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The prevalence and associated factors of depression among elderly in social care in Makkah: A cross-sectional study

Enas Alfalogy[1,2], **Ghaida Alzahrani**[3*], **Ghady Algethami**[3], **Joud Alwan**[3], **Lama Sindi**[3], **Murouj Almaghrabi**[3]

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Authors' Affiliation:
[1]Family Medicine Department, Suez Canal University, Egypt
[2]Family Medicine Department, Umm Al-Qura University, Saudi Arabia
[3]College of Medicine, Umm Al-Qura University, Makkah, Saudi Arabia

[*]**Corresponding author**
College of Medicine, Umm Al-Qura University, Makkah, Saudi Arabia
Email: ghaida-alzahrani@hotmail.com

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ABSTRACT

Introduction: Aging is a normal process for human beings associated with numerous issues, one of which is depression that is common among elderly. This study aims to estimate the prevalence of depression and identify associated factors among senior residents in a nursing home in Makkah, thus aiding in promoting seniors' psychological health. *Methodology:* The study is a cross-sectional design study which utilized a paper-based questionnaire that was distributed to collect data regarding demographic factors, disability score through Barthel Index (BI), and depression score through either Patient Health Questionnaire-9 (PHQ-9), or CSDD based on subject's status. *Results:* A total of 48 senior individuals were included in this study. Male participants represented the majority (64.6%), and 60.4% of participants were considered as total dependent based on Barthel Index. Mild depression was prevalent among the study subjects who were assessed by PHQ-9: (16.7%), and probable major depression was observed among 27.1% of those assessed with CSDD. Multiple associated factors were identified, such as gender and marital status (p-value <.05). *Conclusion:* A noteworthy prevalence was observed among study participants. Moreover, several associated factors were recognized such as demographic factors and certain comorbidities. Careful care should be prioritized for the senior residents in our societies to improve their quality of life and reduce the burden of such a devastating condition.

Keywords: Depression, elderly, social care, nursing home, Saudi Arabia

1. INTRODUCTION

Aging is a natural phase that is associated with physical and psychosocial transitions. Physical conditions, psychiatric illnesses, and adaptation issues are well recognized as normal issues in this period of life (Chalise, 2014). The 60 y/o or older population was more than 960 million in 2017, and this number is expected to double in 30 years (UN, 2017). As for Saudi Arabia, the number

is estimated as one quarter of the overall Saudi population of 40 million by the end of 2050 (SAMA, 2015). Therefore, it is vital to shed light on issues related to senior residents.

Depression is a prevalent mental health disorder in the general population, moreover, it is characterized by lack of interest or enjoyment, feelings of guilt or low self-esteem, impaired sleep or appetite, symptoms of tiredness, and poor concentration (Lim et al., 2018). The prevalence of global depression is exceeding 300 million individuals, equal to 4.4% of the worldwide human population. Depression is known to be one of the most prevalent diseases in the elderly population due to significant factors this age group suffers from (Pilania et al., 2019). Examples of these risk factors include chronic illnesses, restricted mobility, loneliness, and financial losses, as well as other common risk factors which are prevalent across all age groups (Pilania et al., 2019). According to the CDC, depression affects around one to five percent of the overall older population, 13.5 percent of elderly people who need home health care, and 11.5 percent of elderly hospitalized patients.

It is well established that mental health affects physical health and vice versa. For instance, elderly people with physical health issues, such as cardiovascular diseases, experience higher rates of depression than healthier elderly. Similarly, untreated depression may negatively impact the prognosis of an elderly adult with heart disease. The same concept can be applied to physical disability, since an elderly with physical disability has higher rate of depression. A major problem in diagnosing this age group is that healthcare workers may think of depression manifestations in older adults as a normal response to a particular disease or changes in life, thus often do not consider depression as a serious condition which necessitates attention and management. Elderly individuals share this conviction too, and therefore do not ask for support since they do not realize the burden and the probable improvement with proper care.

Therefore, this study aims to estimate the prevalence of depression among elderly who are in social care in Makkah. Additionally, to find possible factors associated with depression. Furthermore, our study investigates the association between depression and physical disabilities in the older adult. Aiming to enhance the quality of these people's lives and protect them from complications and mental illnesses.

