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## **Adult Periodic Health Examination: Knowledge and Practice in the Community of Al-Jouf Region –KSA**

### **Nashmi Saloom Al -Etesh**

MBBS, Jordanian Board in Family Medicine, MRCGP (INT)

Specialist Family Physician in Primary Health Care Centers -Ministry of Health-KSA

E-mail: [ns2006@hotmail.com](mailto:ns2006@hotmail.com)

### **Alex Adedotun Adelosoye**

MBBS, M.Sc., FWACP (FM); Fellow of West African College of Physicians in Family Medicine.

Specialist Family Physician, Primary Health Care Centers, Ministry of Health, KSA

E-mail: [adelosoyealex@gmail.com](mailto:adelosoyealex@gmail.com)

### **Mohammed Ghazi Alruwaili**

MSc senior ultrasound specialist, Primary Health Care Centers, Ministry of Health, KSA

E-mail: [alruwaili.m@gmail.com](mailto:alruwaili.m@gmail.com)



## Abstract

Adult Periodic Health Examination (PHE) is a form of preventive healthcare services associated with low rates of mortality and morbidity. This cross-sectional study was conducted in five different locations in Al-Jouf region in KSA among a convenience sample size of 624 Saudi adult participants. Data were collected through a self-organized questionnaire consisting of questions about demographic variables, the extent of the sample's knowledge, practice, factors that prevent the Saudi individual from practicing and the best way to spread the awareness of the adult PHE in Al Jouf region-KSA. The results showed that that most of the Saudi participants in Al Jouf region (64%) do not have prior knowledge regarding the adult PHE and (75%) did not practice it. The main reason for that is lack of information's sources about adult PHE among the community of al jouf region in KSA. The participants also believed that mass media represents the best way in spreading adult PHE awareness. The researchers recommended the necessity of providing health education to the Saudi community in Al Jouf region and conducting similar studies for all governorates in the Kingdom of Saudi Arabia, in a way that enables researchers to have more generalizable and comprehensive results.

**Keywords:** Periodic Health Examination, Knowledge, Practice, Prevalence, Awareness, Al-Jouf Region.

### ملخص الدراسة:

يعتبر الكشف الطبي الدوري شكل من أشكال خدمات الرعاية الصحية الوقائية المرتبطة بانخفاض معدلات الوفيات والمرضى. أجريت هذه الدراسة المقطعية في خمسة مواقع مختلفة في منطقة الجوف في المملكة العربية السعودية وقد كان حجم العينة 624 مشاركاً بالغاً. تم جمع البيانات من خلال استبيان منظم ذاتياً يتكون من أسئلة حول المتغيرات الديموغرافية، ومدى معرفة المشاركين وممارستهم للكشوفات الطبية الدورية، وممارستهم لها، وكذلك العوامل التي تمنع الفرد السعودي في منطقة الجوف من ممارستها، وأفضل وسيلة لزيادة وعي أفراد المجتمع بالجوف للكشوفات الطبية الدورية. أظهرت النتائج أن معظم المشاركين السعوديين في منطقة الجوف (64%) ليس لديهم معرفة مسبقة عن الكشوفات الطبية الدورية للبالغين وان (75%) لا يمارسونها. وقد تبين أيضاً أن السبب الرئيسي في ذلك هو نقص مصادر المعلومات للكشوفات الطبية الدورية عند البالغين وعدم معرفة أفراد المجتمع بها، وتبين أيضاً أن وسائل التواصل الاجتماعي تمثل أفضل طريقة لزيادة نشر الوعي تجاه الكشوفات الطبية الدورية. وأوصى الباحثون بضرورة التركيز على التوعية الصحية للمجتمع السعودي في منطقة الجوف تجاه الكشوفات الطبية الدورية وإجراء دراسات مماثلة في جميع مناطق المملكة العربية السعودية، بطريقة تمكن الباحثين من الحصول على نتائج أكثر شمولية وقابلة للتعميم.

**الكلمات المفتاحية:** الكشف الطبي الدوري، المعرفة، الممارسة، الانتشار، الوعي، منطقة الجوف.



## **Introduction**

Healthcare all over the world is turning out to be complicated and costly with regards to its provision to the whole population. Accessibility of treatment choices because of innovative advances on one hand, and a quickly expanding elderly populace with different co-morbidities on the other hand is putting immense pressure on limited assets for medical services provision (Qidwai, 2008). Such important assets should be utilized effectively. Accordingly, it has become necessary to pay attention to and focus on early detection of disease through effective and evidence-based examination programs and periodic health checks for specific age groups, in order to help in reducing the burden of disease and provide health services coverage to a larger segment of the population to achieve comprehensive health coverage (WHO, 2014; Qidwai et al., 2015).

