# Epidemiological Characteristics of Major Depression of Hospitalized Patients in Psychiatric Hospital "Demir Hisar" – Demir Hisar for a Five Year Period from 2013 to 2017

Biljana Iliev[1]*, Dimitar Bonevski[2], Andromahi Naumovska[2]

[1]Clinical Hospital, Shtip, Republic of Macedonia; [2]Department of Psychiatry and Medical Psychology, Faculty of Medicine, UKIM, Skopje, Republic of Macedonia

## Abstract

**BACKGROUND:** Severe depression is a mental disorder with a wide range of changes in psychic functions, primarily of affectivity, and is manifested by dysphoric mood and reductive changes in cognitive, conative, and other psychic dynamics, with the presence of psychosomatic complaints and suicidal thoughts. There is always a triad of symptoms: Alteration of affectivity, anhedonia, and low energy with fatigue, but in her clinical picture, there are other symptoms, such as feeling guilty and helpless, obsessed with "black thoughts" with loss of confidence in themselves, with hopelessness, loss of appetite, and weight loss with present insomnia or hypersomnia, and more frequent thinking about death due to the feeling of worthlessness of life. This mental illness covers a vast area of the affective life of a human with a broad spectrum classified by ICD - 10- F 32, F 32.2, and F 32.3.

**AIM:** The main goal is to determine the total number of patients with the major depression treated at "Demir Hisar" Psychiatric Hospital for a period of 5 years, retrospectively in 2013 until 2017 and to determine the impact of socio-demographic variables as risk factors and predictors.

**METHODS:** The study is retrospective, and the necessary parameters for achieving the goals of the research are provided by analyzing the medical histories of all hospitalized patients treated in psychiatric hospitals Demir Hisar in the period from 2013 to 2017. Incidence rates and indexes of the dynamics of hospitalized patients with major depression were determined.

**RESULTS:** About 61.8% of the patients are men and 38.2% women. Patients with no education and elementary school were 64.5% versus patients with high school and university 35.5% and are significantly underpowered. Regarding the employment status, 38.2% of patients are unemployed, and 61.8% of patients are employed. According to the cross-sectional study, 64.7% of men without education have severe depression and live in the city, and 53.3% of women with secondary education live in urban areas (city), meaning rural residence is associated with a reduced rate of severe depression.

**CONCLUSION:** We can conclude that socio-demographic characteristics – age, gender, marital status, level of education, employment/unemployment status, and place of residence are related to the severity of depression.

## Introduction

The 2015 World Health Organization report states that the Republic of Northern Macedonia has not provided data on the prevalence and incidence of severe depressive disorder. The data presented at the global level suggest that 7.5% of people with severe depression are treated in hospital in the world and in the Balkans [1].

Severe depressive disorder is not a homogeneous psychiatric disorder, but rather a complex of clinical phenomena with subtypes, that is, a series of specific syndromes or clinical forms distributed continuously from the lower to the highest intensity of psychopathological clinical signs with or without psychoticism to a high degree of psychoticism for suicidality. Severe depression also occurs as a comorbid illness with other mental illnesses and is usually chronic.

Global research projects to date have identified the genetic basis of severe depression by identifying over 40 genetic variants as risk factors, as well as other psychiatric disorders. In recent decades, however, studies have shown that the impact of socio-demographic factors and impacts are recognized and identified as important in the variability and incidence of severe depression [2], [3]. Socio-demographic factors: Age, sex, marital status, education, family income (employment, unemployment), and place of residence through previous research have been linked to the severity and severity of the disease, while sex, education, and family income are negatively associated with development and treatment the disease [4]. This mental illness covers a wide range of affective life of a broad spectrum classified by ICD - 10- F 32, F32.2, and F 32.3 [5].

Records all studies find that sex, age, and marital status are linked to depression. Women have a doubly increased risk of severe depression than

men [6], people who are separated or divorced have significantly higher rates of depression than in current marriages, and the rate of depression generally decreases with age [7], [8] which does not is the case in this study done at "Demir Hisar" Psychiatric Hospital – Demir Hisar. However, this evidence comes from studies conducted in Western countries. The sparse data available from low- and middle-income countries suggest that the adult model is monotonous, and the association is not reversed with severe depression, but increases with age [9], [10].