2. SUBJECTS AND METHODS

This cross-sectional study utilized a paper-based questionnaire that was distributed over the period of November to December 2021. The targeted populations were residents of a nursing home facility in Makkah city, Saudi Arabia. The inclusion criteria set for this study was: individuals who age 60 y/o or older, living in a Makkah nursing home, and receiving social care. Subjects with delirium, psychosis disorders, intellectual disability, and personality disorders were excluded. As there is only one center for social care in Makkah, at the time of data collection, data was collected from all individuals who met the study criteria. A semi-structured questionnaire was developed by the authors and face-validated by expertise in the field. Hard copies of the questionnaire were filled by the nurses in the social care center after a thorough explanation and training by the study investigators. All study potential subjects were surveyed to collect data regarding demographic factors, disability score through BI, and depression score through either PHQ-9, or CSDD based on whether a subject is diagnosed with dementia/Alzheimer disease (Alexopoulos et al., 1988; Kroenke et al., 2001; Mahoney & Barthel, 1965).

Statistical analysis

Data was analyzed using the statistical package for the social sciences (SPSS, version 26.0). First the descriptive analysis was utilized to present the summary of the data set by presenting all the numerical data as median and interquartile range, while categorical data was summarized as frequency and proportions. To test the influence of different factors with different parameters, Fisher's-Freeman-Halton Test was carried out, and p-values were obtained for the test. A p-value < 0.05 was considered significant.

Ethical consideration

For each participant, a simple and clear explanation of the research aim and procedure was provided. Also, the participation was voluntary, and subjects had the right to not complete the survey without giving any reason. A written and/or verbal consent was obtained after the full explanation from all participants. Data confidentiality was guaranteed. All data was solely used in the current research, and data will be kept in a locked office of the principal investigator for at least 3 months after publication before getting rid of it completely.

An ethical approval was secured prior to conducting the study from The Biomedical Research Ethics Committee in Umm Al-Qura University (Approval No. HAPO-02-K-012-2021-11-818). If any part of the research methodology was changed, the Research Ethics Committee would be informed immediately.

3. RESULTS

Among all senior residents at Makkah social care home, a total of 48 subjects met the inclusion criteria of the present study and were included and analyzed. The sample median age was 74 years old with an interquartile range (IQR) of 18 years. Male patients represented the majority of this sample (64.6%). Most of the included cases (60.4%) were single at the time of data collection (Table 1). Merely, 43.8% of individuals were socially isolated and there was not any known relative for 35.4% of the social care home residents. Most individuals were using one or more assist tools (85.4%). The distribution of several comorbidities and illnesses was investigated, with hypertension (HTN) and diabetes mellitus (DM) being the most prevalent (Table 2).

Table 1 Demographic Characteristic of Social Care Home Residents

n = 48	Median	IQR
Age (years)	74	18
	Frequency (n)	Percentage (%)
Gender		
Male	31	64.6
Female	17	35.4
Marital status		
Single	29	60.4
Married	2	4.2
Divorced	6	12.5
Widow	11	22.9
Employment status		
Employed	4	8.3
Non-employed	44	91.7
Known relatives	17	35.4
Socially isolated	21	43.8
Use of assist tools	41	85.4
IQR: Interquartile range		

Table 2 Comorbidities Distribution in Social Care Home Residents

n = 48	Frequency (n)	Percentage (%)
HTN	31	64.6
DM	29	60.4
Arthritis	17	35.4
Osteoporosis	17	35.4
CVA	5	10.4
Anemia	1	2.1
Parkinson's disease	1	2.1
Myopia	7	14.6
Blindness	1	2.1
Hearing difficulty	9	18.8
Deafness	1	2.1
Aphasia	3	6.3
Upper limb loss	2	4.2
Lower limb loss	12	25.0
HTN: Hypertension, DM: Diabetes mellitus, CVA: Cerebrovascular accident		

Participants' disability was assessed through Barthel Index (BI), which is a ten-item questionnaire. Most study subjects (60.4%) were considered as total dependents, and a total of 95.8% needed some sort of help. On the other hand, 2 (4.2%) participants were assessed and considered independent individuals (Figure 1).

