

Incidence of Depression among Elderly Attending Primary Health Care Centers

Fatima Habib, MD, ABFM, MSc*

Objective: To estimate the incidence of depression among Bahraini elderly attending primary health care services.

Design: A cross-sectional study.

Setting: Four Primary Health Care Centers, Bahrain.

Method: The study was performed from July to August 2006. One health center was randomly selected from each of the four geographical regions of Bahrain. Two hundred and seventy Bahraini patients aged 60 years and older attending the local health centers during that period were included. The shorter version of the Geriatric Depression Scale (GDS-15) was used to screen for depression among the study participants.

Result: Two hundred and seventy Bahraini patients were included. Hundred and forty-six (54%) were women and hundred and twenty-four (46%) were men. The mean age for male participants was 68.65 ± 6.3 and the mean age for females was 68.36 ± 7 years. Hundred and twelve patients (41.5%) were diagnosed with depression. The mean depressive score for men was 3.67 ± 3.07 and for women it was 5.86 ± 3.62 . Severe depressive symptoms were reported by 3.2% of men and 7.5% of women. The risk of depression was significantly more among women than among men with an odds ratio (OR) of 4.3 (95% CI = 2.54-7.32).

Conclusion: Depressive symptoms are prevalent among Bahraini elderly attending the local health centers. Family physicians should be trained to screen for and to manage depression in highly susceptible groups.

Bahrain Med Bull 2009; 31(4):

Ageing is a worldwide phenomenon but its progression in this part of the world is rapid due to economic and health improvement. This in turn has led to a decrease in death rate and to an appreciable increase in life expectancy. The estimated life expectancy for Bahrainis has risen from 63.3 years in 1970 to 75.7 years in 2009 for both sexes. Life expectancy will increase further and it is expected to reach 77.7 years by 2025 and 80.7 years by 2050^{1,4}.

Bahrain population projection is expected to show sharp increase in the elderly population from 4.5% of the total Bahraini population in 2007 to 9.6% in 2025 and will reach 24% in 2050. This means a growth of 4-5 times the current aged population^{1,2}.

*Consultant Family Physician
Ministry of Health
Kingdom of Bahrain
Email: zanrh64@yahoo.com

It is well known that mental health problems are common among old people⁵. Depression is the commonest mental health condition among this age group and it is usually associated with significant morbidity and mortality^{6,7}.

An increase in mortality is associated with even the subclinical forms of depression; it is aggravated by the chronic physical diseases and disabilities^{8,9}. Depression, in turn, worsens the course of physical illness and interferes with treatment. It increases the elderly utilization of health services, increases the burden on the caregiver, and decreases the elderly self-satisfaction and quality of life¹⁰⁻¹⁵. Depression may predispose to many physical illnesses and increase the elderly mortality¹⁶⁻¹⁸.

There is a considerable debate regarding the prevalence of depression among elderly people. The wide variation in the reported figures reflects the multiplicity of the criteria and the scales used to diagnose depression. It also reflects the effect of the setting in which the elderly was interviewed. Some studies reported the incidence in primary care setting to be 17-35% while others reported it to be 25%^{19,20}.

There is no exact figure reported for the incidence of depression among Bahraini elderly. However, a study was performed in one health center in 1996 showed that the incidence of depression was as high as 23.1%²¹.

The aim of this study is to evaluate the size of depressive illness and its incidence among elderly population attending four health centers in Bahrain.

METHOD

One health center was randomly selected from each region. The number of elderly selected from each health center was proportional to the total number of elderly served by that health center as illustrated in Table 1. The sample was not stratified by gender as Bahrain has almost equal proportion of elderly males and females.

The sample size was calculated using the program NCSS 2000 based on the reported incidence of 23.1% for depression among Bahraini elderly with precision of 0.05 and 95% confidence level²¹. The sample size was calculated to be 270.

