

Sağlık Personelinin El Hijyeni ve İzolasyon Önlemlerine Uyumu: Türkiye'de Erken COVID-19 Salgınında Bir Anket Çalışması

Hand Hygiene and Isolation Measures Compliance of Healthcare Staff: A Questionnaire Study in Early COVID-19 Epidemic in Turkey

Okan Derin

Medipol Üniversitesi Tıp Fakültesi, Enfeksiyon Hastalıkları ve Klinik Mikrobiyoloji Anabilim Dalı, İstanbul, Türkiye

ÖZ

GİRİŞ ve AMAÇ: COVID-19 (Yeni Koronavirüs Hastalığı), Wuhan şehrinde tüm dünyaya yayılan bir koronavirüs (SARSCoV-2) türüdür. Ana bulaşma yolları, solunum damlacıkları ve enfekte sekresyonlarla temas yoluyla insandan insana olarak tanımlanmıştır. Sağlık çalışanları COVID19 bulaşı açısından büyük bir risk taşımaktadır.

YÖNTEM ve GEREÇLER: Salgının ilk ayında el hijyeni ve izolasyon önlemleri konusunda çeşitli sağlık kurumlarında çalışan sağlık personelinin bilgi düzeyi ve tutumlarını ölçmek üzere elektronik bir anket ile araştırmayı amaçladık.

BULGULAR: Katılımcıların% 12'sinde COVID-19 pozitifliği. COVID-19 ile ilgili başlıca semptomlar, sağlık çalışanlarında yorgunluk, öksürük ve ateş ve üşüme-titremedir. Birinci basamak sağlık hizmeti ortamında, hizmet içi el hijyeni eğitimi soruları diğerlerine kıyasla önemli ölçüde "hayır" olarak yanıtlanmıştır. Birinci basamak sağlık tesislerindeki sağlık çalışanlarının, ikinci ve üçüncü basamak merkezlere göre enfeksiyon kontrol eğitimlerinin daha yetersiz olduğu bulunmuştur.

TARTIŞMA ve SONUÇ: Birinci basamak sağlık hizmeti sunucularında enfeksiyon kontrol önlemleri ve eğitimleri yetersiz olabilir. Daha ileri çalışmalarla belirlenmelidir...

Anahtar Kelimeler: COVID19, Enfeksiyon Kontrol, Sağlık Çalışanları, Türkiye

ABSTRACT

INTRODUCTION: (Coronavirus disease 19) is a type of coronavirus (SARSCoV-2) that originated from Wuhan city to all the world. The major transmission routes were defined as human to human by respiratory droplets and contact with infected secretions. HCWs have a major risk for the contract of COVID19.

METHODS: We aimed to investigate the knowledge of compliance of healthcare staff for various healthcare institutions on hand hygiene and isolation measures by an electronic questionnaire in the first month of the epidemic.

RESULTS: Of the participant, 12% have had positive for COVID-19. The major symptoms related to COVID-19 are fatigue, cough, and fever-chills in healthcare workers. In the primary healthcare setting, in-service hand hygiene training questions answered significantly "no" compared to others. It is found that HCWs in primary healthcare facilities have less sufficient infection control training than secondary and tertiary centers.

DISCUSSION AND CONCLUSION: Infectious control measures in the primary healthcare setting might be insufficient. It should be determined with further studies.

Keywords: : Covid19 Isolation Measures, Healthcare Workes, Turkey,

İletişim / Correspondence:

Dr.Okan Derin

Medipol Üniversitesi Tıp Fakültesi, Enfeksiyon Hastalıkları ve Klinik Mikrobiyoloji Anabilim Dalı, İstanbul, Türkiye

E-mail: okanderin@gmail.com

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INTRODUCTION

COVID-19 (Coronavirus disease 19) is a type of coronavirus (SARS-CoV-2) infection that originated from Wuhan city to all the world. The major transmission routes were defined as human to human by respiratory droplets and contact with infected secretions (1). As a coronavirus experience, transmission to the healthcare workers (HCWs) was reported by 21% of those affected in the 2002 SARS epidemic (2). Although the transmission rate of COVID-19 in HCWs is lower than the SARS epidemic, it is thought to HCWs have a major risk for the contract of COVID19(3). To date, 40 HCWs were deceased because of COVID19 in Italy, thousands of them were isolated in Europe (4). The WHO recommends personal protective equipment for standard, contact, and droplet precautions for COVID19. These are hand hygiene, gown, gloves, and mask with face protection. Whether the HCWs were able to access personal protective equipment is far beyond the aim of the study. Yet continuous in-service training for infection control precautions is critical (5).

