

A Study of Morbidity Pattern among Geriatric Population in Fayoum Governorate, Egypt

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Abstract: Background: The risk of having chronic diseases rises as the proportion of elderly people increases. Chronic diseases cause medical, social and psychological problems that limit the activities of elderly people in the community. Yet there is little or no baseline information on the prevalence of chronic disease in this population. The objective of this study: is to identify the morbidity pattern among the elderly people in a rural area in Fayoum governorate **Material and methods** A cross-sectional study was conducted among all consenting elderly peoples (aged 60 years and above) agreed to join the study in AL Robiat Village in Fayoum governorate, during period 9month March to November, 2014 **Results:** The total number of elderly ≥ 60 years were 358. The most prevalent morbidities were; Osteoarthritis (42.2%), obesity (38.7), hypertension (37.4), diabetes mellitus (DM) (17.6%), and cataract (10.6%), the prevalence of morbidities was more among males than females and among non smokers. **Conclusion:** The study revealed that elderly were suffering from many chronic disorders. Such common co-morbidities need preventive, curative and rehabilitative services.

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1. Introduction

The proportion of the population aged 60 and over, is also growing each year. By the year 2025, the world will host 1.2 billion people aged 60 and over and rising to 1.9 billion in 2050(1).

an elderly person is an individual aged sixty-five years, considering that this age consistent with retirement age in most of the countries all over the world, but retirement age for most workers in Egypt is the age of sixty for the purposes of retirement and social insurance entitlement and pensions. The results of the general census of the population during the past two decades that the proportion of seniors (60 years and over) rose from 5.6% to 6.1% between the censuses 1986 and 2006 (2)

In Egypt, Life Expectancy at birth in Egypt gained 10 years from the period 1980-1985 to the period 2005-2010, increasing from 59.9 years to 69.9 years. It is expected to reach 77.3 years in 2045-2050. The proportion of the elderly population (65+) has also been increasing and is expected to reach 12.3 per cent in 2050 (3). Old age is not a disease in itself, but the elderly are vulnerable to long term diseases of insidious onset such as cardiovascular illness, CVA, cancers, diabetes, musculoskeletal and mental illnesses. They have multiple symptoms due to decline in the functioning of various body functions (4). Health-care seeking will probably also increase (5). So, Knowledge of the situation and circumstances of the elderly population is essential to the provision of cost- effective services and the planning of strategies for intervention and care. (6)

The Objective of this study was to identify the various morbidities among elderly population.

Research Methodology

This study is a descriptive cross-sectional design aiming to know the morbidity pattern among elderly people residing in a Fayoum rural district area.

Study setting and population

A cross-sectional study was conducted among elderly people (aged 60 years and above) residing Al-Robiat Village, Tamia district **Fayoum Governorate**. The village has a population size of about 13.500 people, according Central Agency For Public Mobilization and Statistics capmas, 2014 distributed in seven residential cubicles. Four cubicles were randomly selected to include all elderly people within the minimum sample size was determined by using single population proportion formula considering the following assumptions: Proportion of health 50%, 95% level of confidence ($Z=1.96$); 5% marginal error. Thus the least required sample size 369 but some of them refused to join the study, the number completed to be 358.

The data was collected over a period of 9 months March to November, 2014. During the period of the study, at least two visits were made to each selected household. The data were collected from elderly or their family members through interviewing questionnaire, reviewing of report or investigation available with them. A pre-designed questionnaire was used to collect information about age, sex, education (due to prevalence of illiteracy in our community, any level of education was considered educated), presenting symptoms. Information related

to chronic diseases was reported based on diagnosis and their report of investigation done by their physician/doctor.

Measurements: the weight, height was taken. The body mass index (BMI) was calculated (BMI= weight/height in meter square). Obese BMI \geq 30kg/m², overweight BMI=25-29.9kg/m², normal=BMI=18.5-24.9, underweight BMI<18.5 kg/m².

Informed verbal consents were obtained from all participants in the study as well as from one responsible member from his/her families..

Statistical analysis

Data were coded, validated and analyzed using SPSS version 16 (SPSS Inc., Chicago, USA). Descriptive statistical analyses were performed. chi-square test (X²) was used to compare qualitative data. *P* value less than 0.05 was considered statistically significant. Figures were illustrated by Microsoft office Excel 97-2003.

