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The effect of chronic diseases on the lifestyle of the elderly people in Baghdad city, Iraq: A cross-sectional study

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ABSTRACT

The aim of the study is to assess the effect of chronic diseases on the lifestyle of elderly people. A cross sectional study with analytic element was conducted involving 210 participants of elderly people 60 years of age and above, sample from Baghdad. The sample was selected randomly from four different placesin Baghdad; those who attended the health institutes (as hospital and primary

health care center) and from other institutes like national pension authority, banks, nursing homes-ministry of labor and social affairs, the data collection was done two days per week. The data collection were done at a period of 1stMarch 2017 to 1st September 2017. Elderly people were interviewed by a tested questionnaire. Socio-demographic, psychological and other life style characteristics were assessed including assessment scales to assess the functional and nutritional conditions. A 49.5% of elderly people were in the age group 60-64 years which were the majority of the studied sample, with a significant association between age groups and some of the chronic diseases especially hypertension and diabetes mellitus. Males were equal to females (50% males, 50% females). More than half of elderly people (57.6%) were married, 61.4% of total elderly people were not exercising routinely and regularly versus (38.6%) of them did, with strong significant association between lack of exercise and the presence of chronic diseases like hypertension, diabetes mellitus and cardiovascular diseases. Most of them were illiterates (35.7%), 47% of them were having good nutritional condition (with no nutritional risks) versus 53% were having nutritional risks (moderate to high risks) with a strong significant association between nutritional risks and presence of chronic disease like hypertension, diabetes mellitus and cardiovascular diseases, 48.1% were previous smokers as well as, 21.9% were active smokers with strong significant association between smoking and some chronic diseases like hypertension, diabetes mellitus and cardiovascular diseases. 86.7% of elderly people suffering from chronic diseases, cardiovascular diseases (65.7%) were the most frequent chronic diseases with highest frequency among the studied sample. In conclusion, this study provides a clear insight into frequency of chronic diseases among older people in Baghdad, given the high frequency of chronic diseases, therefore, a national policy on the health of elderly people is needed that includes strengthen the screening programs and early detection of chronic diseases especially hypertension and diabetes among older people. It also emphasizes the importance of planning programs to increase elderly people's social assistance, and improve medical, health and counseling services for them.

Keywords: Life style, Quality of life, Chronic diseases, Old age, Baghdad

1. INTRODUCTION

According to the World Health Organization (WHO), health statistics and health information systems, Life expectancy for the elderly people in developed and developing countries has increased as a result of improvement in public health and medical advances, and the increase in the absolute and relative numbers of elderly people is one of the major features of the world demographic transition (WHO, 2013). In France (as a developed country) the life expectancy is 78 years for males and 85 years for females and in great Britain the life expectancy is 79 for males and 82 for females, in Saudi Arabia the life expectancy is ranging from 74 years for males and 80 for females while in Iran, the life expectancy is 72 years for males and 75 years for females; in Iraq the length of life is 65 years for males and 72 years for females (WHO, 2013). Most developed world countries have accepted the chronological age of 65 years as a definition of 'elderly' or older person but this does not adapt well to the situation in Iraq due to the low life expectancy.

Due to the increased longevity and life expectancy, the Quality of Life (QoL) has been considered as an important issue, attracting the attention of the researchers working on aging. When WHO defined health as ''a state of complete physical, mental and social well-being, not merely the absence of disease or infirmity'', it implied that the assessment of health and health care should not only include traditional measures of morbidity and mortality, but should also include a broader assessment of the Quality of life (QoL), with attention to these facts, QoL is a critical consideration in national and international healthcare policies and decisions in each country. On the other hand it has been demonstrated that people face different physiological and mental problems as a result of aging that have negative effects on their QoL (Wilson et al., 2008).

On World Health Day 2012, WHO is calling for urgent action to ensure that, at a time when the world's population is ageing rapidly, people reach old age in the best possible health, on that occasion, Dr. Majeed Hamad Amin, the Minister of Health in Iraq, stated that "population ageing and delivery of health care services to older people will present new and serious challenges for the national health care system in Iraq". He clarified that "the number of older persons is increasing worldwide, in Iraq the number of people age 60 and above is 1,127,536; it constitutes 4% of the total population. It is expected by 2050 the number will reach 4720 658. This will have a major implication for health and socioeconomic development" (WHO, 2012).