On the 11th of March 2020 the first PCR-proven case is announced in Turkey. In the context of fighting to the pandemic, all 2nd and 3rd line healthcare providers declared a pandemic hospital according to the ministry of health regulations. Meanwhile, many healthcare staff was tested with PCR (polymerase chain reaction) method and some of them were found positive. The Health Minister of Turkey announced at the press conference where 601 healthcare professionals had COVID19 on 1st of April, 2020 (6).

It is aimed to investigate the knowledge of compliance of healthcare staff for various healthcare institutions on hand hygiene and isolation measures by an electronic questionnaire available until the 7th of April 2020.

METHODS

A questionnaire aimed to evaluate compliance of hand hygiene and isolation precautions (Table 1) was asked to each participant using Microsoft Forms®. The questionnaire was designed from self-information, “yes/no” and multiple-choice questions. The questionnaire link sent to HCWs by a smartphone application. Informed consent was obtained from each participant in the first question. 106 HCWs included in the study. Stata®15 (StataCorp LLC, Texas, USA) was used for statistical analysis. Chi-square or Fisher’s exact tests were used to compare proportions and Student’s t-test and Wilcoxon Sum rank test to compare means. For variables that were not normally distributed, the Mann-Whitney U test was used. A two-sided α -value of less than 0.05 was considered statistically significant.

RESULTS

The demographic and occupational characteristics of participants are given in table 2. Thirty-seven of those (35%) have experienced COVID-19 suggesting symptoms past 3 weeks. Reported symptoms were fatigue (n=22, 59%), cough (n=21, 57%), fever and chills (n=17, 46%), shortness of breath (n=5, 14%), loss of smell (n=8, 7,55%), sore throat (n=6, 5.6%), headache and diarrhea (n=3, 2.83%). There were 35 responders have had the COVID-19 PCR swab test regardless of symptom presence. One of those working in primary care institutions, remainders were working in secondary (5) and tertiary (29) hospitals (p= .006). Thirteen out of those were positive for the COVID-19. None of the asymptomatic ones who had a swab test (14) got a positive result yet 13 out of 21 symptomatic participants have positive COVID-19 PCR tests. Fatigue and fever and chills were strongly related to positive PCR results (p=.004 and .006 respectively). Other symptoms were not found significantly related to the COVID-19 PCR test result. There was no significant relationship among the duration of the PCR swab-sampling time after symptoms onset, between the positive (mean time=3.39 days) and negative (mean=3.5). In the group who have had a

PCR test without symptoms, none of them working in primary care services.

A total of 17 participants have undergone chest CT regardless of having symptoms. Among those, fourteen HCW (82%) have COVID19 suggesting-symptoms and 3 of them haven't experienced any symptoms. The leading symptoms to get a chest CT were fatigue (n:11/14 p=.65) and chills with or without fever (n:8/14, p=.3) and fatigue, and chills together (n:8/14, p=.04). Six of 14 participants (43%) who have symptoms have COVID-19 suggesting findings on the chest CT. The symptoms of participants are not found to significantly related to COVID-19 suggesting CT results. The participants had a CT imaging without symptoms were working support unit (2) and specialist (1).

There is a significant difference to answer the question "whether you have been provided in-service training on hand hygiene in the last three years" between HCWs of outpatient services and others. HCWs of outpatient services answered this question significantly "no" compared to others (68% and 39% respectively, p= .018). In the outpatient group, all physicians significantly denied an in-service training of hand hygiene compared to other HCW (n=13/22, p=. 000). Similarly, in the primary healthcare setting, in-service hand hygiene training questions answered significantly "no" compared to others (76% and 39%, p=.007). However, five indications for hand hygiene questions were answered with the same high score between responders without training in the last 3 years group and others (4.41/5 points and 4.55/5points respectively, p=.45). We also evaluated hand hygiene questions by COVID-19 PCR result: there is no difference between positive COVID-19 PCR results and hand hygiene training questions. We evaluated the knowledge of contact-isolation measures by a multiple-choice question (Q17). Ninety-one subjects (86%) answered the question correctly. There is a significant difference in the correct response rate between the groups with/without hand hygiene training (73% vs 93%, p=.018). The question which is aimed to depict the behavior of the HCWs (Q20) for contact precautions hasn't been found to related to Q17 (p=.6).

