

# Knowledge, Attitudes and Practices of Doctors about Geriatrics in age-Friendly primary health care centers in Al-Rusafa/ Baghdad city/ Iraq-2018

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## Abstract

**Background:** Rapid population aging will lead to increasing demands on the care of population in developing countries. And because the elderly people are at high risk for disease and disability, this population aging will place urgent demands on these countries health care systems; hence the knowledge, attitudes and practices of doctors in primary health care centers plays key role in improving the geriatric care.

**Objectives of the Study:** Assessment of the knowledge, attitudes and practices of doctors working in age friendly primary health care centers toward geriatrics in Baghdad-Al Rusafa health directorate, and comparing the results with the knowledge, attitudes and practices of doctors working in primary health care centers not applying Age-friendly toolkit toward geriatrics in the same health directorate

**Subjects & Methods:** A cross sectional study with analytic elements was conducted. The data were collected by direct interviews with the doctors of the 31 age-friendly PHCs and other PHCs not applying age-friendly tool kit and they completed a prepared questionnaire form. Questionnaire consisted from 4 parts: sociodemographic data, Knowledge, attitudes and practices of doctors.

**Results:** 110 doctors from age friendly PHCs and 110 doctors from other PHCs not applying age friendly toolkit participated in the study. In Age friendly PHCs; the mean age was 40.9 years, while in the other PHCs: 46.7 years. The majority of doctors in the Age- friendly PHCs and the other PHCs were females 70.9% and 63.6% respectively. Almost half of the studied physicians in Age friendly PHCs had a board degree in family medicine, while in other PHCs only 8.2% were family doctors with a degree of board. In Age friendly PHCs; Knowledge of doctors had a mean score significantly higher than the other PHCs (44.2 and 41.5 respectively); good knowledge in Age friendly was in 20% of doctors, and in 4.5% of doctors in other PHCs. Regarding attitudes; No statistical difference between the two groups, and when classifying the level of attitudes, we had Acceptable attitude towards elderly in Age-friendly PHCs and other PHCs 88.2% and 81.8% respectively and Good attitude is 4.5% and 5.5% respectively. Doctors in Age friendly PHCs have better practices towards elderly than the other PHCs, 70.9% of Doctors in Age friendly and 54.5% in other PHCs have good practices.

**Conclusions:** Most of the doctors participated in the study showed acceptable knowledge and attitudes, while practices were good in most of them. Knowledge and practices of doctors working in age friendly PHCs were significantly better than the other PHCs, Attitudes didn't show significant difference.

**Key words:** knowledge, attitudes, practices, age friendly PHCs, geriatric care.

## Introduction

The population aged 60 or above is growing at a rate of 3.26 per cent per year, as fertility declines and life expectancy rises, the proportion of the population above a certain age raises. This phenomenon, known as population ageing, is occurring throughout the world<sup>(1)</sup>. From 1965 to 2010 'average' life expectancy in the region increased from 48.7 years to 70.4 years, Life expectancy is projected to reach 76.9 years in 2045-2050. Percentage of the population 60 years or older to reach 17.2% in 2050. These changes represent an unprecedented demographic revolution and require the immediate attention of policymakers worldwide<sup>(2)</sup>.

Population aging is likely to influence pattern of health care spending in both developed and developing countries in the decades to come. In developed countries, where acute care and institutional long-term care services are widely available, the use of medical care services by adults rises with age, and per capita expenditures on health care are relatively high among older age groups. Accordingly, the rising proportion of older people is placing upward pressure on overall

health care spending in the developed world, although other factors such as income growth and advances in the technological capabilities of medicine generally play a much larger role. Relatively little is known about aging and health care costs in the developing world. Many developing nations are just now establishing baseline estimates of the prevalence and incidence of various diseases and conditions<sup>(3)</sup>.

Geriatrics is the branch of medicine dealing with the study of health and disease in later life and the comprehensive health care of older persons and the well-being of their informal caregiver<sup>(4)</sup>. Geriatric medicine is a dynamic process in which the patient's needs are assessed in detail by a multidisciplinary team. An appropriate plan of medical treatment, rehabilitation and social work is drawn up to restore the elderly patient to as normal a life as possible<sup>(5)</sup>. In Iraq, Geriatrics is not included in the curriculum of undergraduates or postgraduates studying medicine.

Clinical practice in primary care focuses on the unique needs of the geriatric population which is different from another patient population. The aged

body is different physiologically from the younger adult body, older patients tend to develop a more severe disease state and have co-morbidities leading to longer lengths of stay in the hospital <sup>(6)</sup>. The chronic non-communicable disease and risk for falling increases in the older population, resulting in an increase in serious outcomes and associated health care costs <sup>(3)</sup>.

