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Patients' Awareness Towards Doctor Compliance to Hand Hygiene Practice in Two Healthcare Facilities in Al-Baha

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ABSTRACT

Background: It is important for patients to be aware of their doctor's hand hygiene practices, and that it is their right to inform them if they do not comply to such safety health measures. In Saudi Arabia, specifically Al-Baha city, there is a scarcity of studies investigating patients' awareness about this specific topic in spite of its importance. **Aim:** To investigate patients' knowledge about the importance of hand hygiene and their attitudes toward the compliance of doctors to these measures. **Methods:** A cross-sectional study conducted in a hospital and in a primary healthcare center in different outpatient clinics that include: pediatric, medical, surgical, and Obs-Gyne, during the period of December 2017 to January 2018. The study was carried out using an in-house questionnaire. All the information was gathered electronically in a data sheet (Excel Microsoft, USA) and were then analyzed by the IBM-SPSS statistical software (version 21). The significance of the differences between the groups tested was determined with a chi-square test set at a 0.05 significance level. **Results:** In total, 306 patients were recruited and the overall awareness of patients to hand hygiene importance was (72.5%). The study population were categorized first by age (<20, 20 - 40, >40 years old) and then by gender (39% male) (61% female). The proportion of the age groups were 17%, 43%, 39% respectively. Patients between the age group of 20-40 years were more aware of hand hygiene importance (p-value < 0.001). The same age group were also more interested in the compliance of doctors to hand hygiene measures (p-value < 0.006). Only the youngest age group (<20 years old) argued that they would complain against doctors if they did not comply (p-value < 0.001). However, they did not show significant awareness of hand hygiene importance. When data was categorized by gender, female patients were more aware of the importance of hand hygiene than males (p-value < 0.003). Both genders agreed not to complain against their doctors if they did not perform hand hygiene. **Conclusion:** Despite the overall patient awareness of the importance of hand hygiene, the groups who are <20, >40 years old, need more awareness about hand hygiene importance. All patients should be aware of patient rights and duties.

1. Introduction

Every year millions of patients around the world are affected by different infections that are transmitted by the health-care professionals (HCPs) (Melaku, Gebre-Selassie, & Damtie, 2012); Pourakbari, Rezaizadeh, Mahmoudi, and Mamishi (2012). In 2004, the World Health Organization (WHO) launched a global hand hygiene program to reduce patient protection against Health Care Associated Infections (HCAIs) to improve patient safety, as most of these infections can be prevented through simple precautionary measure of proper hand wash (WHO, 2009). In Saudi Arabia, most studies on hand hygiene have only been carried out to assess knowledge and practices among HCPs. Up to now, far too little attention has been paid to studies that assess patients' knowledge about the importance of hand hygiene and patient attitudes toward the compliance of doctors to these measures (Al Sofiani, Al Omari, & Al Qarny, 2016; Mahfouz et al., 2017). Therefore, the aim of the study is to investigate patients' knowledge about the importance of hand hygiene and their attitudes toward the compliance of doctors to these measures.

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2. Materials and Methods

2.1. Design

A cross-sectional study.

2.2. Setting

This study was conducted on 306 patients attending different outpatient clinics: pediatric, medical, surgical, and Obs-Gyne in a tertiary care hospital and in a primary healthcare center in Al-Baha city during the period between December 2017 to January

2018. Both the hospital and the primary healthcare center were selected as representative facilities for the city. Slovin's formula was used to detect the sample size based on Al-Baha city population. There was no inclusion or exclusion criteria for the patients who participated in the study. The aim was explained to them on the spot and only those who showed interest were included.

2.3. Data Collection

Data were collected by eight members of the team for a 4-week period during morning duty. Data were collected using an electronic in-house made questionnaire (see Appendix A). All data were entered directly into an Excel data sheet using iPads. The questionnaire's validity and reliability were measured in a small pilot study before using the questionnaire in its final format based on Engellant, Holland, & Piper 's (2016) recommendations.