The elderly people in Iraq like other developing societies are facing many health and social challenges. One Iranian study done in 2011 which included a sample of 220 individuals of elderly people above the age of 60 and living in the north of Iran revealed that the elderly encounter many hardships including: illiteracy, economic difficulties, problems with daily living, life dissatisfaction, lack of medical insurance, as well as mental and emotional problems (Heydari et al., 2012). On the other hand, in Iraqi society, religious

values, cultural norms and traditional practices emphasize that the elderly members of the family be treated with honor and respect, They are expected to live in good health and it is not appropriate to transfer an elderly family member to a nursing home when they can be taken care of by a relative or caregiver in the household. However, it appears that these traditional attitudes and cultural values have undergone changes in recent years due to factors such as social change, increases in urban living, increases in socio-economic difficulties as well as limited resources, which also affect the QoL of the Iraqi elderly people (WHO, 2013; AAFP, 2011).

This study was conducted Because of lack adequate studies on QoL among the elderly in Baghdad and to indicate that QoL is one of the essential determinants of health in old aged personnel and to report the Health-related QoL (HrQoL) of elderly people in Baghdad. It is anticipated that studies like this may provide important findings that can be added to the body of knowledge about elderly people in Baghdad as well as, the Possibility to circulate these findings to involve all seniors and elderly people in the country through future studies.

2. METHODOLOGY

Study design and setting

A cross sectional study with analytic element was conducted involved elderly people of 60 years and above, sample from Baghdad. Two hundred and ten participants (105 men and 105 women) out of 3124 patients were selected. Elderly people were interviewed by a tested questionnaire. The data collection done at a period of 1st March 2017 to 1st September 2017.

Participants

The sampling was selected randomly from four different places; those who attended the health institutes (as hospital and primary health care center) and from other institutes like national pension authority, banks, nursing homes, the data collection was done two days per week. These places included:

1. AL-Kadhymia Teaching Hospital in Baghdad city which cares about a large number of elderly patients attending from different socio-economic backgrounds and different residential areas in Baghdad.
2. Al Thobat Primary Health Care Center, Al-salam Primary Health Care Center.
3. Ministry of Labor and Social Affairs/Nursing homes.
4. Ministry of Finance - Iraqi national pension Authority, banks attended by elderly people every 2 months to have their pension.

Inclusion criteria

Elderly people aged 60 years and above who were chosen from different places (out-patient clinics in general hospital and primary health care centers, Iraqi national pension authority, Banks for pension issues, Nursing homes

Exclusion criteria

1. Elderly people with disturbed level of consciousness, abnormal mental state (mentally retarded), not able to talk, having an abnormal cognitive state.
2. Elderly people who were unwilling and refuse to do the interview.

Ethical approval

All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee from Iraqi Ministry of Health (code:385) and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

Data Analysis

The collected data were entered and analyzed using the statistical package for social sciences for windows version 15.0 (SSPS v15). Data was handled using the following: Frequency distribution, percent for all variables in the questionnaire, association between different variables was tested using Pearson chi-square test with a level of significance < 0.05.

3. RESULTS

The total sample size studied was tow hundreds and ten (210) cases of elderly people 60 yrs and above. The sampling was selected randomly from four different places as follow: 20 individuals from AL-Kadhymia Teaching Hospital in Baghdad city, 30 from Ministry of Finance - Iraqi national pension Authority, 20 from banks, 30 from Ministry of Labor and Social Affairs/Nursing homes and 110

from primary health care centers as well as, many other cases who were unwilling to conduct the questionnaire and were excluded from the study.

The studied population distributed by their demographic and behavioral characteristics as (49.5%) of the studied populations were in the age Group 60-64 yrs, and (29.5%) of the studied populations were in the age Group 65-70 yrs and (21.0%) of the studied populations were in the age Group > 70 yrs. There were (50%) males and (50%) females. The majority of them (53.3%) had pension as a monthly income, (21.9%) with no income, (18.6%) with monthly salary, (5.7%) private properties, (0.5%) investments. According to the level of education, (35.7%) were illiterates, (17.6%) were secondary graduates (13.3%) were reading and writing, (12.4%) were elementary school graduates, (9.5%) bachelor degree,(8.6%) diploma,(2.9%) were master and above. According to the marital status, the largest proportion (57.6%) were married, (31.0%) were widow, (7.6%) divorced and (3.8%) were singles. According to the nutritional status, (47.1%) were in Good nutritional condition (no risk) while (41.9%) were in moderate nutritional risk and (11.0%) in high nutritional risk. There were (48.1%) Ex- or previous smokers, (28.6%) were non-smokers, (21.9%) actively smokers and (1.4%) were passive smokers.(61.4%) of them were not performing exercises before routinely they were living sedentary life style; while (38.6%) were performing calisthenics and exercises routinely and regularly as shown in table 1, fig 1.