Ninety-two percent of participants correctly answered the question which was seeking a knowledge of droplet precautions (Q18). Behavioral patterns of HCWs of droplet cautions asked in Q23 and no relation was found between Q18 and Q21 (p= .6).

There is not a significant relationship either Q17 and Q18 with neither PCR test results nor chest CT findings. In Q22, it was aimed at a subjective assessment of the own institution of HCWs by giving 1 to 5 scores. The mean score is 3.5/5. In PCR positive subjects (N=13) the mean score is 3.5 and there is no significant difference with PCR negative ones (N=22) (p = .8). It is found that primary care HCWs claim to had in-service training for infection prevention and control measures less than secondary and tertiary hospitals (75% vs 39% p= .003).

Table 1. The Questionnaire Form	
Healthcare Professionals Hand Hygiene and Isolation Measures Compliance Survey	
Dear volunteer, you have been invited to participate in the above-mentioned research planned by Istanbul Medipol University Faculty of Medicine Infectious Diseases and Clinical Microbiology. Before you agree to take part in this research, you need to understand what the research is intended to be done and make your decision freely according to this information. Thank you for participating in our survey, which was conducted to measure the compliance rate of healthcare workers tested for COVID-19 regarding hand hygiene and isolation measures.	
1. I agree to participate in this survey study	Yes/No
2. How old are you?	“Age”
3. Gender	M/F/Don't answer
4. Have you had any complaints in the past 3 weeks to suggest COVID19?	Yes/No
5. Did one or more of the following symptoms occur in the past 3 weeks? (You can choose multiple answers)	Fatigue/ Fever-Chills/ Cough/ Shortness of breath/ Loss of sense of smell
6. Enter the first complaint start date.	dd.mm.yyyy
7. Enter your COVID-19 Swab Test (PCR) Result?	I did not get one./ Negative/Positive/Not resulted
8. Enter the date of PCR testing.	dd.mm.yyyy
9. Have you got a chest computed tomography?	Yes/No
10. The result of chest tomography was said to have findings...	consistent with COVID19/not consistent with COVID19
11. Please choose the appropriate expression that describes the institution you are working in.	The primary health-care institution (Family Doctor's office)/ Secondary health-care institution (Private or State hospitals)/ Third-line health-care institution (University hospitals and Training and Research Hospitals)
12. What is your duty in the institution?	Academic personnel/ Specialist Doctor/ Resident/Family physician/ Nurse/Paramedic/Maintenance/Management
13. Which of the following is your department?	Internal Medicine/ Surgery/ Intensive Care Unit/ Emergency Department/ Outpatient services/ Pediatrics
14. Have you received formal hand hygiene training in the past 3 years?	Yes/No
15. Have you received formal training for droplet-borne infections in the past 3 years?	Yes/no
16. Which of the following conditions does required the application of hand hygiene before/after to protect the healthcare provider from contamination? Correct/False question	Before/After touching the patient/ After the risk of contact with body secretions/ Before-after an aseptic procedure/ After touching the fomites around the patient
17. For contact isolation, mark all healthcare professionals who must be in contact with the patient and the patient's room must wear?	Only gloves/ Gloves and Gowns/ Only surgical mask
18. Which personal protective equipment(s) should be used when entering a patient room with droplet isolation?	Only surgical mask/ Gloves and Surgical mask/ Gloves, surgical mask and if the patient or patient's environment is to be touched a disposable gown
19. Please mark the appropriate option for you regarding hand hygiene practices.	I know the methods of hand hygiene and apply it when necessary/ I do not know the methods of hand hygiene but I try to apply it when necessary/ I know exactly hand hygiene methods, but I can't apply/ I do not know the methods of hand hygiene
20. Select the option that suits you for contact isolation measures.	I know contact isolation measures and apply them when necessary/ I do not know the contact isolation measures exactly, but I try to apply them when necessary./ I know exactly the contact isolation measures, but I cannot always apply it even if necessary/ I do not know the contact isolation measures
21. Please mark the appropriate option for droplet isolation measures.	I know the droplet isolation measures and apply it when necessary/ I do not know exactly the droplet isolation measures, but I try to apply it when necessary./ I know exactly the droplet isolation measures, but I can not always apply it even if necessary/ I do not know the droplet isolation methods
22. Do you think the isolation measures training sufficient in your institution?	1/2/3/4/5

