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Knowledge, perception, and attitudes of Universal Health Coverage policies among Alfaisal University students in Saudi Arabia

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Abstract:

BACKGROUND: Saudi Arabia aims to achieve Universal Health Coverage (UHC) by a combination of free public healthcare and mandatory cooperative health insurance. To ensure the effectiveness of UHC policies, every individual should have a strong knowledge of their health-care rights and the system that guarantees it.

OBJECTIVES: The aim of this study is to measure the knowledge of Alfaisal students and record their perceptions and attitudes about Saudi Arabia's basic health-care coverage structure and UHC policies.

MATERIALS AND METHODS: A cross-sectional survey was developed with 22 items measuring knowledge and 7 items evaluating perception and attitudes and distributed through E-mail with a consecutive sampling method at Alfaisal University to achieve the required calculated sample size for March–April of 2020. The accumulated data were organized, tabulated, and statistically analyzed using SPSS software. Comparison between two groups and more was made using the Chi-square test.

RESULTS: Students' self-reported knowledge on the three main knowledge questions ranged from 30.6% to 57.7%, with medical students admitting to similar or worse knowledge compared to their colleagues from other colleges. About 57.3% of our respondents believe the Saudi system provides effective and sufficient healthcare to all, but only 42.7% believe that the system provides financial protection to all.

CONCLUSION: The study showed a low level of knowledge about Saudi Arabia's UHC policies among Alfaisal students, especially among medical students, with a generally positive perception and attitudes toward them, although with some serious misconceptions that should be addressed.

Keywords:

Health policy, healthcare, Universal Health Coverage

Introduction

Universal Health Coverage (UHC) is achieved when a country can provide all its population with effective and sufficient health services of appropriate quality while preventing people from utilizing these services from falling into financial hardship.^[1-3] UHC is a major positive factor in the sustainable

development of social, economic, and environmental factors.^[4] Different policies and strategies are deployed all over the world to implement UHC sparking a yet to be settled debate on the best method to achieve it.^[2,5] As the 1978 Alma Ata declaration emphasized the importance of health for all, countries around the world strived to achieve UHC, including Saudi Arabia.^[2,6,7]

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In 2002, Saudi Arabia established the Health Law stating in its second article that the health system aims to ensure and organize comprehensive and complete healthcare for all in a fair and accessible manner, making UHC a cornerstone in its system.^[8] The Saudi government provides a comprehensive list of free public health services to its citizens to comply with article 31 of its constitution, which states that health is a protected right for all.^[3,9,10] Saudi Arabia, faced by the ever-growing private sector and resident population, introduced the cooperative health insurance system in 1999 and the Cooperative Health Insurance Act of 2003, which started the mandatory health insurance system in 2006 aiming to provide health coverage to this population.^[3,10,11] Saudi Arabia aims to achieve UHC by a combination of free public healthcare and mandatory cooperative health insurance covering its entire population of residents and nationals.^[3,7]

Saudi Arabia has faced many difficulties in achieving UHC mainly due to the public health sector's inefficient use of resources, poor quality, and abuse of services in addition to an increase in demand for higher quality services that lead to a spiraling unsustainable surge of cost.^[3,10] To mitigate these problems, Saudi Arabia's health system is going through a change as part of its 2030 vision to provide free public health-care services through national health insurance.^[3,9]

To truly achieve UHC in a population, every individual should have a strong knowledge of their health-care rights and the system that guarantees it, as just providing services is not enough to achieve true health equity.^[12] Health Literacy is defined by the WHO as the ability of individuals to have access to, understand, and use information effectively to achieve and preserve a good level of health that is crucial for empowerment.^[13]

While Health Literacy has been used to describe the knowledge of the health-care system, recently, the literature has used the more specific term Health System Literacy.^[12,14] Health System Literacy is defined by de Leeuw E. as: "the skills, capacities, and knowledge required to access, understand and interact with social and political determinants of health and their social discourse also requires a new appreciation of the political ecosystem in health promotion."^[14] With the currently complex and continuously expanding health system, health system literacy for health-care workers and the population is necessary.^[15]

While the Saudi health system has been going through major changes to achieve UHC since the late 1990s, we were unable to find any data describing Health System Literacy or UHC knowledge among Saudi Arabia's population. Thus, we decided to start

with this exploratory study to measure and compare the knowledge of our community of Alfaisal students about the basic structure of health-care coverage and UHC policies and record their perceptions and attitudes of them. Through this study, we aim to expand to the wider population to gain a better understanding and come up with recommendations to raise awareness if needed.^[3,7,10]

Materials and Methods

Study population

The study population consisted of Alfaisal University students. The questionnaire targeted all five colleges of the university, including the College of Medicine, the College of Engineering, the College of Business, the College of Science, and the College of Pharmacy. Alfaisal University faculty and staff, students who have already graduated, and non-Alfaisal students were excluded from the study population.