### Goals

The main goal is to determine the total number of patients with the major depression treated at "Demir Hisar" Psychiatric Hospital for a period of 5 years, retrospectively in 2013 until 2017 and to determine the impact of socio-demographic variables as risk factors and predictors.

To get a clear picture of the factors that lead to the development of major depression.

Gender, age, education, employment, marital status, place of residence (rural or urban environment), as socio-demographic characteristics affect the onset of severe depression.

## Materials and Methods

This study is retrospective and was performed by collecting data from the medical documentation of patients treated at "Demir Hisar" Psychiatric Hospital – Demir Hisar, in the period from 2013 to 2017. Of the total number of patients treated in the hospital (2475) over 18 years of age, a sample of 76 patients, expressed as 3.07%, comprised patients diagnosed with ICD 10 diagnosed – F32, severe depression, F32.2 – Severe depressive episode without psychotic symptoms, and F 32.3 – severe depressive episode with psychotic symptoms.

A sample of 76 patients with severe depression from their histories of disease using a socio-demographic questionnaire designed for this study containing the following parameters: Gender, age groups, education, employment, marital status, and place of residence will be analyzed socio-demographic factors with the onset of the disease (Figure 1).

The collected data are statistically processed in SPSS, using descriptive statistics (frequencies, percentages, graphs, etc.). Descriptive statistics show the characteristics of Severe depression at "Demir Hisar" Psychiatric Hospital – Demir Hisar in the sample under study. The effect of various factors on the incidence of severe depression has been checked by cross-tabulation.
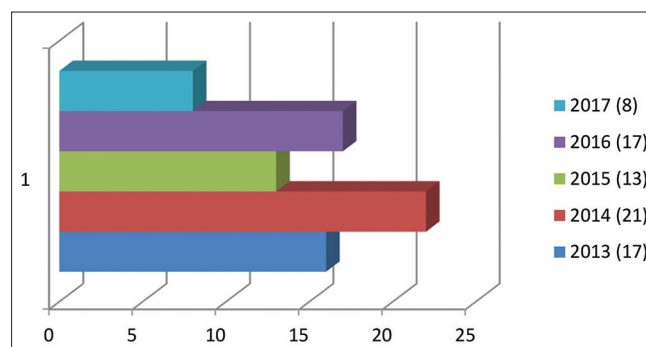


*Figure 1: Number of patients with severe depression admitted to hospital*

### Inclusion criteria

Patients with severe depression with and without psychotic elements were included in the study.

### Exclusion criteria

The following criteria were excluded from the study:
- Bipolar affective disorder
- Depressive stages in schizophrenia sufferers
- Senile paranoid – depressive disorders.

## Results

The sample consisted of a total of 76 patients with severe depression who were hospitalized at "Demir Hisar" Psychiatric Hospital from 2013 to 2017. About 61% of them are men and 38.1% women, which show a higher prevalence of men with severe depression in this hospital, compared to women, which is in contradiction with the research conducted in the Psychiatric Hospital "Skopje" – Skopje and Psychiatric Hospital "Negorci" – Negorci where the prevalence of severe depression is more prevalent in women.

Regarding the age of patients with severe depression, there is a range of 19–76 years, but with an increased frequency in the female population between 43 and 54 years and in the male population 48 and 60 years with a marked increase of 48, 54, and 57 years, more precisely in the interval of 48 and 57 years. The mean age of the total number of respondents is 50.9 ± 11.13 years. The mean age of the female respondents is 48.0 ± 13.4 years (min = 19 and max = 76) and that of the male respondents is 52.7 ± 9.2 years (min = 25 and max = 72). There was no significant difference by age between males and females (t = 1.44 p = 0.1930).

Table 1 gives the demographic characteristics of the respondents and the significance of the differences in terms of percentage representation.

