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RESEARCH ARTICLE

Vocational School of Health Services Students' Knowledge Levels on Hand Hygiene

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Abstract

Objective: Hand washing is an effective, easy and low cost application in the protection and development of general public health that can be applied in the prevention of the formation and spread of infections that individuals. The aim of this study is to evaluate the knowledge levels of students in hand hygiene in terms of compliance with hand hygiene both in school and practice areas and to determine the extent to which this information affects hand washing habits in daily life.

Methods: The research was carried out in the fall semester of the 2019-2020 academic year. A total of 384 volunteer students who were present at the school on the day of the study and agreed to participate in the study were included in the study. The data of the research was collected through a questionnaire consisting of a total of 36 questions that will determine the level of knowledge about the socio-demographic characteristics of the students and hand hygiene. Descriptive statistics for continuous variables while expressed as mean and standard deviation, it is expressed as number and percentage for categorical variables. Chi-square test was used to determine the relationship between categorical variables.

Results: 71.1% of the participants in the study were female and 28.9% were male students, and the average age of the students was 20.80 ± 2.165. 49.7% of them received hand hygiene training. 4.9% of the participants stated that they washed their hands 2-3 times a day, 32% 4-5 times, 41.7% 10 and above, 20.1% as needed. For hand hygiene, 73.7% stated that they used water-soap and 2.6% used hand sanitizer. 94% of the participants stated that hand hygiene reduced the rate of infection. 86.2% of the students stated that the number of washbasins in school is insufficient and 78.9% stated that there is no soap in the washbasins. In the application areas, 75% stated that there were no paper towels, 49.2% hand sanitizer, and 47.4% no gloves.

Conclusion: In the field of hand hygiene, standard rules prepared by national and international infection prevention and control organizations confirm that hand hygiene alone is the most important procedure in preventing infections. In study, it was determined that the students who are candidates to become health personnel in the future have sufficient information about hand hygiene, but the necessary material to provide hand hygiene in school and application areas is insufficient.

Key Words: Knowledge level; Hand hygien; Student

Sağlık Hizmetleri Meslek Yüksekokulu Öğrencilerinin El Hijyeni Bilgi Düzeyleri

Özet

Amaç: El yıkama, bireylerde enfeksiyon oluşumunun ve yayılmasının önlenmesinde uygulanabilecek genel halk sağlığının korunması ve geliştirilmesinde etkili, kolay ve düşük maliyetli bir uygulamadır. Bu çalışmanın amacı, öğrencilerin el hijyeni bilgi düzeylerini hem okul hem de uygulama alanlarında el hijyenine uygunluk açısından değerlendirmek ve bu bilgilerin günlük yaşamlarında el yıkama alışkanlıklarını ne ölçüde etkilediğini belirlemektir.

Yöntemler: Araştırma 2019-2020 akademik yılı güz döneminde yapılmıştır. Çalışma günü okulda bulunan ve çalışmaya katılmayı kabul eden toplam 384 gönüllü öğrenci çalışmaya dahil edilmiştir. Araştırmanın verileri, öğrencilerin sosyo-demografik özellikleri ve el hijyeni ile ilgili bilgi düzeylerini belirleyecek toplam 36 sorudan oluşan bir anket aracılığıyla toplanmıştır. Sürekli değişkenler için tanımlayıcı istatistikler ortalama ve standart sapma olarak ifade edilirken, kategorik değişkenler için sayı ve yüzde olarak ifade edilmiştir. Kategorik değişkenler arasındaki ilişkiyi belirlemek için ki-kare testi kullanıldı.

Bulgular: Araştırmaya katılanların %71.1'i kız, %28.9'u erkek öğrenci olup, öğrencilerin yaş ortalaması 20.80±2.165 olarak bulunmuştur. Katılımcıların %49.7'si el hijyeni eğitimi almıştır. Katılımcıların %4.9'u ellerini günde 2-3 kez, %32'si 4-5 kez, %41.7'si 10 ve üzeri, %20.1'i gerektiği kadar yıkadığını belirtmiştir. El hijyeni için %73.7'si su sabun ve %2.6'sı el dezenfektanı kullandığını belirtmiştir. Katılımcıların %94'ü el hijyeninin enfeksiyon oranını azalttığını ifade etmiştir. Öğrencilerin %86.2'si okuldaki lavabo sayısının yetersiz olduğunu ve %78.9'u lavabolarda sabun bulunmadığını belirtmiştir. Uygulama alanlarında %75'i kağıt havlu, %49.2'si el dezenfektanı ve %47.4'ü eldiven olmadığını belirtmiştir.