2.4. Study Questionnaire

The questionnaire was composed of two sections. Section A, consisted of the demographic information including type of clinics visited, age, and gender of the patients. Section B has six major questions. The first question was: Do you know that hand hygiene is important in doctor clinics? Four answers were given to the patients to choose from: Yes/no/maybe/do not care. The second question was: Do you watch if your doctor performs hand hygiene or not before an examination? Four answers to choose from were also given: yes/no/maybe/ do not care. The third question was to the measure the patient's attitude about the doctors who do not perform hand hygiene before an examination, and that was: If your doctor did not perform hand hygiene, would you remind him? Two options were given: yes/no. If the answer was 'no,' then the follow-up options were: I feel scared/ embarrassed/ he knows better/ maybe he will not treat me. The fifth question was: If you reminded your doctor and he refused, would you stay in the clinic for the checkup? This had a yes/no choice answer. Finally, the last question determines if the patient is ready to complain against his doctor or not and the question was: Would you complain against your doctor if you reminded him, but he did not comply? This question had four options to choose from: yes/no/ may be/not sure.

2.5. Ethical Approval

Approval for the study was obtained from the Ethical Review Committee of Al-Baha College of Medicine. All patients who joined the study were asked about their consent via a signed form before they were giving an iPad to answer. However, no personal information such as names, descriptions, or any other type of identity were gathered. Only patients who agreed to take part in the study were participated.

2.6. Data Analysis

All data that were collected then entered as a collective data sheet (Excel Microsoft, USA) and were then transferred and analyzed using the IBM-SPSS version 21 statistical software. Frequency count, and percentage values were used to analyze the knowledge of attitude toward and practice of hand hygiene. During the analysis, the data were categorized based on the patients age into three main groups: (<20 years old), (20-40 years old), (> 40 years old). After that, data were then stratified and categorized according to gender (Male/Female). The significance of differences according to age groups and gender was determined with a chi-square test with the significance set at the 0.05 level.

3. Results

A total of 306 patients were recruited. Around 287/306 (93%) of the study population were from different outpatient clinics in the hospital and the rest were from the primary healthcare center. Most of the study group 113/306 (43.5%) were between the age of 20-40 years old followed by the age group >40 years old (38.9%), and then the age group <20 years old (17.6%). As stated previously, only patients who agreed to contribute were included in the study; therefore, we were not able to find out the overall response rate of the patients who joined. The general characteristics of the patients included in the study are shown in Table 1. In total, around 72.5% (222/306) of the whole study population comprehended the importance of hand hygiene. The role of age was clearly evident in the study results, as the age group (20-40 years old) were more aware about of the importance of hand hygiene compared to the other groups ($p< 0.001$). They also confirmed that they watch their doctor's compliance to hand hygiene when compared to the other age groups ($p<0.006$) (see Table 2). All the age groups agreed respectively of not wanting to remind their doctors if they did not comply to hand hygiene measures (70.4%) (62.4%) (69.7%), and that counted for (66.6%) of the whole study population. Interestingly, when patients were asked why they did not remind their doctors, the answers were: the doctor knows better (46%), followed by embarrassment (30%), scared to talk (12%), and finally, the concern that they may be left untreated by the doctor (11.4%).

Table 1 General characteristics of the study group and health care institutes.

Parameter	Study populations (306)	
	Number	Percentage
Gender		
Female	186	60.8%
Male	120	39.2%
Age group (years)		
<20	54	17.6%
20-40	133	43.5%
>40	119	38.9%
Setting		
Primary health care	19	6.2%
Hospitals	287	93.8%
Type of clinics		
Pediatric	21	6.9%
Medicine	153	50%
Surgery	111	36.2%
Obstetrics and gynecology	21	6.9%

4. Significant difference

There was no significant difference between the age groups ($p>0.26$) with regards to staying or leaving the clinic if the doctor refuses to perform hand hygiene after reminding him. Moreover, they all were in agreement regarding staying in the clinic even if the doctor does not respond to their reminder. As can be seen in Table 2, only age group <20 years old reported that they would complain against the doctor if he refused to perform hand hygiene compared to the other two age groups ($P< 0.001$) who claimed that they would not (55.6%), (72.3%) respectively.

With regards to the female patients who counted for almost 61% (186/306) of the whole study population (see Table 3), when the data were stratified by gender using the same questions set, it was clear from the analysis that the female patients were significantly more aware of the importance of hand hygiene when compared with their male counterparts ($p=0.003$). In response to the other questions, no significant differences were

reported between the two groups with both having closely related answers. Males were more observant than females in watching the doctor perform hand hygiene (52%) (41%) respectively. When the same groups were asked about reminding the doctor if he did not perform hand hygiene, most of the patients in the two groups said they would not (68%) (65%) and the reasons behind that are listed in descending order: the doctor knows better (47.5%) (45.2%); embarrassment (30%) (30%); afraid of not being treated by the doctor (14.2%) (9.7%); and feeling scared (8.3%) (14.5%). Both groups were hesitant about leaving the clinic if the doctor refused to perform hand hygiene as indicated by the response observed (45%) (50%). There was no significant difference between the two groups (P= 0.26) in complaining against the doctor even if he refused to perform hand hygiene after reminding him (54.2%) (58%).