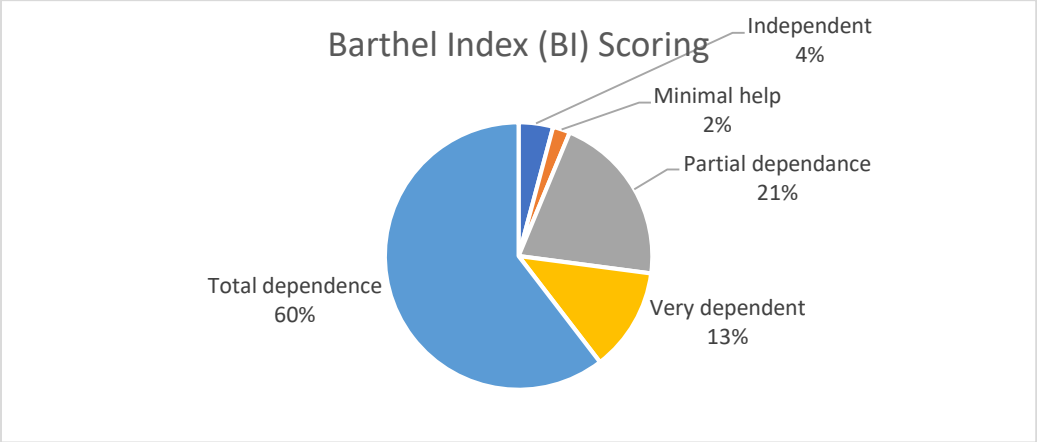

Figure 1 Barthel Index (BI)

Senior residents at the social care home in Makkah were surveyed for depression. The Cornell Scale for Depression in Dementia (CSDD) was used to assess individuals who were diagnosed with dementia or Alzheimer disease (n=28), while those who were not diagnosed (n=20) were assessed through the Patient Health Questionnaire-9 (PHQ-9) for depression screening. Among those who were assessed with PHQ-9, six (30%) subjects had minimal depression and eight others (40%) scored mild depression. Meanwhile, two cases (10%) fell in each of the three categories; moderate, moderately severe, and severe. Certain demographic characteristics showed significant association with PHQ-9 depression scores. For instance, gender and marital status were associated with depression scores and this association achieved statistical significance (p-value = .005, .016, respectively). Moreover, multiple comorbidities associated with depression scores also included in the study sample. HTN and arthritis, for example, showed statistically significant association with PHQ-9 depression scores (p-value = .005, .001, respectively). Table 3 illustrates detailed data regarding depression scores distribution and associated factors.

A total of 28 subjects were surveyed by CSDD. Among them, seven patients (25%) showed major depression scores, and 13 other subjects (46.4%) appeared to suffer from probable major depression, whereas eight participants (28.6%) seemed to have absence of significant depressive symptoms. Three demographic features, which are gender, age and marital status showed statistically significant association with patients' CSDD categories (p-value = .017, .004, .018, respectively). Furthermore, numerous illnesses showed significant association such as, HTN (p-value = .004) and DM (p-value = .02) [Table 4]. The study investigated other demographic factors, comorbidities, and disability levels for association with level of depression; however those factors failed to achieve statistical significance.

Table 3 Patient Health Questionnaire-9 (PHQ-9) Scoring Distribution and Associated Factors

N = 20	Minimal	Mild	Moderate	Moderatel y severe	Severe	*p – value
Total	6 (30%)	8 (40%)	2 (10%)	2 (10%)	2 (10%)	
Age						.342
≤ 69 y/o	3	1	0	0	1	
70 – 89 y/o	3	7	2	2	1	
Gender						.005
Male	6	7	1	0	0	
Female	0	1	1	2	2	
Marital status						.016
Single	6	6	0	0	1	
Married	0	1	0	0	0	

Divorced	0	0	1	1	1	
Widow	0	1	1	1	0	
Socially isolated	2	0	1	2	2	.006
Not-socially isolated	4	8	1	0	0	
HTN	6	7	1	0	0	.005
Non HTN	0	1	1	2	2	
DM	6	7	2	0	1	.05
Non-DM	0	1	0	2	1	
Arthritis	6	7	0	0	0	.001
Non arthritis	0	1	2	2	2	
Osteoporosis	6	7	0	0	0	.001
Non osteoporosis	0	1	2	2	2	
Aphasia	0	0	0	0	2	.016
Non aphasia	6	8	2	2	0	
*Fisher's-Freeman-Halton Test HTN: Hypertension, DM: Diabetes mellitus						