Table 1: Proportional Selection of Participants from Each Health Center

| Health Center | No. of Elderly in Each Health Center | % of Elderly in Each Health Center | No. of Elderly Selected from Each Health Center |
|-----------------|--------------------------------------|------------------------------------|---|
| Health center 1 | 2,808 | 41.6 | 112 (2,808×41.6) |
| Health center 2 | 1,323 | 19.6 | 53 (1,323×19.6) |
| Health center 3 | 645 | 9.5 | 26 (645×9.5) |
| Health center 4 | 1,979 | 29.3 | 79 (1,979×29.3) |
| Total | 6,755 | 100 | 270 |

The shorter version of the Geriatric Depression Scale (GDS-15) was used to screen for depression among the study participants. The scale consists of 15 positive and negative items. The items are answered simply by Yes or No. It diagnoses depression on the basis of symptoms reported over the past one-week. GDS-15 has sensitivity of 0.805, and specificity of 0.750²². The score ranges from 0 to 15. A score of 5 or more indicate probable depression. It is recommended to be used to screen for depression among elderly by the Royal College of

Family Physician²³⁻²⁵. It was translated to Arabic and validated to be used for elderly Bahrainis in a previous study²¹.

RESULT

Two hundred and seventy elderly Bahraini aged 60 years and above were included in the study. Hundred and forty-six (54%) were women and hundred and twenty-four (46%) were men, see Table 2. The distribution of men and women in different age groups was as follows: thirty-four (27.4%) men and fifty (34.2%) women were 60-64 years; forty (32.3%) men and thirty-nine (26.7%) women were 65-69 years; twenty-eight (22.6%) men and twenty-nine (19.9%) women were 70-74 years, and fourteen (11.3%) men and seventeen (11.6%) women were 75-79 years of age. Almost similar number of men and women, six and seven respectively, (4.8%) were 80-84 years, two (1.6%) men and two (1.4%) women were 85-89 years. Only two females (1.4%) and none of the males were above 90 years of age. However, the mean age for both sexes was almost similar: 68.65 years for men and 68.36 years for women with a standard deviation of ± 6.3 and ± 7 respectively. The maximum age for men was 87 and for women 97. The incidence of depressive symptoms was 41.5%, see Table 3.

Table 2: Personal Characteristics of Participants According to Gender

| Characteristic | Males Number and Percentage | | Females Number and Percentage | | Total Number and Percentage | | <i>p-value</i> |
|--------------------|-----------------------------|------|-------------------------------|------|-----------------------------|------|----------------|
| Mean age | 68.65 \pm 6.3 | | 68.36 \pm 7.05 | | | | |
| Sex | 124 | 45.9 | 146 | 54.1 | 270 | 100 | |
| Age groups (years) | | | | | | | 0.72 |
| 60-64 | 34 | 27.4 | 50 | 34.2 | 84 | 31.1 | |
| 65-69 | 40 | 32.3 | 39 | 26.7 | 79 | 29.3 | |
| 70-74 | 28 | 22.6 | 29 | 19.9 | 57 | 21.1 | |
| 75-79 | 14 | 11.3 | 17 | 11.6 | 31 | 11.5 | |
| 80-84 | 6 | 4.8 | 7 | 4.8 | 13 | 4.8 | |
| ≥ 85 | 2 | 1.6 | 4 | 2.7 | 6 | 2.2 | |

Table 3: Incidence of Depression among Participants

| Depression status | Frequency | Percent |
|-------------------|-----------|---------|
| Depressed | 112 | 41.5 |
| Non-depressed | 158 | 58.5 |
| Total | 270 | 100 |

The severity of depression among the participants was distributed as follows: sixty-eight (25.2%) were having mild depression, twenty-nine (10.7%) were having moderate depression, and fifteen (5.6%) were having severe depression, see Table 4.

The mean depression score for men was 3.67 ± 3.07 and for women was 5.86 ± 3.62 .