3. Results

Table 1: The data collected from 358 elderly persons. The age of them ranged from 60 to 99 years with a mean age 66.5 \pm 7 years. The male represented by 56.4% and females 43.6 most of them are married 78.8% almost two third are uneducated and 20.9 are smokers all of them were males.

The table 2: the table reveal that over half of the elderly were suffering of symptoms or signs like; weakness, loss of teeth, headache, diminution of

vision, drowsiness, insomnia, also many elderly peoples had gastrointestinal symptoms in the form of chewing difficulty (41.1%), poor appetite, constipation. The urinary problems were (46.4%), and all of these were more prevalent in males than in females with insignificant difference *p* value >0.5 except the urinary problems (*p* value =0.026) while the bony pain was more prevalent among female with significance (*p* value=0.000)

Table (1): Sociodemographic characteristics of the studied population

Variable	Number	Percentage
Age groups		
60-64	156	43.6
\geq 65	202	56.4
Mean \pm SD	66.5 \pm 7	
Sex		
Males	204	57
Females	154	43
Marriage		
Married	282	78.8
Unmarried	14	3.9
widow	62	17.3
Education		
Educated	143	39.1
uneducated	215	60.1
Smoking		
Current smoker	75	20.9
Non smoker	283	79.1

Table (2): Common Symptoms and signs among elderly group

	Males	Females	Total	X ²	<i>P</i> value
loss of teeth	124(34.6)	96(26.8)	220(61.4)	0.089	0.765
Chewing difficulty	80(22.3)	67(18.7)	147(41.1)	0.668	0.414
Sensation of visual impairment	116(32.4)	93(26)	209(58.4)	0.449	0.503
weakness	125(34.9)	99(27.7)	224(62.6)	0.340	0.560
Interrupted sleep	114(31.8)	82(22.9)	196(54.7)	0.246	0.620
constipation	66(18.4)	53(14.8)	119(33.2)	0.168	0.682
Poor appetite	101(28.2)	70(19.6)	171(47.8)	0.578	0.447
Bony pain	79(22.1)	96(26.8)	175(48.9)	19.580	0.000
Headache	111(31)	98(27.4)	209(58.4)	3.073	0.080
Cough	48 (13.8)	27(7.5)	75(20.9)	1.906	0.167
Weight loss	61(17)	42(11.7)	103(28.8)	0.296	0.586
Shortness of breath	87(24.3)	69(19.3)	156(43.6)	0.166	0.683
Tremor in hand	57(15.9)	50(14)	107(29.9)	0.858	0.354
Falls	11(3.1)	7(2)	18(5.1)	0.123	0.717
diarrhea	13(3.6)	10(2.8)	23(6.4)	0.002	0.963
drowsiness	118(33)	81(22.6)	199(55)	0.978	0.323
Urinary problems	105(29.3)	61(17)	166(46.4)	4.964	0.026
Swollen limb	11(3.1)	10(2.8)	21(5.9)	0.193	.0661

Urinary problems (frequent of micturition, burning micturition)

Table 3: Osteoarthritis was the most prevalent by (42.2%) followed by obesity (38.7%), hypertension (37.4%) and DM (17.6).the prevalence was more in females with significant difference in relation musculoskeletal. Obesity, DM (p value \leq 0.05) while hypertension, respiratory problems and most of other diseases were prevalent males than in females

Males were more than females in relation to history of previous operations and taking medications

Figure (1) Only 11.5% had no disease while more than 60% had one or two diseases. The number of elderly morbid conditions ranged from 1-8 and average number of diseases per person was 2.2 ± 1.3 .

Figure 2: 38.5of the studied participant were obese where're 26.8 of them were overweight, and 2.2 were underweight

The table (4) revealed that the prevalence of more morbidities were increasing with age, among uneducated and in males but without significant difference (p value $>$ 5) although the prevalence of morbidities was more among non smokers significance difference (p=0.018).

Table (5): showed that, using supporting aids like glasses, walking sticks back belt hearing aids was prevalent in males than in females.