Table 1 Distribution of studied population by demographic and behavioral characteristics

Factors	No.	(%)
Age		
60-64	104	49.5%
65-70	62	29.5%
>70	44	21.0%
Gender		
male	105	50.0%
female	105	50.0%
Economic status (income)		
No income	46	21.9%
pension	112	53.3%
properties	12	5.7%
salary	39	18.6%
investments	1	0.5%
Education level		
illiterate	75	35.7%
reading and writing	28	13.3%
primary /elementary graduate	26	12.4%
secondary graduate	37	17.6%
diploma	18	8.6%
bachelor degree	20	9.5%
master and above	6	2.9%
Marital status		
single	8	3.8%
married	121	57.6%
widow	65	31.0%
Divorced	16	7.6%
Nutrition		
good nutrition(0-2)	99	47.1%
moderate nutritional risk(3-5)	88	41.9%
high nutritional risk(>6)	23	11.0%
Smoking		

non-smoker	60	28.6%
passive smoker	3	1.4%
active smoker	46	21.9%
ex-smoker	101	48.1%
Exercise		
No	129	61.4%
Yes	81	38.6%

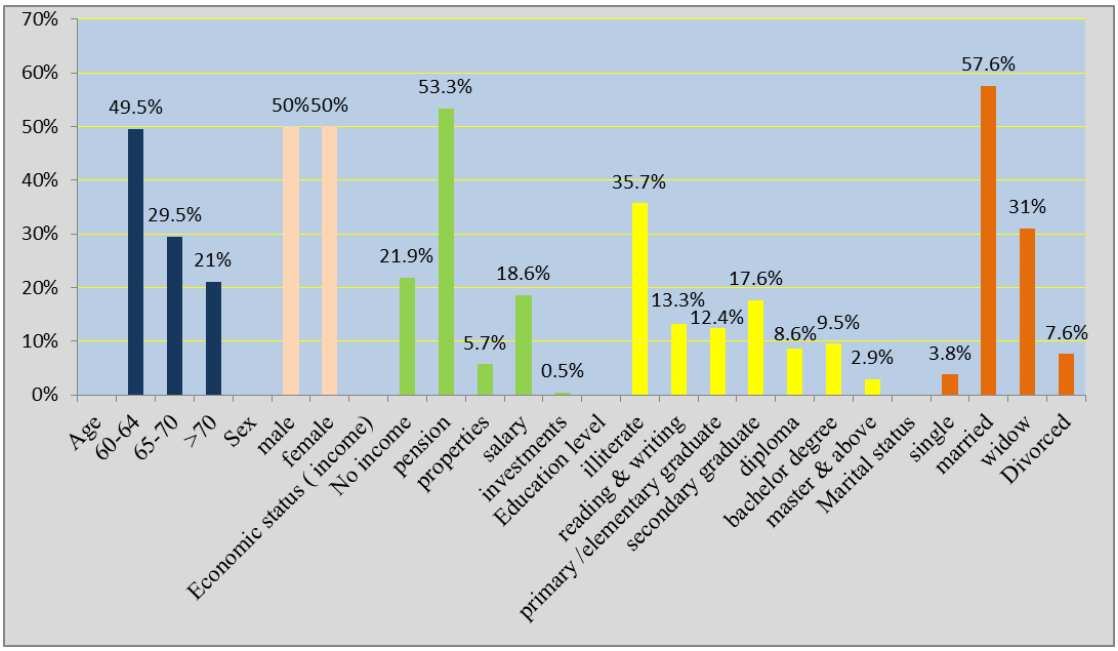

Figure 1 Distribution of elderly people by their demographic characteristics

The majority of elderly people were having Cardiovascular diseases 138(65.7%) being the most frequent chronic diseases with highest frequency among the studied sample followed by Hypertension alone 129 (61.4%) as the second disease in the list, Osteoarthritis 112 (53.3%), Diabetes mellitus 107 (51%), Urine incontinence 71 (33.8%), Cataract and other chronic eye disease 65 (31.0%), Chronic lung disease 57 (27.1%), Chronic prostatic diseases (BPH/Ch. prostatitis) 11 (5.2%),Chronic renal failure 7(3.3%), Chronic thyroid disease 6(2.9%), Hip fracture 5(2.4%), Hearing Loss 4(1.9%), Cancer 1(0.5%) andParkinson disease 1(0.5%). As shown in table 2, fig 2.