Sonuç: El hijyeni konusunda, ulusal ve uluslararası enfeksiyon önleme ve kontrol organizasyonları tarafından hazırlanan standart kurallar, enfeksiyonların önlenmesinde el hijyeninin tek başına en önemli prosedür olduğunu onaylamaktadır. Çalışmada, sağlık personeli olmaya aday öğrencilerin el hijyeni konusunda yeterli bilgiye sahip oldukları ancak okul ve uygulama alanlarında el hijyenini sağlamak için gerekli materyallerin yetersiz olduğu tespit edilmiştir.

Anahtar Kelimeler: Bilgi düzeyi; El hijyeni; Öğrenci

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Introduction

Hand washing is an effective, easy and low cost application in the protection and development of general public health that can be applied in the prevention of the formation and spread of infections that individuals may experience in environments such as hospitals, workplaces, shopping malls and schools (1,2). The individuals, especially personal characteristics of healthcare workers, the level of knowledge about hand hygiene and knowledge sharing, professional experiences, gender, work intensity, lack of role models, emotional motivation and habits are the factors that affect compliance with hand hygiene as they can change hand washing behaviors (1,3).

Materials such as water, soap, hand disinfectants and wet wipes are used to ensure hand hygiene. Failure to apply hand hygiene correctly may cause infections (4). However, it is estimated that inadequate hand hygiene practices negatively affect 80% of the world population (1). Although it is known that hand washing is of great importance in the prevention of infections, the inability to access the utensils required for hand hygiene such as sinks, soap, water, paper towels, and trash can reduce compliance with hand washing. Therefore, it is important to increase the compliance of hand hygiene for all healthcare workers, and this can be achieved through quality education (5).

While many studies focus on accurate and effective hand hygiene practices in healthcare professionals, studies for students receiving healthcare training are less common. For this reason, it is very important to evaluate the knowledge level, attitude and practices of students studying in health-related departments on hand hygiene (6).

The aim of this study is to evaluate the knowledge levels of students with or without hand hygiene education about compliance with hand hygiene both in school and practice areas and to determine the extent to which this information affects hand washing habits in daily life.

Methods

Type of Research

A descriptive research design was used in this study.

Place and Time of Research

The research was carried out in Van Yuzuncu Yil University Vocational School of Health Services, 2019-2020 academic year fall semester. Second-years students studying in the Child Development, Dialysis, Disabled Care and Rehabilitation, Elderly Care Services, Pharmacy Services, First and Emergency Aid (Day Education), First and Emergency Aid (Night Education), Perfusion, Radiotherapy, Medical Documentation and Secretarial, Medical Laboratory, Medical Imaging and Anesthesia programs were included in the study.

Population and Sample of the Research

Sampling method was not preferred. 384 volunteer students who were present at the school on the day of the study and who agreed to participate in the study were included in the study.

Data collections

The data of the research was collected through a questionnaire consisting of a total of 36 questions that will determine the level of knowledge about the socio-demographic characteristics of the students and hand hygiene. In the questionnaire form prepared by the researchers; the socio-demographic characteristics of the students are age, class, department, gender, marital status, educational status of the mother and father, residence, high school etc. while addressing the questions, questions such as the importance of hand hygiene, the frequency of hand washing, what it uses in hand hygiene, the conditions required by hand hygiene, whether it has received hand hygiene training or not, have been included.

Statistical Analysis

Descriptive statistics for continuous variables from the features mentioned; while expressed as mean and standard deviation, it is expressed as number and percentage for categorical variables. Chi-square test was used to determine the relationship between categorical variables. Statistical significance level was taken as $p < 0.05$ in calculations and SPSS statistical software was used for calculations.