The “Periodic Health Evaluation (PHE)”, which also referred to as “Routine Medical Checks (RMC)”, or “Personal Public Health Examination”, etc. has been an essential part of medical practice for decades, although there is no consensus regarding its value in promoting health and preventing disease (Boulware et al., 2007). It represents a health examination that every person needs to perform regularly at intervals of each year, regardless of the presence of a bad



health condition, where the program is to protect health and diagnose disease risks early in its symptomless state and in order to start treatment in time (Sun et al., 2014).

PHE represents a routine medical services measure generally done by medical services facilities for the two genders and for all age categories at various timeframes as indicated by the patient risk factors. Screening for the most part consists from one or more visits with a health care provider to assess patients' overall health and risk factors for preventable disease, and includes history taking, physical examination, and laboratory testing by doctors consistently for asymptomatic people in purpose of proceeding with self-medical services (Ilesanmi et al., 2015). It also can be considered as a preventive medication practice working as a superior strategy to decline the morbidity and mortality of various infections in societies (Culica et al., 2002).

This periodic health screening and checks have accepted a significant position in family medication and primary health care services, for their value for money in disease prevention, health maintenance and early recognition of illnesses. These evaluations offer a compelling methodology to identify infections early and offer cost-effective intervention choices and with great outcomes (Sommer et al., 2018). It opens the entryway for evaluation of health status particularly for the adults, since they are more defenseless to chronic illnesses, it builds up patient-physician relationship, and it brings down the requirement for health consultations (Sun et al., 2014).

Despite the great importance that the periodic examination has acquired in its ability to diagnose many non-communicable diseases such as high blood pressure, type 2 diabetes, breast cancer,



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cervical cancer, prostate cancer and many liver and kidney diseases (Bakhronov et al., 2013), in addition to some infectious diseases such as Hepatitis (Albaloushi et al., 2015), however, periodic screening and health examinations are criticized for not showing benefit based on the results (Perleth & Matthias, 2014). It has been found to be more beneficial when selecting residents with a higher risk of developing a medical condition for effective screening programs (Goldfarb et al. 2015), as well as having the potential to also lead to unnecessary costs and harm to the patient by promoting the use of non-recommended services. Consequently, these periodic examinations remain a matter of interest and discussion for researchers, especially since the value of PHE in adults is not clear and confusing as stated by Ponka (2014).

The culture of periodic medical examination is absent from our Arab societies, and research such as Ilesanmi et al. (2015) and Qidawi et al. (2015) have shown that the demand for periodic medical examination or preventive examination services is weak in many developing countries and is sub-optimal, although the Eastern Mediterranean countries face a large burden of communicable and chronic diseases, which increases the need for their interest in the periodic medical examination.

Accordingly, given the lack of Arab studies in general, and Saudi ones especially in the Al-Jouf region, in addition to the lack of interest of Saudis in visiting health centers and following up with specialist doctors except in the event that symptoms of infection with diseases vary in severity, ignoring that prevention is the first shield to treat potential and early diseases, especially since some diseases appear suddenly without any symptoms; it was necessary to conduct this study that assesses knowledge and practices of PHE between middle-aged and elderly people in



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Al-Jouf, and shows the correlation between demographic variables with knowledge about PHE in the Kingdom of Saudi Arabia (KSA), in a way that helps in finding the inhibiting and influencing factors in the practice of PHE.

## **Problem Statement**

According to the Saudi Ministry of Health, 75% of the Saudi populace does not perform PHE, 60% does not engage in adequate physical activities, 60% is overweight or obese, and 18% of Saudis are smokers. In addition, 46% of Saudi deaths related to infectious diseases occur in young people compared to residents of Western Europe. With the current proliferation of determinants of health risks, it is expected that the number of Saudis with chronic diseases will increase from 5 million to 10 million by 2030 (Saudi Ministry of Health, 2019).

Hence, in 2016, the government of the Kingdom of Saudi Arabia launched the National Transformation Program to ensure the achievement of the Kingdom's Vision 2030. The program included 24 government entities to define the achievement of 96 strategic goals for the 2030 vision. One of the strategic goals is to promote health against health risks (public health system and health disaster management) (Saudi Vision, 2030). The new institutional transformation and healthcare model, led by the Saudi Ministry of Health, includes measures focused on preventing disease and strengthening the primary health care system (Saudi Ministry of Health, 2019).

Therefore, it can be said that the success of the new healthcare model in the Kingdom of Saudi Arabia is only possible when considering the assessment of the factors that affect the national prevalence of health risk factors and early detection of chronic diseases in the country. This idea

requires periodic national screening and health evaluation programs that are able to identify individuals at risk or asymptomatic with chronic disease (Gosadi, 2019).

