Mental Disorders Among Elderly People in Baghdad, Iraq, 2017

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Abstract
This study aimed to estimate the prevalence and determinants of mental disorders (MDs) among elderly people residing in nursing homes (NHs) and those living with their families (WF) in Baghdad, Iraq, 2017. A cross-sectional study was conducted on all elderly individuals residing in all NHs in Baghdad and an equal number of elderly people residing WF. MDs were defined based on Kessler Psychological Distress Scale (K10). We used relevant World Health Organization–accredited tools to identify the types of MDs. The prevalence of MDs among elderly people was 38.7%, being statistically significantly (P < .01) higher among those in NH (55.8%) compared with those living WF (21.5%). The proportion of types of MDs among NH versus WF residents was as follows: depression (35.4% vs 16.6%), anxiety (32.6% vs 9.9%), dementia (19.3% vs 5%), and suicide thoughts (25.4% vs 4.4%). The multivariate analysis showed many factors that were associated with MD. Low income, dependency on others, and being neglected were stronger determinant of MD among elderly people living WF. However, chronic joint pain, visual impairment, auditory impairment, and economic status deterioration were stronger determinant among those in NHs. The prevalence of MDs in the NH is more than double the prevalence in the community. We recommended enhancing elderly mental health care services including curative, preventive, and promotive activities.

Keywords
prevalence, risk factors, Iraq, mental health, nursing homes

What do we already know about this topic?
Elderly people are vulnerable for mental disorders and face special physical and mental health challenges. People in Iraq were exposed to wars and conflicts, which are in turn, affect their mental health. Little is known about the mental health status of elderly people in Iraq.

How does your research contribute to the field?
This study demonstrates the burden of mental health problems among elderly people in a conflict country particularly among those residing in the nursing homes.

What are your research’s implications toward theory, practice, or policy?
This study provides baseline data to public health officials at the Ministry of Health in Iraq to improve the mental health status of elderly people. Primary health care professionals should consider the high rate of mental disorders among elderly people in Iraq, screen for these disorders, and refer or treat them.

Introduction
As a result of declining mortality as well as improved public health interventions, population aging has been a worldwide phenomenon.1,2 There has been a sharp increase in the number of older persons worldwide and more old people are alive nowadays than at any time in history.1,3 Between 2015 and 2050, the proportion of the world’s population over 60 years will nearly double from 12% to 22%.2,3 In Iraq, the proportion of the population aged 60 and above increased from

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Elderly people are vulnerable for mental disorders (MDs) and face special physical and mental health challenges. Globally, the most common MDs in elderly include dementia (5%-8%), depression (7%), anxiety disorder (4%), and drug abuse (1%). Moreover, 25% of deaths from suicide occur among the elderly. The World Health Organization estimated that the overall prevalence rate of depression among the elderly generally varies between 10% and 20%, depending on the cultural situations. The Iraqi Mental Health Survey (IMHS) showed a high rate of depressive episode among people 60 year and above with lifetime prevalence reached 13.15% for males and 13.55% for females.

Most elderly people residing in nursing homes (NHs) have complex health problems and severe functional impairment. NH residents experience stressful events such as relational losses, loss of home, and loss of spouse, relatives, and friends. Such conditions may cause them to experience suffering and affect their mental and physical health. The prevalence of depression in NH population is very high, and prevalence rates among NH residents were found to be up to 3 to 4 times higher than in community-dwelling elderly.

Many older adults lose their ability to live independently because of limited mobility, chronic pain, frailty, or other mental or physical problems and require some form of long-term care. In addition, older people are more likely to experience events such as bereavement and a drop in socioeconomic status with retirement or disability. All these factors can result in isolation, loss of independence, loneliness, and psychological distress in older people.

Mental health problems are underidentified by health care professionals and older people themselves, and the stigma surrounding mental illness makes people reluctant to seek help. The challenges for public health are to identify risk factors, increase awareness about MDs and effectiveness of treatment, remove the stigma associated with MDs, eliminate health disparities, and improve access to mental health services, particularly among populations that are disproportionately affected.