Table 4: Severity of Depression among Participants

| Sex | Depression Status | | | | Total No. and % | <i>p-value</i> <i>0.000</i> |
|--------|---------------------|-------------------|-----------------------|---------------------|--------------------|--------------------------------|
| | Normal No. and % | Mild No. and % | Moderate No. and % | Severe No. and % | | |
| Male | 95 (76.6) | 21 (16.9) | 4 (3.2) | 4 (3.2) | 124 (100) | |
| Female | 63 (43.2) | 47 (32.2) | 25 (17.1) | 11 (7.5) | 146 (100) | |
| Total | 158 (58.5) | 68 (25.2) | 29 (10.7) | 15 (5.6) | 270 (100) | |

DISCUSSION

Population projection estimates are showing a shift towards a fast growth of the elderly population in this region in a relatively short time¹.

The elderly usually report their symptoms to their family physician in view of the good relationship that develops between them over many visits. Early reporting is facilitated by the easy accessibility of the health centers.

This study reported the prevalence of depression among Bahraini elderly attending the local health centers to be 41.5%. It is difficult to compare this figure with other studies because most of the local and regional studies reviewed were performed in community settings or using different scales.

However, a Bahraini study found a high prevalence of psychiatric morbidity among primary health care attendees older than 16 years old²⁶.

In one study, performed in 1996, in only one local health center, the incidence of depression among Bahraini elderly attending that center was 23%; the mean GDS-15 score was 1.4 for males and 3.4 for females²¹. There was a considerable difference in the mean GDS-15 score reported by the current study, 3.67 ± 3.07 for men and 5.86 ± 3.62 for women.

The reported figures from Saudi Arabia for the incidence of depression among community dwelling elderly ranged from 17.5% in the Abha study to as high as 39% in a large community-based study involving all regions of the country^{27,28}. In Kuwait, the reported incidence was 25%²⁹. A comprehensive community-based study in Jordan reported a similar incidence rate to that reported from Kuwait (24.3%)³⁰.

The incidence rates reported from other studies worldwide varied considerably. This variation may be explained by the variety of the scales and diagnostic criteria used for depression or by the settings in which the studies were performed. When the DSM criteria were used, the incidence rate of depression was found by a meta-analysis review to be 5%. However, the incidence of depressive symptoms when estimated by the available various scales was reported to reach 15% in the community settings and the rates in the primary care settings were reported to be even higher³¹.

The incidence of depression was 8.56% in a large community-based survey across five European countries³².

Other researchers reported 10% incidence of depression among the elderly in Liverpool community³³.

Several scales and diagnostic interview used in a study to assess the incidence of depression among elderly. When the scales were used, an incidence rate of 11-29% was obtained; the diagnostic interview yielded a rate of 17%³⁴. Another study, in the Netherlands, reported an incidence of 14.9%, a close figure to the one claimed in Van Marwijk et al study³⁵.

A similar study was conducted among community dwelling elderly Finns; they used the DSM-III criteria to measure the incidence of depression, the rate was 16.5%³⁶.

A review of all studies conducted since 1993 about depression among elderly Caucasians revealed rates of 0.9% to 9.4% in the community and 14% to 42% in institutions³⁷.

A meta-analysis review of community-based studies reported the average incidence of depression to be 13.5%⁵.

The comparatively higher incidence rate reported in this study may reflect partly the true figure for Bahrain. However, many factors related mainly to the method of the study should be considered as potential sources for bias in interpreting this figure. This bias may be explained by the over representation of females in this study because 54% of the study population were women. It is known that the prevalence of depression among women is higher than among men³⁸. Women usually attend the local health centers more frequently than men do.

It may also be explained by the fact that depressed elderly in general have higher utilization of health care services and consequently more depressed elderly had been included in the study population as it was health center-based study^{10,11}.

The difference of incidence rates of depression may be attributed also to the wide difference in social and cultural factors between those countries and Bahrain.

CONCLUSION

This study revealed a high incidence of depressive symptoms among Bahraini elderly attending the local health centers. The focus on the prevalent physical health conditions and the alteration of symptomatology of depression in later life are obstacles impeding the recognition and treatment of this condition. The WHO recommendation should be adopted to redirect the planning of mental health services towards community-based rather than hospital-based services. Training programs for health care personnel in the field of geriatrics should be provided. Special emphasis should be put on training community health nurses and social workers on screening for the most prevalent conditions among this age group. In addition, appropriate screening tests should be applied to screen for depression among elderly people with associated risk factors.