Based on the above, the Kingdom of Saudi Arabia has moved to provide free primary health care to Saudi citizens and intensify awareness campaigns on the importance of periodic medical examination (El Bcheraoui et al., 2015). Nevertheless, the demand for periodic medical examination or preventive examination services remains low, despite the provision of free health care services and organized health insurance for the population of the Kingdom of Saudi Arabia, which is the major problem that inspires the research to conduct this research (Gosadi, 2019).

Furthermore, the scarcity of studies on preventive PHEs in the Kingdom of Saudi Arabia, despite their importance in planning awareness and health promotion activities by relevant stakeholders, is another motivation for conducting this study. It is worth noting that the practice and use of screening / PHE services has been widely studied in many European countries and in the United States of America, and the results included identifying the limitations of PHE behavior highly beneficial in improving PHE uptake in those countries. Therefore, it is important to establish knowledge and practice / assimilation, especially the restrictions imposed on up taking and accessing PHE services in the Al-Jouf region of Saudi Arabia, as the information from this research will be useful in promoting health and preventing diseases in Al- Jouf region in particular and the Kingdom of Saudi Arabia in general.

## **Research Objectives**



The general objective of this study is to assess the knowledge and practice of PHE among the population of Al-Jouf region –KSA. Other specific objectives could be summarized as follows:

1. To assess the knowledge of PHE among middle-aged and elderly people of AL-Jouf.
2. To measure the prevalence of the practice of PHE among middle-aged and elderly people of AL-Jouf.
3. To measure the correlation between the demographic variables and knowledge about PHE as well as testing its statistical significance.
4. To find the preventing and influencing factors in the practice of PHE.

## **Literature Review**

PHE has its origins in at least the Industrial Revolution, when employers paid for annual checks to keep their workforce healthy. Today, this practice is in the work of primary care physicians and is still prevalent around the world. It is referred to in various terms (for example, annual health check-up, periodic health visit) and is not a service insured in all provinces (Ponka, 2014).

In 1986, Wilson and Jungner established the criteria used to assess the suitability of a screening. These criteria were related to the importance of health problems, availability and acceptability of screening test, availability of adequate health services to confirm diagnosis and treat subjects, and finally, the benefits of screening must outweigh the risks. With the advancement of screening tools, especially with regard to genetic testing, these criteria have been revisited by





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Andermann et al. (2008) to suggest more specific criteria, such as providing evidence of the effectiveness of screening programs, integrating education, testing and clinical services, and ensuring fairness and access to testing for the target population (Gosadi, 2019).

Later, in 1989, the United States Preventive Services Task Force (USPSTF) published the first set of prevention guidelines, in which it was recommended that people between 19 and 64 years old should receive some PHE every 1-3 years. However, people aged 65 and over must get it annually. Since that time to the present day, there have been numerous studies that showed the importance of periodic medical examination, and the scientific evidence on the effectiveness of PHE varied, which was sometimes contradictory (Al Rowais, 2000).

For instance, systematic reviews and large randomized controlled trials and studies show no reduction in morbidity or mortality, neither in general nor in cardiovascular disease or cancer through regular screening (Jørgensen et al., 2014). In contrast, there is good evidence that individual preventive examinations lead to lower risk factors that have a causal relationship to increased mortality, such as high blood pressure (Si et al., 2014).

Such of the contemporary studies in this field is the study of Birtwhistle et al. (2017), where they showed that the PHE is very important in identifying risk factors for serious medical conditions while taking a medical history and conducting a physical examination, providing recommended vaccinations and chemoprophylaxis as needed, as well as assisting in ordering age and gender appropriate screening tests, and educating patients about healthy lifestyle behaviors.



In the same manner, Ilesanmi et al. (2015) showed that one of the most important benefits of periodic medical examination are: early detection of asymptomatic diseases and disease prevention before the occurrence of irreversible pathological changes, and it opens the door to assess the state of well-being, especially for the elderly, because they are more vulnerable to chronic diseases, and establishes the relationship between the doctor and the patient, and reduces the need to health consulting. Also, according to the study of AL-Kahil et al. (2019), it helps in diagnosing many non-communicable diseases with the help of routine medical examination such as high blood pressure, type 2 diabetes, breast cancer, cervical cancer, prostate cancer and many liver and kidney diseases, in addition to that, PHE can also detect some Infectious diseases such as hepatitis B.

However, a study of Ponka (2014) showed that there is no evidence of an effect of periodic medical evaluation on patient outcomes. Rather, PHEs may lead to a lot of blood tests, chest radiographs, and electrocardiograms, which exposes patients to investigative risks, such as false positive results and over diagnosis. Also, the persistent variability in practice, with the trend towards reducing or eliminating PHE use in adults, can be confusing for patients.

