Short Communication

Prevalence of depressive symptoms among elderly people attending primary health-care centers in Port Said Governorate, Egypt

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ABSTRACT

Background: Although geriatric depression is widespread in primary health care (PHC), local studies on the prevalence of depression in elderly PHC patients appear to be scarce. This study aimed to determine the prevalence of depressive symptoms and some of the associated risk factors among elderly PHC patients. **Methods:** A cross-sectional study recruiting elderly people (60 years or older) from five PHC centers in Port Said Governorate was conducted. All participants had a structured interview. The long version of the geriatric depression Scale (cut-off point ≥10) was used in elders with a Mini-Mental State Examination ≥24. **Results:** About two-thirds of the total sample (65.7%) was female. The total prevalence of depressive symptoms was 49.4% of all subjects, more commonly in women (58.1% vs. 32.8%). Multiple regression analysis shows that female gender, high education, unemployment, low income, lonely life, loss of a close person, chronic diseases, tumor, iatrogenic medications, and depression history were the significant associated risk factors of depression in the studied elders after adjusting all previous variables in addition to age and marital status. **Conclusion:** Depressive symptoms constitute a significant health problem among older PHC patients in the Port Said governorate. Routine screening for depression of every elderly PHC patient is recommended for early detection.

Key words: Depression, Elderly people, Geriatric depression scale, Primary health care

In Egypt, the last Census by the Central Agency for Public Mobilization and Statistics showed that the number of elders (60 years or older) was 6.9 million, which represented 6.6% of the total population [1]. Depressive symptoms are highly prevalent in late life, particularly among older primary care patients [2]. The international studies carried out in primary care settings report a wide range in the prevalence rates among elderly persons: Major depression 1.0–22.4% and minor depression 5.2–36% [3].

Depressive symptoms were present in about 15% of all elderly persons in the community and among nursing home residents [4] and among 60% of attendants' elders of outpatient psychiatric clinics in Egypt [5]. The percentage of depressive symptoms was 52.1% among elders in El-Nahda city [6], while it was 4.8% among the population of Amer-village, Suez governorate [7]. The risk factors for depression among older primary care patients were depression population, chronic medical illness, female gender, single or divorced state, brain disease, certain medication use, and

stressful life events [8]. Depression in older persons is associated with substantially reduced quality of life, increased mortality and increased use of all health and social service resources, including primary health care (PHC) [3].

Despite the common occurrence of depression in elderly persons, its recognition remains a problem. The frequent atypical presentation of depressive disorders in older persons, the resistance of many elderly people to acknowledging and reporting their symptoms to their primary care physician, and the increasing pressure on primary care physicians to spend less time with their patients contribute to the low recognition rate of depression in this age group [9].

Studies on the prevalence of depression among older primary care patients locally seem to be scarce. Most studies have been conducted in community settings, outpatient psychiatric clinics or nursing homes, leading to results that cannot be translated to the primary care settings.

This study aims to determine the prevalence of depressive symptoms and some of its associated risk factors among the elderly people who attend PHC centers in the Port Said governorate.

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MATERIALS AND METHODS

Design and Setting

A descriptive cross-sectional study was carried out in five PHC centers in Port Said governorate (Omr Ebn El-Khtab, Osman Ebn Afan, El-Manakh, El-Arab, and El-Kabouty PHC centers) during the period March–November 2007.

Study Population

The population was of elderly persons who were 60 years of age or above, attending PHC centers in Port Said governorate without severe hearing impairment, weak vision, schizophrenia, or other psychotic disorders. The Mini-Mental State Examination score (MMSE) was expected to be <24. Participation in the study had to be voluntary [10]. The target sample was 196 elders but the studied elders were 178.

Sample Technique and Sampling

Five PHC centers were selected randomly. Within each center, all persons matching the inclusion and exclusion criteria were recruited until the total target sample size was reached. A relatively equal distribution of the number of persons within each center was maintained. The researcher assured that there was no contamination in the sampling.