Over the last 3 decades, Iraq experienced a unique situation due to Gulf wars, sanctions, regime change, and civil unrest that left the country with an extremely complex psychosocial situation. Besides the scarcity of available health outlets that provide mental health care services to elderly people, health workers are inadequately trained and equipped to provide such services. This study aimed to estimate the prevalence of MDs among elderly people residing in NHs and those living with their families and to determine their associated factors.

**Methods**

**Study Design and Setting**

A comparative cross-sectional study was conducted in all elderly NH and in the neighborhood areas of the elderly NH, Baghdad/Iraq during 3 months in 2017. The study included 2 groups of elderly people of both sexes: those who were residing in NH and those who were living within families (WF). All elderly people residing in all the NHs in Baghdad, including Al-Suleikh NH, Al Rashid NH, Al Rahma NH in Al Kadhimeya, and Al Rahma NH in Al Karrada, were selected. A random systematic sample of an equal number of elderly individuals living in their homes with families (WF) who attended the nearest health care centers to the NH for non-psychiatric complaints.

**Questionnaire**

A self-reported structured questionnaire was developed by the researchers based on the review of different instruments used in other studies. The first section of the questionnaire included data on the sociodemographic characteristics of elderly people including age, sex, residency, marital status, education, job, income level, and current smoking status. The second section included information on geriatric mental health–associated factors such as loss of the ability to live independently, decline in the activity of vision and hearing senses, neglect and mishandling, deterioration of the social and economic situation, and comorbid physical illnesses. The evaluation of the MDs in the elderly was accomplished using of 10 questions based on Kessler psychological Distress Scale (K10). Screening for depression was accomplished using a short version of the Geriatric Depression Scale, which includes 15 questions, with a score >10 points indicating depression. Screening for anxiety in the elderly was accomplished using a short version of the brief measure for assessing generalized anxiety disorder, with a score >10 points indicating anxiety. Screening for dementia in the elderly was accomplished using a modified short version of the brief measure for assessing dementia which included 10 questions, with a score >3 points indicating dementia. The evaluation of the substance abuse status was performed using modified set of 7 questions based on Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) version 3.0, with a score >3 point indicative of addiction. Suicide thoughts and attempts were assessed using a direct question. Elderly who reported suicidal thoughts and attempts have been questioned about suicidal attempt methods (burn, hang, gunshots, drug or chemical poisoning, use sharp object, use electricity, fall from a high).

The questionnaire was pilot tested on 10 elderly persons and the necessary changes were made. The study was approved by the Ministry of Labor and Social Affairs and...
ethical committee at the Ministry of Health. Verbal consent had been obtained from all participants.

**Statistical Analysis**

The Statistical Package for Social Sciences (SPSS v.21) was used for data entry and analysis. The data had been presented as frequency tables. Chi-square test was used to test association between categorical data. Multivariate binary logistic regression was used to determine factors associated with MDs. The level of significance was set at $P$ value of $\leq 0.05$.

**Results**

**Participants’ Characteristics**

A total of 362 elderly peoples—181 (111 males and 70 females) residing in NH and 181 (110 males and 71 females) residing with families (WF)—were included in this study. The participants’ characteristics are shown in Table 1. Compared with those who were living WF, elderly people in NH were significantly more likely to report being dependent on others, having social and economic state deterioration, being neglected, and having chronic joint pain, cardiovascular diseases, and respiratory diseases.

**Prevalence of MDs Among Elderly People**

Table 3 shows the prevalence of MDs among elderly people living in NH and those living WF. Overall, the prevalence of MDs among elderly people was 38.7% (37.1% in male and 41.1% in females), being significantly higher among those in NH (55.8%) compared with those living in their homes WF (21.5%). The prevalence rates of depression, anxiety, dementia, and suicidal thoughts and attempts were significantly higher among those living in NH. Of those with MDs in NH, 63% had depression, 58% had anxiety, 34.6% had dementia, 45.5% had suicide thoughts, and 3% reported substance abuse. Of those with MDs who were living in their homes WF, 77% had depression, 46% had anxiety, 23% had dementia, 20% had suicide thoughts, and 5% reported substance abuse.