In another study of Sommer et al. (2018) which examines the importance of periodic medical examination from the point of view of patients and citizens, the study showed that citizens receiving PHE have high expectations regarding beneficial outcomes for PHE, and they requested a comprehensive and individual program that reflect the scientific evidence from studies of PHE effectiveness.



However, it can be noticed that PHE studies that focus on a patient or citizen perspective are also rare, especially in Saudi Arabia, although they are important in exploring individual motivations for attending and not attending health checks, as well as presenting patients' experiences with periodic checks, including health beliefs and the perceived value of the program, as well as their amount of awareness or knowledge, misunderstanding of the purpose of health screening, aversion to preventive medicine, time limitations, and difficulties in accessing general practices (El Bcheraoui et al., 2015)

Consequently, it was imperative to conduct this study to fill this void, extract useful information in planning awareness and health promotion activities by relevant stakeholders, and to inform health authorities about the health-seeking behavior of the Saudi population in al jouf region.

## **Research Method**

### ***Study Design and Material***

A cross-sectional study was conducted in different locations such as commercial complexes, parks, and government offices belonging to five areas in the Al-Jouf region (Sakaka, Dumat Al-Jandal, Sawyer, Tabarjal, and Qurayyat), among the Saudi community with their consent during the period December 2020 to January 2021 by convenience sampling method. A self-administered structured, pretested questionnaire in Arabic and English with 25 close and open-ended questions was provided. It consisted of section A with 6 items investigating the socio-demographic characteristics of the sample including age, gender, education, residence and occupation status, and Section B with 19 items that measures knowledge, practice, factors that

affect PHE, and the most effective ways to spread the culture of PHE and awareness of it to the Saudi community.

The reliability of the tool and its items was determined through Cronbach's Alpha test by SPSS before distributing the tool over the study sample members. The Cronbach's Alpha was determined to be (0.845) for the overall tool items, meaning that the tool's reliability is acceptable as long as Cronbach's Alpha value is higher than (0.7). On the other hand, the validity of this questionnaire was assured by presenting it to a group of referees specialized in the field of primary health care and medicine, where the items were modified according to their observations and directions, which made it valid and ready for distribution to the members of the study sample.

### ***Population and Sampling***

The sample size of this study was 624 participants, where this sample was calculated by considering the total Saudi population of middle age and elderly in year 2020, and an expected response rate of 80% with 95% confidence level and 5% margin of error. The participants were handed over the questionnaires to respond and clarified their doubts. The confidentiality of their information's was maintained securely and exposed to only the research team. The sample included people living in the Al-Jouf region and aged between 20 and 80 years, where the sample distribution for their socio-demographic characteristics was as shown in Table (1) below.

### ***Ethical Consideration***

This study was conducted after the approval and ethical clearance from Directorate of Health Affairs in the Al Jouf region were obtained. Moreover, a formal contact was established with local ethical review committee of AL JOUF region-KSA prior to data collection, to facilitate data collection and gain community acceptance. Participation was voluntary, as the written consent of the participants was obtained prior to filling out the questionnaire, and they were reassured about the confidentiality of all the data collected.

### ***Data Analysis***

The data collected from the respondents was analyzed with Statistical Package for Social Sciences (SPSS) version 23 software. Descriptive statistics were done and frequencies and charts were used to summarize variables of interest. Moreover, the results were expressed as counts and percentage, and Chi-Square ( $\chi^2$ ) correlation test was used to test the association between the demographic variables, lifestyle practices and knowledge possessed by Saudi Al-Jawf residents, expressed in various terms from Section B at the 5% significance level.

### **Results and Analysis**

The questionnaire was filled by 624 Saudi participants living in Al-Jouf region- KSA. A descriptive statistical analysis was implemented to identify the socio-demographic characteristics of the sample members. Table (1) below shows the socio-demographic characteristics of the study sample. The majority of the respondents are male with a percentage of (66.7%) while female represents (33.3%). The most participated age category in this survey was 20-39 years old with a percentage of (56.6) % followed by (42.3%) individuals of 40-59 years old and (1.1%)

