to determine the prevalence of depression, anxiety, and stress in a sample of users of a Family Health Unit in northern Portugal, as well as to analyze the sociodemographic differences, particularly in gender, age, education level, occupational status, intake of psychotropic drugs and perceived health status regarding the levels of depression, anxiety, and stress.

## Background

The most common mental disorders, namely depression, anxiety, and stress, are still one of the most important public health challenges. Mental health promotion is a priority area in the major mental health strategies and action plans both nationally and internationally (Conselho Nacional de Saúde [CNS], 2019; DGS, 2011).
In Portugal, there is a trend towards an increasing annual and lifetime prevalence of these mental disorders (22.9% and 42.7%, respectively), with Portugal having the fourth highest prevalence in Europe (DGS, 2017c). These data demonstrate the importance of early diagnosis, treatment, and promotion of mental health as key objectives for improved coordination between the health services (Apóstolo et al., 2008; Apóstolo, Figueiredo, et al., 2011; DGS, 2017a).
These data reveal the importance of producing situation reports to enable the services to design well-structured intervention plans oriented towards the real needs of the population. In recent years, some studies have been conducted on this topic, many of which have used DASS-21 because it is an easy-to-apply tool for assessing the most prevalent mental disorders (depression, anxiety, and stress) and it is translated and validated for the Portuguese population (Apóstolo et al., 2008; Pinto et al., 2015).

## Research Question and Hypotheses

What are the levels of depression, anxiety, and stress of the users of a Family Health Unit in northern Portugal?
H1 - The levels of depression, anxiety, and stress are expected to be different depending on the several sociodemographic and occupational variables;
H2 - The levels of depression, anxiety, and stress are expected to be different depending on the intake of psychotropic drugs (including perceived health status);

## Methodology

A descriptive-correlational study was conducted in a Family Health Unit of the Cluster of Healthcare Centers (ACeS) Douro I - Marão e Douro Norte of the Regional Health Administration-North (ARSN).
All individuals aged 18 years or over who attended a nursing consultation at the Family Health Unit during the second half of October 2018 and agreed to participate were included in the study. Participants signed an informed consent form and were ensured data confidentiality. The questionnaires were self-completed, except for situations in which the users needed help to fill them in due to illiteracy, sight problems or difficulties in understanding them. These users were assisted by the team that collected the data (project researchers). The study started only after approval by the Ethics Committee of ARSN I.P through Opinion No. 110/2018.
A sociodemographic questionnaire was applied with the variables divided into categories: gender was divided into male and female; age was divided into three age ranges: 18 to 44 years, 45 to 64 years, and 65 years or more; education was divided into five categories; illiterate; 5th-6th grade; 7th-9th grade; secondary; higher education; occupational status was divided into active and inactive; perceived health status was divided into four categories: poor, good/reasonable, very good, and excellent; and intake of psychotropic drugs was divided into two categories: yes and no. Then, the Portuguese ver-

sion of the 21-item Depression, Anxiety and Stress Scale (Apóstolo, Mendes, & Azeredo, 2006), which was originally developed by Lovibond and Lovibond (1995), was applied to the sample. This measuring instrument consists of a set of three subscales: depression, anxiety, and stress, each with seven items rated on a 4-point Likert-type scale ranging from 0 = *did not apply to me at all* to 3 = *applied to me very much or most of the times*. Scores were calculated for each subscale and multiplied by 2 and then categorized as *normal*, *mild*, *moderate*, *severe*, and *extremely severe.*

The levels of depression, anxiety, and stress were classified according to the cut-off points determined by the authors of the scale's validation study (Table 1).

Table 1
*Cut-off points for the classification of stress, anxiety, and depression*

| | Depression | Anxiety | Stress |
|---|---|---|---|
| Normal | 0-9 | 0-7 | 0-14 |
| Mild | 10-13 | 8-9 | 15-18 |
| Moderate | 14-20 | 10-14 | 19-25 |
| Severe | 21-27 | 15-19 | 26-33 |
| Extremely severe | > = 28 | > = 20 | > = 34 |

The study was conducted using a non-probability convenience sample of 207 users. The results showed a mean age of 54 years, a standard deviation of 18.64, with a minimum of 18 years and a maximum of 91 years, a mode of 49 (lowest - multimodal). Age was divided into age ranges. In this sample, 69% of users were women, 48.3% were professionally active; 39.7% had completed the 6$^{th}$ grade; 19.6% had completed higher education; and 2.5% were illiterate. In relation to the perceived health status, 82% of users perceived their health as good, very good, or excellent, and 18% of users perceived their health as poor.

Data were analyzed using IBM SPSS Statistics. The *t*-test for independent samples was used for variables with two categories, and the analysis of variance (ANOVA) was used for variables with three or more categories. When necessary, non-parametric tests (the Mann-Whitney *U* test or the Kruskal-Wallis test, respectively) were used. Statistical significance was set at $p < 0.005$.