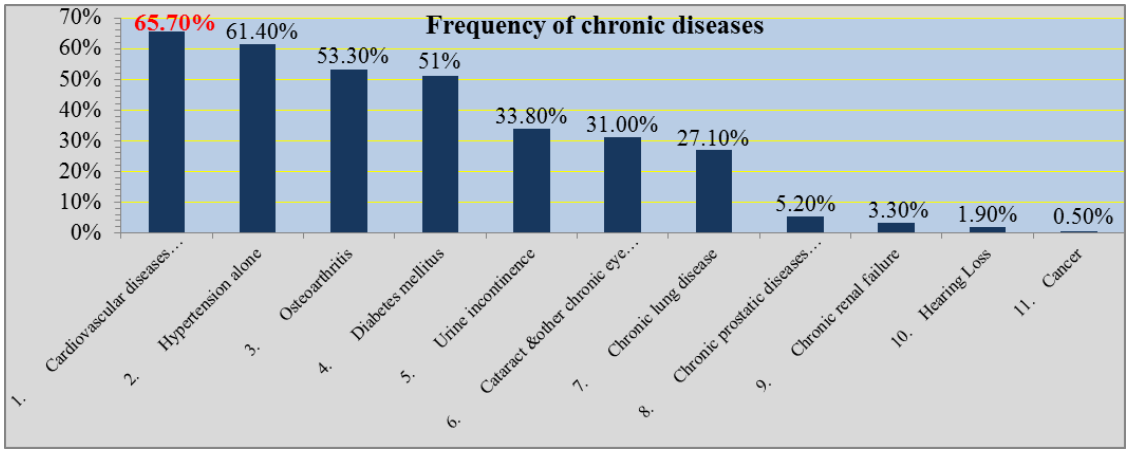

Figure 2 Frequency of chronic diseases

Table 2 Frequency of Chronic Diseases

Chronic Diseases		No.	(%)
1.	Cardiovascular diseases (C.V.D.)	138	65.7%
2.	Hypertension	129	61.4%
3.	Osteoarthritis	112	53.3%
4.	Diabetes mellitus	107	51%

Percentage for each disease was calculated out of 210 (total sample size)

Hundred and seven of elderly people were having DM, 61(58.7%) were in the age group 60-64, 30(48.4%) were in the age group 65-70 while 16(36.4%) were in the age group >70 yrs, 56(53.3%) were males while 51(48.6%) were females, 2(25.0%) were singles, 65(53.7%) were married,32(49.2%) were widows and 8(50.0%) were divorced, , 32(69.6%) of them didn't have any monthly income, 56(50%) had pensions, 7(58.3%) had their own properties, 12(30.8%) had monthly salary and 0(0.0%) had investments. According to the educational level; 47(62.7%) were illiterate, 10(35.7%) were reading and writing, 14(53.8%) were Primary school graduates, 24(64.9%) were Secondary school graduates, 3(16.7%) had diploma, 7(35.0%) had bachelor degree and 2(33.3%) had master degree and above. It was significant to all except for sex and marital state as in table 3.

Table 3 Association between DM and demographic factors

Factor	DM					
	No	%	Yes	%	Total	*P value*
Age						P vale
60 -64	43	41.3%	61	58.7%	104	0.041
65-70	32	51.6%	30	48.4%	62	
>70	28	63.6%	16	36.4%	44	
Gender						P vale
Male	49	46.7%	56	53.3%	105	0.490
Female	54	51.4%	51	48.6%	105	
Marital status						P vale
Single	6	75.0%	2	25.0%	8	0.456
Married	56	46.3%	65	53.7%	121	
Widow	33	50.8%	32	49.2%	65	
divorced	8	50.0%	8	50.0%	16	
Income						P vale
Non	14	30.4%	32	69.6%	46	0.007
Pension	56	50.0%	56	50.0%	112	
Properties	5	41.7%	7	58.3%	12	
Salary	27	69.2%	12	30.8%	39	
Investment	1	100.0%	0	.0%	1	
Education						P vale
Illiterate	28	37.3%	47	62.7%	75	0.002
Read and write	18	64.3%	10	35.7%	28	
Primary school graduate	12	46.2%	14	53.8%	26	
Secondary school graduate	13	35.1%	24	64.9%	37	
Diploma	15	83.3%	3	16.7%	18	
bachelor	13	65.0%	7	35.0%	20	
Master and above	4	66.7%	2	33.3%	6	

There are 129 of elderly people were having HPT 72(69.2%) were in the age group 60-64 yrs, 31(50.0%) were in the age group 65-70 and 26(59.1%) were in the age group >70 yrs, 59 (56.2%) were males and 70 (66.7%) were females, 29 (63%) were singles, 74 (66.1%) were married, 7 (58.3%) were widow and 19 (48.7%) were divorced, , 29 (63%) didn't have any monthly income, 74 (66.1%) had pensions 7 (58.3%) had their own properties, 19 (48.7%) has salary and 0 (0.0%) had investments, according to the level of education, 51 (68%) were Illiterates, 16 (57.1%) were Read and write, 18 (69.2%) were Primary school graduate were, 20 (54.1%) Secondary school graduate, 8 (44.4%) had Diploma, 12 (60.0%) had Bachelor, 4 (66.7%) had master and above. Only age is statistically significant and all others is not significant as shown in table 4.