Table 3 The role of age of responders on their knowledge about the importance of hand hygiene and the compliance of doctors (n= 306).

Question	< 20 years N = 54 No (%)	20-40 years N = 133 No (%)	> 40 years N = 119 No (%)	p-value
Do you know that hand hygiene is important in doctor clinics?				
Yes	39 (72.2%)	116(87.2%)	67 (56.3%)	<0.001
No	5 (9.3%)	10(7.5%)	24 (20.2%)	
May be	6(11.1%)	6(4.5%)	20(16.8%)	
Do not care	4(7.4%)	1(0.8%)	8(6.7%)	
Do you watch your doctor if he performs hand hygiene or not before examining you?				
Yes	27(50%)	74(55.6%)	38 (31.9%)	0.006
No	13(24.1%)	40(30.1%)	46 (38.7%)	
May be	9(16.7%)	14(10.5%)	24(20.2%)	
Do not care	5(9.3%)	5(3.8%)	11(9.2%)	
If your doctor wanted to examine you and he did not perform hand hygiene, do you remind him?				
Yes	16(29.6%)	50(37.6%)	36(30.3%)	0.38
No	38(70.4%)	83(62.4%)	83(69.7%)	
If no why?				
I feel scared	5(9.3%)	19(14.3%)	13 (10.9%)	0.39
Embarrassed	11(20.4%)	40(30.1%)	42 (35.3%)	
He knows better	32(59.4%)	59(44.4%)	50(42%)	
Maybe he will not treat me	6(11.1%)	15(11.3%)	14(11.8%)	
If you remind your doctor and he refused, do you stay in the clinic for checkup?				
Yes	30(55.6%)	62(46.6%)	67(56.3%)	0.26
No	24(44.4%)	71(53.4%)	52(43.7%)	
If the doctor refuses to wash his hand, do you go to complain against him?				
Yes	16(29.6%)	27(20.4%)	13 (10.9%)	<0.001
No	13(24.1%)	74(55.6%)	86 (72.3%)	
May be	13(24.1%)	20(15%)	16(13.4%)	
Not sure	12(22.2%)	12(9%)	4(3.4%)	

Table 3 The role of gender of responders on their knowledge about the importance of hand hygiene and the compliance of doctors (n= 306).

Question	Males N = 120 No (%)	Females N = 186 No (%)	p-value
Do you know that hand hygiene is important in doctor clinics?			
Yes	82 (68.3%)	140(75.3%)	0.003
No	12 (10%)	27(14.5%)	
May be	15(12.5%)	17(9.1%)	
Do not care	11(9.2%)	2(1.1%)	
Do you watch your doctor if he performs hand hygiene or not before examining you?			
Yes	63(52.4%)	76(40.9%)	0.12
No	31(25.8%)	68(36.6%)	
May be	16(13.3%)	31(16.6%)	
Do not care	10(8.3%)	11(5.9%)	
If your doctor wanted to examine you and he did not perform hand hygiene, do you remind him?			
Yes	37(30.8%)	65(34.9%)	0.46
No	83(68.2%)	121(65.1%)	
If no why?			
I feel scared	10(8.3%)	27(14.5%)	0.30
Embarrassed	36(30%)	57(30.6%)	
He knows better	57(47.5%)	84(45.2%)	
Maybe he will not treat me	17(14.2%)	18(9.7%)	
If you remind your doctor and he refused, do you stay in the clinic for checkup?			
Yes	66(55%)	93(50%)	0.39
No	54(45%)	93(50%)	
If the doctor refuses to wash his hand, do you go to complain against him?			
Yes	20(16.7%)	36(19.4%)	0.23
No	65(54.2%)	108(58%)	
May be	19(15.8%)	30(16.1%)	
Not sure	16 (13.3%)	12(6.5%)	

