



Original Article

# The yearly peak age of the onset of major depressive disorder over the past 5 years at a general hospital in Saudi Arabia

Ammar A. Albokhari<sup>1</sup>, Amani Hussain<sup>2</sup>, Abdulrahman Tashkandi<sup>1</sup>, Abdulrahman Alsawas<sup>1</sup>, Rajab Bresaly<sup>1</sup>, Magdy Hassan<sup>1</sup>, Abdulmajeed Khan<sup>1</sup>, Bassam Bandugh<sup>3</sup>

<sup>1</sup>Department of Internal Medicine, Hera General Hospital, Alumrah, <sup>2</sup>Department of Medicine and Surgery, Batterjee Medical College, Jeddah, <sup>3</sup>Department of Family Medicine, Aleskan Primary Health Center, Makkah, Saudi Arabia.



**\*Corresponding author:**

Ammar A. Albokhari,  
Department of Internal  
Medicine, Hera General  
Hospital, Alumrah, Makkah,  
Saudi Arabia.

[ammarxv@gmail.com](mailto:ammarxv@gmail.com)

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## ABSTRACT

**Objectives:** Patients with major depressive disorder (MDD) do not exhibit usual mood swings and emotional reactions to difficulties in life. Patients with MDD experience specific symptoms such as decreased mood, loss of interest, and suicidal thoughts, particularly those with moderate, severe, or recurrent MDD. Depression can become a severe health condition, and MDD can lead to significant morbidity and mortality, and functional impairment. A total of 260 million people are diagnosed as having MDD worldwide, with a global prevalence of 3627 per 100,000 individuals.

**Material and Methods:** This cross-sectional study recruited 2894 patients who were interviewed at a psychiatric clinic and were diagnosed as having MDD from January 1, 2016, to December 31, 2020, at Hera General Hospital, Makkah, Saudi Arabia. From the hospital's health information system, we extracted the following data using the patient arrival report for psychiatric clinics.

**Results:** The mean age of MDD onset was 43 years in Saudi Arabia with a peak age between 35 and 40 years and an average age between 43 and 46 years.

**Conclusion:** The mean and peak ages of MDD onset in Saudi Arabia differ from those in other countries. Our findings can help set a screening age for depression in the Saudi population in primary healthcare centers.

**Keywords:** Depressive disorder, Peak age, Screening, Mental health

## INTRODUCTION

Patients with major depressive disorder (MDD) do not exhibit usual mood swings and emotional reactions to difficulties in life.<sup>[1]</sup> They present with specific symptoms such as decreased mood, loss of interest, and suicidal thoughts, particularly those with moderate, severe, or recurrent MDD.<sup>[1]</sup> Depression can become a severe health condition and lead to significant morbidity and mortality and functional impairment.<sup>[1,2]</sup> A total of 260 million people are diagnosed as having MDD worldwide, with a global prevalence of 3627 per 100,000 individuals with a mean age between 25 years and 35 years according to the Diagnostic and Statistical Manual of Mental Disorder, 4<sup>th</sup> Edition (DSM-IV) and International Classification of Diseases, 10<sup>th</sup> Revision (ICD-10).<sup>[3]</sup> The prevalence of MDD in primary care ranges from approximately 15.3% to 22%;

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this rate is up to 13% globally and approximately 17–46% in Saudi Arabia. In the past decade, the number of people of all ages years living with disability and MDD has increased by 14%.<sup>[4,5]</sup> Saudi Arabia was a population of over 35 million with MDD which has the highest prevalence among its population with Makkah city population of around 2 million, Hera General Hospital covers the northern sector of the city.

Depression reaches its nadir in middle age (approximately 45 years). A decline in depression in early adulthood and an increase in late-life mainly reflect life gains and losses, employment, and economic prosperity. Moreover, the level of depression is the highest in adults aged  $\geq 80$  years because of physical dysfunction and low personal control. Discomfort due to poor health does not cause a pseudo-increase in measured depression in late adulthood. However, in terms of differences between age groups, the younger generations had higher education and the survival rate and depression levels differed among different demographic groups.<sup>[6]</sup>

Early detection is critical for rapid intervention and can potentially reduce the progression of the disorder. Many studies have reported up to 80% of the benefits of early diagnosis.<sup>[5]</sup> Sometimes, general physicians fail to diagnose MDD in 30–50% of patients with depression.<sup>[7]</sup> However, systematic screening programs in primary care can improve prognosis and treatment effectiveness as well as reduce the risk of persistent depression.<sup>[8]</sup>

The benefits of screening are supported by evidence for depression in all adults, particularly in older adults.<sup>[8]</sup>

This study examined the annual maximum age of MDD at Hera General Hospital over the past 5 years by utilizing the ICD-10. The findings of our study can help in defining the recommended screening age.