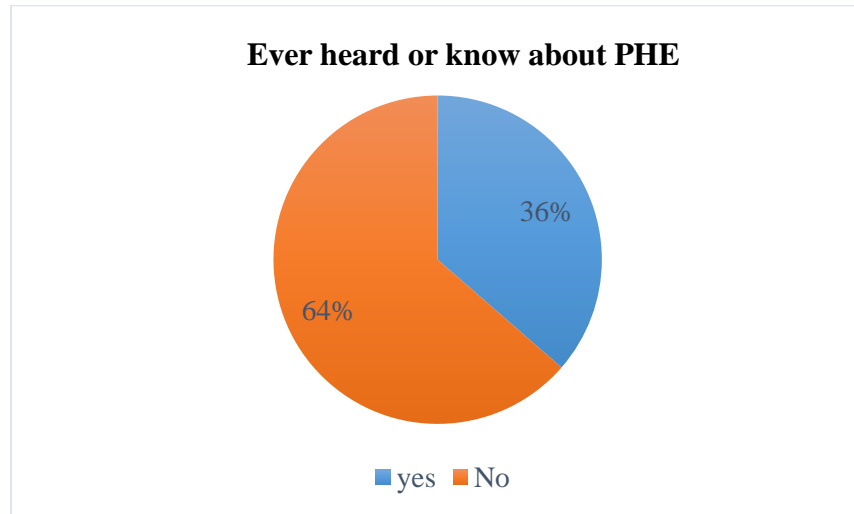


only those between the ages of 60-80 years old. The sample members are also diversified in terms of academic level of education, but the bulk of them hold a bachelor’s degree with a percent of (72.9%). In terms of residency and occupation, it can be noticed that the sample is randomly distributed among the five areas in the Al-Jouf region, but most of them live in Sakaka with a percentage of (42.6%) and work in the public sector with a percentage of (59.3). The Table 1 also showed that the sample was made up of the working and non-working groups in the health sectors in a way that ensures obtaining a variety of correct and representable answers that takes into account the social and demographic diversity and difference of the population.

**Table 1:** The socio-demographic characteristics of the study sample

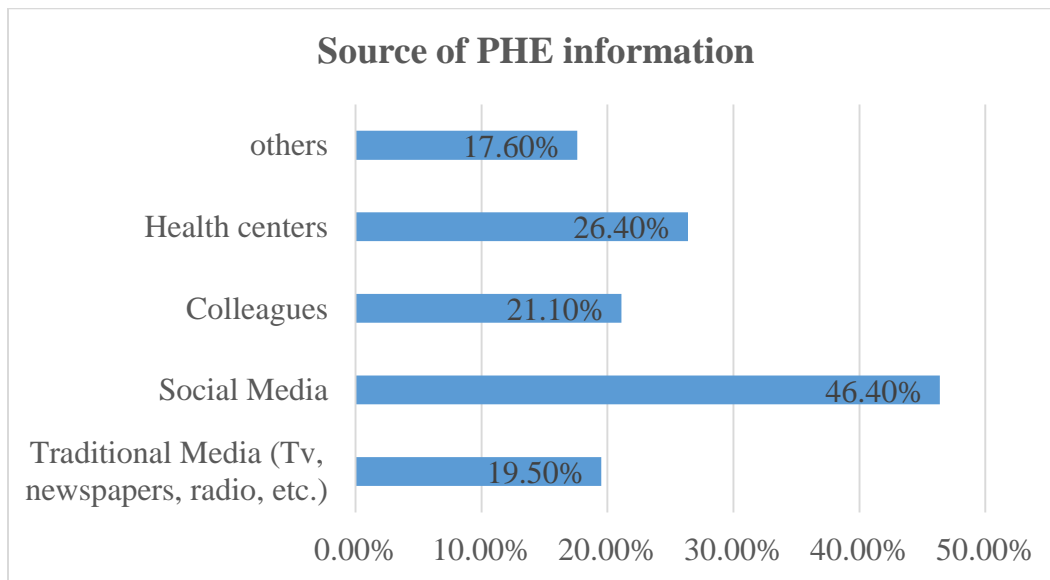
Variable	Categories	Frequency	Percentages
<b>Gender</b>	Male	416	66.7%
	Female	208	33.3%
<b>Age</b>	20-39 Years	353	56.6%
	40-59 Years	264	42.3%
	60-80 Years	7	1.1%
<b>Educational Level</b>	Elementary	6	1.0%
	Primary	12	1.9%
	Secondary	117	18.8%
	Bachelor's Degree	455	72.9%
	Master’s or Doctoral Degree	34	5.4%
<b>Residence</b>	Sakaka	266	42.6%
	Dumat Al-Jandal	179	28.7%
	Sawyer	35	5.6%
	Tabarjal	25	4.0%
	Qurayyat	119	19.1%
<b>Occupation</b>	Public Sector	370	59.3%
	Private Sector	60	9.6%
	Free Business	28	4.5%
	Not working	166	26.6%
<b>Work in Health Field</b>	Yes	99	15.9%
	No	525	84.1%

Moreover in Figure 1 below, it was found that the majority of the sample members (64%) had not heard about periodic medical check-up while (36%) had heard about periodic medical check-up.