**Table 1: Demographic characteristics**

| Variables | A (%) | Significant difference of defense |
|---|---|---|
| Gender | | |
| Males | 47 (61.8) | p=0.0042 |
| Females | 29 (38.2) | |
| Education | | |
| No education | 23 (30.3) | No education and elementary, namely, high school |
| Elementary | 26 (34.2) | and university - p=0.0005 |
| High school | 24 (31.6) | |
| University | 3 (3.9) | |
| Working relationship | | |
| Employed | 29 (38.2) | p=0.0042 |
| Unemployed | 47 (61.8) | |
| Marital status | | |
| Single | 18 (23.7) | p=0.001 |
| Married | 43 (56.6) | |
| Divorced | 10 (13.2) | Married v.z. divorced and widowed p = 0.0001 |
| Widowed | 5 (6.5) | |
| Place of residence | | |
| Urban area | 42 (55.3) | p=0.7490 |
| Rural area | 34 (44.7) | |

The t-test on the proportions indicated that man were significantly frequently than the woman (p = 0.0042).

Patients with no education and primary education (n = 49 (64.5%), versus patients with secondary and higher education (n = 27 [35.5%]), were significantly represented by p = 0.0005 (Table 2).

**Table 2: Significance of difference by man and women in relation to the demographic variables examined**

| Gender, namely | Mann–Whitney U-test | |
|---|---|---|
| | Z | p-level |
| Education | 0.13366 | 0.893670 |
| Working relationship | 0.02673 | 0.978673 |
| Marital status | 1.66810 | 0.095297 |
| Place of residence | -0.86078 | 0.389359 |

In relation to the employment status, the illness is significantly inferior to the unemployed (0.0042), and in relation to marital status the persons who are married.

The place of life was not associated with the occurrence of the disease – the difference was not significant (p = 0.7490) (Table 1).

There is no significant difference between the examined variables between man and the women (Table 2).

From the overview of the intersection of variables education, gender, and strain employed/ unemployed in Table 3, it can be noted that in the majority of cases 38.3% of men with primary education have severe depression and 41.4% of women with secondary education. At the intersection of gender, education, and unemployment status, 69.6% of men are without education and unemployed, and 50% of women with secondary education are unemployed.

Regarding the patients activity, it is noted that 28 of them, i.e., 36.84% are employed and 48, respectively, 63.16% are unemployed.

It can be concluded from the table that there is a significant difference between married women (57.89%) and divorced women (22.37%), which indicates that there is a significant relationship between severe depression and marital status.

The strongest demographic correlates in high-income countries are separated by partner, and in low- to middle-income countries divorced or widowed, which actually contradicts the above table, more precisely at "Demir Hisar" Psychiatric Hospital – where the prevalence of severe depression among married women was 58.6% and that of divorced 17.24% (Figure 2).



*Figure 2: (a) Graphic presentation of severe depression regarding marital status of patients; (b) Graphic depiction of severe depression in women regarding marital status and marriage; (c) Graphic presentation of severe depression in men regarding marital status and marriage*

**Table 3: Distribution of respondents by gender, education, and unemployed status**

| Relations among education, gender and unemployment | | | Education | | | | |
|---|---|---|---|---|---|---|---|
| | | | No education | Elementary | High school | University | Total |
| Gender | Men | Count | 16 | 18 | 12 | 1 | 47 |
| | | % within gender | 34 | 38.3 | 25.5 | 2.2 | 100 |
| | | % of unemployed | 69.6 | 69.2 | 50 | 33.3 | 63.8 |
| | | % of Total | 33.3 | 37.5 | 25 | 2.1 | 62.5 |
| | Women | Count | 7 | 8 | 12 | 2 | 29 |
| | | % within gender | 24.1 | 27.6 | 41.4 | 6.9 | 100 |
| | | % of unemployed | 30.4 | 30.8 | 50 | 66.7 | 62.1 |
| | | % of total | 14.6 | 16.7 | 25 | 4.2 | 37.5 |
| Total | | Count | 23 | 26 | 24 | 3 | 76 |
| | | % within gender | 23.8 | 49.2 | 23.8 | 3.2 | 100 |
| | | % of unemployed | 100 | 100 | 100 | 100 | 100 |
| | | % of Total | 47.9 | 54.2 | 50 | 6.3 | 100 |

The majority of patients (55.31%) are married, 4.2% are widows, and 27.65% are single and 10.63% are divorced.