## MATERIAL AND METHODS

This cross-sectional study recruited 2894 patients who were interviewed at a psychiatric clinic and were diagnosed as having MDD from January 1, 2016, to December 31, 2020, at Hera General Hospital, Makkah, Saudi Arabia.

We included patients who were interviewed by a board-certified psychiatrist through primary healthcare referral, completed follow-up appointments, or were referred from other in-hospital departments.

We excluded patients who did not meet the ICD-10 diagnostic criteria for MDD which include at least one of the following: Low mood, decrease/loss of interests or pleasure, and low energy for at least 2 weeks with associated symptoms: Sleep disturbance, difficult concentration, low self-esteem, change in appetite, suicidality, psychomotor retardation, and guilt feeling. The primary investigator used the full name of a patient to find the medical record number (MRN). In case a

patient had multiple MRNs, the primary investigator excluded the least used MRN for follow-up appointments. For patients with multiple visits, only the visit first was considered.

From the hospital's health information system, we extracted the following data using the patient arrival report for psychiatric clinics: MRN, name, age, and arrival date. After collecting all required information, the researchers input the data into an Excel sheet under five columns: MRN, name, age, and arrival date.

All statistical analyses were performed using the Statistical Program for the Social Sciences version 26.

## RESULTS

Approximately 2894 patients with MDD visited the psychiatric clinic from January 1, 2016, to December 30, 2020. After applying the inclusion and exclusion criteria, we included 1078 unique patients.

In Figure 1, the mean age of patients with MDD in Hera General Hospital was 43 (standard deviation + or – 16 years), and the mode of age was between 35 and 40 years, with a minor peak obtained at the age of approximately 75 years.

In Figure 2, the incidence of MDD was significantly lower in the spring of 2019 and 2020 than in other seasons except for the summer of 2019. The incidence of MDD was the highest in the fall of 2018 when all seasons were compared between 2017 and 2018.

Figure 3 shows the mode of age from the beginning of 2016 to the end of 2020. The mode of age ranged from the mid-adolescent to the late 40s with a single spike of early 60 years in the second quarter of 2019.

In Figure 4, this line chart depicts the median age of people who were visiting the psychiatric clinic in Makkah in Hera General Hospital and diagnosed as having MDD from 2016 to 2020. As indicated in the graph, the average age was between 43 and 46 years.

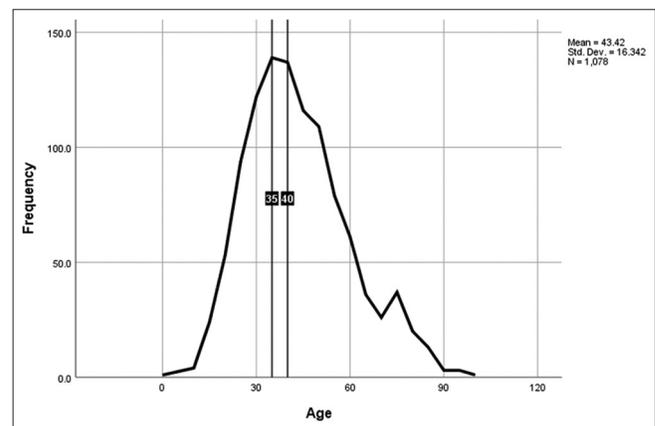
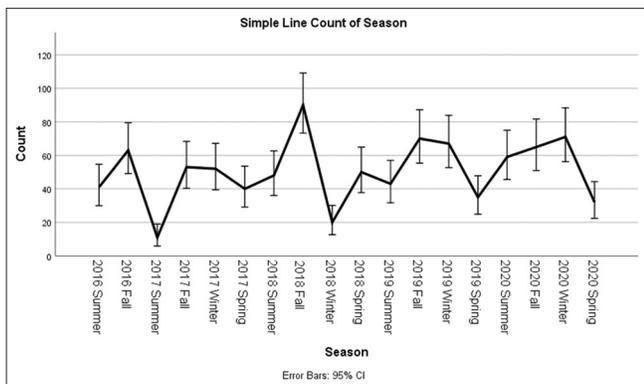
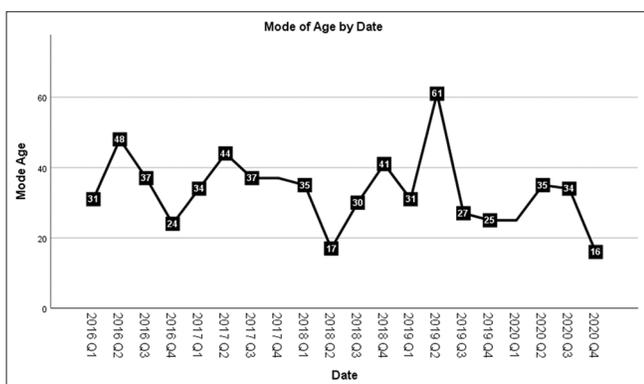


