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RESEARCH ARTICLE

MORBIDITY PATTERN AMONG ELDERLY POPULATION IN NORTHERN SAUDI ARABIA.

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Abstract

Background: Elderly are vulnerable to long term health problems which are known to aging. The health problems of elderlies are usually multiple which results in a rapid decline in health status and a greater likelihood of disability. The **objective** of this study is to identify the various morbidities among elderly population in Northern Saudi Arabia.

Methodology: A cross-sectional study was conducted among a purposive sample of elderlies over 60 years in Northern Saudi Arabia during period 3 months.

Results: The total sample of the elderly patients in the study was181, gender percent was 55.2% female: 44.8% male. The mean age (±SD) was 62.5±4. The most prevalent morbidity is hypertension (43.6%) followed by diabetes mellitus (35.4%), myopia (32.6%), defective hearing (31.5%), myalgia and polyrthralgia (28.2%) Osteoarthritis knee (21.5%). Females are at higher risks of having many types elderly diseases compared to males.

Conclusion and recommendations: The study revealed that elderly were suffering from many morbidities. This high prevalence of morbidities in the geriatric population calls for greater allocation of health education programs, primary health care to them, better preventive programs, specifically targeting the elderly should be implemented.

Introduction:-

Ageing is known as a process of deterioration in the functional capacity of a person that results from structural changes, with advancement of age [1]. Old age is not a disease in itself, but the elderly are vulnerable to long term diseases of insidious onset [2]. Many health problems are known to aging. The health problems of elderlies are usually multiple which results in a rapid decline in health status and a greater likelihood of disability [3]. The population aged 60+ years is estimated at nearly 1 person in 10 worldwide, with a ratio of 302 million women to 247 million men [4]. The study of demographic phenomena for the elderly is of great importance in the community,

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since it can reflect the social and economic level of society through some indicators [5]. Accurate health data is required both from an epidemiological and strategic health care planning perspective. Many countries have been making tremendous efforts to improve the understanding of the health status of this age group [6]. In the countries of the Arab League, the absolute number of people aged ≥ 65 years is expected to increase to 21.3 million by 2020 [7]. In Saudi Arabia, elderly account for 3.5% of the total population [8]. Generally, more elderlies are alive at the present time than any time in history [9]. The knowledge of the situation of old people population is essential to the provision of cost- effective services and the planning of strategies for intervention and care [10].

A study was conducted in Saudi Arabia (2011) to evaluate the morbidity profile among the elderly patients attending home care health services in the Armed Forces Hospital in southern region of Saudi Arabia, which reported that 50.4% of elderly had four or more chronic health conditions, the most prevalent morbidity is hypertension (59.1%) followed by diabetes mellitus (57.3%), stroke (34.9%), dementia (28.5%), osteoarthritis (24.2%) and Alzheimer (21.4%). Females are at higher risks of having many types of elderly diseases compared to males. The highest risk was for obesity, followed by osteoporosis and fracture neck femur. In addition, females were also at higher risks of having Osteoarthritis and thyroid disorder. On the other hand, males are more susceptible to hypertension, stroke and renal diseases [11].

And in a study conducted in Egypt to show the morbidity pattern among the elderly people in a rural area in Fayoum governorate, the study reported that 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 smokers than non-smokers [12].

There have been few studies on the health profile of the elderly in Arab countries in general, and in the Gulf Area in particular. Up to my knowledge, no previous studies carried out in Northern Saudi Arabia to show the health profile of elderly.
The objective of this study is to identify the various morbidities among elderly population in Northern Saudi Arabia.

Participants and methods:-

A cross-sectional study was conducted on a sample of elderlies over 60 years in Northern Saudi Arabia. The sample size was calculated using the sample size equation: $n=z^2p(1-p)/e^2$, considering target population more than 1000, and study power 95%. The minimum size required was 180 aged person. After identifying the first house randomly in the selected area, every 10th house was visited to include all the elderly subjects residing in those selected houses till the required sample is covered. The data were collected by means of personal interview and filling-in a questionnaire, The data was collected over a period of 5 months first April to 31 August, 2016. The investigators filled the questionnaire from the studied population. The parameters included in the questionnaire included age, sex, other important sociodemographic data such as educational status and marital status. It also included smoking status and certain types of diseases that may be prevalent among elderlies. A total of 200 questionnaires were distributed and 181 were completed, with a response rate of 95.2%.

Ethical considerations

Data collector gave a brief introduction to the participants by explaining the aims and benefits of the study. Informed written consent was obtained from all participants. Anonymity and confidentiality of data were maintained throughout the study. There was no conflict of interest.

Statistical analysis

We utilized the statistical package for social sciences, version 16 (SPSS Inc., Chicago, Illinois, USA) to analyze the study data. The results were displayed as counts and percentages. The X^2 test was used as a test of significance, and differences were considered significant at P value less than 0.05.