According to the place of residence, 55.26% live in urban areas and 44.73% live in rural areas.

From the overview of the intersection of variables education, gender and strain employed/unemployed in Table 4. It can be noted that in the majority of cases 38.3% of men with primary education have severe depression and 41.4% of women with secondary education. At the intersection of gender, education, and unemployment status, 69.6% of men are without education and unemployed, and 50% of women with secondary education are unemployed.

Regarding the patients' activity, it is noted that 28 of them, 36.84% are employed and 48, respectively, 63.16% are unemployed.

Most of the patients 57.89% are married, 13.16% are divorced, and 22.37% are single and widows 6.58%.

It can be concluded from the table that there is a significant difference between married women (57.89%) and divorced (22.37%), which indicates that there is a significant relationship between severe depression and marital status.

The strongest demographic correlates in high-income countries are separated by partner, and in low- to middle-income countries divorced or widowed, which actually contradicts the above table, more precisely at "Demir Hisar" Psychiatric Hospital – where the prevalence of severe depression among married women was 58.6% and that of divorced 17.24% (Figure 3).

The majority of patients (55.31%) are married, 4.2% are widows, and 27.65% are single and 10.63% are divorced.

According to the place of residence, 55.26% live in urban areas and 44.73% live in rural areas.

Overview of the intersection of variables education, sex and living area (urban/rural environment) can be seen in Table 5. It can be seen that 64.7% of men without education have severe depression and live in the city, and 53.3% of women with secondary education live in the city.
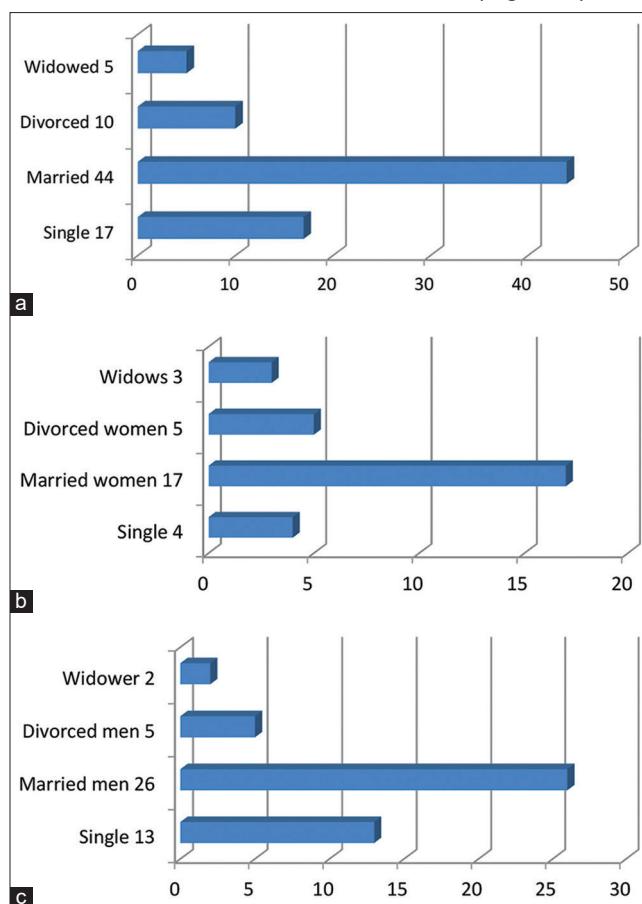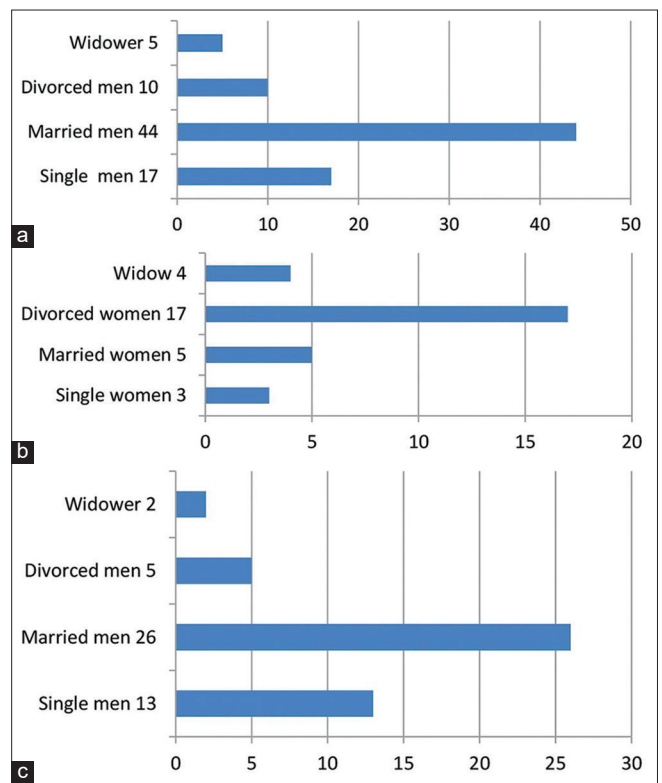
*Figure 3: (a) Graphic presentation of severe depression regarding marital status of patients; (b) Graphic depiction of severe depression in women regarding marital status married and divorced; (c) Graphic depiction of severe depression in men regarding marital status and marriage*