Table 2. Demographic and occupational characteristics of participants	
Age (Mean±SD)	38±11 (Min:20 Max:66),
Sex	
Female	61 (58%)
Male	45 (42%)
Occupation (N)	
MD (Academic)	15 (14%)
Staff Physician (Specialist)	22 (21%)
Family Physician/Practitioner	19 (18%)
Nurse/Paramedic	24(22%)
Laboratory technician	7 (7%)
Management/Maintenance	7 (18%)
Institution(N)	
Primary care	17 (16%)
Secondary care	28 (26%)
University/Research hospital	61 (58%)
Department (N)	
Internal Medicine Units	27(25%)
Surgery Units	23 (22%)
Laboratory	4 (4%)
Outpatient/emergency	22(21)
Pediatrics	7(7%)
Operation room	11(10)
ICU	1 (1)
Management/Maintenance	11(10)

DISCUSSION

Clinical features of COVID-19 differ in various clinical studies, yet the most common symptoms are fever (98%), cough (76%), myalgias and fatigue (44%), and followed by others (7). It is found that the most common symptoms related to the COVID-19 in HCWs are fatigue (59%), cough (57%) and fever and chills (46%). These findings are the same as the literature (8).

According to our study, it is depicted that primary healthcare workers have got fewer PCR tests rather than secondary and tertiary hospitals although there is no difference in symptomatology in the first month of the epidemic. While WHO defined the gatekeeper role of the primary care HCWs in the COVID-19 epidemic (9), it seems that not easy to achieve diagnostic tests in primary care facilities at the beginning of the epidemics.

It is found that the leading symptoms in PCR positive HCWs are fatigue and fever-chills is related to positive COVID-19 PCR result similar to the literature (7, 10). Of the participants, three have got a chest CT even if they did not have COVID19 symptoms. Anxiety in HCWs is a major problem in HCWs (11) and might lead to an unnecessary request for the investigation for COVID-19 without any clinical clue.

Ninety-two percent of participants correctly answered the question of droplet measures knowledge. An epidemic with a virus spreads with droplets might motivate HCWs to know protective precautions. Yet, in-service training and audit are required in each institution, for sustainability. Personal protective equipment supply should be provided to turn knowledge into practice, in all steps of healthcare settings.

The major finding in our study is the lack of hand hygiene in-service training. The regulations in infection control in healthcare settings are well established in secondary and tertiary institutions in the daily practice but it seems not in the primary healthcare facilities. There are very limited data about infection control measures in primary care facilities of Turkey in the literature (12). Primary care HCWs easily overlooked for infection control measures in such an epidemic. So, in-service training and audit should be well established and maintained in primary healthcare settings in the first place.

The limitations of the study are the timespan of the questionnaire is very limited and it has a small group. Yet, it is aimed to find the first response and the knowledge of HCWs in the first month of the COVID-19 epidemic.

CONCLUSION

In conclusion, the factors that might make the HCWs to an unnecessary investigation for COVID-19 should be determined with further studies. The sustainability of in-service training and audit should be provided in all steps of the healthcare setting. There might be a lack of infection control training in the primary healthcare setting. The infection control precautions should be well established and audit in primary healthcare facilities as well as secondary and tertiary institutions to get “the gatekeepers” ready for further epidemics.

What is already know on this topic?

Healthcare workers have a considerable risk to contract with COVID19. To prevent of spread of virus within HCW, thehand hygiene and isolation measures must be followed and kept up to date.

What this study adds

1. In Turkey, primary health care personnel may be caught epidemic without PPE and proper education of isolation measures.

2. The health care policy makers must assure to personnel education and provide PPE before an unpredictable crisis.

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