Gender-related phenomenological and neuropsychological differences in elderly patients with depression

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Aim

The objectives of this work were to detect phenomenological sex-specific differences in elderly patients with depression for better understanding and to illustrate neuropsychological sex-specific differences in elderly patients with depression for better management.

Subjects

A comparative study with consecutive samples. Two groups were compared in the study comprising 40 elderly patients of both sexes with depression: 20 depressed men and 20 depressed women aged 60 years or above. They were recruited from the psychiatry outpatient clinic of Kasr Al Aini hospital with no obvious cognitive impairment or substance-related psychiatric disorders.

Methods

Diagnostic criteria of the *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition, Symptom Checklist-90, mini-mental state examination (MMSE), Geriatric Depression Scale (GDS), Wechsler Adult Intelligence Scale, and State–Trait Anxiety Inventory were used.

Results

A comparison between the depressed male and female subgroups revealed that the characteristics of the patients were similar in both sexes except for some significant findings; for example, depression in elderly women is more associated with widowhood, more suffering from a sense of worthlessness, lack of attention, and more disturbance in reasoning and constructional abilities. However, elderly men reported more sexual dysfunction and a significant negative correlation between memory impairment (MMSE) and severity of depression (GDS).

Conclusion

There were no sex-specific differences in elderly depressed patients except that depression in elderly women was more associated with widowhood, a sense of worthlessness, lack of attention, and more disturbance in reasoning and constructional abilities, whereas elderly men reported more sexual dysfunction and a significant negative correlation between memory impairment (MMSE) and severity of depression (GDS).

Keywords:

depression, elderly, sex, sex-specific differences

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Introduction

Worldwide, life expectancy is increasing. Currently, about 10% of the world's population comprises older adults (aged 65 and above). For mental health, this implies an increase not only in the neurodegeneration conditions, such as Alzheimer's dementia, but also in depressive disorders (Baldwin, 1997).

It has been predicted that there will be a total of two billion people over the age of 60 in 2050; 80% of them will be living in developing countries (Pinto Meza *et al.*, 2006).

In Egypt, over the past five decades, life expectancy at birth has increased globally by almost 20 years, from 42.4 in 1950–1955 to 68.3 years in 2000–2005. It is also

projected that by 2025, it will reach 77.8 years [World Health Organization (WHO), 2006].

Epidemiologic studies have found depression to be more common in women, although this sex-specific difference is less pronounced in older adults (Blazer, 2003). The study also found that women have higher incidence rates of major depressive disorder and a more chronic course (Essau *et al.*, 2010).

Nearly twice as many women as men suffer from major depressive disorders. This difference continues into extreme old age, but the differential decreases. The higher prevalence of depression among women is due to a higher risk of first onset rather than differential persistence or recurrence. The cause of the sex-specific

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difference in rates is not known, but speculation covers cognitive styles, psychosocial and economic stress, an increased rate of abuse during childhood and in the work place, an increase in the incidence of hypothyroidism, and other biological factors related to the effects of endogenous and exogenous gonadal steroids (there is no sexspecific difference in incidence before adolescence). However, these differences pertain only to unipolar depression (Kessler, 2003).

Depressed men have significantly lower disclosure rates of depressive symptoms and treatment and more negative attitudes toward help-seeking for mental health problems than do women (O'Connor *et al.*, 2001; Addis and Mahalik, 2003; Kalache, 2006).

Men were significantly less likely than women to endorse depressive symptoms such as feeling depressed or low (39% men vs. 47% women) and having lost interest or pleasure in things they usually enjoy (37% men vs. 42% women). Men were also less likely than women to report fatigue (62% men vs. 67% women). Men were significantly more likely to be married, less likely to have two or more previous depression episodes, and reported lower overall depression severity (Hinton *et al.*, 2006).

Aim

The objectives of this work were to detect phenomenological sex-specific differences in elderly patients with depression for better understanding and to illustrate neuropsychological sex-specific differences in elderly patients with depression for better management.

Subjects and methods Subjects

This study was designed as an outpatient cross-sectional comparative study after obtaining approval from the ethical research committee that conforms to the provisions of the world medical association's Declaration of Helsinki. The study consisted of 40 individuals who were selected on consecutive referral basis recruited from the geriatric psychiatry outpatient clinic in Kasr Al Aini university hospitals from July to December 2008 according to the inclusion criteria. They were all elderly outpatients of both sexes (60 years and above). All individuals included in this study fulfilled the general inclusion and exclusion criteria. All patients gave consent to participate in the study after a full explanation of procedures was provided. The sample was divided into two groups. Group A (the depressed group) consisted of 40 patients diagnosed to have a clinically recognizable depression and subdivided into two subgroups: depressed men (N=20) and depressed women (N=20). All patients fulfilled the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV) criteria of a depressive disorder. Exclusion criteria included the following: patients with dementia and other organic mental disorders; all patients who fulfilled the DSM-IV criteria of organic mood disorder; all patients who fulfilled the DSM-IV criteria of substance-induced mood disorder or psychotic disorder with predominantly depressive symptoms; agitated and suicidal patients; and individuals who refused to participate in the study.