Assessing old aged health care system and life style is necessary to improve their daily life activities and decreasing burden of caring and treatment of morbidities of old age caused by poor management. Professionalism of doctors in primary health care centers plays key role in achieving goals of geriatric care. With increasing age, numerous underlying physiological changes occur, and the risk of chronic disease rises. By age 60, the major burdens of disability and death arise from age-related losses in hearing, seeing and moving, and non-communicable diseases, including heart disease, stroke, chronic respiratory disorders, cancer and dementia <sup>(7)</sup>.

The WHO toolkit is applied in 2013 in Iraq by incitation one age friendly primary health care center in each health directorate, and by 2014 approval was applied to add another two-age friendly PHCs in each directorate to become three in total. The age group has been expanded to include 60 years and above which help provide an adequate data about social healthy manner of aged, osteoporosis prevention and treatment, training in aged care by implementing a series of training courses and workshops to improve knowledge, attitude and practice of the medical staff and training managers of aged health units in PHCs and health directorate and preparing a training team in every health office consist of 2 doctors and 2 nurses to perform site training <sup>(8,9)</sup>.

In Iraq the number of people age 60 and above at 2012 is 1.12 million; it constitutes 4% of the total population. It is expected by 2050 the number will reach 4.72 million. This will have a major implication for health and socioeconomic development <sup>(10)</sup>. Need for more epidemiological data about Knowledge, attitude and practice of doctors as there are poor studies in Iraq about this subject.

**General Objectives of the study:** Establishment of baseline data regarding geriatrics among doctors in primary health care centers in Iraq and using it in planning for expansion in geriatric service in Iraq. While the **Specific Objectives of the study were:-**

1. Assessment the of knowledge, attitudes and practices of doctors working in age friendly primary health care centers toward geriatrics in Baghdad /Al-Rusafa health directorate.
2. Comparing the results with the knowledge, attitudes and practices of doctors working in primary health care centers not applying Age-friendly toolkit toward geriatrics in the same health directorate.

### Subjects and Methods

A Cross sectional study with analytic elements was conducted among doctors of both gender in Al-Rusafa health directorate in Baghdad city in all age-friendly

primary health care centers (PHCs) and randomly selected other PHCs not applying age-friendly toolkit.

There are about 31 age-friendly PHCs out of 112 PHCs in Al-Rusafa health directorate in Baghdad city; all of them were invited to participate in the study. In addition, other group of doctors working in PHCs NOT applying Age-friendly toolkit, 34 PHCs out of the remaining 81 PHCs were randomly selected in the same health districts by simple random sampling in Al-Rusafa health directorate. All doctors in the 31 age-friendly centers were included in the study. Similar number of doctors in the PHCs mentioned in the above study population was selected as a comparative group.

The data were collected by direct interview with the doctors and they completed a pre-constructed questionnaire sheet. Data collection was done through using a self-administered questionnaire; the questionnaire was evaluated by a committee of six experts and specialists of community and family medicine. The data collection process was conducted for three days a week (during the whole period of the study from 10<sup>th</sup> of July 2018 till 30<sup>th</sup> Dec. 2018) from 09:00 A.M. to 02:00 P.M., the doctors who working and available in primary health care centers at the time of study were asked to fill this questionnaire. The average time needed to fill the questionnaire was nearly 20-25 minutes.

The questionnaire consists of four parts as follows:

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**Part I Socio-demographic** characteristics including age, gender, highest graduate qualification, specialty (general practitioner, family specialist, other specialty), Duration since graduation from medical college, duration of work as physician in PHCs.

**Part II** A set of 19 questions testing doctors' knowledge about geriatrics health; the questions assess doctors' knowledge in: general knowledge of geriatric individual, personality and behavior, cardiovascular, respiratory, musculoskeletal, nutrition, hematological, vascular and psychological problems. A scoring system for measuring the knowledge of doctors: 3 points were assigned for **correct** answer, 2 for **don't know** and 1 for **incorrect** answer. Accordingly, total score for knowledge ranged from 19-57. Then the sum of scores were categorized into three levels of knowledge: good knowledge level was defined by a score of (>47); acceptable/fair knowledge level (38-47) and poor knowledge level (<38 knowledge score obtained) according to the quartile in which poor were assigned for less than <50% "first and second quartile", fair for 50-74% "corresponding to the third quartile" while 75% and above were categorized as good knowledge "fourth quartile". <sup>(11-13)</sup>.

**Part III** A set of 10 statements testing doctors' attitudes regarding the practice of geriatric medicine, attitudes toward listening to the problems of elderly patients, feeling enjoyable with, preference to deal with elderly and looking after them. Responses of these statements in this part were in the form of "Strongly agree" or "Agree" or "Disagree" or "Strongly Disagree".