Table 4 CSDD Scoring Distribution and Associated Factors

N = 28	Major depression	Probable major depression	Absence of significant depressive symptoms	*p – value
Total	7 (25%)	13 (46.4%)	8 (28.6%)	
Age				.017
≤ 69 y/o	1	1	6	
70 – 89 y/o	4	7	2	
≥ 90 y/o	2	5	0	
Gender				.004
Male	5	4	8	
Female	7	13	8	
Marital status				.018
Single	5	4	7	
Married	0	0	1	
Divorced	1	2	0	
Widow	1	7	0	
Socially isolated	2	9	3	.189
Not-socially isolated	5	4	5	
HTN	5	4	8	.004
Non HTN	2	9	0	
DM	4	3	6	.02
Non-DM	3	10	1	
Arthritis	3	0	1	.019
Non arthritis	7	13	8	
Osteoporosis	3	0	1	.019
Non-Osteoporosis	4	13	7	
Aphasia	0	0	1	.536
Non aphasia	7	13	7	
*Fisher's-Freeman-Halton Test HTN: Hypertension, DM: Diabetes mellitus				

4. DISCUSSION

This study aims to investigate the distribution of depression and its associated factors, and the distribution of physical disabilities among elderly individuals in a social care center in Makkah city, Saudi Arabia. In this study, subjects were assessed using two screening tools based on whether they have an established diagnosis of dementia/Alzheimer disease. Among those who did not have an established diagnosis (PHQ-9 group), 70% seemed to suffer from mild to severe depression. Similar distribution was observed among those diagnosed with dementia or Alzheimer disease (CSDD group), as 71.4% of this group showed symptoms of major or probable major depression. This is a substantial proportion of vulnerable individuals with a burden that negatively impacts individuals' quality of life. In fact, the estimated distribution of depression shows obvious variation between reported studies since estimates range from 4.3% to 63% (Kim et al., 2009; Ma et al., 2008; Zis et al., 2017). The wide range of estimates can be attributed to the differences in study methodologies and settings. Moreover, multiple factors were identified as associated factors with depression. For example, gender and marital status both were associated significantly with depression among the PHQ-9 group. Similarly, these two demographic factors in addition to age were associated with depression in the other group in this study who were, already, diagnosed with dementia or Alzheimer disease (CSDD group). This may indicate the magnitude and importance of spouse support and how this factor influences a person's psychological well-being. These findings are consistent with the findings in the literature as female gender and lower socioeconomic status were associated with depression among geriatric individuals as reported in China (Ma et al., 2008). Social isolation is a predisposing factor for multiple issues, one of which is depression.

The findings of this current study agree on the association of social isolation with depression since much severe forms of depression were observed among socially isolated participants in the PHQ-9 group. A cross-sectional study in Ontario, Canada investigated the prevalence of social isolation among elderly residing in social housing, and they found that 20% out of 806 subjects were socially isolated. The above mentioned study concluded that both disorders depression and anxiety are risk factors for social isolation (adjusted OR 6.05, 95% CI 3.65-10.03) (Agarwal et al., 2021). Indeed, social isolation and depression are looping conditions, as one may lead to the other. Several comorbidities, in this study were associated with depression, namely, DM, HTN, arthritis, osteoarthritis, and aphasia. Having at least one comorbidity is a well-established risk factor for depression in the literature, and the aforementioned medical conditions, in particular, are of the most common associated factors with depression and the level of severity (Fiske et al., 2009; Maier et al., 2021; Stubbs et al., 2016).

Sociodemographic changes (unemployment, low income, divorced/widowed, social isolation) and comorbidities associated with advanced age (DM, HTN) are devastating stressors. These stressors may trigger inflammatory responses, leading to suppressed neurogenesis, and progress of apical dendritic atrophy, and eventually to altered functional connectivity thus development of depression (Alexopoulos, 2019). On the contrary, several factors are considered preventive to depression, such as, physical activity, engagement in social and spiritual activities as evidence in the literature show significant protective impact of these factors (Almeida, 2014; Fiske et al., 2009). Though, prevalence of depression among the elderly varies between studies, the burden of the disease and the precipitating factors are consistent in the literature.

The limitation in number of study participants may be a downside in this study. Authors recommend conducting future studies with larger sample and to involve senior residents and the individuals residing in social or nursing homes.