Methods

This study is a comparative cross-sectional study; all patients were subjected to the following:

The modified Kasr Al Aini Geriatric sheet

The depressed group was classified according to the criteria of the DSM-IV into patients with major depressive disorder and those with nonmajor depressive disorder (adjustment disorder with depressed mood, dysthymic disorder, and minor depressive disorder).

Symptom Checklist-90 (El Behery, 1984): Arabic version

The Symptom Checklist (SCL)-90 is a self-reporting, clinical symptom rating scale consisting of 90 questions. It is designed for use on psychiatric outpatients. Responses indicate symptoms associated with nine psychiatric constructs (somatization, obsessive compulsive disorder, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism).

Geriatric Depression Scale (Baza, 1997): Arabic version

This is a self-rated 30-item scale used to rate depression in the elderly. The Geriatric Depression Scale (GDS) has also been recommended by the Royal College of physicians, British Geriatric society, as a suitable method for screening of depression in the geriatric age group and rating its severity. In our study, the GDS was chosen as it is more specific for the elderly. It was used as a screening method for detection of depressed patients, and it was also used as a measure of the severity of depression in these patients.

State-Trait Anxiety Inventory (El Behery, 2005): Arabic version It includes two self-rated scales: State Anxiety and Trait Anxiety. Trait Anxiety consists of 20 items that describe the individual feelings generally, whereas State Anxiety consists of 20 items that describe the individual feelings at a particular moment.

Mini-mental state examination (Molloy et al., 1991): Arabic version

The mini-mental state examination (MMSE) is probably the most widely used measure of cognitive decline. The MMSE has been suggested in early diagnosis of Alzheimer's disease. The MMSE has a maximum score of 30 points, with different domains including orientation, registration, attention, calculation, recall, language, and visual concentration.

The Wechsler Adult Intelligence Scale (Meleka and Ismail, 1996): Arabic version

It is a general test of intellegence (IQ) published in 1955 as a revision of the Wechsler Bellevue test 1939. The fullscale IQ test is broken down into 14 subtests, comprising seven verbal subtests (information, comprehension,

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arithmetic, similarities, vocabulary, digit span, and letter and number sequencing) and seven performance subtests (picture completion, digit symbol, block design, matrix reasoning, picture arrangement, symbol search, and object assembly). The Wechsler Adult Intelligence Scale (WAIS) is appropriate through adulthood and for use in individuals over 74 years of age.

Statistical analysis

All data from both groups were computed and analyzed using the Statistical Package for Social Sciences (SPSS version 15, IBM, Armonk, New York, USA) software for statistical analysis. Descriptive statistics was used for illustrating the mean and SD of quantitative data. Statistical tests were used to ascertain the significant differences between the two groups and sex-specific differences in the depressed group. The Student *t*-test was used for quantitative variables, for example, age and MMSE, WAIS, GDS, and SCL scores. The Chi-square test was used for qualitative variables, for example, sex, education, occupation, marital status, socioeconomic level, depressive symptoms, and severity of depression. A probability level of P < 0.05 was considered statistically significant (Levesque, 2007).

Results

Comparison between men and women in the depressed group

Sociodemographic Data

There was no significant difference between depressed men and women with respect to age (P = 0.07), education (P = 1), occupation (P = 0.07), socioeconomic level (P = 0.15), or caregiver support (P = 0.55). However, there was significant difference between them with regard to marital status, which means that there were more widows among depressed women than there were widowers among depressed men (P = 0.018).

Clinical Data

Depressive symptoms: Tables 1 and 2.

Psychometric measurement Tables 3 and 4.