Table 4 Association between Hypertension and demographic factors

Factor	HPT					
	No	%	Yes	%	Total	*P value*
Age						P vale
60 -64	32	30.8%	72	69.2%	104	0.045
65-70	31	50.0%	31	50.0%	62	
>70	18	40.9%	26	59.1%	44	
Gender						P vale
Male	46	43.8%	59	56.2%	105	0.119
Female	35	33.3%	70	66.7%	105	
Marital status						P vale
Single	3	37.5%	29	63.0%	8	0.977
Married	46	38.0%	74	66.1%	121	
Widow	25	38.5%	7	58.3%	65	
divorced	7	43.8%	19	48.7%	16	
Income						P vale
Non	17	37.0%	29	63.0%	46	0.251
Pension	38	33.9%	74	66.1%	112	
Properties	5	41.7%	7	58.3%	12	
Salary	20	51.3%	19	48.7%	39	
Investment	1	100.0%	0	.0%	1	
Education						P vale
Illiterate	24	32.0%	51	68.0%	75	0.496
Read and write	12	42.9%	16	57.1%	28	
Primary school graduate	8	30.8%	18	69.2%	26	
Secondary school graduate	17	45.9%	20	54.1%	37	
Diploma	10	55.6%	8	44.4%	18	
bachelor	8	40.0%	12	60.0%	20	
Master and above	2	33.3%	4	66.7%	6	

There are 72 of elderly people (out of 210) didn't have any CVD; 30(28.8%) were in the age group 60-64 yrs, 26(41.9%) were in the age group 65-70 yrs, 16(36.4%) were in the age group >70 yrs, 40(38.1%) were males, 32(30.5%) were females, 3(37.5%) were single, 42 (34.7%) were married, 20(30.8%) were widow, 7(43.8%) were divorced, 15(32.6%) of them don't have income, 36(32.1%) had pensions, 2 (16.7%) had properties, 18(46.2%) had salary, 1(100%) had investments, 17(22.7%) were illiterate, 12(42.9%) were reading and writing, 8(30.8%) were Primary school graduate, 15(40.5%) were Secondary school graduate, 10(55.6%) were having Diploma, 8(40.0%) were having bachelor, 2(33.3%) were having master degree or above. There are 138(65.7%) having one or more CVD;74 (71.2%) aged 60-64, 36(58.1%) aged 65-70, 28 (63.6%) aged >70 yrs, 65 (61.9%) males, 73(69.5%) were females, 5(62.5%) were singles, 79 (65.3%) were married, 45(69.2%) were widow, 9(56.3%) were divorced, 31(67.4%) don't have income, 76(67.9%) had pension, 10(83.3%) had properties, 21(53.8%) had salary, 58(77.3%) illiterates, 69.2% 1st school graduates, 59.5% 2nd school, 8(44.4%) diploma and4(66.7) had master. All are not significant as shown in table 5.

Table 5 Association between cardiovascular disease and demographic factors

Factor	Cardiovascular Diseases (C.V.D.)					
	No	%	Yes	%	Total	*P value*
Age						
60 -64	30	28.8%	74	71.2%	104	0.216
65-70	26	41.9%	36	58.1%	62	
>70	16	36.4%	28	63.6%	44	
Gender						
Male	40	38.1%	65	61.9%	105	0.245
Female	32	30.5%	73	69.5%	105	
Marital status						
Single	3	37.5%	5	62.5%	8	0.792
Married	42	34.7%	79	65.3%	121	
Widow	20	30.8%	45	69.2%	65	
divorced	7	43.8%	9	56.3%	16	
Income						
Non	15	32.6%	31	67.4%	46	0.178
Pension	36	32.1%	76	67.9%	112	
Properties	2	16.7%	10	83.3%	12	
Salary	18	46.2%	21	53.8%	39	
Investment	1	100.0%	0	.0%	1	
Education						
Illiterate	17	22.7%	58	77.3%	75	0.121
Read and write	12	42.9%	16	57.1%	28	
Primary school graduate	8	30.8%	18	69.2%	26	
Secondary school graduate	15	40.5%	22	59.5%	37	
Diploma	10	55.6%	8	44.4%	18	
bachelor	8	40.0%	12	60.0%	20	
Master and above	2	33.3%	4	66.7%	6	