Among males and females in the age group of 51–65 years, the percentage of severe depression increased with age in both genders, respectively, 54.2% men and 41.2% women, the highest percentage of men being single 76. 9% and the highest percentage of women 60% are divorced. In the gender and place of residence-urban environment variables, the highest percentage of men 75% are in urban areas aged 66–80 years and the highest percentage of women 42.9% are aged 36–50 years (Table 6).

## Discussion

In the period January 2013–January 2017, the study was performed on 76 (3.07%) patients at

**Table 4: Distribution of respondents by sex, education, and employment/unemployed status**

| Relations among education, gender, and unemployment | | | Education | | | | |
|---|---|---|---|---|---|---|---|
| | | | No education | Elementary | High school | University | Total |
| Gender | Men | Count | 16 | 18 | 12 | 1 | 47 |
| | | % within gender | 34 | 38.3 | 25.5 | 2.2 | 100 |
| | | % of unemployed | 69.6 | 69.2 | 50 | 33.3 | 63.8 |
| | | % of Total | 33.3 | 37.5 | 25 | 2.1 | 62.5 |
| | Women | Count | 7 | 8 | 12 | 2 | 29 |
| | | % within gender | 24.1 | 27.6 | 41.4 | 6.9 | 100 |
| | | % of unemployed | 30.4 | 30.8 | 50 | 66.7 | 62.1 |
| | | % of total | 14.6 | 16.7 | 25 | 4.2 | 37.5 |
| Total | | Count | 23 | 26 | 24 | 3 | 76 |
| | | % within gender | 23.8 | 49.2 | 23.8 | 3.2 | 100 |
| | | % of unemployed | 100 | 100 | 100 | 100 | 100 |
| | | % of total | 47.9 | 54.2 | 50 | 6.3 | 100 |

