

# A Saudi National population based study Awareness and Practice of Periodic Medical check-up

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## Abstract

**Introduction:** The periodic medical examination is important in preventing some diseases and reducing their major complications; thus, it's beneficial to provide a better healthy community and reducing financial loss. Studying beliefs, awareness, practice, and influence factors in the community will be a useful method to promote health among the population. **Materials and Methods:** Cross-sectional study survey in different areas in Makkah region using a sampling technique the sample size was 2061 participants of both gender. Data were collected through a self-administered structured survey. **Results and Discussion:** Adults 20–39 years (899) (56.9%) were the most group which have adequate knowledge. The most aware participants were females (928) (58.7%). 1021 (66.4%) of the aware participants have academic educational level. Most participants did not recall performing any medical checkup (1607) (78.0%). **Conclusion:** We noticed in this study that the rate of awareness of the participants was high but unfortunately it did not show reflection on their behavior toward medical checkups. This poor implementation despite their awareness was justified mostly by two major factors which were negligence and absence of motivation.

**Key words:** Cross-sectional survey, Periodic medical checkup, Population based study, Saudi population

## INTRODUCTION

Periodic medical check-up or routine medical check-up is a form of preventive medicine practiced through history, physical examination, and screening of asymptomatic personnel by professional physicians on a regular basis as part of a routine health-care process. Periodic medical check-up is considered effective in preventing disease, promoting medical well-being and reducing morbidity and mortality in the society.<sup>[1,2]</sup>

During routine or periodic medical checkup some of the non-communicable diseases such as hypertension, breast cancer, cervical cancer, prostate cancer, and diabetes mellitus can be detected and any deviation from good health is noticed and managed in the form

of preventive or curative services thereby reducing the mortality associated with them.<sup>[3,4]</sup> It is essential to have periodic medical examinations since these chronic diseases have a heavy socioeconomic burden on individuals and account for more than 60% of the overall global burden of diseases.<sup>[5]</sup>

Thorough medical/physical examination is necessary and its frequency increases, if there is a health problem that requires proceeding care.<sup>[6]</sup>

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In general, in developing countries, where the practice of periodic medical check-up is poor, studies that have been conducted on periodic medical checkups were below the targeted level. Thus, the uptake of periodic medical check-up or preventive screening services has been shown to be poor in many developing countries.<sup>[7]</sup>

## MATERIALS AND METHODS

Cross-sectional study survey in different areas in Makkah region using a sampling technique.

### Statistical analysis

The values were presented as number (%). IBM SPSS Statistics for Windows, version 23 was utilized for analysis (IBM SPSS, IBM Corp., Armonk, N.Y., USA). Statistical comparisons were made by Pearson Chi-square test. The data were significant if  $P < 0.05$ .

## RESULTS AND DISCUSSION

The demographic characteristics of the participants are shown in Table 1. Most of the participants were in the age group of 20–39 years (57.1%), then 40–59 years (26.5%),  $\leq 20$  years (13.7%), and least  $\geq 60$  years (2.4%) with significant difference between groups ( $P < 0.0001$ ). The number of females was significantly higher than males ( $P < 0.0001$ ). The education levels were mostly academic education (63.4%), followed by secondary (24.0%), intermediate (6.8%), and lastly elementary (3.4%) with significant difference between them ( $P < 0.0001$ ).

**Table 1: Demographic characteristics of participants**

Characteristics	Value (%)	Significance
Age groups ( $n=2062$ )		0.0001
$\leq 20$ years	284 (13.7)	
20–39 years	1181 (57.1)	
40–59 years	548 (26.5)	
$\geq 60$ years	49 (2.4)	
Gender ( $n=2061$ )		0.0001
Male	879 (42.6)	
Female	1182 (57.4)	
Marital status ( $n=2018$ )		0.476
Single	993 (48.0)	
Married	1025 (49.6)	
Education levels ( $n=2018$ )		0.0001
Elementary	71 (3.4)	
Intermediate	140 (6.8)	
Secondary	497 (24.0)	
Academic education	1310 (63.4)	

Most of the participants did not have chronic diseases (79.7%). Only 413 (20.0%) had chronic diseases, the diseases were diabetes mellitus (33.7%), hypertension (25.0%), or other disease (41.3%) with significant difference between them ( $P < 0.0001$ ) [Table 2].

