Nurse attıtudes towards cleanıng blood pressure cuffs: profile in Turkey

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ABSTRACT

Purpose: Presenting how blood pressure cuffs are cleaned by nurses and which disinfectant agents are used in cleaning the cuffs will allow conducting detailed studies that can establish a standard procedure for cuff cleaning. However, there is no study on the views of nurses and application procedures regarding the cleaning of blood pressure cuffs. Therefore, this study aimed to determine nurses' attitudes regarding cleaning the blood pressure cuffs in Turkey.
Materials and methods: The study sample was composed of nurses working in Turkey who were invited and agreed to participate in the study from February to March 2021. This study was completed with 286 nurses with 90% power. Research data were collected online via Google Forms.
Results: In the study, 64.3% of the nurses stated that the cleaning staff should be responsible for cleaning the cuffs. 29.4% reported that the cuffs were cleaned several times a month, and 20.3% stated that cuffs were cleaned only when they were infected. 52.1% reported that alcohol was used for cleaning the cuffs.
Conclusions: Nurses agreed on the necessity of cuff cleaning and that the cuffs could be a source of infection when they were not cleaned. Since nurses have an important role in infection control, they should play an active role in cuff cleaning and receive training on this issue.
Keywords: Blood pressure cuff, nurse, cleaning cuffs, disinfection

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INTRODUCTION

A blood pressure device is frequently used in health care services to measure blood pressure, which is an important indicator in evaluating an individual's health status [1]. In blood pressure devices, the sleeve where the air is filled is in a sheath made of non-stretch fabric. This sleeve is called the cuff. The literature reports that blood pressure cuffs play an important role in healthcare-related infections, creating high clinical and economic costs [2-5]. Insufficiently disinfected blood pressure cuffs in the hospital setting create a suitable reservoir area for microorganisms such as methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant *Enterococcus* (VRE) [6-11]. Microorganisms can be colonized when both patients and healthcare professionals come into contact with insufficiently disinfected cuffs. Thus, the transmission of microorganisms among people in the hospital can turn into an ongoing cycle [2,12].

A study examining 120 blood pressure cuffs found that 85% of the cuffs carried bacterial microorganisms. It was determined that the unit with the highest contamination rate in regards to cuffs was outpatient clinics (90%) [1]. Another study found that 45% of 203 cuffs had colonization on the inner side and 23% had colonization on the outer side. In addition, it was stated in the study that no high level of contamination existed in 18 disinfected cuffs [2]. The highest contamination rates detected in these studies were in nurse treatment cars, outpatient and intensive care clinics. Disinfectants with different contents are used in the cleaning/disinfecting of blood pressure cuffs. It has been determined that the disinfectants that are used in cleaning the cuffs reduce bacterial contamination [2,13-15].

When the frequency of blood pressure measurement in hospitals is considered, it is possible to claim that lack of cuff cleaning may threaten patient safety. Ensuring patient safety is one of the main responsibilities of nurses. Therefore, the role and responsibility of nurses are very important in cleaning these cuffs that may threaten patient safety. Presenting how blood pressure cuffs are cleaned by nurses and which disinfectant agents are used in cleaning the cuffs will allow conducting detailed studies that can establish a common procedure for cuff cleaning. However, there is no study on nurses' views and application procedures regarding the cleaning of blood pressure cuffs. Therefore, this study aimed to determine nurses' attitudes regarding cleaning the blood pressure cuffs in Turkey.

MATERIALS AND METHODS

This descriptive study was conducted to determine nurses' attitudes towards cleaning/ disinfecting blood pressure cuff in Turkey. The population of the study consisted of 244392 nursing in Turkey.

The study sample was composed of nurses working in Turkey who were invited and agreed to participate in the study from February to March 2021.

Power analysis was conducted to determine the number of nurses participating in the study. This study was completed with 286 nurses with 90% power.

Data Collection Tools

The questionnaire form prepared by the researchers by reviewing the relevant literature [2, 13,14] was used to collect research data.

The questionnaire form consisted of questions about the demographic characteristics of nurses such as gender, age, clinic, seniority, and their attitudes towards cleaning/disinfecting blood pressure cuffs such as who is responsible from cleaning the cuffs, How often are blood pressure cuffs cleaned, What are the substances/agents used in cleaning the blood pressure cuffs, Do you think these agents are sufficient to clean the cuffs, The unit where the blood pressure cuffs are cleaned.

The questionnaire consists of 12 questions in total.

Data Collection

Research data were collected online via Google Forms in the period February -March 2021. Forms were delivered to nurses working in hospitals. The online questionnaire was delivered to the nurses via e-mail and WhatsApp. Online consent was obtained from nurses who agreed to participate in the study.

Research Ethics

The ethics committee approval for the study was obtained from the clinical research ethics committee of a university (Ethics committee approval number=218). The nurses included in the study were informed about the research, and their consent was obtained online.

Data analysis

The analysis of the data obtained in the framework of this study was carried out in the SPSS (Statistical Package for Social Science) 21.0 package program. Numerical and percentage distribution were used in the analysis of the data.

RESULTS

38.8% of the nurses (n = 111) were between the ages of 20-30, 57% (n = 163) were females, 42.3% (n = 121) were working as nurses between 1-10 years, % 26.9 of them (n = 77) were working in the internal medicine service (Table 1).