**Table 5: Distribution of respondents by gender, education, and living environment variables**

| Relations among gender, education and living area | | | Education | | | | |
|---|---|---|---|---|---|---|---|
| | | | No education | Elementary | High school | University | Total |
| Gender | Men | Count | 11 | 2 | 7 | 1 | 21 |
| | | % within gender | 52.4 | 9.5 | 33.3 | 4.8 | 100 |
| | | % within urban area | 64.7 | 50 | 46.7 | 33.3 | 44.7 |
| | | % of total | 14.5 | 2.6 | 9.2 | 1.3 | 27.6 |
| | Women | Count | 6 | 2 | 8 | 2 | 18 |
| | | % within gender | 33.3 | 11.1 | 44.4 | 11.1 | 100 |
| | | % within urban area | 35.3 | 50 | 53.3 | 66.7 | 62.1 |
| | | % of total | 7.9 | 2.6 | 10.5 | 2.6 | 23.7 |
| Total | | Count | 17 | 4 | 15 | 3 | 39 |
| | | % within gender | 43.6 | 10.3 | 38.4 | 7.7 | 100 |
| | | % within urban area | 100 | 100 | 100 | 100 | 100 |
| | | % of total | 22.4 | 5.2 | 19.7 | 3.9 | 51.2 |

**Table 6: The percentages of severe depression in male/female patients, marital status, and age categorized living environment**

| Relations between age, gender and marital status | | | Age (years) | | | | |
|---|---|---|---|---|---|---|---|
| | | | 18-35 | 36-50 | 51-65 | 66-80 | Total |
| Gender | Men | Count | | 8 | 13 | 3 | 24 |
| | | % within gender | 0 | 33.3 | 54.2 | 12.5 | 100 |
| | | % within living area | 0 | 57.1 | 65 | 75 | 51.1 |
| | | % of Total (76) | 0 | 10.5 | 17.1 | 3.9 | 31 |
| | | % within marital status | | | | | |
| | | Single | | 3/(23.1%) | 10/(76.9%) | | 13 |
| | | Married | 2/(7.4%) | 8 /(29.6%) | 14/(51.9%) | 3/(11.11%) | 27 |
| | | Divorced | | 5/(100%) | | | 5 |
| | | Widower | | | 1/(50%) | 1/(50%) | 2 |
| | | % of total (47) | 4.3 | 34 | 53.2 | 8.5 | 100 |
| | Women | Count | 3 | 6 | 7 | 1 | 17 |
| | | %within gender | 17.6 | 35.3 | 41.2 | 5.9 | 100 |
| | | % within living area | 100 | 42.9 | 35 | 25 | 58.6 |
| | | % of total (76) | 3.9 | 7.9 | 9.2 | 1.3 | 22.3 |
| | | % within marital status | | | | | |
| | | Single | 1/(25%) | 2/(50%) | | 1/(25%) | 4 |
| | | Married | 2/(11.8%) | 8/(47%) | 6/(35.3%) | 1/(5.9%) | 17 |
| | | Divorced | 2/(40%) | | 3/(60%) | | 5 |
| | | Widow | | | 3/(100%) | | 3 |
| | | % of total (29) | 17.2 | 34.5 | 41.4 | 6.9 | 100 |
| Total | | Count | 3 | 14 | 20 | 4 | 41 |
| | | % within gender | 7.3 | 34.1 | 48.8 | 9.8 | 100 |
| | | % within living area | 100 | 100 | 100 | 100 | |
| | | % of total (76) | 3.9 | 18.4 | 26.3 | 5.2 | 53.8 |
| | | % within marital status | | | | | |
| | | Single | 1/(5.9%) | 5/(29.4%) | 10/(58.8%) | 1/(5.9%) | 17 |
| | | Married | 4/(9.1%) | 16/(36.4%) | 20/(45.4%) | 4/(9.1%) | 44 |
| | | Divorced | 2/(20%) | 5/(50%) | 3/(30%) | 0 | 10 |
| | | Widows | 0 | 0 | 4/(80%) | 1/(20%) | 5 |
| | | % of total (76) | 9.2 | 34.2 | 48.7 | 7.9 | 100 |

Demir Hisar Psychiatric Hospital – Demir Hisar and was diagnosed with severe depression. The following parameters were analyzed: Gender, age, education, marital status (single, married, divorced, and widowed), and place of residence (urban/rural). About 61.8% of them are men and 38.2% women. The patient population (categorized by gender) covering the Demir Hisar region contradicts the majority of studies where women are more affected than men, women are included in this study with a reduced rate of severe depression [11].