**Figure 1:** Distribution of the sample according to their knowledge and hearing by the periodic medical examination

Figure 2 shows the source of information of the respondents who had heard about PHE. The Figure 2 shows that almost half of the respondents (46.4%) received their information about PHE through social media, while (26.4%) of the respondents stated that the health centers are the source of their information. Other information and percentages for the distribution can be found in Figure 2.



**Figure 2:** Source of PHE information

The descriptive analysis showed that only (36%) of the sample are aware of the PHE for adults and have prior information about it, and that (41%) of them believe that the PHE for adults means that the adult person reviews the health centers in cases of illness and complaints, which is a wrong view. However, (58%) possess correct knowledge that adult PHE means an adherence to periodic examinations at specific and regular times, even when he/she is healthy and does not complain of any disease.

It is noteworthy that a large percentage of the research sample (91%) believes that measuring weight and height is a component of the adult PHE, and that (84%) believe that smoking is one of the health habits that require PHE for adults, and (74%) believe that identifying the daily and physical activity of adults is one of the most important things that must be taken into account in the PHE. Moreover, (41%) of women participants aged 50-60 years regularly review health centers and hospitals in order to detect breast cancerous tumors, which is an acceptable





percentage, but it requires more awareness-raising, while a greater proportion of those women (57%) conduct PHE in order to detect osteoporosis. However, a smaller percentage of men (35%) aged 50-60 years periodically review for early detection of colon cancer.

Also, there was a weak relationship between an adult person's prior knowledge of the PHE and the correctness of this knowledge, as the correlation value (r) reached (0.104) at (p= 0.01≤0.05) significant level, which means that prior knowledge does not necessarily mean that the person has the correct knowledge of this examination. Table 2 below displays the association between demographic variables and the level of knowledge of the participants regarding PHE, and Table 3 presents the relationship between demographic variables and the adults' practice of PHE for the chronic diseases most susceptible to at this age in addition to taking vaccines.

**Table 2:** Association between demographic variables and the participants’ level of knowledge regarding adult PHE

Variables	Has a good prior information about PHE for adults		Chi-Square (P-value)
	Yes	No	
<b>Gender</b>			
Male	345	71	3.914 (0.030)
Female	185	23	
<b>Age</b>			
20-39 Years	296	57	1.792 (0.408)
40-59 Years	227	37	
60-80 Years	7	0	
<b>Educational level</b>			
Elementary	4	2	8.417 (0.077)
Primary	11	1	
Secondary	91	26	
Bachelor's Degree	396	59	
Master’s or Doctoral Degree	28	6	



<b>Residence</b>			
Sakaka	231	35	2.969 (0.563)
Dumat Al-Jandal	152	27	
Sawyer	27	8	
Tabarjal	20	5	
Qurayyat	100	19	
<b>Occupation</b>			
Public Sector	321	49	8.634 (0.035)
Private Sector	53	7	
Free Business	19	9	
Not working	137	29	
<b>Working in the health field</b>			
Yes	85	14	0.078 (0.459)
No	445	80	

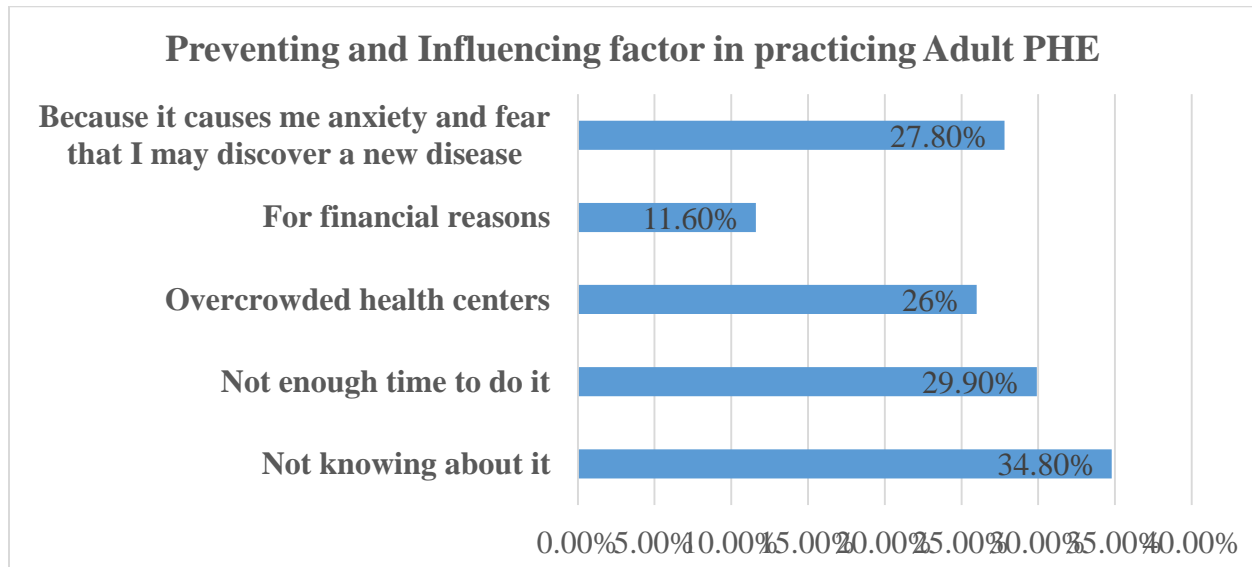
**Table 3:** Association between demographic variables and the adults' practice of PHE for the chronic diseases and vaccination