Ethics

We received an exemption from Alfaisal University IRB for application number IRB-20020 on March 3, 2020.

Data collection

Up to our knowledge, no tool existed at the time of developing this questionnaire that was used to assess UHC knowledge, perception, and attitudes in Saudi Arabia. The questionnaire incorporated 35 items: 6 items assessing demographics, 22 items measuring knowledge, and 7 items evaluating perception and attitudes. The principal topics addressed in the questionnaire concerned: Universal Healthcare policies in Saudi Arabia, mandatory cooperative health insurance laws, and free public health-care laws. In the knowledge assessment section, the questionnaire included three transitional questions to lead responders, that stated they know about that subject, for further appraisal. In the perception assessment section, the closed-ended multiple-choice questions were followed by an open-ended question to allow participants, if they wish, to explain the reason for their choice.

The questionnaire items were evaluated and validated by a panel consisting of two public health specialists and an expert from the Saudi Ministry of Health on Saudi health policies. Furthermore, we reviewed the literature and the law decrees pertaining to our subject to affirm content validity.^[3,7-10,16,17] A pilot study was conducted on 15 students from Alfaisal University, who were later excluded from the study, to test clarity and face validity of the tool and to recognize any technical obstacles. The pilot study revealed that the average time to complete the survey was around 7 min. Furthermore, some of the questionnaire items were unfamiliar and were consequently supplied with descriptions and definitions

to prevent ambiguity. The questionnaire was made on and distributed through Google Forms.

Our cross-sectional study was conducted from March through April of 2020, through this time a message bearing the questionnaire link was sent through E-mail on waves to achieve our calculated needed sample through consecutive sampling, those willing to participate were included in the study. The message was standardized to avoid bias. It was distributed through the university's institutional E-mail system. The questionnaire comprised an opening paragraph that explained the study's aim and assured participant anonymity as well as the freedom to withdraw or decline a response entirely.

Statistical analysis

The internal consistency reliability for the questionnaire was assessed by employing Cronbach's α coefficient. Values >0.7 and <0.9 are deemed to be adequately reliable for comparisons.^[18] The accumulated data were organized, tabulated, and statistically analyzed using SPSS software (Statistical Package for the Social Sciences, version 23, SPSS Inc. Chicago, IL, USA). For quantitative data, the range, mean, and standard deviation were calculated. Comparison between two groups and more was made using the Chi-square test. Significance was adopted at $P < 0.05$ for the interpretation of the results of tests of significance.

Results

Cronbach's alpha coefficient was 0.79 for the knowledge section, and 0.82 for the perception and attitudes section, indicating high internal consistency reliability for both.

Taking guidance from Pourhoseingholi *et al.*, we calculated the required sample to be 341 to achieve a minimum confidence level of 95% with a maximum 5% margin of error.^[19] The survey received 464 responses. Alfaisal has international students from 39 nationalities, as the Saudi health system treats all nationalities the same, we grouped them into Non-Saudis in our survey. Survey respondents' characteristics are described in Table 1.

We divided the respondents based on college into medicine versus others to see if being in the College of Medicine gives an advantage, we also compared those that have insurance and have access to public healthcare against those that do not or do not know to see if having insurance or access gives an advantage.