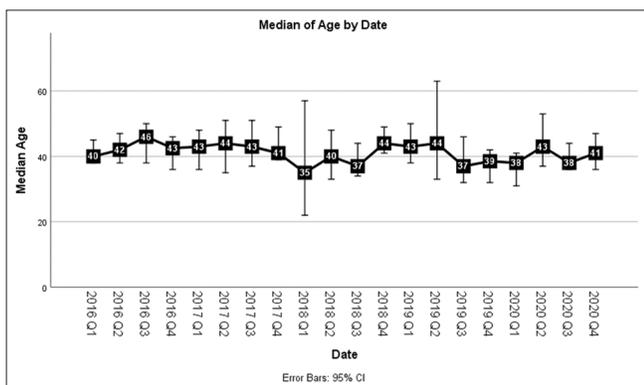
Figure 1: Age of subjects with major depressive disorder.



**Figure 2:** Comparison in frequencies of major depressive disorder by season over the course of 5 years.



**Figure 3:** Peak age for major depressive disorders over the course of 5 years.



**Figure 4:** Average age for major depressive disorder over the course of 5 years.

**DISCUSSION**

According to DSM-IV and ICD-10, the mean age at the onset of MDD is between 20 and 35 years.<sup>[3]</sup> Zisook reported that the mean age at the onset of MDD was 26 years which is as per that indicated by DSM-IV and ICD-10.<sup>[9]</sup> However, we noted a mean age of 43 years in our study, with 68.2% of the

study population being between 27 and 59 years. The peak age for MDD over 5 years was between 35 and 40 years, which is lower than found in the United Kingdom (between 45 and 59 years).<sup>[10]</sup>

Before 2019, the incidence of MDD was higher during the fall season; this finding is as per that of a previous study.<sup>[11]</sup> In the spring of 2019 and 2020, we noted a decreased incidence of MD, which is as per that reported by Munir.<sup>[12]</sup>

The peak age of MDD for multiple countries ranged from mid-adolescence to the early 40s,<sup>[13]</sup> which is similar to our finding.

These findings indicate that the average age of MDD onset is during the fifth decade compared with the average onset age reported by the World Mental Health surveys: 22.7 years in the United States, 30 years in Japan, 27.8 years in Ukraine, and 22.3 years in South Africa.<sup>[13]</sup>

**Study limitation and future recommendations**

Limitation in works of literature for peak and mean age of MDD throughout Saudi Arabia as the majority of the studies were focusing on using questionnaires rather than a diagnostic criterion like DSM or ICD when referring to depression.

We urge colleagues in focusing on the research track of the mental health services in better service providing to Saudi Arabia's population by the year 2030.

**CONCLUSION**

MDD in Saudi Arabia has different mean and peak ages of onset compared with other countries with the average onset being during the fifth decade of life. Our findings can help primary care physicians to initiate screening for depression in patients aged from 35 to 40 years.

**Declaration of patient consent**

Patient consent is not required as patient's identity is not disclosed or compromised.

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Nil.

**Conflicts of interest**

There are no conflicts of interest.

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