Each statement was graded according to 4 points Likert scale, the response was scored from 1 to 4 with higher score for more favorable attitude. The total scores ranged from (10-40) marks. The attitude score was rated as positive when the participant gained (>32) marks, acceptable/fair with a score of (25-32) and rated negative when the participant gained (<25) <sup>(11-13)</sup>.

**Part IX** A set of 11 Questions to assess the practice of selected doctors in management of elderly health problems, the statements were grouped into subtopics which included practices of doctors concerning examination, investigation and education of elderly, all of these were taken from the practices approved by MoH for all PHCs through programs of non-communicable diseases <sup>(14)</sup>. Responses of these questions in this part were in the form of “yes”, “no” or “sometimes”. A scoring system for measuring the practice of doctors in 11 different questions was constructed by assigning scores 3 for **Yes** answer, 2 for sometimes answer, and 1 for **No** answer. The scale of score was ranged from (11-33) marks. The practice score was rated as positive when the participant gained (>27) marks, acceptable/fair with a score of (22-27) and rated negative when the participant gained (<22) <sup>(11-13)</sup>.

Analysis of data was carried out using the available statistical package of SPSS-25 (Statistical Packages for Social Sciences- version 25). Data were presented in simple measures of frequency, percentage, mean, standard deviation, and range (minimum-maximum values).

The significance of difference of different means (quantitative data) was tested using Students-t-test for difference between two independent means. The significance of difference of different percentages (qualitative data) was tested using Pearson Chi-square test ( $\chi^2$ -test) with application of Fisher Exact test whenever applicable. Statistical significance was considered whenever the P value was equal or less than 0.05 <sup>(15)</sup>.

#### **Ethical consideration:**

- Verbal consent with each participant was taken after explaining the aim of this study.
- Confidentiality of the information was insured for the participant.
- The data were kept in password protected computer and only used for the purpose of the research.

- Official letters of facilitation were directed to the PHC centers and health sectors of Al-Rusafa health directorate from Arab Board for Medical Specializations.

#### **Results**

Out of 153 doctors in the 31 Age friendly PHCs invited to participate in the study, only 110 doctors were responded and fill the questionnaire, so response rate was 71.8%. And out of 34 of other PHCs not applying age- friendly toolkit in Al-Rusafa health directorate; Similar Number of doctors working in PHCs were accepted to participate in the study. Both groups of PHCs representing 58% of total 112 PHC in Al-Rusafa health directorate.

Socio-demographic characteristics of PHC doctors.

In Table (1) which shows the distribution of the study sample according socio-demographic characteristics of PHC doctors. The age of PHC doctors in Age friendly PHCs was ranged from 29-60 years with a mean of  $40.9 \pm 8.3$  years, and the age group 30-39 years was forming the largest group (49.1%), While in the other PHCs the doctors' age was from 28-62 years with a mean of  $46.7 \pm 10.3$  years, and the age group 50-59 years was forming the largest group (43.6%), which shows significant difference in the mean age between the two groups.

Almost 70.9% of physicians working in Age friendly PHCs were females while in the other PHCs was forming 63.6% which shows no significant difference. The majority of the studied physicians in Age friendly PHCs (50.9%) had a board degree in family medicine, while only 8.2% were family physicians with degree of board.

Regarding Duration since graduation from medical college in Age friendly PHCs, the range was 5-35 years with the largest duration interval was 10-19 years (49.1%), while in the other PHCs the range was 3-39 years, the largest duration interval was 20-29 years (40.9%), and this is related to the difference in the mean age mentioned above. Results of years of work and experience in PHCs was higher in the other PHCs in which 58.2% of doctors have more than 10 year work in PHC and had about Mean $\pm$ SD :  $12.7 \pm 9.1$  years, while in the Age friendly PHCs only 29.1% of them had more than 10 year with a Mean $\pm$ SD:  $7.2 \pm 6.0$  years.