Tools

The subjects were interviewed using a structured interview questionnaire to collect the following data:

a. Socio-demographic data: Every elder was asked about his/her age in years, marital status, educational status, occupation, and loss of a close person during the past months

b. Economic data: Every elder was asked about his/her monthly income: Sufficient or not (according to their perception)

c. The medical history: Every elder was asked about his/her history of depression, hypertension, ischemic heart disease, diabetes mellitus, cerebrovascular stroke, urinary incontinence, tumor, and other medical conditions (based on their previous diagnosis and drugs). Every elder was asked about his/her medication history.

The MMSE [10]. was used. As the sensitivity of the geriatric depression scale (GDS) [11] diminishes in patients with MMSE score <24, we excluded those elders. The 30-item GDS was used to determine the depressive symptoms and their severity. The yes-or-no questionnaire was administered orally, and one point was scored for each answer in parentheses. A score of 10 or more indicates depression (84% sensitivity and 95% specificity). Original scoring for the scale: One point for each of these answers. Cutoff: Normal 0–9, mild depressives 10–19, and severe depressives 20–30. It was translated into slang Arabic language and validated by El-Banoby *et al*. [6].

Statistical Analysis

Data were analyzed using the SPSS (version 13.0) and EPI-Info statistical packages. The Chi-squared test or Fisher's exact test was used as appropriate to compare categorical data, and the Student t-test was used to compare quantitative data. The Chi-squared test for linear trends was used to establish whether increasing risk levels were associated with depression. To estimate the independent association of each risk factor with depression, multiple regression analysis was performed. $p<0.05$ were considered statsitically significant.

Ethical Consideration

Approval for the research was obtained from the Ethics Committee of the Faculty of Medicine, Suez Canal University. After each participant had been fully informed of the goals and significance of the current study through an informed consent process, their verbal consent was obtained before the interview.

RESULTS

Sample Characteristics

This study included 178 older PHC patients (60 years or older). Of the total sample, 117 (65.7%) were females. The demographic characteristics of the studied elders according to gender are shown in Table 1. Approximately, three-quarters of all elders (75.3%) were 60–69 years, while only 3.4% of elders were 80 years or older. More than half of the studied elders (56.2%) were married, and 61.5% of elderly women were widowed. Approximately two-thirds of elders (68%) were illiterate. More women (79.5%) were illiterate compared to men (45.9%). More than half of the studied male elders (55.7%) were unemployed, and almost all women (95.7%) were unemployed.

The income was insufficient (according to elders' perceptions) in 63.5% of all elders. The main sources of income for the elderly were social security pension, children support, and private income. About more than one-third of female elders (38.5%) were living with their children, and 17.1% of elders lived alone. About 30% of male elders had lost a close person while the corresponding percentage for female elders was 53%.

Prevalence of Depressive Symptoms among the Studied Elder

Table 2 shows that 76 participants (42.7%) had GDS scores of 10–19, indicating mild depressive symptoms, while 12 (6.7%) had scores of 20–30 indicating severe depressive symptoms; these two groups were aggregated, giving a prevalence of 49.4%. The prevalence of depressive symptoms was significantly higher in females (58.1%) than in males (32.8%).

Table 3 shows that elders with depressive symptoms had a significantly higher educational level than non-depressed ones had (39.8% vs. 24.4%, respectively). Unemployment was higher in the elders with depressive symptoms than those without