The participants believe and concepts about periodic medical checkup are shown in Table 3. Most of participants made medical checkup and investigation to checkup their health and protect from complications (61.9%), noticed importance of medical checkup for early detection and protection from complications (83.10%). Benefit from periodic checkup was mostly  $>30$ –50% (17.0%) then 10–30% (126%),  $>70$ –100% (7.8%), and lastly  $>50$ –70% (7.6%) with significant difference between them ( $P < 0.0001$ ). Most of participants somewhat interested in periodic medical checkup (51.2%), while 31.5% not interested and 17.1% very interested with significant difference between them ( $P < 0.0001$ ). In participants opinion, the physician role in medical checkup was request investigations (5.1%), disease diagnosis (10.7%), prescribed treatment (8.3%), and all the above roles (76.0%) with significant different between opinions ( $P < 0.0001$ ).

The participant's knowledge about periodic checkup is shown in Table 4. They were five items with score out of five. Most of participants get 4 out of 5 (32.8%), then 3 out of 5 (31.0%), 2 out of 5 (21.1%), 5 out of 5 (12.9%), and 1 out of 5 (1.9%), while only 0.3% get 0 out of 5, with significant difference between them ( $P < 0.0001$ ). The participants with adequate knowledge (3–5) were significantly higher than those with inadequate knowledge ( $<3$ ) (76.4% vs. 23.3%,  $P < 0.0001$ ).

Most of the participants did not perform medical checkup routinely (22.0%). The frequency of medical checkup was mostly  $<6$  months (61.2%),  $>1$  years (27.1%), and 6 months–1 year (2.66%), with significant difference between them ( $P < 0.0001$ ) [Table 5].

Cross tabulation between knowledge status of the participants and demographic characteristics of participants is shown in Table 6. There were significant differences between participants with adequate knowledge and those without adequate knowledge in gender ( $P = 0.012$ ), education levels ( $P = 0.033$ ) and presence of chronic diseases ( $P = 0.001$ ).

**Table 2: The clinical characteristics of participants**

Characteristics	Value (%)	Significance
Chronic diseases ( $n=2061$ )		0.0001
No	1648 (79.7)	
Yes	413 (20.0)	
Types of chronic diseases		0.001
Diabetes mellitus	137 (33.7)	
Hypertension	108 (25.0)	
Others	168 (41.3)	

**Table 3:** Participants believes and concept about periodic medical check up

Characteristics	Value (%)	Significance
Did you made medical checkup and investigations regularly to check up your health and protect from complications ( <i>n</i> =412)		
Yes	255 (61.9)	0.0001
No	157 (38.1)	
Did you notice importance of medical checkup for early detection and protection from complications? ( <i>n</i> =255)		
Maybe	26 (10.2)	0.0001
Yes	212 (83.10)	
No	17 (6.7)	
How much you get benefit from periodic medical check up ( <i>n</i> =454)		
10–30%	57 (12.6)	0.0001
>30–50%	77 (17.0)	
>50–70%	158 (7.6)	
>70–100%	162 (7.8)	
Your interest of periodic medical checkup ( <i>n</i> =2061)		
Not interested	650 (31.5)	0.0001
Somewhat interested	1058 (51.2)	
Very interested	353 (17.1)	
What is the physician role in medical checkup from your opinion? ( <i>n</i> =1144)		
Request investigations	58 (5.1)	0.0001
Diagnosis of the diseases	122 (10.7)	
Prescribed treatment	95 (8.3)	
All the above	869 (76.0)	

Where participants with adequate knowledge were more in female, academic education, and those had chronic diseases compared to those with inadequate knowledge.

There was significant difference between participants with adequate knowledge and those without adequate knowledge in performance medical checkup routinely ( $P < 0.0001$ ) and frequency of medical checkup ( $P = 0.038$ ). The participants with adequate knowledge do checkup routinely more than those with inadequate knowledge (24.7% vs. 13.1%). Frequency of checkup in those with adequate and inadequate knowledge was <6 months (63.4% vs. 47.6%), 6 months–1 year (25.1% vs. 39.7%), and >1 year (11.5% vs. 12.7%) [Table 7].