Variables	Do PHE for Hypertension			Do PHE for Diabetes			Do PHE for Vaccination			Do PHE for Cholesterol and Triglycerides		
	Yes	No	Chi-Square (P-value)	Yes	No	Chi-Square (P-value)	Yes	No	Chi-Square (P-value)	Yes	No	Chi-Square (P-value)
<b>Gender</b>												
Male	76	340	7.056	97	319	4.669	17	399	0.195	92	324	9.278
Female	21	187	(0.000)	33	175	(0.019)	7	201	(0.422)	25	183	(0.001)
<b>Age</b>												
20-39 Years	37	316		50	303	22.694	16	337	1.205	42	311	25.053
40-59 Years	59	205	16.210	77	187	(0.000)	8	256	(0.547)	73	191	(0.000)
60-80 Years	1	6	(0.005)	3	4		0	7		2	5	
<b>Educational level</b>												
Elementary	0	6		1	5		0	6		1	5	



Primary	1	11		1	11		0	12		0	12	
Secondary	21	96	5.561	21	96	3.372	8	109	5.045	23	94	9.227
Bachelor's Degree	66	389	(0.234)	97	358	(0.0498)	16	439	(0.283)	81	374	(0.056)
Master's or Doctoral Degree	9	25		10	24		0	34		12	22	
<b>Residence</b>												
Sakaka	36	230		48	218		5	261		48	218	
Dumat Al-Jandal	31	148	9.648	37	142	8.824	10	169	11.420	31	148	6.620
Sawyer	11	24	(0.074)	13	22	(0.066)	4	31	(0.022)	12	23	(0.157)
Tabarjal	5	20		8	17		2	23		6	19	
Qurayyat	14	105		24	95		3	116		20	99	
<b>Occupation</b>												
Public Sector	69	301		90	280		18	352		89	281	
Private Sector	9	51	10.99	12	48	11.544	1	59	2.741	8	52	17.276
Free Business	6	22	(0.012)	8	20	(0.009)	1	27	(0.433)	2	26	(0.001)
Not working	13	153		20	146		4	162		18	148	
<b>Working in the health field</b>												
Yes	27	72	12.328	30	69	6.398	9	90	8.752	30	69	10.309
No	70	455	(0.01)	100	425	(0.010)	15	510	(0.007)	87	438	(0.002)

Furthermore, with regard to the reasons and factors that make the percentage of adults practicing PHE low, Figure 3 shows that the participants agreed that lack of knowledge of it is the main reason in a percentage of (34.8%), followed by not enough time to do it by a percentage of (29.90%), in addition to their anxiety and fear of discovering a new disease (27.8%) as well as financial reasons with the least percentage of (11.6%).



**Figure 3:** Reasons and factors behind low levels of PHE practicing among adults

## Discussion

By referring to the results of the analysis of the data collected from the participants in the Saudi Al-Jouf region, it can be found that most of the participants (64%) do not have prior knowledge regarding the PHE adults, and this was similar to (65.7%) in a study conducted in the Riyadh region in KSA, in 2019, by AL-Kahil et al. (2019), and this supports the researcher's assumption of the low level of PHE knowledge by Saudi adults in al jouf region . Moreover, the study also revealed that there is a good awareness of the participants of the components of periodic examination, as (84%) believe that smoking is one of the health habits that require PHE for adults, and (74%) believe that determining the daily and physical activity of adults is one of the most important matters that must be taken into account in PHE, in addition to the large percentage of them not aware who are of its importance for early detection of breast, colon and osteoporosis cancers, which is consistent with a study of AL-Kahil et al. (2019) that showed



adult awareness (69.57%) of the importance of PHE (except for a few of them); however, the same problem that was found in AL-Kahil et al. (2019) and El Bcheraoui et al.'s (2015) researches is still existed in this research, which indicates that the Saudi society, especially adults, and despite their awareness of the importance of PHE, the prevalence of routine conduction of PHE is low.