Our survey is divided into two parts, knowledge assessment, and perception and attitudes assessment. Starting with knowledge assessment section, our survey respondents were asked "Do you know that Saudi Arabia

Table 1: Baseline characteristics of survey respondents (n=464)

Sample characteristics	n (%)
Gender	
Male	186 (40.1)
Female	278 (59.9)
Nationality	
Saudi	208 (44.8)
Non-Saudi	256 (55.2)
College	
Medicine	322 (69.4)
Engineering	50 (10.8)
Pharmacy	13 (2.8)
Business	50 (10.8)
Science and UPP	29 (6.3)
Do you have health insurance in Saudi Arabia?	
Yes	312 (67.2)
No	117 (25.2)
I don't know	35 (7.5)
Do you have access to free public healthcare in Saudi Arabia?	
Yes	203 (43.8)
No	140 (30.2)
I don't know	121 (26.1)

aims to achieve Universal Health Coverage?" 34.7% answered yes. Chi-square analysis showed no statistical difference based on Gender ($P = 0.927$), college ($P = 0.564$), or insurance status ($P = 0.275$), statistically significant results are described in Table 2. On answering yes to "Do you know that Saudi Arabia aims to achieve Universal Health Coverage?" ($n = 161$), survey respondents were asked about how Saudi Arabia aims to achieve UHC. About 62.1% correctly answered that it aims to achieve it through both mandatory cooperative insurance and free public healthcare.

When asked "Do you know about mandatory cooperative health insurance law in Saudi Arabia?" 30.6% of survey respondents answered yes. Based on Chi-square analysis, College of Medicine students compared to other students had no statistically significant difference in their answers ($P = 0.330$) so was those that had access to free public healthcare versus others ($P = 0.214$), statistically significant results are described in Table 2. Participants that responded yes to the question "Do you know about mandatory cooperative health insurance law in Saudi Arabia?" ($n = 142$) were asked nine questions [Appendix 1] to assess their knowledge about this topic and their scores were recorded out of a possible 9. Their scores ranged from 0 to 8 and their mean score was 4.281 ± 1.787 .

When asked "Do you know about free public healthcare in Saudi Arabia?" 57.7% of survey respondents answered yes. Comparing our respondents based on health insurance status ($P = 0.65$) and gender ($P = 0.298$)

Table 2: Significant results of Chi-square test for self-reported knowledge

Sample characteristics (n=464)	Yes, n (%)	No, n (%)	P
Do you know that Saudi Arabia aims to achieve Universal Health Coverage			
Saudi	87 (41.8)	121 (58.2)	0.004
Non-Saudi	74 (28.9)	182 (71.1)	
Have access to free public healthcare in Saudi Arabia	93 (45.8)	110 (54.2)	<0.0001
Don't have access to free public healthcare in Saudi Arabia or don't know	68 (26.1)	193 (73.9)	
Total	161 (34.7)	303 (65.3)	
Do you know about mandatory the cooperative health insurance law in Saudi Arabia?			
Males	68 (36.6)	118 (63.4)	0.023
Females	74 (26.6)	204 (73.4)	
Saudi	50 (24.0)	158 (76.0)	0.006
Non-Saudi	92 (35.9)	164 (64.1)	
Have health insurance in Saudi Arabia	107 (34.3)	205 (65.7)	0.013
Don't have health insurance in Saudi Arabia or don't know	35 (23.0)	117 (77.0)	
Total	142 (30.6)	322 (69.4)	
Do you know about the free public healthcare in Saudi Arabia?			
Saudi	163 (78.4)	45 (21.6)	<0.0001
NonSaudi	105 (41.0)	151 (59.0)	
College of Medicine	176 (54.7)	146 (45.3)	0.042
Other Colleges	92 (64.8)	50 (35.2)	
Have access to free public healthcare in Saudi Arabia	167 (82.3)	36 (17.7)	<0.0001
Don't have access to free public healthcare in Saudi Arabia or don't know	101 (38.7)	160 (61.3)	
Total	268 (57.7)	196 (42.3)	

showed no statistically significant difference, significant results are shown in Table 2. To conclude knowledge assessment, Participants that responded positively to the question "Do you know about the free public healthcare in Saudi Arabia?" ($n = 268$) were assessed on the topic with nine questions [Appendix 2] and their scores were recorded out of a possible 9. Their scores ranged from 0 to 9, with a mean score of 5.511 ± 1.881 .

To record the perception and attitudes of our respondents, they were asked seven multiple-choice questions; the frequencies and percentages of the responses are described in Table 3.

