# KINGDOM OF SAUDI ARABIA PREVALENCE OF DEPRESSION AMONG GERIATRIC POPULATION ATTENDING PRIMARY HEALTHCARE SETTINGS IN AL MADINAH, 2021

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## INTRODUCTION
### Background
According to the World Health Organization (WHO), nearly 15% of elderly population aged over 60 years and over having neuropsychiatric disorders; commonly dementia and depression.[1]

Depression in elderly is characterized by "feeling of grief and sadness in response to life events and contextual conditions such as retirement, bereavement, loss of income, disabilities affecting physical, social and cognitive functions".[2]

The prevalence of depression is higher among geriatric population compared to general population, it ranged between 5.9 and 81% particularly among hospitalized patients.[3] It is often misdiagnosed and under treated. [4]

It was reported in several studies[5-7] that depressive symptoms significantly associated with medical conditions and co-morbidities including diabetes, dementia, stroke, heart disease and osteoporosis. Depression can recurrent or chronic problem and affects the implementation of everyday responsibilities.[8]

Depression is associated with several adverse health outcomes including reduced quality of life, functional decline, [9] increased health cost [10] and increased mortality. [11] In addition, depression can cause suicide, which lead for about 850 000 deaths yearly.[12]

To the best knowledge of researcher there are limited studies have been conducted on depression among elderly population in Saudi Arabia.

### Study rationale
➢ Depression is a common underestimated psychological problem among elderly people and influences their well-being and quality of life.
➢ Many gaps in our understanding and diagnosis of late-life depression exist which lead to increase healthcare costs and resources.
➢ The profile of geriatric depression in Al Madinah is not identified in previous studies up to our knowledge. Hence, the present study was conducted to investigate the prevalence of depressions and its associated factors among elderly population in Al Madinah.
➢ Conduction of the study at primary healthcare centers could reflect the important role of primary health care physician toward elderly depression in order to provide optimal health services. so what, main role of primary health provider to do that

### General objective
This study will aim to investigate the problem depression among elderly population (aged 60 years or more) in Al Madinah city, Kingdom Saudi Arabia and set recommendations to improve the situation.

### Specific objectives
1. To estimate the prevalence of depression among geriatric population (aged over 60 years) attending primary healthcare centers, Ministry of health in Al Madinah City, 2020
2. To identify the factors associated with depression among geriatric population (aged over 60 years) attending primary healthcare centers, Ministry of health in Al Madinah City, 2020

## LITERATURE REVIEW
Online searching for similar topics revealed many studies carried out internationally regarding investigating the prevalence and determinants of geriatric depression. However, the subject was limited investigated in the Kingdom of Saudi Arabia in general and never studied in Al Madinah city. Relatively recent studies are summarized below.

-Saudi studies
In Jeddah (2017), Alamri and his colleagues carried a cross-sectional study aimed to assess the prevalence of depression and possible associated factors among hospitalized elderly. Patient Health Questionnaire-9 (PHQ-9) and the Diagnostic and Statistical Manual, Fifth Edition (DSM-5) mood disorder module were used for screening. According to PHQ-9, 17% and 10.5% of the hospitalized patients were diagnosed with a major depressive disorder and other depressive disorders, respectively. The DSM-5 criteria identified 12% of elderly with major depression. Overall, the number of co-morbidities associated with depression was significantly higher in the major depressive disorder group than in the no depression group (P=0.022). Depression was also associated with female gender, unmarried status, lower income, and polypharmacy. In addition, cardiovascular disease and cancer were the most prevalent medical illnesses associated with depression among hospitalized elderly.[13]

In Abha city (2013), Ghazwani and Al-Musa measured the prevalence of depression and identified associated risk factors among elderly 400 attendants of primary health care center (200 males and 200 females). Depression, regardless of its severity, was observed among 63.7% of them. Mild and moderate depression was reported by

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47.5% and 14.5% of elderly patients respectively while severe depression was reported by only 1.8% of them. Multivariate logistic regression analysis results showed that females, singles or divorced, smokers, diabetics, cancer patients, osteoarthritis patients, patients with end-stage renal disease, hepatic patients and those having visual impairment were at higher risk of depression than their counterparts.[14]

An old research in Abha (2001) reported a prevalence of 17.5% among elder population with higher prevalence among females. [15]

**Middle East studies**
In Oman (2014), Al-Sabahi et al carried out a cross-sectional survey to determine the rates and associates of depression among community-dwelling elderly people. The prevalence rate of depression was 16.9%. It was higher among women than men (19.3% versus 14.3%). The independent predictors for depression were the presence of social risk, dementia, impairment in activities of daily living, joint problems and mobility restriction. If dementia was controlled for, depression was predicted by poor perception of health, impairment in instrumental activities of daily living and older ages. [16]

**-International studies**
In India (2017), Srivastav et al carried out a community-based cross-sectional study to evaluate the prevalence and determinants of depression among geriatric women. Geriatric depression scale was applied. The prevalence of depression was 50.9%. Mild form was observed among 26.2% whereas major form was observed among 24.7% of them. Significant determinants were marital status, economic dependency, unemployed status, and lack of regular physical exercise.[17]

Another cross-sectional study has been conducted in India 2018 by Sangma et al to estimate the prevalence of depression among the elderly and to define the possible associated factors. Geriatric Depression Scale-30 (GDS-30) was used to screen for depression. The prevalence of depression was 29.4% in this study. In Univariate analysis, age, educational level, job status, marital status, family type, financial dependency, health status and limitation of daily activities were significant predictors for depression. However, in multivariate analysis, only age was proved to a significant predictor for depression.[18]