**Table (1): Distribution of the study sample according socio-demographic characteristics of PHC doctors Baghdad-Al-Rusafa, 2018.**

| socio-demographic characteristics                      |              | Age Friendly |      | Not Age Friendly |      | P Value |
|--------------------------------------------------------|--------------|--------------|------|------------------|------|---------|
|                                                        |              | No.          | %    | No.              | %    |         |
| Age (years)                                            | <30y         | 5            | 4.5  | 2                | 1.8  | 0.0001  |
|                                                        | 30---39      | 54           | 49.1 | 26               | 23.6 |         |
|                                                        | 40---49      | 28           | 25.5 | 28               | 25.5 |         |
|                                                        | 50---59      | 21           | 19.1 | 48               | 43.6 |         |
|                                                        | =>60y        | 2            | 1.8  | 6                | 5.5  |         |
|                                                        | Mean±SD      | 40.9±8.3     |      | 46.7±10.3        |      |         |
|                                                        | (Range)      | (29-60)      |      | (28-62)          |      |         |
| Gender                                                 | Male         | 32           | 29.1 | 40               | 36.4 | 0.250   |
|                                                        | Female       | 78           | 70.9 | 70               | 63.6 |         |
| Highest post graduate qualification                    | Family Board | 56           | 50.9 | 9                | 8.2  | 0.0001  |
|                                                        | Other        | 7            | 6.4  | 19               | 17.3 |         |
|                                                        | MBChB        | 47           | 42.7 | 82               | 74.5 |         |
| Duration since graduation from medical college (years) | <10y         | 23           | 20.9 | 23               | 20.9 | 0.0001  |
|                                                        | 10---19      | 54           | 49.1 | 18               | 16.4 |         |
|                                                        | 20---29      | 23           | 20.9 | 45               | 40.9 |         |
|                                                        | =>30y        | 10           | 9.1  | 24               | 21.8 |         |
|                                                        | Mean±SD      | 16.2±8.0     |      | 21.2±9.8         |      |         |
|                                                        | (Range)      | (5-35)       |      | (3-39)           |      |         |
| Duration of work in PHC centers (years)                | <10y         | 78           | 70.9 | 46               | 41.8 | 0.0001  |
|                                                        | 10---19      | 25           | 22.7 | 34               | 30.9 |         |
|                                                        | =>20y        | 7            | 6.4  | 30               | 27.3 |         |
|                                                        | Mean±SD      | 7.2±6.0      |      | 12.7±9.1         |      |         |
|                                                        | (Range)      | (1-29)       |      | (1-30)           |      |         |

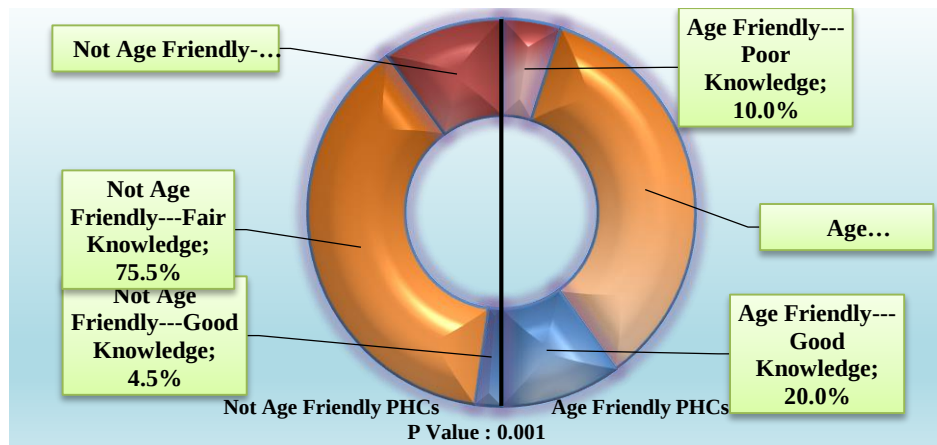
#### Knowledge:

Regarding the doctor's Knowledge in general; Age friendly PHCs the mean score was 44.2±4.7 while the other PHCs had mean score: 41.5±4.1 which was of significant difference (P value: 0.0001) (Table 2). Scoring was classified to Good and Acceptable/Fair and

Poor. Regarding Age friendly PHCs: 20% good, 70% fair and 10% poor knowledge. While in the other PHCs, It was 4.5 %, 75% and 20% respectively and this significant difference favoring knowledge in the age-friendly (fig. 1):

**Table (2): Distribution of Average score and Range of Knowledge, Attitudes and practices in both study groups doctors Baghdad-Al-Rusafa, 2018.**

| Variable  | Age friendly PHCs |         | Other PHCs |         | P Value |
|-----------|-------------------|---------|------------|---------|---------|
|           | Average           | Range   | Average    | Range   |         |
| Knowledge | 44.2±4.7          | (29-55) | 41.5±4.1   | (31-49) | 0.0001  |
| Attitudes | 28.2±2.7          | (23-38) | 27.8±2.8   | (22-35) | 0.273   |
| Practices | 28.5±2.3          | (21-33) | 27.0±3.6   | (13-32) | 0.0001  |