REFERENCES

1. Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2008 Revision Population Database: <http://esa.un.org/unpp> Accessed on 25.09.2009.
2. Bahrain Health Statistics 2007. <http://intranet.health.gov.bh/Docs/Statistics/Forms/AllItems.aspx>. Accessed on 24.8.2009.

3. Central Informatics Center. http://www.cio.gov.bh/cio_eng/Default_stats.aspx. Accessed on 25.09.2009.
4. The World Health Report 2003: Chapter One. Global Health: Today's Challenges from www.who.int/whr/2003/chapter_1/en/index_1.html. Accessed on 12.08.2009.
5. Beekman AT, Copeland JR, Prince MJ. Review of Community Prevalence of Depression in Later Life. *The British Journal of Psychiatry* 1999; 174: 307-11.
6. Unützer J, Patrick DL, Marmon T, et al. Depressive Symptoms and Mortality in a Prospective Study of 2,558 Older Adults. *American Journal of Geriatric Psychiatry* 2002; 10: 521-30.
7. Ahto M, Isoaho R, Puolijoki H, et al. Stronger Symptoms of Depression Predict High Coronary Heart Disease Mortality in Older Men and Women. *Int J Geriatr Psychiatry* 2007; 22(8): 757-63.
8. Weyerer S, Eifflaender-Gorfer S, Köhler L, et al. Prevalence and Risk Factors for Depression in Non-demented Primary Care Attenders Aged 75 Years and Older. *J Affect Disord* 2008; 111(2-3): 153-63.
9. Harris T, Cook D, Victor C, et al. Onset and Persistence of Depression in Older People - Results from a 2-year Community Follow-up Study. *Age and Ageing* 2006; 35: 25-32.
10. Hebrman H, Patrick DL, diehr P, et al. Longitudinal Investigation of Depression Outcomes in Primary Care in Six Countries: The LIDO Study. Functional Status, Health Service Use and Treatment of People with Depressive Symptoms. *Psychol Med* 2002; 32(5): 889-902.
11. Cullum S, Metcalfe C, Todd C, et al. Does Depression Predict Adverse Outcomes for Older Medical Inpatients? A Prospective Cohort Study of Individuals Screened for a Trial. *Age and Ageing* 2008; 37: 690-5.
12. Langa K M, Valenstein M A, Mark A. Extent and Cost of Informal Care giving for Older Americans with Symptoms of Depression. *American Journal of Psychiatry* 2004; 161: 857-63.
13. Gill TM, Murphy TE, Barry LC, et al. Risk Factors for Disability Subtypes in Older Persons. *J Am Geriatr Soc* 2009; 57(10): 1850-5.
14. Tsai CF, Ouyang WC, Chen LK, et al. Depression is the Strongest Independent Risk Factor for Poor Social Engagement among Chinese Elderly Veteran Assisted-living Residents. *J Chin Med Assoc* 2009; 72(9): 478-83.
15. Chan SW, Chiu HF, Chien WT, et al. Predictors of Change in Health-Related Quality of Life among Older People with Depression: A Longitudinal Study. *Int Psychogeriatr* 2009; 28: 1-9.
16. Rowan PJ, Haas D, Campbell JA, et al. Depressive Symptoms have an Independent, Gradient Risk for Coronary Heart Disease Incidence in a Random, Population-based Sample. *Annals of Epidemiology* 2005; 15(4): 316-20.
17. Glassman AH, Bigger JT Jr, Gaffney M. Psychiatric Characteristics Associated with Long-Term Mortality among 361 Patients having an Acute Coronary Syndrome and Major Depression: Seven-Year Follow-up of SADHART Participants. *Arch Gen Psychiatry* 2009; 66(9): 1022-9.
18. Stern SL, Dhanda R, Hazuda HP. Helplessness Predicts the Development of Hypertension in Older Mexican and European Americans. *J Psychosom Res* 2009; 67(4): 333-7.
19. Macdonald AJD. ABC of Mental Health: Mental Health in Old Age. *BMJ* 1997; 315: 413-7.
20. McDougall F A, Matthews F E, Kvaal K, et al. Prevalence and Symptomatology of Depression in Older People Living in Institutions in England and Wales. *Age Ageing* 2007; 36(5): 562-8.