Patients with no education and elementary school 64.5% versus patients with high school and university 35.5% are significantly underpowered. The results are comparable to previous studies reporting an association between people with educational status and depression, significantly more severe depression occurs in those with the lower education which is in line with a study in China which claims that the lower the socio-economic status the higher the rate of severe depression. Low socio-economic status was found to be associated with severe Down syndrome (DS) in both men and women and higher education level was related with lower risk of DS. A lowering in material standard of living between annual waves was associated with increases in depressive symptoms and caseness of

major depression. Life circumstances also influenced depression. Ceasing to cohabit with a partner increased depressive symptoms and caseness, and improvement in circumstances reduced them; the negative effects were stronger than the positive ones [12], [13].

At the intersection of unemployment status, 38.2% of patients are unemployed, and 61.8% of patients are employed. Our study found a link between employment status and severe depression by gender, employees have lower rates of severe depression than the unemployed. However, few studies have reported no association between income and DS [14], [15].

Of the total number of treated patients, 55.3% live in urban areas and 44.7% live in rural areas. The growing prevalence of severe urban-related depression is particularly marked for African Americans and Caucasians living in major metropolitan areas. In a 2011 Migration and Quality of Life Survey, Chen *et al*. reported highly populated cities along the eastern coast such as Shanghai illustrated potential effects of urbanization as a stressor for mental health [16], [17].

According to the cross-sectional study, 64.7% of men without education have severe depression and live in the city, and 53.3% of women with secondary education

live in urban areas (city), meaning rural residence is associated with a reduced rate of severe depression.

The percentage of severe depression in patients of male/female sex, marital status and place of residence categorized by the age of 51–65 highest percentage of men are single 76.9% and highest percentage of women 60% divorced. Married people tend to report lower rates of severe depression. This result is consistent with other previous studies where married people have a lower risk of developing severe depression. Some study examined whether getting divorced was related to the subsequent incidence of diagnostic and statistical manual-III-R disorders across a 2-year period, controlling for the perceived quality of the marriage before the divorce. Data were used from 4796 adults aged 18–64, who had participated in three waves (i.e., 1996, 1997, and 1999) of a large-scale epidemiological study conducted in The Netherlands. Results showed that getting divorced was prospectively linked to both the total and new case incidence of alcohol abuse and dysthymia, as well as to the new case incidence of social phobia. Adults, who had divorced, however, were not more likely to develop a mental disorder if they had reported low levels of marital quality before the divorce. Thus, the marital discord underlying a divorce rather than divorce itself appeared to determine the onset of clinically relevant mental health problems [18], [19].

This study concludes that age, marital status, and place of residence with severe depression are positively correlated with severity of illness, while sex, marital status, and age-adjusted living environment are negatively correlated with severity of depression.

These findings emphasize the need to understand the factors underlying the differences in access and quality of mental health and the urgency to implement interventions to eliminate these differences.

Research suggests that new employment and education opportunities enable women to improve their personal and financial autonomy and provide increased power in the family. These new freedoms for women could be stressful for men who have been socialized in a culture that is more patriarchal.

Of particular interest is the fact that the number of patients treated at "Demir Hisar" Psychiatric Hospital – Demir Hisar with well-developed psychiatric care and treatment is lower than the "Negorci" Psychiatric Hospital – Negorci because of the time spent in a hospital setting, developed extracorporeal treatment, which reduces hospitalization.

## Conclusion

Out of a (2475) over 18 years of age, a sample of 76 patients, expressed as 3.07%, comprised patients diagnosed with diagnosed with severe depression. There is a strong link between severe depression and socio-demographic characteristics. For a more accurate conclusion about the frequency of severe depression among hospitalized patients in the Republic of Macedonia, as well as the connection of sociochemical characteristics with its occurrence and the expression of the clinical picture, it is necessary to conduct the study on a number of hospitalized patients in psychiatric hospitals and psychiatric wards from different regions of Republic of Macedonia.

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