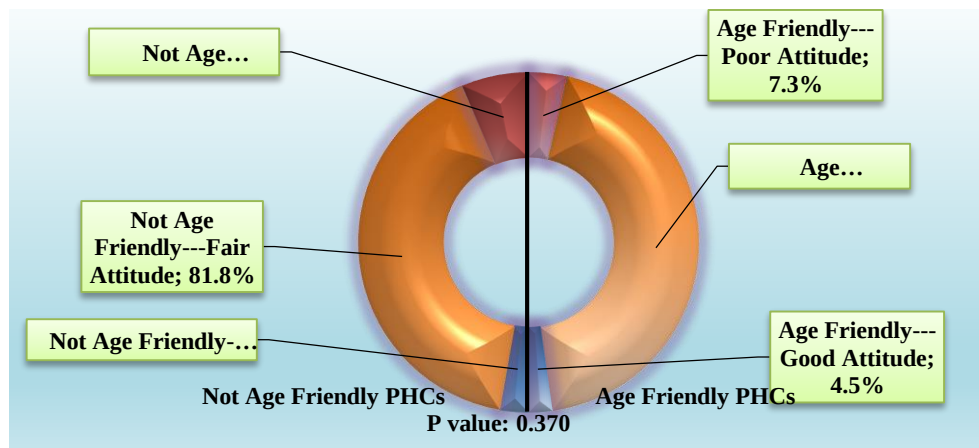
**Figure (1): Distribution of doctors according to their knowledge score in the two groups of PHCs.**

#### Attitudes:

Regarding doctors' responses to assess their attitudes toward elderly, in general; Age friendly PHCs had mean score of  $28.2 \pm 2.7$  while the other PHCs had mean score:  $27.8 \pm 2.8$  with P value: 0.273 which is of no significant difference (Table 2). Scoring is classified

into Good, Acceptable/Fair and Poor, Regarding Age friendly PHCs: 4.5% good, 88.2% fair and 7.3% poor Attitude, while in the other PHCs, it was 5.5 %, 81.8%, 12.7% respectively (Figure 2)

Good attitude had low number of doctors in all tested PHCs.

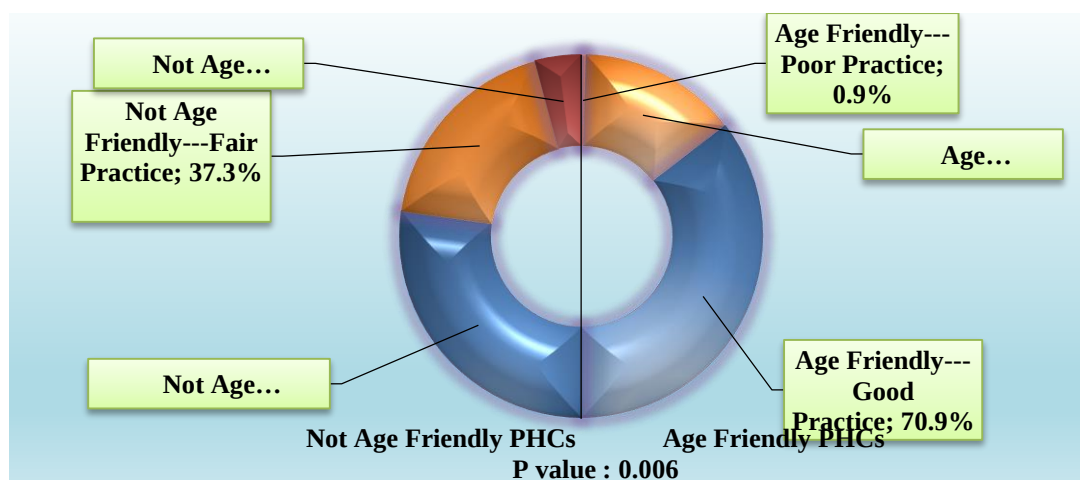


**Figure (2): Distribution of the studied doctors according to their attitudes score in the two groups of PHCs.**

#### Practices:

Results of doctors' Practices were in general; Age friendly PHCs had mean score  $28.5 \pm 2.3$  while the other PHCs had mean score:  $27.0 \pm 3.6$  with P value: 0.0001 which is of significant difference Table (2). Scoring is

classified to Good and Acceptable/Fair and Poor Regarding Age friendly PHCs: 70.9% good, 28.2% fair and 0.9% poor Practice, while in the other PHCs, It was 54.5 %, 37.3%, 8.2% respectively and this was significant (P value: 0.006) Figure (3):



**Figure (3):** Distribution of the studied doctors according to their practices score in the two groups of PHCs.

### Discussion

Elderly consume more health services, in addition; physicians have much contact with older people in their daily practice in PHCs as many older people live with chronic health conditions and have become the major users of primary care services, there is expanding demand for PHC physicians to demonstrate appropriate attitudes towards older people and to improve their knowledge and commitment to working with elderly in diverse settings in the context of a rapidly aging population <sup>(16) (17)</sup>.