## Results

The levels of depression, anxiety and stress were normal for more than half of the sample, respectively 69.3%, 57.5% and 74.2%. In depression, 10.6% had a *mild* level, 9.5% *moderate*, 6.3% *severe* and 4.2% *extremely severe*. As regards anxiety, 18% had a *moderate* level and 12% *extremely severe*. Regarding stress, 8.6% had a *mild* level, 6.6% *moderate* and 8.1% *severe* level ( Table 2).

Table 2
*Prevalence of the Depression, Anxiety, and Stress in the sample*

| **Variables** | **Normal** ***n*** **(%)** | | **Mild** ***n*** **(%)** | | **Moderate** ***n*** **(%)** | | **Severe** ***n*** **(%)** | | **Extremely severe** ***n*** **(%)** | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Stress** | 147 | 74.2% | 17 | 8.6% | 13 | 6.6% | 16 | 8.1% | 5 | 2.5% |
| **Anxiety** | 115 | 57.5% | 14 | 7.0% | 36 | **18.0%** | 11 | 5.5% | 24 | **12%** |
| **Depression** | 131 | 69.3% | 20 | 10.6% | 18 | 9.5% | 12 | 6.3% | 8 | 4.2% |

*Note. n* = Absolute frequency; % = Valid percentage.

A statistically significant difference was found between men and women in relation to anxiety ($p = 0.049$), with a higher prevalence of women with a higher level of anxiety ($M = 8.5$).

The difference between age ranges is statistically significant for anxiety ($p = 0.01$) and depression ($p < 0.01$), with higher mean scores in individuals aged 65 years or more. In relation to education, a statistically significant difference was found for depression ($p < 0.01$), with higher mean scores in the illiterate group ($M = 17.5$).

In relation to occupational status (active and inactive), a statistically significant difference was found in the mean scores for anxiety ($p = 0.026$) and depression ($p < 0.01$). Summary statistics indicate that the mean levels of anxiety and depression are higher among inactive users (Table 3).

Table 3
*Difference between sociodemographic characteristics, perceived health status, and intake of psychotropic drugs and each subscale*

| Variables | | Stress | | Anxiety | | Depression | |
|---|---|---|---|---|---|---|---|
| | | *X* (CI-95%) | *p* | *X* (CI-95%) | *p* | *X* (CI-95%) | *p* |
| Gender | Male | 8.6 (6.5-11.0) | 0.202 | 6.6 (4.5-8.6) | **0.049** | 5.82 (3.8-7.8) | 0.121 |
| | Female | 10.9 (9.2-12.5) | | **8.5** (7.0-10.0) | | 7.8 (6.1-9.5) | |
| Age | 18-44 years | 8.7 (6.7-10.7) | 0.367 | 5.9 (4.2-7.6) | **0.010** | 4.4 (2.6-6.3) | **0.001** |
| | 45-64 years | 10.5 (8.1-12.8) | | 7.3 (5.1-9.4) | | 7.1 (4.8-9.4) | |
| | >= 65 years | 11.6 (9.1-14.2) | | **10.5** (8.1-12.8) | | **10.1** (7.5-12.6) | |
| Education | Illiterate | 17.5 (-0.2-35.2) | 0.277 | 9 (-2.8-20.8) | 0.54 | **17.5** (-0.6-35.6) | **0.002** |
| | 5th-6th grade | 9.9 (7.8-12.0) | | 8.5 (6.5-10.5) | | 8.11 (6.1-10.2) | |
| | 7th-9th grade | 10.2 (6.4-14.0) | | 8.4 (4.8-12.0) | | 8.1 (4.2-12.0) | |
| | Secondary | 9.3 (6.3-12.2) | | 6.3 (3.9-8.8) | | 5 (2.2-7.8) | |
| | Higher education | 10.1 (7.5-12.6) | | 6.4 (4.0-8.8) | | 4.6 (2.3-7.0) | |
| Occupational status | Active | 9.6 (7.8-11.4) | 0.927 | 6.3 (4.7-8.0) | **0.026** | 5.2 (3.5-7.0) | **0.006** |
| | Inactive | 10.1 (9.0-12.6) | | **9.3** (7.5-11.1) | | **9.0** (7.0-10.9) | |
| Perceived health status | Poor | **13.7** (10.1-17.3) | **0.012** | **11.1** (7.6-14.6) | **0.001** | **12.8** (8.8-16.8) | < **0.001** |
| | Good | 10.5 (8.7-12.3) | | 8.3 (6.7-9.6) | | 7.2 (5.6-8.9) | |
| | Very good | 6.4 (4.5-8.2) | | 4.1 (2.2-6.0) | | 2.6 (0.7-4.4) | |
| | Excellent | 8.9 (3.2-14.7) | | 6.8 (0.8-12.8) | | 4.8 (-0.4-9.9) | |
| Psychotropic drugs | No | 8.8 (7.4-10.2) | **0.002** | 6.4 (5.2-7.7) | **0.001** | 5.8 (4.4-7.2) | **0.014** |
| | Yes | **13.4** (10.4-16.4) | | **11.2** (8.3-14.1) | | **10.2** (7.0-13.5) | |

*Note.* *X* = Mean; CI = Confidence interval; *p* = *p*-value.