State and Trait Anxiety Scale

Tables 5–7 Depressed women had a significantly higher sense of worthlessness compared with depressed men. Also, depressed men reported symptoms of decreased libido more often than did depressed women; otherwise, there were no significant differences between depressed men and women regarding other depressive symptoms (P = 0.05 and 0.04, respectively). There were no significant differences between depressed men and women regarding diagnosis of depressive disorders; however, the majority of patients were diagnosed with dysthymic disorder (50% of depressed men and 60% of depressed women). Of the depressed men, 20% had adjustment disorder, 20% had minor depressive disorder, and 10% had major depressive disorder. Of the depressed

 Table 1 Comparison between depressed men and women with regard to depressive symptoms

	Male (N=20)		Female		
	Absent	Present	Absent	Present	_
Symptoms	No. (%)	No. (%)	No. (%)	No. (%)	Ρ
Worthlessness	16 (80)	4 (20)	10 (50)	10 (50)	0.05
Anhedonia	10 (50)	10 (50)	8 (40)	12 (60)	0.53
Hopelessness	13 (65)	7 (35)	13 (65)	7 (35)	1
Helplessness	11 (55)	9 (45)	8 (40)	12 (60)	0.34
Insomnia	3 (15)	17 (85)	5 (25)	15 (75)	0.43
Psychomotor retardation	18 (90)	2 (10)	20 (100)	0 (0)	0.15
Psychomotor agitation	15 (75)	5 (25)	18 (90)	2 (10)	0.21
Fatigue	3 (15)	17 (85)	3 (15)	17 (85)	1
Poor concentration	3 (15.8)	17 (84.2)	3 (15.8)	17 (84.2)	0.63
Suicidal ideation	20 (100)	0 (0)	19 (95)	1 (5)	0.31
Sexual dysfunction	14 (70)	6 (20)	20 (100)	0 (0)	0.04

P < 0.05 is significant.

Table 2 Comparison between depressed men and women with regard to diagnosis of depressive disorders

	Male ($N=20$)	Female ($N=20$)	_
	No. (%)	No. (%)	Ρ
Diagnosis			
Major depressive disorder	2 (10)	3 (15)	0.25
Dythymic disorder	10 (50)	12 (60)	
Adjustment disorder	4 (20)	4 (20)	
Minor depressive disorder	4 (20)	1 (5)	
Medical comorbidity			
Hypertension	8 (40)	10 (50)	0.18
Ischemic heart disease	4 (20)	2 (10)	
Diabetes mellitus	2 (10)	3 (15)	
Asthma	0 (0)	1 (5)	
Osteoarthritis	0 (0)	1 (5)	
Peptic ulcer	1 (5)	0 (0)	
Anemia	0 (0)	1 (5)	
Prostatic enlargement	1 (5)	0 (0)	
Others (UTI, bronchitis and hearing difficulties)	4 (20)	2 (10)	

UTI, urinary tract infection.

P<0.05 is significant.

women, 20% had adjustment disorder, 15% had major depressive disorder, and 5% had minor depressive disorder (P = 0.25). There were no significant differences between depressed men and women regarding medical comorbidity (P = 0.18), nor was there any significant difference between them with regard to SCL subscales. In addition, there was no significant difference between depressed men and women with regard to the total score of the geriatric depressive scale (P = 0.61) or with regard to the severity of depression according to the geriatric depressive scale (P = 0.68). There was a significant difference between depressed men and women regarding the attention subscale, which reveals an effect of lack of attention in depressed women more than in depressed men (P = 0.04). There was no significant difference between depressed men and women regarding verbal IQ, performance IQ, and the full scale of WAIS. There was a significant difference between depressed men and women regarding Similarities and Block design subscales, which means that depressed women have a disturbance in

	Male (N=20)		Female (N=20)		
	Mean	SD	Mean	SD	Ρ
Symptom Checklist					
Somatization	29.35	12.29	27.2	10.8	0.56
Obsessions	21.00	10.36	26.75	9.7	0.08
Interpersonal sensitivity	13.2	2.32	12.8	1.6	0.59
Depression	43.85	14.911	36.70	8.75	0.07
Anxiety	22.65	11.170	23.05	10.18	0.91
Hostility	8.10	3.946	8.25	3.46	0.9
Phobic anxiety	8.35	2.601	8.95	2.56	0.47
Paranoid identification	7.55	2.212	6.75	2.63	0.31
Psychosis	10.40	3.775	10.50	2.544	0.92
Geriatric Depressive Scale (GDS)	15.85	4.03	16.5	3.98	0.61
Mini-mental state examination					
Orientation	8.9	0.5	9	0.6	0.58
Registration	3	0.0	3	0.0	-
Attention	4.4	0.7	4	0.4	0.41
Recall	2.6	0.5	2.7	0.47	0.52
Naming	2	0.0	2	0.0	-
Repetition	1	0.0	1	0.0	-
Comprehension	3	0.0	3	0.0	-
Reading	0.25	0.44	0.25	0.44	1
Writing	0.25	0.44	0.25	0.44	1
Construction	0.0	0.0	0.1	0.3	0.61
Total score	25.5	1.7	25.5	1.7	1

Table 3 Comparison between depressed men and women with regard to Symptom Checklist, Geriatric Depression scale, and mini-mental state examination

P < 0.05 is significant.