The table (3): prevalence of morbidities according system affected

Diseases	Male	Female	Total	X2	P value of X2 TEST
CVD					
CHD	13(3.6)	8(2.2)	21(5.9)	0.220	0.639
hypertension	69(19.3)	64(18.2)	134 (37.4)	2.634	0.105
Respiratory					
Bronchitis or					
Bronchial asthma	16(4.5)	4(1.1)	20(5.6)	4.578	0.032
Musculoskeletal					
Osteoarthritis	69(19.3)	82(22.9)	151(42.2)	13.575	0.000*
Osteoporosis	3(0.8)	8(2.2)	11(3.1)	4.087	0.043
Urinary stones	20(5.6)	9(2.5)	29(8.1)	1.848	0.174
DM	28(7.8)	35(9.8)	63(17.6)	4.904	0.027
Eye (cataract)	17(4.7)	21(5.9)	38(10.6)	2.601	0.107
Thyroid dysfunction	3(0.8)	7(2)	10(2.8)	3.056	0.080
Obesity	64(17.4)	74(20.7)	138(38.5)	1.034	0.309
overweight	38(10.9)	57(15.9)	96(26.8)	0.306	0.580
GIT					
Gallbladder	4(1.1)	9(2.5)	13(3.6)	3.782	0.052
Liver diseases	15(4.2)	5(1.4)	20(5.6)	2.805	0.094
Stomach and colon	17(4.7)	15(4.2)	32(8.9)	0.213	0.644
CNS(stroke)	7(2)	3(0.8)	10(2.8)	0.711	0.399
Skin problems	15(4.2)	17(4.7)	32(9.8)	0.226	0.512
Hearing impairment	19(5.3)	8(2.2)	27(7.5)	2.135	0.144
Cancer	6(1.7)	4(1.1)	10(2.8)	0.038	0.845
Current medications	119(33.2)	95(26.5)	214(59.8)	0.411	0.522
Previous operations	71(19.8)	27(7.5)	98(27.4)	13.167	0.000

Table (4): Distribution of Morbidities according different characteristics

	No morbidity	One N(%)	two	Three	Four or more	Chi-Square Tests	P value
Age							
60-64	21(5.9)	49(13.7)	45(12.6)	24(6.7)	17(4.7)		
\geq 65	20(5.6)	63(17.6)	62(17.3)	26(7.3)	31(8.7)	2.774	0.596
Education							
Educated	18(5)	47(13.1)	38(10.6)	19(5.3)	21(5.9)		
Uneducated	23(6.4)	65(18.2)	69(19.3)	31(8.7)	27(7.5)	1.702	0.790
Sex							
Males	31(8.7)	67(18.7)	52(14.5)	28(7.8)	26(7.3)		
Females	10(2.8)	45(12.6)	55(15.4)	22(6.1)	22(6.1)	9.415	0.052
Smoking							
Non smokers	29(8.1)	79(22.1)	93(26)	42(11.7)	40(11.2)		
smokers	12(3.4)	33(9.2)	14(3.9)	8(2.2)	8(2.2)	11.885	0.018

Table (5): Using supporting aids due to ageing or diseases

	Males	Females	Total	X2	P value
spectacles	75(20.5)	31(8.7)	106(29.6)	11.651	0.001
Walking stick	68(19)	27(7.5)	95(26.5)	11.239	0.001
Denture	6(1.7)	13(3.6)	19(5.3)	5.283	0.022
Back belt	16(4.5)	14(3.9)	30(8.8)	0.178	0.673
Hearing aid	16(4.5)	6(1.7)	22(6.1)	2.370	0.124
Archet type	22(6.1)	24(6.7)	46(12.8)	1.806	0.179