Analyzing the first six questions with Chi-square test, we found that the groups based on health insurance status answered similarly in these question ($P = 0.567$, $P = 0.068$, $P = 0.587$, $P = 0.951$, $P = 0.088$, and $P = 0.627$, respectively). Gender showed a statistically significant association with the first question's answer but not for questions 2–6 ($P = 0.793$, $P = 0.585$, $P = 0.828$, $P = 0.141$, and $P = 0.104$, respectively). Nationality showed no statistically significant relation with answering questions five ($P = 0.366$) and six ($P = 0.411$). Comparing student of College of Medicine versus others showed no statistical differences in questions 3–6 ($P = 0.658$, $P = 0.316$, $P = 0.518$, and $P = 0.492$, respectively). Finally, having access to free public healthcare did not show a statistical difference compared to others in questions three ($P = 0.337$), four ($P = 0.198$), and six ($P = 0.836$). Statistically significant results are shown in Table 4.

Both males and females showed neither difference in hospital preference ($P = 0.745$) nor was there a difference between medical students and others ($P = 0.098$) statistical differences among the other groups are portrayed in Table 5.

Discussion

This study aims to measure the knowledge and record the perception and attitudes of the Saudi medical system's UHC policies among Alfaisal University students.

When we piloted the survey, some respondents stated that they are not sure if they do indeed have insurance in Saudi Arabia or have access to free public healthcare, thus, we included an "I don't know" option for both. After receiving the results, we were surprised to see that some of our respondents lack this basic knowledge as It is crucial for each individual to know their source of health coverage to achieve the most basic form of health literacy, which has been shown to affect health outcomes and access to health.^[20,21]

Asking participants whether or not they are aware of Saudi Arabia's plan to achieve UHC demonstrated an overall low level of knowledge regarding the general aim of the Saudi Health system.^[7] Saudis and people who have access to free public healthcare were significantly more likely to say yes compared to their counterparts. Asking about the knowledge of mandatory health insurance in Saudi Arabia showed a similarly low level of knowledge, but unlike the previous question, being Non-Saudi and

Table 3: Frequencies and percentages of the perception and attitudes questions

Perception and attitudes questions	n=464; 100%, n (%)
Q1 Do you believe that Saudi Arabia's health system provides all of its population (nationals and residents) with effective and sufficient health services?	
Yes	266 (57.3)
No	198 (42.7)
Q2 Do you believe that Saudi Arabia's health system protects all of its population (nationals and residents) from financial burden due to medical expenses?	
Yes	198 (42.7)
No	266 (57.3)
Q3 Do you believe that mandatory cooperative health insurance is a good method for achieving Universal Health Coverage in Saudi Arabia?	
Yes	370 (79.7)
No	94 (20.3)
Q4 Do you believe that providing free public healthcare is a good method for achieving Universal Health Coverage in Saudi Arabia?	
Yes	433 (93.3)
No	31 (6.7)
Q5 Do you believe that people should get the choice between acquiring health insurance or paying out of pocket for medical services?	
Yes	327 (70.5)
No	137 (29.5)
Q6 Do you believe there's any illegal method to avoid mandatory health insurance in Saudi Arabia?	
Yes	169 (36.4)
No	295 (63.6)
Q7 When you require a medical service, do you prefer visiting a private hospital/medical center or a governmental hospital/medical center?	
Governmental	96 (20.7)
Private	224 (48.3)
I have no preference	144 (31.0)

possessing health insurance were significantly associated with a positive answer. Furthermore, it was observed that males were significantly more likely to answer yes. Studies have shown that males are expected to have more knowledge about insurance as they are more likely to be the providers and make financial decisions, this is supported by the fact that as of 2018, only 16.2% of the Saudi workforce are females.^[22,23] Our respondents did the best in free public health-care knowledge question, having access to public healthcare and being a Saudi national was significantly associated with answering yes.