Table 1: Demographic characteristics of the studied elders regarding gender

Variables	Male (n=61)		Female (n=117)		Total (n=178)		p-value
	No.	%	No.	%	No.	%	
Age (years)							
60	45	32.8	89	43.6	134	75.3	0.93
70	14	23.0	24	20.5	38	21.3	
80	2	3.3	4	3.5	6	3.4	
Mean±SD	66.87±5.74		65.38±5.78		65.89±5.79		0.059
Marital status							
Married	56	91.8	44	37.6	100	56.2	0.000
Divorced/Widow (ed)	5	8.2	73	62.4	78	43.8	
Education							
Illiterate	28	45.9	93	79.5	121	68.0	0.000
Read and write	21	34.4	18	15.4	39	21.9	
Primary	6	9.8	1	0.9	7	3.9	
Secondary	3	4.9	5	4.3	8	4.5	
University	3	4.9	0	0.0	3	1.7	
Employment							
Employed	34	44.3	5	4.3	39	21.9	0.000
Unemployed	27	55.7	112	95.7	139	78.1	
Income							
Enough	19	31.1	46	39.3	65	36.5	0.29
Not enough	42	68.9	71	60.7	113	63.5	
Source of incomea							
Social security pension	48	78.7	42	35.9	86	48.3	0.000
Government pension	3	4.9	5	4.3	8	4.5	
Private	32	52.5	25	21.4	57	32.0	
Children	16	26.2	63	53.8	79	44.4	
Others	3	4.9	10	8.5	13	7.3	
Living with							
Spouse and children	53	86.9	31	26.5	84	47.2	0.000
Spouse	3	4.9	13	11.1	16	9.0	
Children	5	8.2	45	38.5	50	28.1	
Other relatives	0	0.0	8	6.8	8	4.5	
Alone	0	0.0	20	17.1	20	11.2	
Loss of a close person							
Spouse	0	0.0	8	6.8	8	4.5	0.006
Son/Daughter	0	0.0	6	5.1	6	3.4	
Grand son	0	0.0	1	0.9	1	0.6	
Close friend	0	0.0	5	4.3	5	2.8	
Other relatives	18	29.5	42	35.9	60	33.7	
None	43	70.5	55	47.0	98	55.1	

p<0.05 is significant, aMultiple response ite

Table 2: Prevalence of depressive symptoms among the studied elders according to gender

Variables	Male (n=61)		Female (n=117)		Total (n=178)		p-value
	No.	%	No.	%	No.	%	
Normal: GDS scores 0–9	41	67.2	49	41.9	90	50.6	0.004
Mild depressive symptoms (GDS scores 10–19)	16	26.2	60	51.3	76	42.7	
Severe depressive symptoms (GDS scores 20–30)	4	6.6	8	6.8	12	6.7	

p<0.05 is significant, GDS: Geriatric depression scale

Table 3: Association between depressive symptoms and some associated risk factors among the studied elders

Variables	Depressed (n=88)		Non-depressed (n=90)		p-value
	No.	%	No.	%	
Gender					
Male	20	22.7	41	45.6	0.002
Female	68	77.3	49	54.4	
Age (Mean±SD)	66.59±5.62		65.20±5.90		0.085
Marital status					
Single	0	0.0	0	0.0	0.081
Married	55	62.5	45	50.0	
Divorced	0	0.0	1	1.1	
Widow (ed)	33	37.5	44	48.9	
Education					
Illiterate	53	60.2	68	75.6	0.044
Educated	35	39.8	22	24.4	
Employment					
Employed	11	12.5	28	31.1	0.003
Unemployed	77	87.5	62	68.9	
Income					
Enough	22	25.0	43	47.8	0.005
Not enough	66	75.0	47	52.2	
Living					
Alone	15	17.0	5	5.6	0.032
With others	73	83.0	85	94.4	
Loss of close person					
Yes	49	55.7	31	34.4	<0.01
No	39	44.3	59	65.6	
Chronic diseases					
Present	86	97.7	72	80.0	0.004
Absent	2	2.3	18	20.0	
Tumor					
Present	7	18.2	1	1.1	0.033
Absent	81	81.8	89	98.9	
Used iatrogenic medication					
Present	44	50	14	15.6	0.000
Absent	44	50	76	84.4	
Past history of depression					
Present	18	20.5	3	3.3	<0.001
Absent	70	79.5	87	96.7	

p<0.05 is significant

(87.5% vs. 68.9%, respectively). It can be noticed that insufficient income was significantly higher in the elders with depressive symptoms than those without (75% vs. 52.2%). Living alone was more common in the elders with depressive symptoms than those without (17% vs. 5.6%). Loss of close persons was significantly higher in the elders with depressive symptoms than in non-depressed elders (p<0.01).

Tumors and use of iatrogenic medications were significantly higher in the elders with depressive symptoms than those without (p<0.01). Elders with depressive symptoms had a significantly positive history of depression than those without (20.5% vs. 3.3%, respectively).