There are 112 of elderly people had OA, 46(44.2%%) aged 60-64, 35(56.5%) aged 65-70, 31(70.5%) aged >70 yrs, 53(50.5%) were males, 59(56.2%) were females, 4(50.0%) were singles, 57(47.1%) were married, 41(63.1%) were widows, 10(62.5%) were divorced, 29(63.0%) had no monthly income, 56(50.0%) had pensions, 7(58.3%) had properties, 20(51.3%) had salary, 0(.0%) had investments, 48(64.0%) Illiterate, 14(50.0%) Read and write, 16(61.5%) Primary school graduate, 17(45.9%) Secondary school graduate, 5(27.8%) had Diploma, 10(50.0%) gad bachelor, 2(33.3%) had master and above. All have no significance except for age as shown in table 6.

Table 6 Association between osteoarthritis (O.A.) and demographic factors

Factor	O.A.					
	No	%	Yes	%	Total	*P value*
Age	98		112		210	P vale
60 -64	58	55.8%	46	44.2%	104	0.012
65-70	27	43.5%	35	56.5%	62	
>70	13	29.5%	31	70.5%	44	
Gender	98		112		210	P vale
Male	52	49.5%	53	50.5%	105	0.407
Female	46	43.8%	59	56.2%	105	

Marital status	98		112		210	P vale
Single	4	50.0%	4	50.0%	8	0.176
Married	64	52.9%	57	47.1%	121	
Widow	24	36.9%	41	63.1%	65	
divorced	6	37.5%	10	62.5%	16	
Income	98		112		210	P vale
Non	17	37.0%	29	63.0%	46	0.476
Pension	56	50.0%	56	50.0%	112	
Properties	5	41.7%	7	58.3%	12	
Salary	19	48.7%	20	51.3%	39	
Investment	1	100.0%	0	.0%	1	
Education	98		112		210	P vale
Illiterate	27	36.0%	48	64.0%	75	0.093
Read and write	14	50.0%	14	50.0%	28	
Primary school graduate	10	38.5%	16	61.5%	26	
Secondary school graduate	20	54.1%	17	45.9%	37	
Diploma	13	72.2%	5	27.8%	18	
bachelor	10	50.0%	10	50.0%	20	
Master and above	4	66.7%	2	33.3%	6	

4. DISCUSSION

Ageing as a natural phenomenon has all along engaged the attention of the civilized world (WHO, 2013). This research aimed to study the Quality of life (Q.O.L.) of the elderly people assessing and analyzing the socio-demographic characteristics of the elderly including the general health condition, psychological status, social contacts and economical condition. Although this study focuses on elderly in Baghdad city, it sheds light on further future researches on geographical and socio-cultural variables and care of elderly people at the national levels in Iraq.

Sample studied divided into, 104 (49.5%) were in the age group 60-64 years, which were the majority of the elderly people in the studied sample, 62(29.5%) in the age group 65-70 years and 44(21.0%) ≥ 70 years (i.e. more than 79% of sample were aging 60-70 years), with a significant association between age groups and some of the chronic diseases as follow: (with DM *p=0.041*), (HPT *p=0.045*), (OA *p=0.012*). These results agreed with another Iraqi study conducted by Musa, 2004, which shows that the age of more than half of the studied elderly people (55.5%) is between 60-70 years (Musa, 2004). Also agreed with the results of another Iranian study (Health-related quality of life of elderly) conducted by Heydari et al., 2011, which was carried out on elderly people living in Sari city in the North of Iran that shows (59%) of the total sample were in the age group 60-70 years (Heydari et al., 2011). Numbers of males were equal to those of females (50% males, 50% females) with a significant association between gender and chronic lung diseases (p= *0.044*), which shows high percentage in males (61.4% in males, 38.6% in females). This agreed with the study conducted by Musa, 2004 and with the Iranian study conducted by Heydari et al., 2011(Heydari et al., 2011; Musa, 2004).

There was (21.9%) didn't have any income, (47.7%) did not have pensions out of 53.3% who had pensions with a significant associations between income and presence of chronic Diseases (*p=0.010*), DM (*p=0.007)*. These findings disagreed with the Iraqi study conducted by Musa, 2004 in which high proportion of studied elderly people (45%) didn't have any income, (68.5%) didn't have pensions and those who had pensions were (32.5%), also disagreed with the Iranian study conducted by Heydari et al., 2011 in which most of elderly people (62.3%) did not have pensions and only (37.7%) had pensions (Heydari et al., 2011; Musa, 2004). This difference may be due to the improvement in the economic status of the elderly people living in Baghdad because most of people

living in Baghdad after 2003 were engaged in many governmental jobs in a high proportion comparing to those involved in agricultural jobs.