### Sociodemographic characteristics:

According to age, in Age friendly PHCs the youngest doctor studied was 29 years old and the oldest one was 60 years old, overall, the mean age in our study sample was 40.9 years which was nearly like the mean age of doctors included in one study in Iraq <sup>(18)</sup>. In other PHCs, age ranged from 28-62 years with a mean of 46.7 years, and the largest age group was 50-59 years forming about 43.6 %, this difference between the two groups can be explained by that most of the doctors in age-friendly PHC is newly graduated physicians from family medicine board while in the other PHC, most of them are GPs. The study reveals that the majority of doctors in the Age- friendly PHCs and the other PHCs are females 70.9% and 63.6% respectively, this finding was higher than other studies carried out in Iraq at 2005 <sup>(18)</sup> in which females represent only 57.0%, in Singapore 44.5% <sup>(19)</sup> and in USA 47.0% were females <sup>(20)</sup> while in China <sup>(21)</sup> females formed 37%. This high proportion of female doctors might be attributed to that most of the graduated doctors from medical college after 2003 are females and also to the mass migration of the male doctors outside Iraq due to the security issues our country suffers from.

Almost half of the studied doctors in Age friendly PHCs had a board degree in family medicine, while in other PHCs only 8.2% were family specialists with degree of board, and this is related to the fact that all the Age-friendly PHCs are family medicine centers and policy of MoH favoring assigning family specialists in these centers. In a previous study carried out in Iraq at 2005; 75.5% of included doctors had bachelor's degree,

and only 24.5% of doctors had highest qualification in different branches <sup>(18)</sup>. About half of doctors in age friendly PHCs graduated from medical college since 10-19 years, and 40.9% of doctors in other PHCs graduated since 20-29 years, and less than 10 years from graduation: 20.9% in each group of the study sample and this return us to the fact that half of the age-friendly PHCs are newly graduated Family medicine specialists, and also the difference in the mean age between the two groups.

On the other hand, concerning the years of experience in Age- friendly PHCs 70.9% of doctors had less than 10 years of work in PHCs with a mean of 7.2 years, and in other PHCs 41.8 % of doctors had less than 10 years of work in PHCs with a mean of 12.7 years, which means that the Age friendly doctors had shorter duration of experience in PHCs, this is may be related to the fact that application of family medicine centers and age friendly tool kit is relatively new (Age - friendly PHCs was applied since 2013)<sup>(9)</sup>.

### Knowledge:

Age friendly PHCs had a mean score significantly higher than the other PHCs (44.2 and 41.5 respectively) and when classifying the level of knowledge into Good-Fair/acceptable-Poor, we will have in Age friendly 20% with good knowledge and in Other PHCs only 4.5% with good knowledge; This difference may be due to the effect of postgraduate degree in augmenting the knowledge of physician.

The poor-acceptable knowledge towards elderly obtained in this study (80% in age-friendly and 95.5% in other PHCs) was found to be comparable to that reported in USA <sup>(20)</sup>, China <sup>(21)</sup> and Saudi Arabia in 2017 <sup>(22)</sup>. Physician's knowledge about ageing process and changes was examined in 3 other studies, all of which indicated that participants had such knowledge about ageing <sup>(23-25)</sup>. This level of knowledge can be attributed to poor covering of the Geriatric medicine in the medical curriculum during both under and post graduate study and the lack of training on dealing with elderly later on in their practical life, this necessitates continuous medical education strategies which focus on improving physician's knowledge about elderly and

encouraging them to consider a career working with old people to meet their needs.

#### Attitudes:

In general; doctors had Fair/acceptable attitude towards elderly in Age-friendly PHCs and other PHCs (88.2% and 81.8% respectively), Good attitude is 4.5% and 5.5% respectively, this so far lower than previous studies in Singapore <sup>(19,26)</sup>, USA <sup>(20)</sup>, Australia by Leung *et al* <sup>(27)</sup>, Spain <sup>(28)</sup>, Ireland, <sup>(29)</sup>, Polat *et al* <sup>(30)</sup> and Asiret *et al* from Turkey <sup>(31)</sup>, and in other two studies <sup>(25,32)</sup>. The Neutral attitude of our study goes with other studies by Yang *et al* from China <sup>(21)</sup> and by Stewart *et al* had neutral attitude towards elderly <sup>(28)</sup>.

We note that both good and poor attitude was low, and this may be explained that although the poor education and scarceness of training about elderly care, the average didn't drop to poor, this is related to the fact that Iraq is Middle Eastern country older people are socially highly esteemed and respected; especially the religious value of honoring parents; hence, the respect for older persons is a notable tradition and part of our cultural believes in spite of poor education regarding this aspect.