Thus, it was necessary to examine the relationship between the participants' knowledge about the PHE and the extent of its practice among of Al-Jouf community and its relationship with the various demographic variables. In this study, it was found that there is a significant correlation between knowledge of PHE in Saudi adults and demographic variables related to both gender and occupation, as the value of chi-square for each of them was (3.914) and (8.634) respectively with a significant value of ( $p = 0.030$  and  $P=0.035 \leq 0.05$ ), meaning that it is statistically significant. The study also showed that the majority of AL-Jouf Saudi Adults who possess knowledge about the periodic examination are males compared to females, and that governmental (public) employees are more familiar with this examination compared to others, which is inconsistent with a study of Deeks et al. (2009) which showed that Australian women are more familiar with PHE than men, and with AL-Kahil et al. (2019) who showed that the gender of Riyadh Saudis had no effect on their knowledge of the PHE. However, the current study agrees with AL-Kahil et al. (2019), showing that public employees in both Riyadh and Al-Jouf governorates are more familiar with the PHE compared to other employees.

As for the other objective of the study, which is to know the relationship between the practice of PHE and the demographic variables of Al-Jouf adult citizens, the researcher examined the



relationship between demographic variables and the practice of Saudi adults for PHE for the most common chronic diseases for this age group (hypertension, diabetes and cholesterol level in the blood), as well as their accessibility for vaccinations, where the results showed that there is a correlation between gender ( $\chi^2= 7.056$ ,  $p=0.000$ ), age ( $\chi^2= 16.21$ ,  $p=0.005$ ), occupation ( $\chi^2= 10.99$ ,  $p=0.012$ ), and working in healthy places ( $\chi^2= 12.328$ ,  $p=0.01$ ) with the participants' practice of PHE for hypertension. However, for the PHE for diabetes, there was a correlation between the variables of gender ( $\chi^2= 4.669$ ,  $p=0.019$ ), age ( $\chi^2= 22.694$ ,  $p=0.000$ ), educational level ( $\chi^2= 3.372$ ,  $p=0.0498$ ) and occupation ( $\chi^2= 6.398$ ,  $p=0.010$ ), while there was no effect of the residence variable on their PHE practice.

By looking at the participants' PHE practice for cholesterol and triglycerides in the body, it was found that they are affected by the variable of gender ( $\chi^2= 9.278$ ,  $p=0.001$ ), age ( $\chi^2= 25.053$ ,  $p=0.000$ ), and work in healthy places ( $\chi^2= 10.309$ ,  $p=0.002$ ), while taking vaccines is affected by the place of residence ( $\chi^2= 11.420$ ,  $p=0.022$ ) and the occupation ( $\chi^2= 8.752$ ,  $p=0.007$ ), whether in the health sector or not. In general, results showed that males between the ages (40-59), and those with a bachelor's educational level, residing in Sakaka, and working in the government sector, especially the health sector, are the most practiced for PHE compared to other adult categories others, which is consistent with the study of AL-Kahil et al. (2019) and El Bcheraoui et al.'s (2015).

Finally, with regard to the reasons and factors that make the percentage of adults who practice PHE low in the Al-Jouf region, the participants agreed that lack of knowledge about it is the first reason, followed by no enough time to do it, and then their anxiety and fear of have chronic or



serious disease new disease in the third rank, which differs with the AL-Kahil et al.'s (2019) study that mentioned “worried or afraid to have chronic or serious illness” as a second reason for not conducting PHE. However, the findings of this study and AL-Kahil et al.'s (2019) study agreed on the importance of mass media, whether its traditional or social media in spreading awareness and knowledge about PHE among Saudi citizens.

## **Conclusion and Recommendations**

Periodic Health Examination is a part of the preventive healthcare service associated with low rates of mortality and morbidity, and its appropriate use may lead to early diagnosis of disease and reduce the cost of health care. The study concluded that there is a lack of adult PHE knowledge among middle-aged and elderly people of AL-Jouf..KSA and lack of prevalence in the practice of adult PHE . the most prominent reasons for that are insufficient resources of information about adult PHE ,no enough time to take the services in The overcrowding hospitals and primary health care centers as well as anxiety and fear to have chronic or serious diseases .these influencing factors which affect Al Jouf community towards adult PHE (knowledge and practice), will give deep insight into the problem of the lack of PHE for health managers in the Ministry of Health in Kingdom of Saudi Arabia, in a way that enables them to improve the PHE system in the community. The study recommends the necessity of health education for the Saudi community to rise the awareness toward PHE and the necessity of conducting research on all regions of the Kingdom of Saudi Arabia, in a way that enables researchers to have more generalizable and comprehensive results.



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