Table 4 shows that elders with depressive symptoms had a significantly higher prevalence of chronic diseases than those without (97.7% vs. 80%, respectively). Hypertension and diabetes mellitus were significantly higher in the elders with depressive symptoms than those without (p<0.01) but no statistically significant differences were observed between the two groups in ischemic heart diseases, chronic heart failure, cerebrovascular stroke, and asthma/chronic obstructive pulmonary disease. Arthritis and urinary incontinence were significantly higher in the elders with depressive symptoms than those without (p<0.01).

Table 5 shows that female gender, high education, unemployment, low income, living alone, loss of a close person,

Table 4: Association between depressive symptoms and some co-morbid conditions among the elderly subjects

Variables	Depressed (n=88)		Non depressed (n=90)		p-value
	No.	%	No.	%	
Chronic diseases					
Present	86	97.7	72	80.0	0.004
Absent	2	2.3	18	20.0	
Hypertension					
Present	62	70.5	47	52.2	0.034
Absent	26	29.5	43	47.8	
Diabetes mellitus					
Present	62	70.5	38	42.2	0.000
Absent	26	29.5	52	57.8	
Ischemic heart diseases					
Present	18	20.5	24	26.7	0.32
Absent	70	79.5	66	73.3	
Chronic heart failure					
Present	3	3.4	2	2.2	0.68
Absent	85	96.6	88	97.8	
Cerebrovascular stroke					
Present	7	8.0	8	8.9	0.81
Absent	81	92.0	82	91.1	
Asthma/COPD					
Present	3	3.4	5	5.9	0.72
Absent	85	96.6	85	94.1	
Arthritis					
Present	84	95.5	62	68.9	0.000
Absent	4	4.5	28	31.1	
Chronic hepatitis					
Present	2	2.3	6	6.7	0.29
Absent	86	97.7	84	93.3	
Urinary incontinence					
Present	17	19.3	3	3.3	0.002
Absent	71	80.7	87	96.7	

p<0.05 is significant

presence of chronic diseases, tumor, iatrogenic medications and past history of depression were significantly associated risk factors of depression in the studied elders as identified in the multiple regression analysis. It also shows that the 12 variables jointly contributed to 38.3 of the variance in the total score.

DISCUSSION

In the current study, the 178 participants were aged 60 years. About 60% of participants were female, probably because women visit physicians more than men, and most of the studied elderly females were housewives. This ratio was consistent with Iliffe *et al*., who found that 65.3% of the 239 elderly participants were women [12].

In the current study, depressive symptoms were present in 49.4% of all subjects. The higher prevalence rate might be because the elders in this study were unemployed with low income, loss of close persons, and more comorbid conditions. This finding was consistent with Tai-Seale *et al*. [13], who reported that about 50% of older primary care patients had depression.

This rate was higher than Iliffe *et al*. [12] and Weyerer *et al*. [14], who reported that depression among older primary care patients was 21.8% and 11–29%, respectively, probably because of the used definition of depression and methodological variation among these studies. This rate was 10 times more than the prevalence of depression in Saber's study [7], which reported that depression affected only 4.8% of the elders, probably because it was a household study, i.e., a population not seeking medical care or advice, and it was conducted in a rural area with less stress, more religion, and more family and social support, which could have underestimated the prevalence. He also used the Even Briefer Assessment Scale for depression [15].

The prevalence of depressive symptoms in the current study was more common in women (58.1% vs. 32.8%). This result agreed with that of Licht-Strunk *et al*., [3] Barry *et al*. [16] and Weyerer *et al*. [14], who reported a significant association between depression and elderly females in primary care settings.