Participants with adequate knowledge were more than those without adequate knowledge in made medical checkup and investigation to checkup their health and protect from complications (65.2% vs. 46.6%,  $P < 0.0001$ ), noticed importance of medical checkup for early detection and protection from complications (86.4% vs. 61.8%,  $P < 0.0001$ ), in somewhat interested in periodic medical checkup (52.2%

**Table 4:** Participants knowledge about periodic medical check up

Characteristics	Value	Significance
Q1. Previous background on periodic medical checkup ( <i>n</i> =2061)		
Yes	903 (43.8)	0.0001
No	1158 (56.2)	
Q2. The importance of periodic medical check up to protect from disease ( <i>n</i> =2062)		
Yes	1901 (92.2)	0.0001
No	161 (7.8)	
Q3. The periodic medical checkup compensate on the doctor's visit ( <i>n</i> =2061)		
Yes	917 (44.4)	0.0001
No	1144 (55.3)	
Q4. The results it is enough for diagnose diseases ( <i>n</i> =2061)		
Yes	1038 (50.4)	0.741
No	1023 (49.6)	
Q5. Participants who think that it should be performed on all age groups of all gender ( <i>n</i> =2061)		
Yes	1818 (88.2)	0.0001
No	243 (11.8)	
Knowledge score		
0 out of 5	6 (0.3)	0.0001
1 out of 5	40 (1.9)	
2 out of 5	435 (21.1)	
3 out of 5	639 (31.0)	
4 out of 5	676 (32.8)	
5 out of 5	265 (12.9)	
Knowledge status		
Inadequate knowledge (<3)	481 (23.3)	0.0001
Adequate knowledge (3–5)	1580 (76.4)	

vs. 48.5%,  $P < 0.0001$ ). Benefit from periodic checkup was mostly >70–100% (38.4%) in patients with adequate knowledge and >30–50% in participants without adequate knowledge (31.7%) with significant difference between them ( $P < 0.0001$ ). In participants with and without adequate knowledge, opinion about physician role was the physician role in medical checkup and was request investigations (5.2% vs. 1.7%), disease diagnosis (10.7% vs. 10.3%), prescribed treatment (7.7% vs. 19.0%), and all the above roles (76.3% vs. 69.0%) with significant different between opinions ( $P = 0.018$ ) [Table 8].

Data were expressed as number (percentage). Significance between groups was made using Person Chi-square test.

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By this research, we evaluate the awareness of this society about the periodic health check-up and its importance. Furthermore, we estimate the percentage of people that are doing this periodic health check-up.

The used method in this research is based on questions, where we used 5 questions to classify the society into 2 categories, “Adequate” with 0–2 scores or “Inadequate” with 3–5 scores. Through this, we knew that the females were more aware compared to males, with 58.7%, on the other side, the males came with 41.3%. These results are similar to the results included in the research named “Examination in Kingdom of Saudi Arabia, 2013.<sup>[8]</sup>”

We also realized the awareness related to age groups, the age groups that were well-aware are “21–39” groups, where the numbers of individuals involved in these groups are 899, and the percentage is 56.9%, followed by the age groups 40–59 with individuals of 422 and percentage of 26.7%, the

**Table 5: Participants altitude regarding medical check up**

Questions	Value (%)	Significance
The participants performed medical checkup routinely (n=2061)		
Yes	454 (22.0)	0.0001
No	1607 (78.0)	
Frequency of medical checkup (n=454)		
<6 months	278 (61.2)	0.0001
6 months–1 year	53 (2.66)	
>1 year	123 (27.1)	

**Table 6: Cross tabulation between knowledge status and demographic characteristics of participants**

Characteristics	Adequate knowledge (n=1580)	Inadequate knowledge (n=481)	Significance
Age groups (n=2062)			0.675
≤20 years	218 (13.8%)	66 (13.7%)	
20–39 years	899 (56.9%)	281 (58.4%)	
40–59 years	422 (26.7%)	126 (26.2%)	
≥60 years	41 (2.6%)	8 (1.7%)	
Gender (n=2061)			0.012
Male	652 (41.3%)	227 (47.2%)	
Female	928 (58.7%)	254 (52.8%)	
Marital status (n=2018)			0.300
Single	761 (49.5%)	228 (48.0%)	
Married	776 (50.5%)	247 (52.0%)	
Education levels (n=2018)			0.033
Elementary	50 (3.3%)	21 (4.4%)	
Intermediate	98 (6.4%)	42 (8.8%)	
Secondary	368 (23.9%)	129 (27.2%)	
Academic education	1021 (66.4%)	283 (59.6%)	
Chronic diseases (n=2061)			0.001
No	1240 (78.5%)	408 (84.8%)	
Yes	340 (21.5%)	73 (15.2%)	
Diabetes mellitus	113 (33.2%)	24 (32.9%)	0.402
Hypertension	93 (27.4%)	15 (20.5%)	
Others	134 (39.4%)	34 (46.6%)	