The difference among Saudis and non-Saudis in all knowledge questions could be attributed to the fact that the private sector is by far the biggest employer for non-Saudis; thus most of them are required to have health insurance while only a small proportion are hired by the government and thus usually given access to free public healthcare. Furthermore, as of the current medical system, all Saudis have access to free public healthcare regardless of their insurance coverage.^[3,9,10,23]

Medical students answered similarly to students from other colleges in the knowledge assessment questions, which asked participants about their familiarity with whether Saudi Arabia aims to achieve UHC, and how it aims to achieve it. However, when asked about their

awareness of the presence of a mandatory cooperative health insurance law in Saudi Arabia, students from the College of Medicine self-reported a lower level of knowledge compared to students from other colleges. This unusual outcome could be explained by a lack of health system information in the medical school curriculum, as shown in a study done in 2005 that demonstrated a big gap in health-care system knowledge among both 1st and 4th-year medical students in the US. Furthermore, a 2014 study that surveyed 9 medical colleges in Canada and California showed that the majority of students believe there is a big curricular deficiency in health-care policy.^[24,25]

In the perception and attitudes section, the first two questions ask about the requirements to achieve UHC.^[1,3] Most of our respondents believe that the Saudi health system provides an effective and sufficient service but does not protect its population from medical financial burden. One of the recurrent reasons given by those that do not believe in the financial protection of the system is that in cases of emergency, non-Saudis are not accepted in public hospitals and must pay for life-saving interventions outside their insurance network. We felt that It is very important to address this as the Saudi Health Law explicitly states that in cases of life-threatening emergencies, all public hospitals must

Table 4: Significant results of Chi-square test for perception and attitudes questions

Sample characteristics (n=464)	Yes, n (%)	No, n (%)	P
Q1. Do you believe that Saudi Arabia's health system provides all of its population with effective and sufficient health services?			
Male	95 (51.1)	91 (48.9)	0.026
Female	171 (61.5)	107 (38.5)	
Saudi	147 (70.7)	61 (29.3)	<0.0001
Non-Saudi	119 (46.5)	137 (53.5)	
College of Medicine	162 (50.3)	160 (49.7)	<0.0001
Other Colleges	104 (73.2)	38 (26.8)	
Have access to free public healthcare in Saudi Arabia	139 (68.5)	64 (31.5)	<0.0001
Don't have access to free public healthcare or don't know	127 (48.7)	134 (51.3)	
Q2. Do you believe that Saudi Arabia's health system protects all of its population from financial burden due to medical expenses?			
Saudi	119 (57.2)	89 (42.8)	<0.0001
Non-Saudi	79 (30.9)	177 (69.1)	
College of Medicine	120 (37.3)	202 (62.7)	0.0004
Other Colleges	78 (54.9)	64 (45.1)	
Have access to free public healthcare in Saudi Arabia	115 (56.7)	88 (43.3)	<0.0001
Don't have access to free public healthcare or don't know	83 (31.8)	178 (68.2)	
Q3. Do you believe that mandatory cooperative health insurance is a good method for achieving Universal Health Coverage in Saudi Arabia?			
Saudi	175 (84.1)	33 (15.9)	0.034
Non-Saudi	195 (76.2)	61 (23.8)	
Q4. Do you believe that providing free public healthcare is a good method for achieving Universal Health Coverage in Saudi Arabia?			
Saudi	188 (90.4)	20 (9.6)	0.023
Non-Saudi	245 (95.7)	11 (4.3)	
Q5. Do you believe that people should get the choice between acquiring health insurance or paying out-of-pocket for medical services?			
Have access to free public healthcare in Saudi Arabia	153 (75.4)	50 (24.6)	0.041
Don't have access to free public healthcare or don't know	174 (66.7)	87 (33.3)	

Table 5: Significant results of Chi-square test for the hospital preference question

Sample characteristics (n=464)	Private, n (%)	Governmental, n (%)	No preference, n (%)	P
Q7. Do you prefer visiting a private hospital/medical center or a governmental hospital/medical center				
Saudi	100 (48.1)	53 (25.5)	55 (26.4)	0.034
Non-Saudi	124 (48.4)	43 (16.8)	89 (34.8)	
Have health insurance in Saudi Arabia	173 (55.4)	55 (17.6)	84 (27)	<0.0001
Don't have health insurance or don't know	51 (33.5)	41 (27)	60 (39.5)	
Have access to free public healthcare in Saudi Arabia	84 (41.4)	64 (31.5)	55 (27.1)	<0.0001
Don't have access to free public healthcare or don't know	140 (53.6)	32 (12.3)	89 (34.1)	

accept anyone regardless of their nationality or insurance coverage.^[16]