 Table 4 Comparison between depressed men and women with regard to the severity of depression according to the Geriatric Depressive Scale

	Male ($N=20$)	Female ($N=20$)	
Geriatric Depression Scale	No. (%)	No. (%)	Ρ
Mild Severe	17 (85) 3 (15)	16 (80) 4 (20)	0.68

P<0.05 is significant.

reasoning (similarities) and visual perception. There was no significant difference between depressed men and women with regard to the grade of WAIS (P = 0.197) imagination and constructional abilities (Block design) (P = 0.006 and 0.007, respectively). Depressed men and women showed no significant difference in the deterioration index of WAIS (P = 0.376). There was no significant difference between depressed men and women with regard to the grade of State subscale of STAI (P = 0.175). The grade of trait and state subscale of STAI showed no significant difference between depressed men and women (P = 0.301).

Discussion

Research and clinical evidence revealed that, although both women and men can develop the standard symptoms of depression, they often experience depression differently and may have different ways of coping with the symptoms. Another study reported that elderly women endorsed depressed mood, anhedonia, and Table 5 Comparison between depressed men and women with regard to the grade of Trait subscale of State-Trait Anxiety Inventory

	Male (N=20)	Female ($N=20$)	
	No. (%)	No. (%)	Р
State Anxiety Sc	ale		
None	8 (40)	6 (30)	0.18
Mild	9 (45)	9 (45)	
Moderate	1 (5)	5 (25)	
Severe	2 (10)	0 (0)	
Trait Anxiety Sca	le		
None	14 (70)	14 (70)	0.3
Mild	4 (20)	6 (30)	
Moderate	2 (10)	0 (0)	

P<0.05 is significant.

Table 6 Comparison between depressed men and women with regard to Wechsler Adult Intelligence Scale subscales

	Male (/	/=20)	Female (N=20)	
WAIS	Mean	SD	Mean	SD	Р
Information	8.1	2.88	9.25	3.8	0.29
Comprehension	7.5	1.82	7.85	1.98	0.56
Arithmetic	6.5	1.67	6.65	1.27	0.75
Similarities	3.9	1.17	2.65	1.5	0.006
Digit span	7.95	2.09	9.20	2.19	0.07
Vocabularies	16.2	5.58	17.15	4.77	0.17
Picture arrangement	4.00	1.56	3.85	1.35	0.75
Picture completion	6.95	2.33	7.20	2.67	0.75
Block design	7.5	3.56	4.85	2.08	0.007
Object assembly	8.35	3.28	7.80	3.87	0.63
Digit symbols	13.75	7.68	13.45	6.31	0.89
Verbal IQ	89.6	6.86	90	7.43	0.86
Performance IQ	99.1	6.23	94.75	8.8	0.08
Full scale	91.2	6.16	88.6	5.68	0.17

WAIS, Wechsler Adult Intelligence Scale.

P<0.05 is significant.

 Table 7 Comparison between depressed men and women with

 regard to the grade of Wechsler Adult Intelligence Scale

	Male ($N=20$)	Female ($N=20$)		
	No. (%)	No. (%)	Ρ	
Grade				
Average grade	10 (50)	6 (30)	0.2	
Below average grade	10 (50)	14 (70)		
Deterioration				
Significant	2 (10)	4 (20)	0.38	
Nonsignificant	18 (90)	16 (80)		

P<0.05 is significant.

irritability more often than did men (Steffens *et al.*, 2000). Women tend to report a greater number of symptoms and a higher degree of distress and may differ from men in their perceived need and willingness to seek treatment (Kornstein *et al.*, 2002). The study results showed that the majority of patients were diagnosed with dysthymic disorder (50% of depressed men and 60% of depressed women). Of depressed women, 15% had major depressive disorder compared with 10% of depressed men. The cause of the sex-specific difference in rates may be related to cognitive styles, psychosocial stress, and economic stress; yet, the large-sized sample