Results:

Table (1) shows the socio-demographic characteristics of the participants, Northern Border Saudi Arabia. The majority of the participants were females (55.2%). The study population had mean age (±SD) of 62.5 (±4) years, 66.3% were married, 28.7 were widow and 41.5% were illiterate. About 9.4% of them are smokers.

Table (1): Sociodemographic characteristics of the studied elderly participants, Northern KSA, 2016

Sex	No.	%
• Female	100	55.2
• Male	81	44.8
Age		
Mean±SD of age	62.5±4	
Marital status		
• Widow	52	28.7
• Single	3	1.7
• Married	120	66.3
• Divorced	6	3.3
Educational level		
• Illiterate	75	41.5
• Primary	33	18.2
• Preparatory	12	6.6
• Secondary.	25	13.8
• University	36	19.9
Smoking		
• Non smoker	124	68.6
• Smoker.	17	9.4
• Ex-smoker	40	22.1

Table (2) shows percentage distribution of morbidities according to the affected system among the studied elderly participants. It shows that in CVD diseases most of participants (43.6%) suffered from hypertension and (19.9%) of coronary heart diseases. While for nervous system Alzheimer was the most prevalent (4.4%) followed by hemiplegia (3.9%). For the neuromuscular problems, myalgia and polyarthralgia was the most common (28.2%), osteoarthritis knee (21.5%) then comes osteoporosis (21%). In digestive problems the more prevalent disorder was colitis (16.6%) followed by stomach and duodenal ulcer (14.9%). For renal morbidities, diabetic nephropathy was (6.6%). More than third of participants (35.4%) suffered from Diabetes Mellitus as a metabolic disturbance, then obesity (13.8%). Regarding thyroid diseases hypothyroidism was (13.3%) then hyperthyroidism (6.1%). About ENT diseases, 31.5% had defective hearing and 8.8% had chronic otitis media. For eye diseases myopia (32.6%) was the most common, then came Cataract (20.5%). For psychological diseases depression (8.3%) was the prevalent disease. In males about (10.5%) suffered from prostatic enlargement. Regarding skin diseases, allergy (14.4%) was common then came eczema (2.8%). As regards cancers, lymphatic, lung and colon cancer came with equal percentages (1.1%) and (0.6%) had removed cancer. (28.7%) of participants used glasses, 6.6% used denatures and 5.0% used walking sticks.

Table (2): percentage distribution of morbidities according system affected among the studied elderly participants, Northern KSA, 2016

CVD	**No. (n=181)**	**%**
• **Hypertension**	79	43.6
• **CHD**	36	19.9
• **Arrhythmias**	11	6.1
Nervous system		
• **Hemiplegia**	7	3.9
• **Alzheimer**	8	4.4
• **Parkinsonism**	5	2.8
Musculoskeletal		
• **Myalgia and polyarthralgia**	51	28.2
• **Osteoarthritis knee**	39	21.5
• **Osteoporosis**	38	21.0
Digestive system		

• **Liver cirrhosis**	1	.6
• **Chronic cholicystits**	5	2.8
• **Colitis**	30	16.6
• **Stomach and duodenal ulcer**	27	14.9
Renal diseases		
• **Nephrectomy**	2	1.1
• **Diabetic nephropathy**	12	6.6
• **Chronic renal failure**	2	1.1
• **Renal insufficiency**	11	6.1
Metabolic diseases		
• **Diabetes mellitus**	64	35.4
• **Obesity**	25	13.8
Thyroid		
• **Hyperthyroidism**	11	6.1
• **Hypothyroidism**	24	13.3
ENT diseases		
• **Chronic otitis media**	16	8.8
• **Chronic otitis interna**	5	2.8
• **Defective hearing**	57	31.5
Eye diseases		
• **Glaucoma**	4	2.2
• **Retinitis**	1	.6
• **Cataract**	37	20.5
• **Hypermetrobia**	22	12.2
• **Corneal opacity**	8	4.4
• **Myopia**	59	32.6
Psychological diseases		
• **Depression**	15	8.3
• **Oposisive compulsive**	8	4.4
Prostatic diseases (in males)		
• **Prostatic enlargement**	19	10.5
Skin diseases		
• **Purpura**	2	1.1
• **Eczema**	5	2.8
• **Allergy**	26	14.4
• **Psoriasis**	4	2.2
Cancers		
• **Cancer colon**	2	1.1
• **Removed**	2	1.1
• **Lung cancer**	1	.6
• **Breast cancer**	2	1.1
• **Lymphatic tumors**	2	1.1
Using of Aids		
• **Glasses**	90	28.7
• **Back belt**	13	2.2
• **Auditory aids**	13	1.1
• **Walking sticks**	32	5.0
• **Denatures**	38	6.6

Table (3) : there was a significant difference between males and females regarding educational level and smoking. Most of the morbidities have almost the same percent in both genders. Some diseases show significant high prevalence among females (P< 0.005) such as hypertension, myalgia and stomach and duodenal ulcer. Their prevalence among females 47.0%, 30.0% and 19.0% compared to males 39.5%, 25.9% and 9.9% respectively. Eye diseases, such as cataract, hypermetrobia, myopia and corneal opacity are insignificantly more prevalent among males; also obesity and osteoporosis are more significantly prevalent in females (21.0% and 29.0% respectively). Whereas chronic renal failure was only present among women, it account for 2.0% of elderly females.

