

Understanding the Importance of Infection Control Measures among Oral Radiology Patients in Saudi Population

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Abstract. Health-care associated infections are the most common adverse event resulting from medical and dental care. The simplest, most effective measure for preventing healthcare-associated infections is hand hygiene which prevents cross-infection in hospitals. Compliance with recommended instructions is often poor among health care workers. Another indispensable tool for prevention of cross contamination is the use of barrier techniques. This study was conducted to assess the degree of understanding of the importance of infection control measures among patients in a random Saudi population. Moreover, assess their awareness of their rights to demand non-compliant healthcare workers to use those measures for their own protection. 200 patients were randomly chosen from the Oral Radiology Clinic. The patients answered a questionnaire that tested their understanding of the use of infection control methods, as well as their attitude towards their healthcare provider. The results of the questionnaire were tabulated and analyzed. Among male patients, the “percentage awareness” did not exceed 5%, with “degree of awareness” less than 15%. Among the female patients they were less than 10% and less than 15%, respectively. Patient awareness or understanding of the importance of infection control measures was far less than expected in the tested population.

Keywords: Awareness, Infection control, Hand hygiene, Oral radiology, Dentistry, Dental.

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Introduction

Health care associated infections are a threat to patients' safety and are the most common adverse events resulting from medical or dental care^[1]. Proper hand hygiene serves many purposes in the health care setting; it prevents endogenous and exogenous infections in patients, contamination of the clinic environment with potential pathogens, and cross-transmission of micro-organisms between patients^[2]. Hand hygiene must be performed between the last hand-to-surface contact with an object located outside the patient zone, and immediately before touching the patient^[1].

Average compliance with hand hygiene recommendations varies between hospital wards, among professional categories of healthcare workers, and according to working conditions, and as well as according to the definitions used in different studies as reported by Pittet *et al.*; "Compliance of health care workers with recommended hand-washing practices was found to be below 50%"^[3,4].

Another indispensable tool for prevention of cross contamination is the use of barrier techniques. These include, but not limited to, wearing gloves, committing to suitable attire, and covering up of disinfected surfaces that may be handled at the time of patient care.

Lack of knowledge on the patient's side was reported to be one of the obstructions to compliance of healthcare workers^[5]. Therefore, the aim of this study is to survey a randomly selected group of patients in Saudi population, in regard to their understanding of the importance of infection control measures, and of their rights to report non-complying healthcare workers to the respective authorities^[1,5].

Material and Methods

Two hundred patients seeking dental treatment were randomly chosen from the Oral Radiology Clinic at the Faculty of Dentistry, King Abdulaziz University (KAUFD). Table 1 shows the distribution of patients according to age, gender, and nationality (Saudi or Non-Saudi). As the Saudi population is very diverse, it was of importance to note that although the sample was a random one in a Saudi population, not all individuals were natives. The patients answered a questionnaire (Table 2) relating to their awareness and understanding of the presence, need,

and the use of infection control methods during their encounter with the healthcare provider in the clinic. The questionnaire was designed to address the following:

1 Noticing the presence or absence of basic infection control protocols; namely covering up of surfaces, disinfecting surfaces, and usage of gloves (questions 1, 4-6).

2 Ability and courage of patient to ask the healthcare provider to use infection control methods; attitude towards using his / her rights (questions 2-3).

3 Special emphasis on the importance of performing proper hand hygiene (question 7).

Table 1. The distribution of patients according to age, gender, and ethnic background.

Group	Male (M)	Female (F)	Total
<i>Age</i>			
< 25 years	35	30	65
25– 45 years	37	36	73
> 45 years	38	24	62
Total	110	90	200
<i>Nationality</i>			
Saudi	70	58	128
Non – Saudi	40	32	72

Table 2. Patient questionnaire.