#### Practices:

Doctors in Age friendly PHCs have better practices than the other PHCs in term of average score and this is also may be related to the percentage of higher qualifications present in Age friendly and Family PHCs. 70.9% of Physicians in Age friendly and 54.5% in other PHCs have good practice Which is higher than previous study in Iraq at 2005 <sup>(18)</sup> and other study at Saudi Arabia <sup>(33)</sup>, this is related to the fact that most of the practices statements are part of national programs implicated by MoH on the PHCs <sup>(14)</sup>.

#### Conclusions:

The following conclusions were made:

1. Most of the doctors participated in the study showed acceptable knowledge and attitudes, while Practices were good in most of them.
2. Doctors working in Age friendly PHCs had better knowledge than their colleagues in the other PHCs.
3. There is no significant difference between attitude of doctors of the two groups
4. Practices of Doctors working in Age friendly PHCs were better than doctors of other PHCs.

#### Recommendations:

1. Improving PHC doctors' knowledge and attitude and Practice towards health problems of the elderly and implementing a continuous medical educational program to ensure that PHC doctors have an updated and accurate knowledge and attitude and doing the right work regarding elderly care.
2. Include geriatrics in the medical curriculum of undergraduate students and also postgraduate specialties especially in comprising a comprehensive aspect of elderly care needed for the preparation of health professionals to care for elderly people in primary care settings.

3. Expanding the number of Age friendly PHCs in each health directorate and recruitment of the PHCs with well-trained doctors in geriatrics and Family medicine specialists.

#### References:

- 1- Department of Economic and Social Affairs of United Nations, World Population Prospects, The 2015 Revision, available at [https://esa.un.org/unpd/wpp/publications/files/key\\_findings\\_wpp\\_2015.pdf](https://esa.un.org/unpd/wpp/publications/files/key_findings_wpp_2015.pdf) accessed at Nov.8.2017.
- 2- Kevin Kinsella and Victoria A. Velkoff, An Aging World: 2001 (Washington, DC: U.S. Census Bureau, 2001) available at <https://www.census.gov/prod/2001pubs/p95-01-1.pdf> accessed at Nov.8.2017.
- 3- World Health Organization, Global Health and Aging, NIH Publication no. 11-7737 October 2011 available at [http://www.who.int/ageing/publications/global\\_health.pdf](http://www.who.int/ageing/publications/global_health.pdf) accessed at Nov.9.2017.
- 4- Association for Gerontology in Higher Education, Gerontology/Geriatrics Definitions, available at <https://www.aghe.org/resources/gerontology-geriatrics-descriptions> accessed at Nov.13.2017.
- 5- Howard M. Fillit, Kenneth Rockward, John Young, Brocklehurst's Textbook of Geriatric Medicine and Gerontology, 2010, Elsevier.
- 6- Zafar SN, Ganatra HA, Tehseen S, Qidwai W: Health and needs assessment of geriatric patients: results of a survey at a teaching hospital in Karachi. J Pak Med Assoc 2006, 56:470-4.
- 7- Huber M, Knottnerus JA, Green L, van der Horst H, Jadad AR, Kromhout D, *et al*. How should we define health? BMJ.2011;343: d4163.doi: <http://dx.doi.org/10.1136/bmj.d4163> PMID: 21791490.
- 8- Al-Kamil E.A., Ajeel N.A.A, Health service utilization by elderly people and its determinations in Basrah. J. Fac. Med. (Baghdad), 2003; 45(3-4):1-11.
- 9- Ahmed I.J., Mahdi QA, Abdul Hameed S.M., Abdul Ameer A.K., Abdul Lateef B.I., Jassim SM. An open membership-committee for preparing a study to support human rights of old people in social-health care work sheet of Iraq, Iraqi ministry of health, 2016, unpublished.
- 10- World Health Organization (WHO) Part of speech of Iraqi health minister to WHO at 2012, <http://www.emro.who.int/irq/iraq-news/world-health-day-2012-in-iraq-good-health-adds-life-to-years.html> accessed at Nov.25.2017.
- 11- Shinde MB, Mohite VR. A Study to Assess Knowledge, Attitude and Practices of Five Moments of Hand Hygiene among Nursing Staff and Students at a Tertiary Care Hospital at Karad. International J. of Science and Research (IJSR), 2014; 3(2): 311-21.
- 12- Al Sunni A, Latif R. Perceived stress among medical students in preclinical years: A Saudi Arabian