Table (3): the relationship between morbidities according system affected and sex of the studied elderly participants, Northern KSA, 2016 (n=181)

Variable	Sex		Total (n=181)	Chi-Square	P value
	Female (n=100)	Male (n=81)			
Educational level					
• **illiterate.**	53 (53.0)	22(27.2)	75(41.4)	17.82	0.001
• **Primary**	16(16.0)	17(21.0)	33(18.2)		
• **Secondary**	15(15.0)	10(12.3)	25(13.8)		
• **University**	13(13.0)	23(28.4)	36(19.9)		
• **Preparatory**	3(3.0)	9(11.1)	12(6.6)		
Smoking					
• **Non**	80(80.0)	44(54.3)	124(68.5)	19.0	0.000
• **Smoker**	2(2.0)	15(18.5)	17(9.4)		
• **Ex-smoker**	18(18.0)	22(27.2)	40(22.1)		
CVD					
• **Hypertension**	47(47.0)	32(39.5)	79(43.6)	6.06	0.19
• **CHD**	14(14.0)	22(27.2)	36(19.9)		
• **Arrhythmia**	7(7.0)	4(4.9)	11(6.1)		
Nervous system diseases					
• **Hemiplegia**	2(2.0)	5(6.2)	7(3.9)	2.25	0.51
• **Alzheimer**	4(4.0)	4(4.9)	8(4.4)		
• **Parkinsonism**	3(3.0)	2(2.5)	5(2.8)		
Musculoskeletal system diseases					
• **Myalgia and poly-arthralgia**	30(30.0)	21(25.9)	51(28.2)	15.174	0.002
• **Osteoarthritis knee**	22(22.0)	17(21.0)	39(21.5)		
• **Osteoporosis**	29(29.0)	9(11.1)	38(21.0)		
Digestive system diseases					
• **Chronic cholicystitis**	2(2.0)	3(3.7)	5(2.8)		
• **Chronic colitis**	14(14.0)	16(19.8)	30(16.6)	4.72	0.317
• **Stomach and duodenal ulcer**	19(19.0)	8(9.9)	27(14.9)		
Renal diseases					
• **Nephrectomy**	2(2.0)	0	2(1.1)	10.651	0.031
• **Diabetic nephropathy**	5(5.0)	7(8.6)	12(6.6)		
• **Chronic renal failure**	2(2.0)	0	2(1.1)		
Metabolic diseases					
• **Diabetes mellitus**	41(40.0)	23(28.4)	64(35.4)	17.476	0.001
• **Obesity**	21(21.0)	4(4.9)	25(13.8)		
Thyroid diseases					
• **Hyperthyroidism**	7(7.0)	4(4.9)	11(6.1)	7.096	0.02
• **Hypothyroidism**	19(19.0)	5(6.2)	24(13.3)		
Eye diseases					
• **Glaucoma**	4(4.0)	0	4(2.2)	6.391	0.49
• **Cataract**	20(20.0)	17(21.0)	37(20.5)		

• **Hypermetrobia**	11(11.0)	11(13.6)	22(12.2)		
• **Corneal opacity**	3(3.0)	5(6.2)	8(4.4)		
• **Myopia**	32(32.0)	27(33.3)	59(32.6)		
ENT diseases					
• **Chronic otitis media**	7(7.0)	9(11.1)	16(8.8)	6.464	0.09
• **Chronic otitis interna**	3(3.0)	2(2.5)	5(2.8)		
• **Hearing deficiency**	25(25.0)	32(39.5)	57(31.5)		
Psychological diseases					
• **Depression**	8(8.0)	7(8.6)	15(8.3)	0.195	0.90
• **Oposisive compulsive**	5(5.0)	3(3.7)	8(4.4)		
Chest diseases					
• **Chronic bronchitis**	2(2.0)	1(1.2)	3(1.7)	1.826	0.60
• **Bronchial asthma**	15(15.0)	13(16.0)	28(15.5)		

Discussion:

Ageing represents the accumulation of changes in a human being over time. This study was a cross-sectional study conducted in Northern Saudi Arabia, in a representative sample of elderly people. In the present study, we tried to identify the disease pattern of elderly people in the community and to determine the most common morbidities affecting elderly people in Northern Saudi Arabia. The data was collected from 181 aged people.