The number of elderly individuals who had suicide thoughts in NHs residence was 46. Of those, 20 (43.5%) cases had suicide attempts; 10 (50%) of them attempted suicide by chemical or drugs, 8 (40%) attempted suicide by sharp tools, 1 (5%) attempted suicide by burn, and 1 (5%) attempted suicide by hanging.

### Table 1. The Sociodemographic Characteristics of Elderly People Living in Nursing Homes and Those Living Within Their Family.

| Age (years) | Elderly people living in nursing homes (N = 181) | Elderly people living with Family (N = 181) | Total |
|-------------|---------------------------------|---------------------------------|-------|
| 60-69       | 76 (41.0)                       | 119 (61.0)                      | 195 (53.9) |
| ≥ 70        | 105 (62.9)                      | 62 (37.1)                       | 167 (46.1) |
| Sex         |                                 |                                 |       |
| Male        | 111 (50.2)                      | 110 (49.8)                      | 221 (61.0) |
| Female      | 70 (49.8)                       | 71 (50.2)                       | 141 (39.0) |
| Education   |                                 |                                 |       |
| Primary school or less | 94 (56.6)                       | 72 (43.4)                       | 166 (45.9) |
| Secondary school | 63 (47.7)                      | 69 (52.3)                       | 132 (36.5) |
| College or postgraduate | 24 (37.5)                       | 40 (62.5)                       | 64 (17.7) |
| Current marital status |                                 |                                 |       |
| Unmarried   | 142 (67.0)                      | 70 (33.0)                       | 212 (58.6) |
| Married     | 39 (26.0)                       | 111 (74.0)                      | 150 (41.4) |
| Working status |                                 |                                 |       |
| Currently working | 2 (3.5)                         | 55 (96.5)                       | 57 (15.7) |
| None        | 179 (58.7)                      | 126 (41.3)                      | 305 (84.3) |
| Income      |                                 |                                 |       |
| <$400       | 138 (64.2)                      | 77 (35.8)                       | 215 (59.4) |
| ≥$400       | 43 (29.3)                       | 104 (70.7)                      | 147 (40.6) |
| Current smoking |                                 |                                 |       |
| Yes         | 48 (26.5)                       | 38 (20.9)                       | 86 (23.8) |
| No          | 133 (73.5)                      | 143 (79.1)                      | 276 (76.2) |
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Table 4 shows the prevalence of MDs among elderly people living in NH and those living WF according to sociodemographic and relevant characteristics.

**Multivariate Analysis of Factors Associated With MDs**

The multivariate analysis showed many factors that were associated with MDs. Low income level, dependency on others, and being neglected were stronger determinants of MDs among elderly people living WF. On the contrary, chronic joint pain, visual impairment, auditory impairment, and economic status deterioration were stronger determinants among those in NH (Table 5).

**Discussion**

Iraq like most countries in the world is facing the challenge of an aging population. Accordingly, there is a need to understand the commonly occurring disorders in this population. Many studies were conducted on MDs at different age groups in Iraq, but few studies had tackled the elderly people. In the current study, the prevalence of any MDs in the study sample was 38.7% (55.8% in NH group and 21.5% in WF group). It was higher than the reported prevalence of 18.8% by IMHS.7 This high prevalence of MDs is expected as a result of the events of the ongoing violence and the deterioration of security, social, economic, and services situation of Iraq.

There is a wide variation in the prevalence of MDs among elderly people between studies, and this might be due to variations in study designs, studied populations, and sample sizes and variation in population personality, resilience, lifestyle, and social and cultural settings. The prevalence of MDs in Iraqi elderly is little higher than that in the neighboring countries like Iranian elderly (32.2%).18 The lifetime of having “any mental disorder” in older adults in Lebanon was 17.4% and the 12-month prevalence was 10.6%.19 In Saudi Arabia, the prevalence was 15.5% in urban areas and 40.4% in rural areas.20 Moreover, the prevalence was higher than that reported in India.21 In a US survey, 20.4% of adults aged...
Table 4. The Prevalence of Any Mental Disorder Among Elderly People Living in Nursing Homes and Those Living With Their Families.