5. Discussion

What is striking about the study findings is that they show that around 72.5% (222/306) of all the participating patients were aware of the importance of hand hygiene. This high percentage of awareness might be the influence of the audiovisual educational materials about hand hygiene playing on the TV screens in the patient waiting areas in the hospital/primary healthcare center. These short videos aim at increasing patients/family's awareness about general measures of public health with hand hygiene being one of them. They usually play continuously during the waiting period before seeing the doctor. However, so far, no local quantitively published studies have shown the positive impact of such media on patients, or their families/relatives. Thus, it is likely that the continuous broadcasting of such media in waiting areas played a role in reminding patients about hand hygiene. Similar findings were reported elsewhere in other countries (Berkhout et al., 2018; Duri & Ogcheol, 2019; El Marjiya Villarreal et al., 2020). The results obtained from the preliminary analysis of the data clearly showed that almost half of the study group were between the ages of 20-40 years old. These individuals are in their active years of life where they may have more awareness about their health (Alqahtani et al., 2016). Contrastingly, older patients might have less interest to follow-up and comply with the knowledge given thorough educational media as reported by (Rahaman, Lahiry, Yasmin, Khalil, & Faruquee, 2011).

As stated in Table 1, all age groups claimed that they watch for doctor's compliance to hand hygiene measures (50%) (55.6%) (31.9%), which might indicate that patients do have some awareness of the importance of hand hygiene. This was clear in the rates yielded in the first two groups. This knowledge however did not translate into the required attitude towards doctors who do not comply with hand-hygiene measures when reminded. What is surprising is that a large number of patients in the three groups were in agreement of not reminding their doctor if he did not perform hand hygiene (70.4%) (62.4%) (69.7%) respectfully. These results might confirm that doctors do not support the idea of being reminded by patients to perform hand hygiene (Pittet et al., 2011). However, it is not possible to know if this is just neglect from the doctors or lack of knowledge about the importance of hand hygiene that makes them nervous of being reminded. Several reports have shown that lack of application of hand hygiene is evident in some doctors (Alzahrani, Alkuwaykibi, Alruwili, Almaziad, & Hasn, July 2018; Redelmeier & Shafir, 2015). Therefore, reminding them is advisable for better practice and more importantly, for improved patient safety (Davis, Anderson, Vincent, Miles and Sevdalis 2011).

When the patients were asked why they do not remind their doctor about hand hygiene, the overall answers of the three age groups combined were: the doctors know better (46%), feeling embarrassed (30%), fear of talking about it (12%), and finally, the concern that they may be left untreated by the doctor as they may get upset if the patients remind them (11.4%). Interestingly, the highest percentage that was shared the most in all the three age groups was that doctors know better with the rates being (59.4%) (44.4%) (42%) respectively. It can therefore be assumed that the implication of this answer is the trust these patients had for their doctors which was reported before in similar studies (AlRuthia et al., 2019; Rolfe, Cash-Gibson, Car, Sheikh, & McKinstry, 2014).

Simple variation between the age groups were noticed with regards to staying or leaving the clinic if the doctor refused to perform hand hygiene after he was reminded. However, the variation was not statically significant ($P>0.26$). In fact, a high proportion of the patients said they would stay in the clinic even if the doctor did not follow their reminder. It was also clear from Table 2 that only the first age group (<20 years old) reported that they would complain against the doctor if he refused to perform hand hygiene more than the other two groups ($p<0.01$). Most of the other age groups 20-40 years old and >40 years old said they would not respectively (55.6%) (72.3%). Unsurprisingly, complaining against doctors is something documented in other studies as well (Zengin et al., 2014). What patients should know is complaining against doctors is considered a quality improvement indicator in healthcare when it applied through the legal channels (Stelfox, Gandhi, Orav, & ML, 2005). In this study however only the young age group <20 years old (29.6%) had the intention to complain against their doctor if he refused to wash his hands compared to other groups. These findings may lead us to believe that the youngest age group might understand their rights more when it comes to complaining against the doctors, when they feel that doctors do not follow patient safety or maybe it is just the enthusiasm of this young age. Female patients accounted for 61% (186/306) of the whole study population. When the data were categorized by gender using the same questions set, it was clear that these patients were significantly more aware of the importance of hand hygiene when compared with male patients ($p=0.003$). There is a possible explanation for this. It could be that the number of females in the study was higher than the number of males because on the days that the interviews were conducted, there were just more female patients. This might explain the high percentage and not because they have more interest than their male counterpart.