Table 5: Multiple regression analysis of depressed scores and certain independent risk factors

Independent variables	Partial regression coefficient	Computed t for β	p-value
Gender: (Male=1)	−0.304	0.039	0.000
Age: (Years)	−0.120	1.214	0.109
Marital Status: (Married=1)	0.121	1.228	0.109
Education: (Illiterate=1)	−0.192	0.024	0.010
Employment: (Employed=1)	−0.237	0.042	0.001
Income: (Sufficient=1)	−0.383	0.012	0.000
Living: (Living alone=1)	0.421	0.065	0.000
Loss of a close person: (Not loss a close person=1)	−0.205	0.082	0.006
Chronic diseases: (Absent=1)	−0.217	0.064	0.004
Tumor: (Absent=1)	−0.311	0.031	0.000
Iatrogenic medication: (Absent=1)	−0.352	0.037	0.000
Past history of depression: (Present=1)	0.237	0.078	0.000

p<0.05 is significant, R Squared=0.383, Adjusted R Squared=0.342, F=47.408

In this study, no statistically significant correlation was found between depressive symptoms and age this finding was also consistent with El-Banoby *et al*.,'s finding [6].

In the current study, the depressed elders had significantly higher educational levels than the non-depressed ones had (39.8% vs. 24.4%, respectively). This finding could be explained by the notion that people with higher education could have higher expectations, failure to meet which could result in dissatisfaction, hence, the higher frequency of depressive symptoms. This finding was inconsistent with that of Abolfotouh *et al*., [15], who reported that uneducated subjects were five times more likely to have depression than those educated were. Hence, a further study for verification of this result is needed, whether education per se is a strong risk factor for depression or it produces effects inconsistent with other factors.

In this study, unemployment was higher in the elders with depressive symptoms than those without (87.5% vs. 68.9%, respectively). Retirement as a variable, in particular, was not studied in this study as it is assumed that the retired elderly may have easy access to insurance hospital services more than to PHC services.

In the current study, we found that insufficient income was significantly higher in the elders with depressive symptoms than those without (75% vs. 52.2%). This correlated with the finding of El-Banoby et al. [6].

In the current study, living alone was more common in the elders with depressive symptoms than those without (17% vs. 5.6%). This result agreed with the results of Weyerer *et al*., who found that the prevalence of depression among the non-demented primary care attenders was significantly higher among those living alone (11.2%) compared to those not living alone (8.0%) [14]. This result was consistent with the results of El-Banoby *et al*., [6], Saber [7], and Abolfotouh *et al*. [15].

In this study, we found that losing a close person was significantly higher in the elders with depressive symptoms than in non-depressed elders (p<0.01). This result was consistent with the results of El-Banoby *et al*., [6] and Saber [7].

In the current study, approximately 70.5% of elders with depressive symptoms had hypertension, and 70.5% had diabetes mellitus. These findings were higher than those in other local studies. These differences were probably because the majority of the subjects in the current study attended the PHC centers for monthly treatment refills of hypertension and diabetes mellitus.

In the current study, no statistically significant differences were observed between depressed and non-depressed elders regarding cerebrovascular stroke. This finding was inconsistent with the vascular depression hypothesis [17]. This difference might be due to the small number of the studied elders with cerebrovascular stroke and also as a result of the exclusion of impaired cognitive elders from sampling, so further research is needed to study this association.

This study revealed an association between depressive symptoms and hypertension, diabetes mellitus, and arthritis. This association might be due to merely a coexisting association, fear

of or produce chronic pain disability, and some of the drugs, which could be used to treat these medical conditions, can cause symptoms and signs of depression.

Conner and Lind reported that depression may be a serious consequence of urinary incontinence [18]. In the current study, we found a significant association between depressive symptoms and urinary incontinence, probably because the affected persons perceive it to be very embarrassing and may isolate themselves from society leading to social anxiety and emotional problems such as depression.

This study has several limitations. First, it is not designed to examine cause-and-effect relationships; it can suggest only one association. Second, the assessment of medical conditions was limited to self-reporting by the elders. Third, the data were old and predated the events of January 25, 2011. However, due to the lack of studies in this field, this study can serve as a reference for future work.

CONCLUSION

Depressive symptoms are a significant health problem among elderly PHC patients in Port Said Governorate. Routine screening for depression in any elderly PHC patient is recommended for early detection.

AUTHORS' CONTRIBUTION

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis, and interpretation, or all these areas; took part in drafting, revising, or critically reviewing the article; and gave final approval of the version to be published.

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