Result

71.1% (n = 273) of the participants in the study are female students, 28.9% (n = 111) are male students and the average age of the students is 20.80 ± 2.165 and 96.4% of the students are single. 52.6% (n=202) of the students stay in the dormitory, 39.6% (n=152) with their family, 3.4% (n=13) stay with their friends. While the mother of 43.8% (n=168) and the father of 10.4% (n=40) participants are illiterate, the mother of 6% (n=23) and the father of 17.7% (n=68) are high school graduate. (Table 1). 9.6% (n=37) of the students are normal high school, 40.6% (n=156) Anatolian high school, 12.2% (n=47) technical high school, 31% (n=119) health vocational high school, 1.3% (n=5) science high school and 5.2% (n=20) are other high school graduates (Figure 1). While 47.7% of the participants lived in the village and district center before coming to the university, 52.3% stated that they lived in the city center (Figure 2). 49.7% of students have received training in hand hygiene and 97.9% believe in the importance of hand hygiene. 95.6% of the participants defined hand hygiene as cleansing hands and removing germs from hands. 4.9% of the students stated that they wash their hands 2-3 times a day, 32% 4-5 times, 41.7% 10 and above, and 20.1% as needed (Figure 3). For hand hygiene, 73.7% stated that they used water-soap, 2.6% hand sanitizer, 0.3% wet wipes and 0.3% paper towels (Figure 4). In the application areas, 16.4% of the participants are before the patient contact, 9.1% after the patient contact, 0.8% before the aseptic procedure, 1.3% after the aseptic procedure, 1% contact the patient's environment stated that they washed their hands before, 2.6% after contact with patient environment, 0.5% before contact with body fluids, 0.8% after contact with body fluids and 75.5% in all of these applications. 94% of the participants stated that hand hygiene reduced the rate of infection. 86.2% of the students stated that the number of washbasins in school is insufficient and 78.9% stated that there is no soap in the washbasins. In the application areas, 75% stated that there were no paper towels, 49.2% hand sanitizer, and 47.4% no gloves. 8.6% of the participants stated that they did not wash their hands after removing the gloves and 18.8% of them used disinfectants on gloves.

For questions asked to be marked as correct or incorrect in the questionnaire, 98.4% of the participants stated that they should change the glove and ensure hand hygiene in each patient, 95.3% stated that they should change the glove when moving from the dirty area to the clean area, 97.1% stated that the gloves wearing is not fully protected, hand hygiene is required after removing the glove, 88.8% stated that hand hygiene cannot be provided with antiseptic, 87.8% stated that hand hygiene is the most effective way to prevent hospital infections, and 57.8% stated that hand washing and use of alcohol based hand antiseptic is superior (Table 2).

No statistically significant correlation was found between the importance given to hand hygiene, daily hand washing frequency, and the material used or preferred for hand hygiene. No statistically significant correlation was found between the importance given to hand hygiene and gender, high school graduated and departments ($p < 0.05$).

Table 2. Distribution of questions and answers to determine the level of knowledge

	True n (%)	False n (%)	Other n (%)
Each patient should be replaced with gloves and hand hygiene provided	378(98.4)	6(1.6)	
Gloves should be changed when moving from a dirty to a clean area	366(95.3)	18(4.7)	
It is fully protected by wearing gloves, there is no need for hand hygiene after removing the gloves	19(4.9)	360 (93.8)	5(1.3)
Hand hygiene should be provided after removing the glove	373(97.1)	10(2.6)	1(0.3)
Hand hygiene is provided by antiseptic application, there is no need for hand washing	41(10.7)	341(88.8)	2(0.5)
Providing hand hygiene is the most effective way to prevent hospital infections	337(87.8)	45(11.7)	2(0.5)
Hand washing is superior to alcohol-based hand antiseptic	212(57.8)	155(40.4)	7(1.8)

Table 1: Distribution of socio-demographic characteristics of students.