	Question السؤال	Yes نعم	No لا	N/A لا ينطبق
1	Did you see your care provider put on a new pair of gloves? هل لاحظت إن كان الفني وضع قفازات جديدة قبل أن يصورك؟			
2	If not, did you ask if he /she put on a new pair? إذا لم تلاحظ ، فهل طلبت منه أن يرتدي قفازات جديدة؟			
3	Did you ask your care provider if the instruments he/she is using were disinfected? (holder / pan bite block) هل سألت الفني إذا كانت الأدوات التي سيستخدمها معقمة أم لا؟			
4	Did you wonder if the plastic on the door handles was clean before attempting to open the door? هل تساءلت إن كان البلاستيك الموضوع على أقفال الغرف نظيفاً؟			
5	Did you ask if the plastic on the machine was placed just for you or from the previous patient? هل سألت الفني إن كان البلاستيك المغلف لسطح الماكينة قد تم وضعه خصيصاً لك أم أنه استعمل للمريض السابق؟			
6	Did you ask whether or not the lead apron was cleaned before you put it on? قبل أن تضع المريول الرصاصي ، هل سألت إن كان تم تنظيفه بعد استخدامه للمريض السابق؟			
7	Did you place your finger in your mouth during X-ray taking? If so, did you ask if you could wash your hands before leaving the clinical area? أثناء التصوير ، هل استخدمت أصبعك في تثبيت الفيلم؟ إذا كانت إجابتك بنعم ، فهل طلبت غسل يديك قبل مغادرة العيادة؟			

Questions also tested patients' awareness of their rights regarding taking action against non-compliant health care workers.

The questionnaire was designed in the form of a proxy measure; providing qualitative data. This is a quick and intuitive way, although not exactly precise^[6]. These questions were brainstormed to address the aforementioned points of interest. The questionnaire was not given to the patient. Instead, it was held in an individual interview manner, where the questions were translated into Arabic by the interviewer. Patient consent to the interview was ensured, and each patient was approached on a level concomitant with his / her education background. To assure the validity of the questionnaire, it was reviewed by several faculty members at KAUFU who are also members of the Infection Control Committee at the Faculty. The questionnaire further gained approval by the Ethical Committee at KAUFU.

Results

The results of the questionnaires were tabulated regarding both; the understanding of the presence and need of infection control measures, (referred to as "the percentage awareness" is equal to the number of patients who had an understanding of the infection control measures divided by the number of tested population). Consequently, the patients' attitude towards demanding his/her right to make sure all needed measures were taken (referred to as "the degree of awareness", which equals to the number of patients who had a positive attitude towards claiming their right to ask about compliance of their healthcare provider).

According to the given questionnaire, percentage awareness and degree of awareness were calculated and tabulated. The percentage awareness was calculated as the number of individuals who answered "yes" to any of the questions on the questionnaire divided by the total number of individuals surveyed. This value reflected the part of the population surveyed that had any degree of awareness regarding infection control. On the other hand, the degree of awareness was calculated as the number of questions answered "yes" on the questionnaire divided by the total number of questions. This value reflected the degree of positive attitude towards claiming one's right to proper infection control measures on an individual scale.

Out of the 200 individuals surveyed, only 10 subjects answered positively to any of the questions on the questionnaire. This diminutive number made variation among age, gender, and ethnic background negligible, and made it practically impossible to statistically analyze the results. All 10 subjects answered only 1 question positively, making the degree of awareness 14% for both; males and females (Table 3).

Table 3. Results according to gender of patients.

	Male (M)	Female (F)	Total
Percentage Awareness	2.7 %	7.8 %	5%
Degree of Awareness	14 %	14 %	14%

The male subjects in this survey were 110, out of which only 3 individuals (2.7%) answered yes to any of the questions on the questionnaire.

On the other hand, the female subjects were 90, out of which 7 individuals (7.8%) answered yes to any of the questions on the questionnaire.

The results of percentage awareness values varied between the male and female groups in favor of the latter. The degree of awareness though was equal in both groups (Fig. 1).

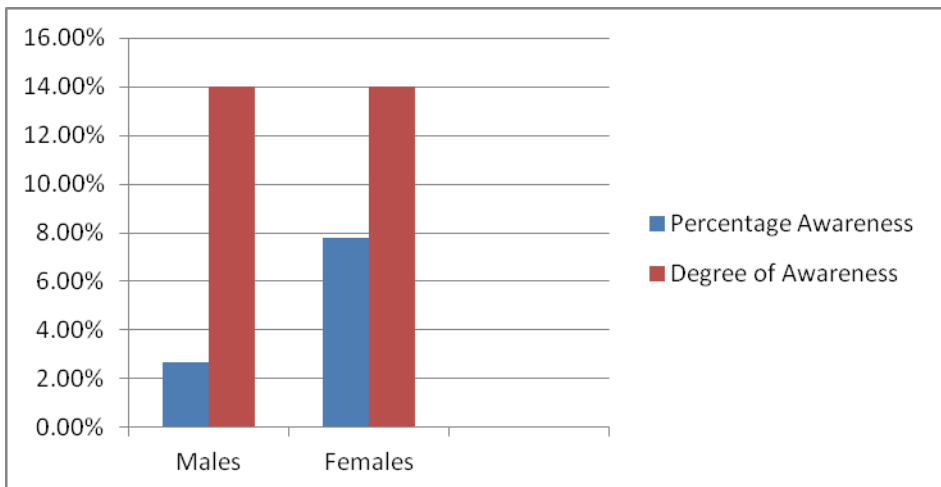


Fig. 1. Bar-graph showing a comparison between the results of male versus female groups.