Recently in India (2019), a systematic review and meta-analysis study was done by Pilania et al to estimate the prevalence of depression among elderly population. They identified 51 studies from16 States. The estimated pooled prevalence of depression among elderly population was 34.4%. The pooled prevalence was significantly higher among females than males, rural populations than urban population, and in the eastern part of the country than others. [19]

In Vitnam (2018), Dao et al conducted a cross-sectional survey to investigate the association between depression and associated factors among the elderly. Almost two-thirds of them (66.9%) self-reported depression. It was mild, moderate and severe among 32.8%, 30.4% and 3.7% of them, respectively. Multivariate logistic regression analysis, showed significant association of depression with advancing age, less frequent physical activities, higher number of drugs intake, and reduced three domains of quality of life; namely physical health, psychological health, and environmental health.[20]

In China (2018), Zou et al assessed in a cross-sectional study the prevalence and determinants of depressive symptoms among elderly hospital inpatients. They utilized the Geriatric Depression Scale to assess depression. The prevalence of depressive symptoms was 32.8%. Univariate analysis showed older age, female sex, more number of chronic diseases, frailty, disturbed family function, lower body mass index, impaired cognition, malnutrition, and reduced ability to perform daily living activities were significantly associated with depressive symptoms. However in logistic regression, after controlling for confounders, the remaining significant factors were impaired cognitive functions, disturbed family function and frailty. Additionally, depressive symptoms were associated significantly with prolonged hospital length.[21]

In South Africa (2017), Padayachey et al assessed using the 15-item Geriatric Depression Scale, the prevalence and associated factors of depression amongst older adult patients attending primary health care settings. The prevalence of depression was 40% Significant associated factors with depression were female gender, widow status and negative rated subjective health status, whereas marriage was a protective factor.[22]

In Malaysia (2019), Mohd Aznan et al carried out a cross-sectional to measure the prevalence of

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depression and its associated factors among 259 elderly. The prevalence of depression was 19.3%. Factors significantly associated with depression were illiteracy, cognitive impairment, and marked dependence.[23]

Also in Malaysia (2016), Vanoh et al conducted a large-scale study aimed to measure the prevalence of geriatric depressive disorders and identify their associated factors among community-dwelling older adults. Data were collected through interview questionnaire. The prevalence of depressive symptoms was 16.5%. It was higher in women than in men (56.6% versus 43.4%). Less educated individuals, those having neurotic disorder, having a lower score of instrumental activities of daily living, poor physical fitness level, having hypertension, and osteoarthritis were more likely to be depressed.[24]

## METHODOLOGY
### Study design
A Descriptive cross-sectional study

### Study area:
The study will be carried out in AL-Medina AL-Monawarah, which located in the West of Saudi Arabia. It has a population of 1,512,724.27.[25]
AL-Medina AL-Monawarah includes 147 primary healthcare centers (PHCs); 53 inside the city and 94 outside it. This study will be carried out in PHCs inside AL-Medina AL-Monawarah city.

### Study population
All elderly patients attending the primary healthcare centers inside AL-Medina AL-Monawarah city during the period (…….)

Inclusion Criteria:
- Aged over 60 years
- Willing to participate in the study.
- Having the ability to answer the questions (mentally and physically)
- Both male and female patient.

### Exclusion Criteria:
- Participants aged 60 years or lower.
- Participants who are not willing to participate

### 3.5 Sample size
It will be calculated later when the total number of patients is obtained from the authority in the Primary care sitting in Madinah city, KSA
Which will be calculate
sample size

Acceptable margin of error
Worst acceptable results
Confidence interval 95%

### 3.6 Sampling technique
Multi-stage random sampling technique will be adopted. In the first stage, two geographical regions from AL-Medina AL-Monawarah city will be selected out of the four (East, West, North and South). In the second stage, 2 primary healthcare centers will be selected from each region by simple random technique. In the last stage, about 100 elderly patients attending these PHCCs during the period of data collection will be selected by systematic random technique according to number of patients visiting each center daily.

### Study tool:
A self-administered questionnaire will be utilized for data collection. It included four main sections:

☐ Personal and socio-demographic characteristics including age in years, gender, highest educational level, marital status, monthly income and residence

☐ Lifestyle habits: (smoking or not, practicing physical exercise)

☐ Clinical data: the history of co-morbidity e.g. DM, hypertension, cardiac disease, respiratory diseases, renal diseases, cancer, joint pain, paralysis, hearing impairment and vision impairment, using moving aid.

☐ Arabic version of Geriatric Depressive Scale-Short form( GDS-SF) Arabic version of GDS is freely available and validated by Chaaya M et al.[27] The sensitivity and specificity were 88% and 85%, respectively.[28]

Internal consistency was assessed by Cronbach's alpha coefficient (0.88).[27]
The GDS-SF is a 15-item self-directed questionnaire requiring "yes" or "no" answers and total score will be computed and categorized as follows:

| Score range | Graded depression |
|---|---|
| 0-4 | No depression |
| 5-8 | Mild depression |
| 9-11 | Moderate depression |
| 12-15 | Severe depression |

### Data entry and analysis:
Data entry and analysis will be carried out using SPSS (Statistical Package For Social Sciences). P-value < 0.05 will be considered for significance

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## Ethical consideration:

Written permission from Joint Program of Family Medicine in AL-Medina AL-Monawarah will be obtained before conducting the research. In addition, written permission from the director of the primary care, MOH in AL-Medina AL-Monawarah will be obtained as well as permission of all involved PHCCs directors will be requested verbally.

Before giving questionnaires to participants, informed consent will be asked from all of the chosen subjects then, all of them had the right not to participate in the study or to withdraw from the study prior to completion. The researcher will explain the purpose of the study to all respondents. Confidentiality and privacy will be guaranteed for all participants.

## Limitation:
- shortage of time
- self funded

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