|                                       | Elderly people living in nursing home (N = 181) | Elderly people living with family (N = 181) |
|---------------------------------------|-----------------------------------------------|---------------------------------------------|
|                                       | Total n | %     | P value   | Total n | %     | P value   |
| Age                                   |         |       |           |         |       |           |
| 60-69                                 | 76      | 38    | 50.0      | 119     | 19    | 16.0      |
| ≥70                                   | 105     | 63    | 60.0      | 62      | 20    | 32.3      |
| Sex                                    |         |       |           |         |       |           |
| Male                                  | 111     | 61    | 55.0      | 110     | 21    | 19.1      |
| Female                                | 70      | 40    | 57.1      | 71      | 18    | 25.4      |
| Education                             |         |       |           |         |       |           |
| Primary school or less                | 94      | 62    | 66.0      | 72      | 27    | 37.5      |
| Intermediate or secondary school      | 63      | 33    | 52.4      | 69      | 9     | 13.0      |
| College or postgraduate               | 24      | 6     | 25.0      | 40      | 3     | 7.5       |
| Current marital status                |         |       |           |         |       |           |
| Unmarried                             | 142     | 93    | 65.5      | 70      | 31    | 44.3      |
| Married                               | 39      | 8     | 20.5      | 111     | 8     | 7.2       |
| Working status                        |         |       |           |         |       |           |
| Currently working                     | 2       | 1     | 50.0      | 55      | 2     | 3.6       |
| None                                  | 179     | 100   | 55.9      | 126     | 37    | 29.4      |
| Income level                          |         |       |           |         |       |           |
| <$400                                 | 138     | 89    | 64.5      | 77      | 34    | 44.2      |
| ≥$400                                 | 43      | 12    | 27.9      | 104     | 5     | 4.8       |
| Independency                          |         |       |           |         |       |           |
| Yes                                   | 37      | 35    | 94.6      | 9       | 8     | 88.9      |
| No                                    | 144     | 66    | 45.8      | 172     | 31    | 18.0      |
| Visual impairment                     |         |       |           |         |       |           |
| Yes                                   | 89      | 69    | 77.5      | 100     | 34    | 34.0      |
| No                                    | 92      | 32    | 34.8      | 81      | 5     | 6.2       |
| Auditory impairment                   |         |       |           |         |       |           |
| Yes                                   | 51      | 43    | 84.3      | 86      | 29    | 33.7      |
| No                                    | 130     | 58    | 44.6      | 95      | 10    | 10.5      |
| Social relation deterioration         |         |       |           |         |       |           |
| Yes                                   | 145     | 94    | 64.8      | 29      | 17    | 58.6      |
| No                                    | 36      | 7     | 19.4      | 152     | 22    | 14.5      |
| Economic state deterioration          |         |       |           |         |       |           |
| Yes                                   | 123     | 92    | 74.8      | 38      | 22    | 57.9      |
| No                                    | 58      | 9     | 15.5      | 143     | 17    | 11.9      |
| Neglect and mishandling               |         |       |           |         |       |           |
| Yes                                   | 91      | 79    | 86.8      | 10      | 9     | 90.0      |
| No                                    | 90      | 22    | 24.4      | 171     | 30    | 17.5      |
| Cardiovascular diseases               |         |       |           |         |       |           |
| Yes                                   | 110     | 80    | 72.7      | 79      | 29    | 36.7      |
| No                                    | 71      | 21    | 29.8      | 102     | 10    | 9.8       |
| Respiratory diseases                  |         |       |           |         |       |           |
| Yes                                   | 43      | 34    | 79.1      | 40      | 16    | 40.0      |
| No                                    | 138     | 67    | 48.6      | 141     | 23    | 16.3      |
| Diabetic disease                      |         |       |           |         |       |           |
| Yes                                   | 69      | 48    | 66.7      | 72      | 23    | 31.9      |
| No                                    | 112     | 55    | 49.1      | 109     | 16    | 14.7      |
| Chronic joint pain                    |         |       |           |         |       |           |
| Yes                                   | 127     | 88    | 69.3      | 92      | 32    | 34.8      |
| No                                    | 54      | 13    | 24.1      | 89      | 7     | 7.9       |
| Current smoking                       |         |       |           |         |       |           |
| Yes                                   | 48      | 39    | 81.3      | 38      | 18    | 47.4      |
| No                                    | 133     | 62    | 48.6      | 143     | 21    | 14.7      |
The study revealed high prevalence rates of depression (35.4% in NH group and 16.6% in WF group) and anxiety disorders (23.6% in NH group and 9.9% in WF group) among elderly Iraqi. These rates are much higher than the rates reported in IMHS (10.0% for depression and 11.3% for anxiety). The prevalence rates of depression and anxiety among elderly were 6.8% and 11.4%, respectively, in the U.S. study and 8.0% and 11.9% in the European study. The overall prevalence rate of depression in Saudi Arabia was 8.7% in one study and 20% in another study. In Iran, 1.3% of elderly people complain of severe depression and 3.1% of severe anxiety. The prevalence rate of depression among the elderly Indian population was 21.7%.