5. CONCLUSION

Advanced age is an inevitable situation accompanied with numerous unpleasant consequences. One of the associated conditions is depression. A high prevalence was estimated among the targeted population and the multiple factors showed statistically significant association with depression; for example, age, gender, DM, and arthritis. A holistic approach should be utilized when taking care of senior residents to promote their overall well-being.

Abbreviation

CDC: Center for Disease Control and Prevention
HTN: Hypertension
DM: Diabetes mellitus
CVA: Cerebral vascular accident
BI: Barthel Index
PHQ-9: Patients Health Questionnaire-9
CSDD: Cornell Scale for Depression in Dementia

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Authors' contributions

All authors have contributed equally in the development of research intellectual, literature review, data collection and analysis, and writing the manuscript. All authors have reviewed and approved the final version of the manuscript.

Ethical approval

The study was approved by The Biomedical Research Ethics Committee in Umm Al-Qura University (Approval No. HAPO-02-K-012-2021-11-818).

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Conflicts of interest

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

REFERENCES AND NOTES

1. Agarwal G, Pirrie M, Gao A, Angeles R, Marzanek F. Subjective social isolation or loneliness in older adults residing in social housing in Ontario: a cross-sectional study. C Open 2021; 19(3), E915–E925.
2. Alexopoulos G, Abrams R, Young R, Shamoian C. Cornell scale for depression in dementia. Biol Psychiatry 1988; 23(3), 271–284.
3. Alexopoulos G. Mechanisms and treatment of late-life depression. Transl Psychiatry 2019; 9(1), 188.
4. Almeida O. Prevention of depression in older age. Maturitas 2014; 79(2), 136–141.
5. Center for Disease Control and Prevention. CDC Depression is Not a Normal Part of Growing Older; 2021.
6. Chalise H. Depression among elderly living in Briddashram (old age home). Adv Aging Res 2014; 03(01), 6–11.
7. Fiske A, Wetherell J, Gatz M. Depression in Older Adults. Annu Rev Clin Psychol 2009; 5(1), 363–389.
8. Kim J, Choe M, Chae Y. Prevalence and Predictors of Geriatric Depression in Community-Dwelling Elderly. Asian Nurs Res 2009; 3(3), 121–129.
9. Kroenke K, Spitzer R, Williams J. The PHQ-9: Validity of a Brief Depression Severity Measure. J Gen Intern Med 2001; 16(9), 606.
10. Lim G, Tam W, Lu Y, Ho C, Zhang M, Ho R. Prevalence of Depression in the Community from 30 Countries between 1994 and 2014. Sci Rep 2018; 8(1), 2861.
11. Ma X, Xiang Y, Li S, Xiang Y, Guo H, Hou Y, Cai Z, Li Z, Li Z, Tao Y, Dang W, Wu X, Deng J, Ungvari G, Chiu H. Prevalence and sociodemographic correlates of depression in an elderly population living with family members in Beijing, China. Psychol Med 2008; 38(12), 1723–1730.
12. Mahoney F, Barthel D. Functional Evaluation: The Barthel Index. Md State Med J 1965; 14, 61–65.
13. Maier A, Riedel-Heller S, Pabst A, Luppa M. Risk factors and protective factors of depression in older people 65+. A systematic review. PLoS One 2021; 16(5), e0251326.
14. Pilania M, Yadav V, Bairwa M, Behera P, Gupta S, Khurana H, Mohan V, Baniya G, Poongothai S. Prevalence of depression among the elderly (60 years and above) population in India, 1997–2016: a systematic review and meta-analysis. BMC Public Health 2019; 19(1), 832.
15. Saudi Arabian Monetary Agency (SAMA). Population Aging In Saudi Arabia; 2015.
16. Stubbs B, Aluko Y, Myint P, Smith T. Prevalence of depressive symptoms and anxiety in osteoarthritis: a systematic review and meta-analysis. Age Ageing 2016; 45(2), 228–235.
17. United Nations (UN). World Population Ageing; 2017.
18. World Health Organization. WHO Depression and Other Common Mental Disorders; 2017.
19. World Health Organization. WHO Mental health of older adults; 2017.
20. Zis P, Daskalaki A, Bountouni I, Sykioti P, Varrassi G, Paladini A. Depression and chronic pain in the elderly: links and management challenges. Clin Interv Aging 2017; 12: 709–720.