According to Republic of Iraq - the House of Representatives - Act to amend the Social Welfare Act "The goal of the state nursing homes is to care for elderly people who suffer from family problems or domestic violence and provide a safe atmosphere for those to compensate for family care and tenderness which avckaddoh, and avoid everything that makes them feel that they are without the other" (Al-gasseer et al., 2006).

In this study, there was a high percentage of illiterates (35.7%), (9.5%) who had bachelor degree and (2.9%) who had master degree and above; with significant association with chronic diseases (*p=0.028*), DM (*p=0.002*). In comparison with the study conducted by Musa, 2004, In which the illiterates were (61.8%), (2.0%) master and above i.e. ≥ 19 years of education and with the study conducted by Heydari, et al., 2011 in which, illiterates were (47.7%), (13.2%) had diploma and above (Heydari et al., 2011; Musa, 2004).These results agreed with the results of chronic Non- communicable diseases risk factors survey in Iraq, 2009 in which most of the participants had low literacy level, most of them (27.8%)were illiterate, (5.7%) had bachelor degree and only (0.6%) had post-graduate degree master and above (Al-gasseer et al., 2006). The decrement in the number of illiterates in Iraq may be due to many contributing factors such as Eradication of Illiteracy programs through the past decades, the spread of schools in the counties and districts, frequent means of communication.

In this study, the majority were married 121(57.6%), this is agreed Musa, 2004, and Heydari et al., 2011 (Heydari et al., 2011; Musa, 2004), and that's may be due to the social and cultural norms regarding maintaining family ties in many Arabic and Islamic countries. In this study, (47.1%) were having good nutritional condition i.e. with no nutritional risks while more than half of the studied sample (52.9%) were having nutritional risks (moderate to high risks) with a high significant association between nutrition and presence of chronic disease (*p=0.000*), DM (*p=0.000*), HPT (*p=0.000*), CVD (*p=0.000*). The results agreed with those of Iraqi study conducted by Farhood, 2012, which showed that the majority of studied elderly people (43.2%) were at risk of malnourishment (i.e. moderate- high Nutritional risk) and only (30.3%) were in good nutritional status (Farhood, 2012). This study agreed with an Italian study conducted by Papparrotto that showed (21%) percent of the residents had an adequate nutritional status, (43%) were at risk of malnutrition, and (36%) were malnourished (Papparotto et al., 2013). Accordingly, despite the fact that a high proportion of older people are still suffering from nutritional risks but there is a mark improvement in the nutritional status of elderly people over the past 10 years and that may be attributed to improvement in health, economic and social aspects of Iraqi elderly people after 2003 i.e. the lifting of sanctions imposed on Iraq for 13 years (Al-gasseer et al., 2006). These results disagreed with results of chronic Non-communicable diseases risk factors survey in Iraq, 2009 which shows that 88.8% of studied sample had mild to moderate nutritional risks and only 8.9% were in good nutritional conditions (Al-gasseer et al., 2006).

In this study, most of elderly people (48.1%) were Ex-smokers as well as to 46(21.9%) were active smokers with high significant association between smoking and presence of some chronic diseases *(p=0.001)* in DM, *(p=0.042)* in HPT, *(p=0.007*) in CVD. Also these results agreed with those of chronic Non- communicable diseases risk factors survey in Iraq, 2009 by the same percentage of active (current) smokers (about 21.9%) (Al-gasseer et al., 2006). Smoking was rampant in this age group of Iraqi elderly people since youth, also the anxious and insecure current situation and sectarian wars that suffered by the Iraqi people in the past 10 years increased the addiction rate to smoking (WHO, 2012; Al-gasseer et al., 2006).

In this study, (86.7%) of elderly people suffering from chronic diseases with significant associations between presence of chronic diseases and: Age (*p=0.044*), exercise (*p=0.030*), income (*p=0.010*), education (*p=0.028*), nutrition (*p=0.000*) and smoking (*p= 0.003*). Cardiovascular diseases were the most frequent chronic diseases with highest frequency among the studied sample (65.7%) followed by hypertension (61.4%) as the second entity in the list, osteoarthritis (53.3%), diabetes mellitus (51%), urine incontinence (33.8%), cataract and other chronic eye disease (31.0%), chronic lung disease (27.1%),chronic prostatic diseases (5.2%), chronic renal failure (3.3%), hearing Loss (1.9%) and cancer (0.5%). These results agreed with the results of chronic Non-communicable diseases risk factors survey in Iraq, 2009 in which the prevalence of HPT was high in the old aged group, (62.9%) of them had systolic HPT and (51.9%) had diastolic HPT (WHO, 2012; Dubey et al., 2011). The results of this study strongly agreed with the results of a study from France conducted by Artaud et al., 2013 which showed that, individuals with unhealthy behaviors (low physical activity, consuming fruit and vegetables less than once a day, current smoking/ ex-smoking, former/heavy alcoholics) had a significant association with high prevalence of chronic conditions, depressive symptoms and increased hazard of disability (Artaud et al., 2013). This is agreed with the Iraqi study conducted by Musa, 2004 in which the majority of elderly people (77.5%) were suffering from chronic diseases but disagreed in the frequency of chronic diseases in which HPT being the most frequent disease (34.6%) followed by DM (18.7%), IHD (11.9%), HF (6%) and stroke (3.7%), (Musa, 2004). The difference may be attributed to the variation of many factors over the past 9 (2004-2013 years) such as environmental factors, socio-economic factors, psycho-demographic variations, housing conditions,