The differences in the prevalence rates of depression and anxiety between countries might be attributed to differences in family and social support, cultural factors, lifestyle, coping skills, sampling and instruments used, and more importantly the political instability and war situation.

The observed rate of dementia in this study was 12.2%. This rate is almost similar to the rates in other countries like Saudi Arabia (12.9%), Turkey (8.4%), Iran (8.1%), and Canada (8.0%). The methods of screening and diagnosis of dementia might explain the little variations in the rates of dementia.

The prevalence of substance use disorder in this study was 1.4%. This is lower than the rate reported from other countries, including India (4.2%), Europe (4.6%), and the United States (3.8%). In Iraq, there are no data available for the substance used disorders in 1990 and before, and it is now regarded in a gestational stage for spread of the substance misuse phenomena as a result of the deterioration of security and poor control of the border and socioeconomic deterioration that occurred after 2003.

The prevalence rates of suicide thoughts and suicide attempts in the current study were 14.9% and 6%, respectively. The chemical or drugs were the most common method of suicide attempts, accounting for 45% of all suicide attempts, and the next most common methods were sharp tools (41%) and burn (9%). In general, the rates are the highest in Eastern Europe and lowest in Central and South America, with the United States, Western Europe, and Asia falling in the middle. In United State, the lifetime prevalence of suicide thoughts was 5.6% to 14.3%, and for suicide attempts was 1.9% to 8.7%. In 2015, firearms were the most common method of death by suicide, accounting for a little less than half (49.8%) of all suicide deaths. The next most common methods were hangings at 26.8% and poisoning at 15.4%.

In our study, the estimated prevalence of MDs among elderly population residing in NH (55.8%) was much higher than that among elderly living WF (21.5%). Several researches have reported high prevalence of depression and depressive syndromes in elderly residents of Nhs, as much as 3 to 4 times higher than the community-dwelling elderly. Due to the high prevalence of MDs, NH residents may be experience stressful events such as relational losses, loss of home, and loss of spouse, relatives, and friends.

The multivariate analysis of factors associated with MDs among elderly people showed different factors. Low income among elderly living WFs was associated with higher odds of MDs. This finding was reported in other populations. Consistent with other studies, dependency on others and
being neglected were significantly associated with MDs. The current study revealed a significant association between the MDs and having chronic joint pain and cardiovascular diseases. Several studies supported the link between chronic illnesses and depression among elderly. 41-43

The current study also showed a significant association between MDs and being unmarried, low economic status, current smoking; the findings that agree with many other studies. 26,38,44,45

In conclusion, various MDs are common among elderly population of Iraq, being higher among those residing in NHs. Low income level, dependency on others, and being neglected were stronger determinants of MDs among elderly people living WFs. Chronic joint pain, visual impairment, auditory impairment, and economic status deterioration were stronger determinants of MDs among those living in NHs. It is important to adopt strategies which ensure that the elderly have the necessary resources to meet their basic needs. Raising awareness of health workers working in NHs about mental health and the integration of mental health services into other health services at primary health care level are highly needed.

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