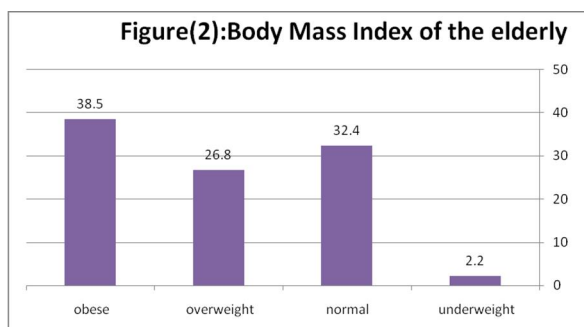
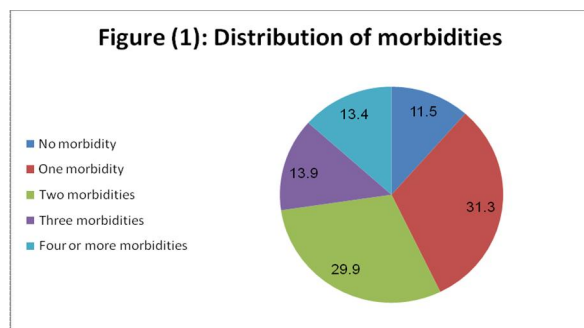


Figure (2): the body mass index ranged from 16.3 kg/m² to maximum 54.1 kg/m² with mean of 28.6±6.8

4. Discussion

As aging progress, an inevitable change in each of the body's organs contributes to the body's declining functions. In the present study, although the disease pattern of the patient may differ more or less from the disease pattern of elderly people in the community we tried to identify the most common morbidities affecting elderly people in a rural district in El Fayoum governorate. The data was collected from 358 older aged from 60 years and older. The illiteracy represented by 60.1%. While he smoking status represented by 20.9% (Table 1) while others reported that the smoking status of elderly 22%, current smokers, 4.66% tobacco chewers and 10.6% ex-smokers (4).

In our finding the most common symptoms were weakness (tiredness on minimal effort) (62.6%), loss of teeth (61.4%), impaired vision (58.4%), interrupted sleep (54.7%), headache, drowsiness, urinary problems (46.6%) poor appetite (47.8%), shortness of breath (43.6%) chewing difficulty (41.1%) constipation (35.2%) those were more in males than

females while other like, bony pain (48.9) were more in female (table 2). In other studies reported symptoms like, loss of teeth (70%). Joint pain (60.2%), impaired vision (44.2%), weakness (34.9%), and insomnia (34%) were the most common symptoms among elderly people (7). In a study done by Swami *et al.* (8), pain in joints (38%), limitation of movements (22.4%), indigestion/heart burn (18.2%), backache (15.3%), and excessive tiredness/weakness (17.9%) were common finding. Prevalence of presenting symptoms may did not match with the morbidity profile because many presenting symptoms are not necessarily system specific

High rates of co-morbidity present a challenge in providing care to elderly. In our finding. Only 31.5% had one disease, 29.9% had two diseases, 13.9% had three diseases while (13.4%) had four or more diseases with an average number of diseases per person was 2.2± 1.3 and the number of diseases ranged from 1-8 diseases, while, only 11.5% had no morbidities (Figure 1). The number of morbidities were increasing with age, among uneducated, in males but without significant difference $p > 0.5$ and among non smokers (table 4) in study conducted in Saudi Arabia, 11% of elderly group had one morbidity and 89% had two or more morbidity distributed as following: Two chronic diseases experienced by 16.5%, three conditions by 21.8% and four or more conditions by 50.7% of the elderly population. The number of elderly morbid conditions ranged from 1-7 diseases with a mean of 3.7 ± 1.7 and this number of morbidities increasing with advanced age and in females than males with significant difference $p < 0.05$ (9). Doghether *et al.*,⁽¹⁰⁾ reported that 56 % of elderly had two or more diseases the less prevalence of morbidities in this study may be that previous studies were in a geriatric home or in primary health care not a rural community.

Osteoarthritis is the most common type of arthritis and one of the leading causes of disabilities in the elderly (24). The prevalence of osteoarthritis increases indefinitely with age, because the condition is not reversible. Men are affected more often than women among those aged <45 years, whereas women are affected more frequently among those aged >55 years (25). In our finding, Osteoarthritis was the most common disease (42.2%) with more prevalence in

females than males ($p=0.000$) also from musculoskeletal diseases osteoporosis was more prevalent in females (2.2%) than males (0.8%) with significant difference (0.043) this might be due to the post-menopausal osteoporotic changes among females. This was agreed with many studies reported highly prevalence of osteoarthritis and osteoporosis in elderly females (9, 13, 14) Also, Thyroid dysfunction and obesity were prevalent in females (table 3) this was similar to Al-Modeer *et al.*,⁹ and Singh *et al.*²¹