Interestingly, while our respondents believe that mandatory health insurance would be a good method to achieve UHC, they believe that people should not be forced by law to acquire health insurance arguing against the need for UHC in the first place. One of the most recurring reasons for this opinion was freedom of choice. This sentiment against health mandates even with clear evidence of benefit to the entire society brings to memory the recent response of the American population to the Affordable Care Act (also known as Obamacare).^[26] It is important to highlight that for

cooperative health insurance to achieve UHC, it requires cooperation, hence the name, by the entire population diversifying the risk pool and distributing the financial risk.^[17] The other notable reason given is that some of the population do not need it and should make a choice based on their health status. This is a misconception as studies have shown that insurance coverage provides financial protection, improves health-care access, and decreases mortality across the entire population.^[27-29]

Our respondents had a clear preference for private hospitals, a study in 1998 with a predominantly Saudi sample showed a similar preference.^[30] Those that chose private hospitals stated that they provide less waiting

times, easy accessibility, cleaner facilities, and an overall well maintained and high-quality atmosphere. On the contrary, those that chose public hospitals as their preference stated that they care more about health outcomes rather than financial gain, have more competent physicians and are less likely to over-treat or order unnecessary tests. Some of those that had no preference stated that it depends on the service required as both have their pros and cons. Although some responses stated that non-Saudis do not have access to public hospitals, this is untrue as a lot of public hospitals accept out-of-pocket paying non-Saudi patients.^[7]

The study had some limitations one of which is there could be response bias as some of our respondents may have chosen an answer based on a desirable trait to make the system appear good, some terminologies could be unfamiliar to some of our respondents, so we tried to avoid this as much as possible by providing an explanation to the technical terms and concepts in the survey. Finally, our sample does not represent the entire Saudi population; thus, the results lack generalizability, but naturally, we expect college students to be more knowledgeable than the average population. Putting in mind our limitations, we believe our exploratory study provides in its novelty an unprecedented insight and a basis for future studies. Building on this study, we plan to survey medical colleges across the nation to assess their knowledge of the Saudi medical system and UHC policies. Furthermore, we intend to survey the general population of Saudi Arabia to assess their general knowledge on this subject to form recommendations for policies to raise awareness and health system literacy among our future physicians and the general public.

Conclusion

Our study indicates a poor level of knowledge about Saudi Arabia's UHC policies among Alfaisal students, with medical students showing similarly low levels of knowledge in comparison to other colleges, perhaps highlighting curricular deficiencies in this topic. Although our respondents showed an overall positive perception and attitudes toward UHC policies in Saudi Arabia, they also have shown a few serious misconceptions that must be addressed. To take full advantage of Saudi Arabia's UHC policies and achieve it, health policies must be developed to raise awareness and increase health system literacy to reach true health equity among the population.

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Conflicts of interest

There are no conflicts of interest.

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Appendix 1: For each of the following populations in Saudi Arabia, please select if cooperative health insurance is mandatory or not by law:

	Cooperative health insurance is mandatory	Cooperative health insurance is NOT mandatory	I don't know
Saudis working in the government sector and their dependents		x	
Saudis working in the private sector and their dependents	x		
Saudis that do not work in private or government sector.		x	
Non-Saudis working in government sector and their dependents		x	
Non-Saudis working in the private sector and their dependents	x		
Non-Saudi residents that do not work in private or government sector	x		
Non-Saudis on visit or Umra Visa	x		
Non-Saudis on Hajj Visa		x	
If required by law, who's responsible for providing employed individuals and their dependents with health insurance?			
The employee himself		The employer	I don't know
	x		

Appendix 2: For each of the following populations, please select if they are eligible for free public healthcare

	Eligible for free public healthcare	NOT eligible for free public healthcare	I don't know
Saudis working in the government sector and their dependents	x		
Saudis working in the private sector and their dependents	x		
Saudis that do not work in private or government sector.	x		
Non-Saudis working in government sector and their dependents	x		
Non-Saudis working in the private sector and their dependents		x	
Non-Saudi residents that do not work in private or government sector		x	
Non-Saudis on visit or Umra Visa		x	
Non-Saudis on Hajj Visa	x		
In cases of medical emergencies, all public hospitals and health centers provide free services to			
Everyone regardless of their nationality, insurance status, or eligibility for free public healthcare	Only those eligible for free public healthcare		I don't know
	x		