**Table 7:** Cross tabulation between knowledge status and how many participants applied medical checkup

Questions	Adequate knowledge (n=1580)	Inadequate knowledge (n=481)	Significance
The participants performed medical checkup routinely (n=2061)			0.0001
Yes	391 (24.7%)	63 (13.1%)	
No	1189 (75.3%)	418 (86.9%)	
Frequency of medical checkup (n=454)			0.038
<6 months	248 (63.4%)	30 (47.6%)	
6 months–1 year	98 (25.1%)	25 (39.7%)	
>1 year	45 (11.5%)	8 (12.7%)	

**Table 8:** Cross tabulation between knowledge status and participants believes and concept about periodic medical check up

Characteristics	Adequate knowledge (n=1580)	Inadequate knowledge (n=481)	Significance
Did you made medical checkup and investigations regularly to check up your health and protect from complications (n=412)			0.002
Yes	221 (65.2%)	34 (46.6%)	
No	118 (34.8%)	39 (53.4%)	
Did you notice importance of medical checkup for early detection and protection from complications? (n=255)			0.0001
Maybe	21 (9.5%)	5 (14.7%)	
Yes	191 (86.4%)	21 (61.8%)	
No	9 (4.1%)	8 (23.5%)	
How much you get benefit from periodic medical checkup (n=454)			0.0001
10–30%	42 (10.7%)	15 (23.8%)	
>30–50%	57 (14.5%)	20 (31.7%)	
>50–70%	142 (36.3%)	16 (25.4%)	
>70–100%	150 (38.4%)	12 (19.0%)	
Your interest of periodic medical checkup (n=2061)			0.0001
Not interested	461 (29.2%)	189 (39.3%)	
Somewhat interested	824 (52.2%)	234 (48.5%)	
Very interested	295 (18.7%)	58 (12.1%)	
What is the physician role in medical checkup from your opinion? (n=1144)			0.018
Request investigations	57 (5.2%)	1 (1.7%)	
Diagnosis of the diseases	116 (10.7%)	6 (10.3%)	
Prescribed treatment	84 (7.7%)	11 (19.0%)	
All the above	829 (76.3%)	40 (69.0%)	

subsequent groups are the 20's groups with individuals of 218 and percentage of 13.8%. The lowest age groups are 60's with a number of 41 and percentage of 2.6%. We figured out that the research named "Knowledge and Practices Toward Routine Medical Check-up Among Middle-Aged and Elderly People of Riyadh and Islamabad has the same findings.<sup>[9,10]</sup>

The marital status was not dramatically effective as expected, where we found that the Adequate married people (776 person) did not go beyond 50.50%, meanwhile the single people (761 person) got the percentage of 49.50% thus, we concluded the incompatibly with the research known as

"Periodic Health Examination in Kingdom of Saudi Arabia, 2013."<sup>[8]</sup>

Educational attainment reflects the awareness, that is, why the level of awareness increases proportionally with the educational attainment. As confirmation, we noticed that the people with academic level (1021 person) obtained a percentage of 66.4%, while the people with elementary level (50 person) did not exceed 3.3%. These outcomes reached consensus with the outcomes of the research "Knowledge and Practices Toward Routine Medical Check-up Among Middle-Aged and Elderly People of Riyadh."<sup>[9,10,11]</sup>

Through our studies concerned about awareness of society and to which extend they realize it's importance, we found that most of people who are classified as "Adequate" do not do the periodic health check-up on a regular basis, where the numbers of that category are 1189 and their percentage is 75.3%, in spite of their knowledge about this periodic health check-up and how much it's important, these results are matching with the data labeled in this study.<sup>[12-14]</sup> We explored the views of the society about the role of the doctor related to periodic health check-up. Our research is distinct from other researches in that we use the scoring questions; hence, the results are more precise than the other researchers, where in our research we estimate the level of awareness through participants themselves.

## CONCLUSION

This study in Makkah region clarifies that the most awarded group in society is the adults group (age 20–39), and the educational level has a significant role in awareness.

In this study, we observed the high level of awareness of the participants, nevertheless such awareness has, unfortunately, no effect on their application, and that was due to many factors, such as negligence and lack of motivation.

We recommend intensifying efforts to aware the society about the importance of periodic check-ups and its crucial turn in preventing chronic diseases and reducing the complications, and so how it's indispensable. Finally, we emphasize to illustrate that the doctor has an important role in this check-up.

At last, we think that this issue should be reconsidered to avoid several financial losses and to provide an improved healthy environment.

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