could illustrate a higher difference. These findings matched with the study that reported that nearly twice as many elderly women as elderly men suffer from major depressive disorder (Kessler, 2003; Essau et al., 2010). Comparison of the depressed female with the depressed male subgroup revealed a significant difference with regard to sense of worthlessness, which suggested that depressed women had lower self-esteem than did depressed men. This may be understood by the cultural agreement that women's self-esteem is dependent upon their relationships with others; they are less assertive and lack confidence in controlling their lives, which is consistent with the study reporting that men may be more willing to acknowledge fatigue, irritability, loss of interest in work or hobbies, and sleep disturbances rather than feelings of sadness, worthlessness, and excessive guilt (Cochran and Rabinowitz, 2000). Irritability is a more frequent symptom of depression than depressed mood, particularly in Arab women, and it is often mild and takes the form of intolerence and expressions of anger toward the spouse or offspring (Okasha and Maj, 2001). There were no significant sex-specific differences in this study among elderly depressed patients with respect to medical comorbidity that the depressed patients usually suffer from, such as DM, hypertension, cancer, cardiovascular disease, and arthritis. Absence of significant sexspecific differences implies that the physical comorbidity is disease and age related rather than sex related, and this is in agreement with the results of several studies (Benazzi, 2009). There were no statistically significant differences between elderly depressed men and women with regard to somatic complaints on the somatization scale of SCL (SCL-90): for example, headache, dizziness, and gastrointestinal manifestations. These findings agreed with the study that reported that depression in medically ill elderly patients may present covertly, with psychosomatic symptoms or with hypochondriasis, which may make it difficult to distinguish from the coexisting physical illness, and that these somatic complaints are disease specific rather than sex specific (Gallo and Rabins, 1999). Our study showed that there were no statistically significant sex-specific differences among the depressed patients. Although women are two or three times more likely to be affected than men with anxiety disorders and the mean age of presentation is about 25 years (Sadock and Sadock, 2004), these differences could not be detected in our results reflecting different etiological backgrounds. There were no significant differences in the trait anxiety subscale, nor were there any significant sex-specific differences with regard to both subscales. In this study, depressed men reported symptoms of sexual dysfunction in the form of decreased libido more often than did depressed women; depressed men also reported erectile dysfunction (ED). This may be explained culturally as a lower disclosure rate among women about their sexual life. Sexual needs across the lifespan may not differ drastically, although older women voice more concerns about their partner's sexual difficulties (Nusbaum et al., 2004). Whether the age-dependent decline in androgen levels leads to health problems in men is being debated vigorously. Some investigators argue

that age-associated testosterone deficiency, or 'andropause', is responsible for many of the typical signs of male aging, such as ED, skin alterations, and osteoporosis, and for neuropsychiatric problems, such as fatigue, loss of libido, depression, irritability, insomnia, and memory impairment (Morales et al., 2000). If women do experience a decline in libido, this tends to start at or around menopause rather than late in life. Subsequent to this, sexual interest is influenced less by age than by health, medication, and availability of a partner (Bretschneider and McCoy, 1988). There were no statistically significant sex-specific differences among depressed patients with regard to hostility, interpersonal sensitivity, paranoid ideation, and psychosis of SCL rating scale. This could be attributed to the small sample size or it could be considered as state specific rather than sex specific (Bretschneider and McCoy, 1988). There were no significant differences between depressed men and women regarding the total score of MMSE and different subscales except attention subscale, as depressed women showed more lack of attention compared with depressed men, as depressed elderly women had lower self-esteem and more sense of worthlessness, which had its impact on attention; the absence of other significant differences could be explained by the fact that MMSE is a rapid clinical screening test for detection of cognitive impairment rather than a sophisticated cognitive battery for detection of notable cognitive impairment (Elderkin Thompson et al., 2006). Depressed women showed more disturbance in reasoning and abstract thinking and in visual perception, imagination, and constructional abilities compared with depressed men. These findings explained by the study reported that the processing speed appears to be the most core cognitive deficit in late-life depression as elderly depressed women showed more psychomotor retardation and their attention was more affected with consecutive effects of the previous cognitive functions (Barch et al., 2001). Otherwise, there were no significant sex-specific differences regarding the global intellectual detrioration, verbal, performance, full scales, and the grade of WAIS.

Conclusion

- (1) Depression in old age is associated with widowhood. Depression in elderly women is significantly associated with widowhood more than in elderly men.
- (2) There was a significant difference in self-esteem, which suggests that depressed women had a sense of worthlessness more than did depressed men.
- (3) Depressed men reported symptoms of sexual dysfunction in the form of decreased libido more than depressed women; depressed men also reported ED.
- (4) Depressed women showed more effects of lack of attention compared with depressed men.
- (5) Depressed women showed more disturbance in reasoning and abstract thinking and in visual perception, imagination, and constructional abilities compared with depressed men.

Recommendations

A large-sized sample may be needed for detection of other differences of old age depression between men and women. Follow-up studies aiming at assessment of the course and prognosis of old-age depression in men and women are required. Comparative studies designed to compare effects of cognitive and executive functions and its relation to depression, especially vascular depression, between elderly depressed men and women are required.

Acknowledgements

Conflicts of interest

There are no conflicts of interest.

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