Hypertension was the second prevalent disease (37.4) with more prevalence among males than females (Table 13) this was agreed with findings from other studies (9,11) while others reported higher prevalence rate in elderly females than males (15) also, there was no significant difference between males and females (table 3) this was agreed with A systematic review showed that overall worldwide prevalence of hypertension, showed no significant gender difference.^[12]

Diabetes is one of the growing health problems in the elderly population in the world and in the Middle East region in general IDF estimates that there are currently 34 million people living with diabetes in the Middle East and North Africa (16). That number is set to almost double by 2030. the present study showed that the prevalence of DM in elderly (17.6%) was more in females than in males with significant difference (p value=0.027). This prevalence was less than Al-Modeer *et al.* (9) and Al-Nozha *et al.* (17) revealed that the prevalence of diabetes mellitus was (57.3%). and 36.5 % respectively among elderly patients this may be to that many people in Egypt living with undiagnosed DM although it is projected that, the number of people with diabetes \geq 65 years of age will increase 3.6 times between 1995-2025 (27).

The leading cause of diminished vision in developing countries is cataract, in the present study the prevalence of cataract was 10.6% with more prevalence in females without significant difference (0.107) (Table 3) Other studies reported higher prevalence (4,18) and other reported lower prevalence (9) In Egypt, Mousa *et al.* (28) reported in a study conducted in four village among residents aged \geq 40 years, the prevalence of cataract was 22.9% (higher in women, with significant difference). And this need more investigation to identify the risk factors especially among females.

Results of the current study showed that (5.9%) of elderly had coronary heart disease (CHD) which was more encountered among males compared to females (table 3) this was a greeted with Al-Modeer *et al.* (9) regarding the gastrointestinal diseases; gall bladder diseases (3.6%) with more prevalence in females this may be due the prevalence of obesity and diabetes. while liver diseases (5.6%) with more

prevalence in males (Table 3). Rahul Prakash, *et al.* (4), reported less prevalence.

The prevalence of stroke (2.8%) were more in males than females (Table 3), this less than other international prevalence (19-20). Respiratory problems (5.6%) including both (Bronchial asthma and bronchitis) as the most of the elderly cannot distinguish between bronchial asthma or bronchitis with significantly higher in males than females (Table 3) this prevalence was similar to Kamble *et al.* (27) reported that the Prevalence of asthma (2.6%) and chronic bronchitis (2.4%) while the prevalence was low as compared to other studies. Prakash (4) reported the prevalence of asthma upto 14% and chronic bronchitis upto 46.3% among elderly persons in urban area. This may be higher pollution in urban areas.

Skin diseases was 9.8% (Table 3) this was less than reported by Singh *et al.* (2.2%) (21), while other reported similar prevalence Padda *et al.* (9.3%) (22) and Banker *et al.* (7)

Also, regarding treatment we found that 59.8% of the elderly were already taking medications for their illness and 27.4% of the subjects had history of previous operations (Table 3). Others reported that (43.5%) of the elderly were seeking treatment and were actually taking medicines and A total of 38.5% of elderly subjects were noted to have had surgery for some illness.(23).

Using supporting aids like spectacles, walking sticks, archbetype, back belt and hearing aids were the most prevalent aids in males than in females (table 5) this may be related to the culture of our community since the females may deny or refuse to use any supporting aids. On the other hand, others reported using spectacles, walking stick and denture were the most prevalent supporting aids (7).

Limitation of the study

There was No or scarce information available from studies among Egyptian elderly people. The prevalence of illiteracy was a time consuming although the elderly people were cooperative.

Conclusion and Recommendation

The study showed that elderly in rural area were suffering from many chronic disorders and identified common existing medical problems like, arthritis, hypertension, and diabetes mellitus. Such common comorbidities need preventive, curative and rehabilitative services as there is a rapid expansion in number of elderly population, we need to develop geriatric health care services and training to health care providers in geriatric medicine in our hospitals and further research to explore the problems of the elderly in our community.

Ethical approval

The study received the approval of the Research and Ethics Committee of Faculty of Medicine,

Fayoum University. Informed oral consents were obtained from all participants in the study.

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