In relation to the perceived health status, a statistically significant difference was found in the three subscales: stress ($p = 0.012$), anxiety ($p < 0.01$), and depression ($p < 0.001$), with significantly higher mean levels of stress ($M = 13.7$), anxiety ($M = 11.1$), and depression ($M = 12.8$) in individuals who perceived their health as poor. A statistically significant difference was found between individuals who took psychotropic drugs and those who did not take them in relation to their levels of stress ($p < 0.01$), anxiety ($p < 0.01$), and depression ($p = 0.014$). Individuals who took medication had higher mean levels of stress ($M = 13.4$), anxiety ($M = 11.2$), and depression ($M = 0.014$; Table 3).

## Discussion

The results on the prevalence of depression, anxiety, and stress are slightly lower than those found in other studies carried out in Portugal (Apóstolo, Figueiredo, et al., 2011; Apóstolo et al., 2006; DGS, 2017b) and higher than those found in other countries (MacMillan, Patterson, & Wathen, 2005; World Health Organization, 2001). This difference can be explained by a higher percentage of women in the sample, as studies point to higher levels of affective-emotional disorders among women and to a predominatly female population of PHC users, often causing bias in the data collection method (Apóstolo, Figueiredo, et al., 2011; Apóstolo, Mendes, et al., 2011). Gender differences were found which point to an increased susceptibility of women to higher levels of anxiety, with a statistically significant difference in relation to men. This result is in line with those already found by the Portuguese Directorate-General of Health (DGS, 2017b) and in other studies applying the same tool (Pinto et al., 2015; Moutinho et al., 2017).

Higher levels of anxiety and depression were found in older individuals, which indicates that, in addition to the age-typical cognitive impairment, depression is still a common mental health problem among the elderly population (Apóstolo, Mendes, et al., 2011; Castro-Costa, Lima-Costa, Carvalhais, Firmo, & Uchoa, 2008).

According to several studies, a low education level (Ludermir & Melo Filho, 2002; Pinto et al., 2015) and professional activity (Apóstolo, Mendes, et al., 2011) are major precidctors for higher levels of depression, anxiety, and stress. These results corroborate the association between education and depression because significantly higher levels of depression were found in the group of illiterate people. The same results were obtained regarding professional activity, with a statistically significant difference and higher mean levels of anxiety and depression in inactive people.

Individuals who took psychotropic drugs had higher levels of depression, anxiety and stress, which is in line with the results obtained by Bonafé et al. (2016) who also reported higher levels in individuals who took medication (antidepressants, anxiolytics, analgesics, and muscle relaxants).

Given that no studies were found on the perceived health

status as a major factor for the development of the most common mental disorders, it should be noted that this study found significantly higher mean levels of stress, anxiety, and depression in individuals who perceived their health as poor.

Given the lack of enough epidemiological studies on these disorders in PHC settings to properly characterize them and enable the development of appropriate interventions, this study aimed to enhance knowledge in this area, particularly regarding the prevalence of factors that may contribute to an increase of these disorders in the community. Overall, the results are consistent with those obtained in other samples, both national and international, particularly regarding gender, age, education, and occupational status, thus strengthening the need for the development of early healthcare intervention strategies in the community, paying particular attention to women, older people, and the inactive population.

A limitation of this study was the lack of motivation or time of some users to participate in the study, mainly male users. Another limitation was that the type of sampling did not allow for a representative sample of the population registered in the Family Health Unit.

## Conclusion

The sample of this study showed significant levels of anxiety, stress, and depression, confirming the importance of effective family health and community interventions aimed at the prevention, early diagnosis, and treatment of mental disorders. It should be noted that there was a higher prevalence of anxiety in women, which suggests that this group, as well as older people and inactive populations, should receive greater attention.

Despite these results, the limitations of this study, particularly those related to the sample, do not invalidate the results, allowing for a contextualization of the data in the population under analysis.

Future studies based on these data should be conducted to confirm the trend found in more comprehensive and representative samples and in individuals diagnosed with these disorders so that the criterion for the model is not only the DASS-21 scoring. Although it is a valid and accurate scale, it is known that the way in which the symptoms were identified is not the ideal way of diagnosis.

It can be concluded that the results of this study can assist in the improvement of the clinical practice of several professionals in the area, the development of intervention, prevention, and health promotion programs, the establishment of protocols with the local differentiated care organizations, as well as the development of assertive and topic-focused strategies for communicating with the community.

### Author contributions

Conceptualization: Chyczij, F. F., Ramos, C. L., Santos, A. L., Jesus, L. A., Alexandre, J. M.

Formal analysis: Chyczij, F. F., Ramos, C. L., L., Jesus, L. A., Alexandre, J. M.

Data curation: Santos, A. L

Methodology: Chyczij, F. F., Ramos, C. L., Santos, A. L., Jesus, L. A., Alexandre, J. M.

Writing – original draft: Jesus, L. A., Alexandre, J. M.

Writing – review and editing: Chyczij, F. F., Ramos, C. L., Santos, A. L.

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