(n=384)	n	%
Gender		
Male	111	28.9
Female	273	71.1
Marital status		
Single	370	96.4
The married	14	3.6
Place of residence		
Dorm	202	52.6
At home with friends	13	3.4
At home with family	152	39.6
At home with relatives	7	1.8
Alone at home	5	1.3
Other	5	1.3
Mother Education		
Not literate	168	43.8
Literate	60	15.6
Primary school graduate	92	24
Secondary school graduate	32	8.3
High school	23	6
University	9	2.3
Father education status		
Not literate	40	10.4
Literate	45	11.7
Primary school graduate	124	32.3
Secondary school graduate	68	17.7
High school	68	17.7
University	39	10.2
Department		
Anesthesia	28	7.3
Child Development	25	6.5
Dialysis	15	3.9
Disabled Care and Rehabilitation	21	5.5
Pharmacy Services	18	4.7
First and Emergency Aid (Normal)	37	9.6
First and Emergency Aid (Night)	39	10.2
Perfusion	8	2.1
Radiotherapy	16	4.2
Medical Documentation and Secretariat	40	10.4
Medical Laboratory	48	12.5
Medical Imaging	42	10.9
Elderly care	47	12.2

Discussion

In this study, it has been tried to determine the knowledge levels of the students who have received or have not received hand hygiene training. 52.6% of

students stay in dormitories. The low compliance with hand hygiene in public places can cause the transmission and spread of diseases. Therefore, it is very important for students to have the necessary knowledge about hand hygiene in terms of preventing the spread of diseases. Health technicians are both among the important risk groups since they will work in different areas of health institutions and they have a critical role in controlling the spread of the disease. Lack of information in them will cause them not to notice the possible disease risks, as well as negatively affect people at risk, the sick person, their family and even the whole society in reaching support and treatment (7).

Hand hygiene, which is an effective method of preventing the spread of microorganisms, also plays an important role in reducing the incidence of infections (6,8). According to the researches, it has been determined that hand hygiene practices are effective in reducing the infections related to health care and at the same time, the transmission of organisms showing multiple drug resistance (1).

In a study conducted by Türkmen et al., it was reported that hand washing protects from microbes (1). Similarly, in the study by Tüzün et al., the participants (98.5%) reported that hand washing is very important in preventing diseases (9). In our study, 95.6% of the participants stated that hand hygiene is an effective way to cleanse hands from germs and protect them from diseases.

In the study conducted by Demirdal et al., it was stated that 72% of nurses and 58.7% of assistant doctors received training on hand washing (10). In the studies in which Demir et al. investigated the level of knowledge of hand hygiene among students, research assistants and faculty members, the level of knowledge was higher in education areas in the last year (5). In one study, the rate of compliance of health personnel to hand hygiene was 58%, and in another study, this rate was found to be 30-50% (6,11). Periodic hand hygiene trainings given by infection control committee, bedside practical trainings and 5 indication rules written in the units are thought to increase compliance with hand hygiene. In our study, 49.7% of the participants reported that they received hand hygiene training. 98.2% of them stated that they believed in the importance of hand hygiene and 94% of them stated that it reduces the infection rate.

In his study, Boyce revealed that the hand washing technique, such as washing all surfaces of the hands and fingers with soap and water, is generally not applied correctly (12). In the study conducted by Tem et al., it was reported that the awareness, knowledge levels and practices of healthcare professionals about hand hygiene were not good (13). In the study conducted by Demir et al., most of the participants stated that the number of sinks in the hospital was insufficient and their location was inappropriate (8). In contrast, in a study by Togan et al, it was reported that the sink, soap, paper towel, hand antiseptic and glove were sufficient in the units (14). In our study, 86.2% of the participants stated that the number of washbasins in school was insufficient and 78.9% of them stated that there was no soap in the washbasins. In the application areas, 75% stated that there were no paper towels, 49.2% hand sanitizer, and 47.4% no gloves. Excuses such as hand washing time taking too long, excessive workload, the view that hands are not dirty, contact time with patient or dirty material, shortness of sink and drying materials are among the reasons that decrease compliance with hand hygiene (14). In his study, Tem and his colleagues stated that if hygiene sources such as accessible sinks and sufficient

antibacterial soap, gel and paper towels are reached, compliance with hand hygiene will increase (13). These results are in line with the report of the world health organization (2009), which argues that potential barriers to hand hygiene in developing countries are the result of insufficient infrastructure problems and lack of necessary materials.