The present study showed that The age of elderly ranges from 60-92 years with a mean of mean age (± SD) was 70 (±9.25) years, male to female ratio was 47.8 to 52.2. in southwest Saudi Arabia by Al-Modeer et al, the age of elderly ranges from 60-104 years with a mean of 77.2 ± 8.9. Most of the elderly (55.9%) were females [11].

In the present study, 28.7% were widow, illiteracy constitutes 41.5%, primary school literates were 18.2% and total of 66.3% had less than secondary education. In Ibrahim et al in Jeddah, widowed elderly represented about one- fifth (21.8 %) of the sample which is less than our figure. The majority of elderly (78.4 %) had less than secondary education which is more than our figure [27]. Khadervalli et al [28] in their study reported only 27 % as illiterate and 31% as primary school literates.

In this study hypertension was the most common among these morbidities and is also found to be more prevalent among females than males (47.0% Vs. 39.5%). This was agreed with findings from other studies that reported 19.3% in females and 18.2% in males [12]. Other studies concluded that it was more prevalent in males than females (73.6% and 67.9%) respectively [13,14]. Also, a systematic review showed that overall worldwide prevalence of hypertension, showed no significant gender difference [15].

Diabetes mellitus (DM) is a medical problem that can affect elderlies health through involvement of several body systems. Results of the current study revealed that diabetes mellitus was the second common chronic disease (35.4%) diagnosed among elderly patients. In a study conducted in Egypt to show the morbidity pattern among the elderly people in a rural area in Fayoum governorate [12] it was reported that, the prevalence of D.M in elderly (17.6%) was more in females than in males with significant difference (p value=0.027), which support our findings.

In our study osteoarthritis was more common in females than in males (22.0% and 21.0% respectively). Al-Modeer et al. study in south Saudi Arabia, revealed that osteoporosis was found in 27.4%, it was most prevalent among elderly females (29.5%)than males (14.5%) [11]. While Fayoum, Egypt study found that osteoarthritis was the most common disease, it constitutes 42.2% with significantly more prevalence in females than males (P<0.05) [12]and his was agreed with many other studies reported highly prevalence of osteoarthritis and osteoporosis in elderly females [16, 17, 18].

This study showed significant association between sex and osteoporosis. It's more prevalent in females than males (29.0% and 11.1%) respectively (P<0.05). These findings agreed with other study in UAI, showed the prevalence among elderlies (25.9% in females and 10.4% in males) [24]. And it also agreed with Hassan SK study which revealed that, 2.2% of females and 0.8% of males had the disease [12].

The results of the present study showed that, 4.4% of elderly had Al-Zheimer disease which is less than what reported among elderly in Jeddah (25.6%) [19]. Other international studies [20,21] showed more prevalence ;10.3% and 13% respectively. Several studies of the dementia and Alzheimer's disease have found no significant difference by gender [22,23]. These findings support our findings.

The prevalence of depression among elderly in our study was 8.3%. Al-Modeer et al showed less prevalence (1.6%) [11]. While Abolfotouh et al showed (4.6%). Another study was conducted in Dubai, United Arab Emirates showed that 38.3% of the elderly patients had depression [24].

Results of the current study showed that 19.9% of elderly had coronary heart disease (CHD) which was more encountered among males compared to females. This was agreed with Al-Modeer et al. which showed that CHD was reported in 16.7% of elderly and the disease was more encountered among males compared to females (18.0% and 17.7%) respectively [11], and Fayoum, Egypt study which showed that, the overall prevalence of CHD was 5.9% (3.6% males and 2.6% females) [12]. Results from the National Community Based Survey in Saudi Arabia revealed that male gender was a risk factor of CHD and the prevalence among elderly aged 60-70 years was lower than our findings (9.3 %) [14].

In the present study the prevalence of cataract was (20.5%) with more prevalence in males than females (21.0% and 20%) respectively. Other studies reported higher prevalence (44.0%) more in females than males (6.0% and 34.7%) respectively [10]. In Egypt, Mousa et al.[25] reported in a study conducted in four villages among residents aged ≥ 40 years, the prevalence of cataract was 22.9%; higher in women, with significant difference.

As regards using of supporting aids the most prevalent in our study were, glasses, walking sticks, denatures and back belt. On the other hand, In Egypt, Hassan SK reported using spectacles, walking sticks, archetype, back belt and hearing aids were the most prevalent supporting aids [12]. Swami study, reported that, spectacles, walking stick and denture were the most prevalent supporting aids [26].

Conclusion and recommendations:-

The study revealed that elderly were suffering from many morbidities. This high prevalence of morbidities in the geriatric population calls for greater allocation of health education programs, primary health care to them, better preventive programs, specifically targeting the elderly should be implemented.

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