21. Al Haddad MK. Depression in Elderly Primary Care Attendees in Bahrain. *The Arab Journal of psychiatry* 2000; 11(1): 48-55.
22. Wancata J, Alexandrowicz R, Marquart B, et al. The Criterion Validity of the Geriatric Depression Scale: A Systematic Review. *Acta Psychiatrica Scandinavica* 2006; 114(6): 398-410.
23. Katona CLE, Katona P M. Geriatric Depression Scale Can be Used in Older People in Primary Care. *BMJ* 1997; 315(7117): 1236.
24. Mullan E, Katona P, D'Ath P, et al. Screening, Detection and Management of Depression in Elderly Primary Care Attendees II: Detection and Fitness for Treatment: A Case Record Study. *Family Practice* 1994; 11(3): 267-70.
25. D'Ath P, Katona P, Mullan E, et al. Screening, Detection and Management of Depression In Elderly Primary Care Attendees I: The Acceptability and Performance of the 15 Item Geriatric Depression Scale (GDS15) and the Development of Short Versions. *Family Practice* 1994; 11(3): 2260-6.
26. Al-Haddad MK, Al-Garf A, Al-Jowder S, et al. Psychiatric Morbidity in Primary Care. *Eastern Mediterranean Health Journal* 1999; 5(1): 20-26.
27. Abolfotouh MA. Psychosocial Assessment of Geriatric Subjects in Abha City, Saudi Arabia. *Eastern Mediterranean Health Journal* 2001; 7(3): 481-91.
28. AL-Shammari SA, Al-Subaie A. Prevalence and Correlates of Depression among Saudi Elderly. *International Journal of Geriatric Psychiatry* 1999; 14: 739-47.
29. Al-Baho AK. Epidemiology of Self-Dependence among Kuwaiti Elderly Population of Abdullah Al-Salem Area. *Kuwait Medical Journal* 2003; 35(2): 98-104.
30. Youssef RM. Comprehensive Health Assessment of Senior Citizens in Al-Karak Governate, Jordan. *La Revue de Sante la Mediterranee orientale* 2005; 11(3): 334-47.
31. Gallo JJ, Lebowitz BD. The Epidemiology of Common Late-Life Mental Disorders in the Community: Themes for the New Century. *Psychiatric Services* 1999; 50(9): 1158-66.
32. Ayuso-Mateos JL, Vázquez-Barquero JL, Dowrick C, et al. Depressive Disorders in Europe: Prevalence Figures from the ODIN Study. *The British Journal of Psychiatry* 2001; 179: 308-316.
33. Saunders PA, Copeland JRM, Dewey ME, et al. The Prevalence of Dementia, Depression and Neurosis in Later Life: The Liverpool MRC-ALPHA Study. *International Journal of Epidemiology* 1993; 22(5): 838-47.
34. Van Marwijk H, Hoeksema HL, Hermans JO, et al. Prevalence of Depressive Symptoms and Depressive Disorder in Primary Care Patients Over 65 Years of Age. *Family Practice* 1994; 11(1): 80-4.
35. Beekman ATF, Deeg DJH, van Tilburg T, et al. Major and Minor Depression in Later Life: A Study of Prevalence and Risk Factors. *Journal of Affective Disorders* 1995; 36(1-2): 65-75.
36. Pahkala K, Kesti E, Köngäs-Saviaro P, et al. Prevalence of Depression in an Aged Population in Finland. *Social Psychiatry and Psychiatric Epidemiology* 1995; 30(3): 99-106.
37. Djernes JK. Prevalence and Predictors of Depression in Populations of Elderly: A Review. *Acta Psychiatrica Scandinavica* 2006; 113(5): 372-87.
38. Cole MG, Dendukuri N. Risk Factors for Depression among Elderly Community Subjects: A Systematic Review and Meta-Analysis. *American Journal of Psychiatry* 2003; 160: 1147-56.