Discussion

Hand hygiene is considered the most important measure to reduce the transmission of pathogens in health care settings^[4,5,7]. Despite such evidence, studies in literature have repeatedly documented that the importance of this simple procedure; hand-washing is not sufficiently recognized by healthcare workers. Compliance with hand hygiene recommendations was found to be below 50%^[4,7].

Further barrier techniques, namely wearing gloves, wrapping of machines, and door handles are crucial infection control measures that must be performed to eliminate cross-infection among patients. Oral fluids are potential contaminants, failure of proper barrier techniques will definitely lead to cross-contamination. For surfaces that are difficult to wrap or cover; in this case the lead apron, the surface must be disinfected using spray – wipe – spray technique^[8,9].

Our questionnaire was designed as to primarily test the awareness of patients to the importance of this simple basis for infection control: hand hygiene. Second, questions concerning the importance of using clean, sterile instrumentation were placed. And finally, questions related to the attitude of the patients toward knowing their rights to ask about measures taken to protect them, and claiming these rights.

The results showed that the ethnic background and the different age groups of the patients did not affect their awareness or knowledge. The gender varied insignificantly in favor of the female group. This lack of knowledge was reported as one of the barriers to appropriate hand hygiene among health care workers^[5,10].

It was noticed that many of the patients were embarrassed to ask their caregiver to put on new gloves, or if the machine has been cleaned after the last encounter. This attitude of "health care workers know best" lowered the results of this survey significantly. This fact was also reported to lower the compliance of health care workers to achieve proper infection control due to lack of sanction of non-compliers^[5,11].

Conclusion

Therefore, based on this study, it's concluded that the awareness of the tested subjects in Saudi population was very low regarding the

importance of infection control measures. These results did not vary among the different age groups, ethnic background, or gender.

Recommendations

1. This survey should be taken nation-wide to accurately document the awareness of Saudi population on a wider scale than one outpatient clinic.

2. Awareness campaigns for the patients should be done at the hospitals especially those of educational institutions.

3. The importance of infection control measures should be emphasized among health care workers, and hand hygiene promoted at individual as well as institutional levels.

4. Patients' rights should be accentuated and patient should be informed that he / she has the right to ask questions, ask for certain procedures be done, and report non compliers.

5. Follow up surveys should be made following the awareness campaigns suggested to attain feedback about the efficiency of the campaign.

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الوعي بأهمية تدابير مكافحة العدوى بين مرضى عيادات أشعة الفم في عينة من الشعب السعودي

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المستخلص. العدوى المرتبطة بالرعاية الصحية هي الحالة السلبية الأكثر شيوعاً الناجمة عن الرعاية الطبية وخدمات طب الأسنان. نظافة اليدين تمنع انتقال العدوى في المستشفيات، ولكن في كثير من الأحيان يفتقر العاملون في مجال الرعاية الصحية إلى الامتثال للتعليمات الموصى بها. وقد أجريت هذه الدراسة لتقييم مدى وعي المرضى بأهمية تدابير مكافحة العدوى، وحقوقهم في مطالبة غير المتوافقين من العاملين في مجال الرعاية لاستخدامها. اختير ٢٠٠ مريض عشوائياً في عيادات أشعة الفم. عبأ المرضى استبياناً يتعلق بوعيهم بوجود والحاجة إلى واستخدام وسائل مكافحة العدوى. تم جدولة نتائج الاستبيان وتحليلها وتم تقييم نسبة الوعي ودرجة الوعي. بين الذكور، لم تتعدى نسبة الوعي ٥٪، مع درجة من الوعي أقل من ١٥٪. أما بين الإناث، فكانت نسبة الوعي أقل من ١٠٪، مع درجة من الوعي أقل من ١٥٪. يظهر أن الوعي بأهمية تدابير مكافحة العدوى أقل بكثير من المتوقع في عينة المرضى التي تم اختبارها.