- perspective Saudi Journal for Health Sciences, 2014; 3(3): 155-59.
- 13- El-Jardali F, Hemadeh R, Jaafar M, Sagherian L, El-Skaff R, Mdeihly R, Jamal D, Ataya N. The impact of accreditation of primary healthcare centers: successes, challenges and policy implications as perceived by healthcare providers and directors in Lebanon. BMC Health Services Research, 2014; 14: 86.1-10.
  - 14- National Guidelines for primary healthcare physician, A guidance from MOH, directorate of Public health, Non-communicable disease section, 2013, p 5-67.
  - 15- John Wiley & Sons Inc, Biostatistics: A Foundation for Analysis in the Health Sciences. Wayne W Daniel & Chad L Cross; 10<sup>th</sup> ed., USA, 2013.
  - 16- Plonczynski DJ, Ehrlich-Jones L, Robertson JF, Rossetti J, Munroe DJ, Koren ME, Berent G, Hertz J. Ensuring a knowledgeable and committed gerontological nursing workforce. Nurse Education Today, 2007; 27: 113-21.
  - 17- Shue CK, McNeley K , Arnold L. Changing medical students' attitude about older adults and future older patients. Acad Med J, 2005; 80: S6-9.
  - 18- Khalil S.S. Knowledge, attitude and practice toward geriatrics among doctors working at selected primary health care centers in Baghdad. A Dissertation of Iraqi Board in Com Medicine, 2005: 41-59.
  - 19- Cheong SK, Wong TY & Koh GCH. Attitudes towards the elderly among Singapore medical students. Ann Acad Med Singapore, 2009; 38: 857-61.
  - 20- Fitzgerald J, Wray L, Halter J, Williams B & Supiano M. Relating medical students' knowledge, attitudes, and experience to an interest in geriatric medicine. Gerontologist, 2003; 43: 849-55.
  - 21- Yang Y, Xiao LD, Ullah S & Deng L. General practitioners' knowledge of ageing and attitudes towards older people in China. Australasian J on Ageing, 2015; 34: 82-87.
  - 22- Alamri BH & Xiao LD. Health professionals' knowledge and attitudes toward older people in primary care in Saudi Arabia. Saudi Med J, 2017; 38(3): 229-36.
  - 23- Zakari N. Attitudes toward the elderly and knowledge of aging as correlates to the willingness and intention to work with elderly among Saudi nursing students. PhD dissertation, George Mason University; Fairfax, Virginia; 2005. Available from: <http://www.amazon.co.uk/Attitudes-knowledge-correlates-willingness-intention/dp/0496927825>.
  - 24- Mellor P, Greenhill J & Chew D. Nurses' attitudes toward elderly people and knowledge of geriatric care in a multipurpose health service (MPHS). Australian J of Advanced Nursing, 2007; 24: 37-41.
  - 25- Marie DL, Marianne V & Gary T. Physician assistant students' knowledge and attitudes towards aging and geriatric medicine. J of Physician Assistant Education, 2007; 18(1): 7-15.
  - 26- Lui NL , Wong CH. Junior doctors' attitudes towards older adults and its correlates in a tertiary-care public hospital. Ann. Acad Med Singapore, 2009; 38: 125-29.
  - 27- Leung S, LoGiudice D, Schwarz J , Brand C. Hospital doctors' attitudes towards older people. Internal Med J, 2011; 41: 308-14.
  - 28- Stewart TJ, Eleazer GP, Boland R , Wieland GD. The middle of the road: Results from the Aging Semantic Differential with four cohorts of medical students. J Am Geriatr Soc, 2007; 55: 1275-80.
  - 29- Coffey A , Whitehead N. Healthcare assistants' attitudes towards older people and their knowledge about ageing. Nursing Older People 2015; 27: 24-30.
  - 30- Polat U, Karadag A, Ulger Z & Demir N. Nurses' and physicians' perceptions of older people and attitudes towards older people: Ageism in a hospital in Turkey. Contemp Nurse, 2014; 48: 88-97.
  - 31- Asiret G, Kaymaz T, Copur E & Akyar I. Ageism attitude towards elderly: Young perspective. Inter J of Caring Sciences, 2017; 10(2): 819-27.
  - 32- Doherty M, Mitchell EA & O'Neill S. Attitudes of healthcare workers towards older people in a rural population: A survey using the Kogan Scale. Nursing Research and Practice, 2011. (Online publications). <http://www.hindawi.com/journals/nrp/2011/352627>. or <http://dx.doi.org/10.1155/2011/352627>.
  - 33- Al-Mahdi and Ezubier, Knowledge, Attitudes and Practice of Doctors of Geriatrics among primary health doctors in Burraidah, Saudi Arabia, Saudi medical Journal 1996; Vol 17 (5), 649-654.