In the study conducted by Türkmen et al., 100% of the students stated that they used water-soap for hand hygiene (1). In our study, the rate of those using water-soap was found to be 73.7%.

Poor hand hygiene, which adversely affects patient treatment and increases the risk of hospital infections, can increase the length of hospital stay, as it can cause health complications. In the study of Şen et al., it was shown that healthcare personnel tend to provide hand hygiene most frequently after contact with the patient (15). In our study, 75.5% of the participants stated that they wash their hands in all applications.

In this study we carried out within the body Vocational School of Health Services, no meaningful results between departments were found. Similar results were observed in the study of Tem et al. among nursing and midwifery students (13).

In the study conducted by Artan et al., it was stated that hospital infections could decrease with the full compliance of health personnel with hand hygiene (16). Similarly, 87.8% of the participants in our study stated that providing hand hygiene is an effective way to prevent hospital infections.

Demirdal et al. reported the hand washing rate as 93.3% after using gloves in a study conducted in a university hospital (10). In our study, it was found that wearing gloves did not fully protect and the need for hand hygiene was 97.1% after removing the gloves. It is difficult to comply with hand hygiene because there are many situations where hand washing is necessary, and it is an application that should be done in a short time. Therefore, wearing gloves during healthcare practices is a supported situation. Hands must be washed after every glove change to meet the criteria of the World Health Organization (17).

Although hand disinfection of health personnel with antiseptics is considered to be theoretically appropriate, it is reported that washing with water and soap will be sufficient to remove temporary bacteria (15). The availability of hand antiseptics everywhere, less time spent in use and no need for other tools have increased compliance with hand hygiene (18). In the study conducted by Togan et al. in health vocational high school students, hand antiseptic use was found to be 44.5% in hand hygiene and 38.3% was determined in hand antiseptic preference (14). Sonmezer et al. determined that the rate of using alcohol-based hand disinfectant in the hand cleaning of healthcare professionals working in a pediatric intensive care unit was 11% (19). In a study, it was reported that facilitating access to alcohol-based hand antiseptics increased hand hygiene compliance rate from 38.4% to 54.5% (20). In our study, only 2.6% of the participants stated that they used hand antiseptics.

Limitations of the study

Participation in the study is on a voluntary basis. The study could be carried out with all students of the Vocational School of Health Services, which is a pioneer in the field of health**.**

Suggestions

In the field of hand hygiene, standard rules prepared by national and international infection prevention and control organizations confirm that hand hygiene alone

is the most important procedure in preventing infections.

The corona virus (Covid-19), which emerged in December 2019 and has shown its effect in many countries in a short time and even causes the death of many people, is an important infectious disease. In order to protect from the Covid-19, world health organization emphasized that, paying attention to hand hygiene, washing hands frequently with soap and water for at least 20 seconds; it is important to use alcohol-based hand antiseptics in the absence of soap and water (WHO, Accessed March 31, 2020).

Research shows that the basic hygiene compliance required for clinical practice in primary health education does not always reach the desired level. In order to increase hand hygiene practices, hand washing materials such as water-soap, disposable towels and hand disinfectants should be made easily accessible. Hand hygiene trainings should be repeated continuously and regularly both at school and in practice areas. In addition, awareness for hand hygiene should be raised with the distribution of promotional materials (bags, pens, mouse pads, etc.), slogans, banners and posters. Electronic and mass media, such as television, radio and social media broadcasts, should also be used.

Conclusion

As a result, in our study, it was determined that the students who are candidates to become health personnel in the future have sufficient information about hand hygiene, but the necessary material to provide hand hygiene in school and application areas is insufficient.

Ethics Committee Approval: Required permissions from Van Yüzüncü Yıl University Non-Interventional Clinical Research Ethics Committee (Decision no: 2019/16-08, Date: 08.11.2019) and the School Directorate to conduct research taken.

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