occupational and health awareness (WHO, 2013). In Iraq, the prevalence of hypertension for the age group 55-65 is (70.3%) for both sexes. These results agreed with Iranian study conducted by Hosseini, 2011 to describe the prevalence of non-communicable diseases of elderly people which showed that the most common chronic diseases were cardiovascular diseases (29.5%) followed by hypertension (23.6%) and diabetes mellitus (23.5%) (Hosseini et al., 2011). These findings reflect simple but important indication of health and which differs from person to person and many individuals may not be aware of o the presence of these problems.

Limitations

1. Few Iraqi research studies on the topic: research studies help to lay a foundation for understanding the research problem .thus, this limitation can serve as an important opportunity to describe the need for further researches.
2. Time constraints: the time available to investigate a research problem and to measure changes or stability within a sample is essential. Sampling and data collection procedure was done over 3 months only form 1st of Feb to 31th of April-2013 which is not enough to observe and evaluate all life style characteristic parameters and variables like demographical, socioeconomic, medical, behavioral, sleep and psychological variables.
3. Some of data obtained from elderly people were depended on their subjective assessment and therefore; information bias could have occurred.
4. The ideal places for data collection are from door to door which can't be performed because of Baghdad security situation.

5. CONCLUSION

This study provided an insight into the frequency of chronic diseases among studied older persons, the majority of elderly people in this study had chronic diseases (86.6 %); Cardiovascular and Hypertension were the most frequent chronic diseases (65.7%, 61.4% respectively). 21.9 % of the elderly people didn't have any income, and 53.3 % had pensions, with significant associations between low income and presence of chronic Diseases. Nutritional risk (moderate to high risk) was found in 53% with a high significant association between nutrition risks and presence of chronic disease especially HPT and DM. The active smokers with high significant association between smoking and presence of chronic diseases especially CVD, HPT and DM. Mast of elderly people were not exercising routinely, with high significant associations between lack of exercise and the presence of chronic diseases. Life dissatisfaction was found have significant association with the presence of chronic diseases, both health and socio-economic problems were the leading reasons for life dissatisfaction in most of studied people.

Author contributions

Sarah W: Conceptualization, Data Curation, Formal Analysis, Funding Acquisition, Investigation, Methodology, Project Administration, Resources, Software, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review and Editing;
Rasha Z: Conceptualization, Methodology, Project Administration, Validation, Visualization, Formal Analysis, Funding Acquisition, Investigation, Methodology, Writing – Original Draft Preparation, Writing – Review and Editing;
Haider M: Conceptualization, Methodology, Project Administration, Validation, Visualization, Data Curation, Project Administration, Resources, Software, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review and Editing.

Abbreviations

ADL, Activity of Daily Living; BP, Blood Pressure; BPH, Benign Prostatic Hyperplasia; CA, Cancer; CH. DIS., Chronic Diseases; CHD, Coronary Heart Diseases; CHF, Chronic Heart Failure; COPD, Chronic Obstructive Pulmonary Diseases; CRF, Chronic Renal Failure; CVA, Cardiovascular Accident; CVD, Cardiovascular Diseases; DM, Diabetes Mellitus; HPT, Hypertension; IADL, Independent Activities of Daily Living; IHD, Ischemic Heart Diseases; NCDs, Non-Communicable Disease; NIH, The National Institutes of Health; OA, Osteoarthritis; PHCC, Primary Health Care Center; Q.o.L., Quality of Life; SBP/DBP, Systolic Blood Pressure/Diastolic Blood Pressure; SES, Socio-Economic Circumstances; TB, Tuberculosis; UI, Urinary Incontinence; US, United State; WHO, World Health Organization

Competing interests

We (authors) declare that we have no conflict of interest.

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Consent

All authors declare that 'written informed consent was obtained from the patient (or other approved parties) for publication of this article.

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