In response to other questions, as mentioned previously no significant differences were reported between the two genders as they have closely related answers. Males were a bit higher than females in watching for hand hygiene compliance by doctors (52%) (41%) respectively. When the same groups were asked about reminding the doctor of hand hygiene if he forgot, the majority of the two groups said no, they would not (68%) (65%). The reasons behind that were mainly due to: the doctor knows better (47.5%) (45.2%), followed by embarrassment (30%) (30%) in both groups, scared to talk respectively (8.3%) (14.5%), and finally the concern that they may be left untreated by the doctor (14.2%) (9.7%). Similar to the results stated in Table 2 where the data were categorized by age, it appears that no matter how the data were grouped, the proportion of the community tested do believe in the doctor's knowledge and ability. Zhao, Rao, and Zhang (2016) found that patients' trust in physicians was significantly correlated with the age, education level, annual income, and health insurance coverage of the patients. Although, Saudi females' knowledge and education have increased dramatically in the country in the last few years as reported by Alhareth, Dighrir, & Alhareth (2015), finding that correlation was not possible in this study. It might be worth investigating the reasons behind this finding in future studies.

Another finding was that both genders were hesitant about leaving the clinic if the doctor refused to perform hand hygiene as shown by the response observed (55%) (50%). This finding was unexpected, but it may indicate the difficulty of obtaining an appointment in outpatient services. Therefore, patients would tolerate any difficulties s/he may face and not cancel or leave the clinic. In a UK study, it was found that some patients do try to book out-of-hours in primary health care centers even though their condition can be dealt with during the regular working hours. This is because finding an appointment during these times is not easy (Zhou et al., 2015). In the Al-Baha area, where this study was conducted, another study which was done a long time ago in the same area by Al-Nasser, Bamgboye, and Abdullah (1994) confirmed similar findings in antenatal clinics. Furthermore, another Saudi Arabian review study claims that

patients prefer going to emergency departments even if their condition is not urgent than booking an appointment through their primary healthcare because of the difficulties of finding an appointment (Senitan, Alhaiti, & Gillespie, 2018). The latter suggests that this is the reason why patients in this study decided to stay in the clinic even if the doctor refuses to perform hand hygiene. Finally, the majority of the two genders (54.2%) (58%) showed no interest in complaining against the doctor even if he refuses to perform hand hygiene after reminding him. This finding is contrary to earlier studies conducted in other countries that claim that patients do complain against doctors if they are unsatisfied with the service provided (Harrison, Walton, Healy, Smith-Merry, & Hobbs, 2016; Kuosmanen et al., 2008; Moore, Vargas, Núñez, & Macchiavello, 2011; Pfeil, Yersin, Trueb, Feiner, & Carron, 2018). However, it is important to bear in mind the differences between this study and other studies which goes back to different patient populations and medical systems between countries. These differences may show discrepancies in the obtained results, so crude comparisons should be viewed with caution. A possible explanation for the results found, in this study, may be lack of patient knowledge about their rights and the fear of unforeseeable consequences which might happen if they complain (Mahrous 2017). Therefore, patients' rights should covertly be known to them as that will help enable them to become more knowledgeable about dealing with any problems they may face.

6. Conclusion

The present study was designed to investigate patients' knowledge about the importance of hand hygiene and their attitudes toward the compliance of doctors to these measures. The study found that most of the patients were aware of the significance of hand hygiene. When the study population were categorized into three age groups, only the middle-aged ones, were more aware of the importance of hand hygiene significantly and more eager to watch their doctors if they applied the procedure or not in comparison to the other groups. The first and third groups, the youngest and the oldest, agreed that they would not remind the doctor to wash his hand, nor would they leave the clinic if the doctor did not. Only one third of the youngest age group argued that they would complain against the doctor if he did not comply. However, the proportion detected was not significant. When the data were analyzed based on gender, it was clear that both genders were aware and willing to watch the doctors if they performed hand hygiene or not, but none argued that they would leave the clinic or complain against the doctor if he did not perform the procedure.

7. Study limitation

This study has some limitations; only one hospital and a single primary healthcare center were included. These facilities on their own might not be representative enough to generalize results for the whole population of Al-Baha region or at least the city itself. The study could have also been more generalizable if the sample size was bigger and covered more hospital clinics in other regions as well. Still, another limitation was that the patients were interviewed while they were in the waiting area; therefore, they were most probably exposed partially or completely to the hand hygiene audio visual material a few minutes before they were interviewed. Hence, they had some idea about the importance of hand hygiene. Finally, identifying the participants' demographic information such as their level of education could have allowed an even deeper insight into their backgrounds. Tackling limitations can contribute to stronger and more comprehensive conclusions and therefore should be considered in future research.

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