Table 1. Demographic characteristics of nurses (n=286)

Demographic characteristics		
Age	**n**	**%**
20-30 years old	111	38.8
31-40 years old	91	31.8
41-60 years old	84	29.4
Gender		
Female	163	57.0
Male	123	43.0
Seniority		
1-10 years	121	42.3
11-20 years	105	36.7
21-30 years	60	21.0
Clinic		
Internal Medicine	77	26.9
Emergency Service	71	24.8
Women's and Children's Health and Diseases	46	16.0
Oncology Clinic	37	12.9
Surgical Diseases	35	12.2
Intensive Care	20	7.0

All the nurses thought that blood pressure cuffs should be cleaned and that cuffs were a source of infection for patients and healthcare professionals. 64.3% (n = 184) of the nurses stated that the cleaning staff should be responsible for the cleaning of the cuffs, 29.4% (n = 84) reported that the cuffs were cleaned several times a month and 20.3% (n = 58) stated that cuffs were cleaned only when they were infected. 52.1% (n = 149) reported that alcohol was used for cleaning the cuffs and 84.6% (n = 242) stated that the cuffs were cleaned in the clinics where they worked. 58.4% of the nurses (n = 167) stated that the agents that they used were not sufficient to clean the cuffs (Table 2).

Table 2. Nurses' attitudes towards cuff cleaning (n=286)

In your opinion, who is responsible for cleaning the cuffs?	**n**	**%**
Head Nurse	24	8.4
Clinical Nurse	78	27.3
Cleaning Staff	184	64.3
How often are blood pressure cuffs cleaned?		
After use in each patient	29	10.1
Every day	47	16.4
1-5 times a week	56	19.6
Several times a month	84	29.4
When they are dirty/infected	58	20.3
After the patient is discharged	12	4.2
What are the substances/agents used in cleaning the blood pressure cuffs?		
Hand Sanitizer	69	24.1
Alcohol	149	52.1
Detergent	39	13.6
Instrument Cleaning Disinfectants	29	10.1
Do you think these agents are sufficient to clean the cuffs?		
Yes	119	41.6
No	167	58.4
The unit where the blood pressure cuffs are cleaned?		
My Clinic	242	84.6
Sterilization Unit	44	15.4

DISCUSSION

Nurses frequently use blood pressure measurement for medical diagnosis, treatment, and check-ups. However, blood pressure cuffs used in the blood pressure measurement play an essential role in healthcare-associated infections that generate high costs and negatively affect patients in multiple ways [2-5,16]. A study found that MRSA contamination in the cuffs was observed at a rate of 22.2% [13]. For this reason, the cleaning of the cuffs is essential. The blood pressure cuffs used in the dermatology clinic were regularly disinfected every seven days in a study. The results of this study pointed to a lower level of MRSA contamination in the regularly disinfected cuffs [13]. There are different periods of disinfection intervals for cuffs in the literature [2, 13, 14]. Studies have reported that blood pressure cuffs are not disinfected in many hospitals after measuring patients [2,13,17,18]. The study conducted by Matsuo (2013) concluded that blood pressure devices are shared among clinics and cannot be washed or disinfected regularly due to the insufficient number of blood pressure devices [13]. In this study, all of the nurses stated that blood pressure cuffs should be cleaned, and the cuffs were a source of infection for patients and healthcare professionals. However, only 29.4% of the nurses stated that the cuffs were cleaned several times a month, and 20.3% indicated that they were cleaned only when they were dirty. These results show that nurses are conscious about the need to clean/disinfect the cuffs and the problems caused by unsanitary cuffs, but they do not offer the same sensitivity during use.

Some guidelines recommend disinfecting blood pressure cuffs with a disinfectant or detergent [19]. A study conducted in a dermatology clinic in the USA found that improved cleaning<disinfecting of blood pressure cuffs caused a reduction in contamination and healthcare-related infections associated with MRSA [16]. A study conducted in a Japanese hospital reported that frequently cleaning blood pressure cuffs by using alcohol decreased MRSA contamination [13]. Matsuo (2013) stated in the study that the cuffs should not be used for 30 minutes after they are cleaned with alcohol and added that the use of alcohol in cleaning the cuffs is a sustainable method for nurses [13]. In the current study, more than half of the nurses stated that they cleaned their blood pressure cuffs with alcohol and the majority of them stated that the cleaning of the cuffs was performed in the clinic where they were working. In addition, hand sanitizer was the second choice as a cleaning agent in the present study. A study concluded that the use of ethanol-based hand disinfectants in the disinfection of blood pressure cuffs significantly reduced the number of pathogenic microorganisms on the cuffs [14]. In addition, it is reported in other studies that the use of hand disinfectants is highly effective in disinfecting stethoscopes [20,21]. The use of alcohol and hand disinfectants at the highest rates suggests that nurses prefer these agents in their clinics because of easy access to these disinfectants. Despite these disinfectants, which are compatible with the literature, half of the nurses (58.4%) stated that these items were not sufficient for cleaning/disinfecting the cuffs. This finding shows that nurses need information about the agents used in cuff cleaning, the effectiveness of cleaning materials, and the cleaning method.

Nurses play an essential role in preventing healthcare-associated infections and reducing infection rates. In this study, only 27.3% of the nurses thought nurses should be responsible for cuff cleaning. However, assuming a leading role in cuff cleaning and determining the frequency of cuff cleaning by nurses may be effective in reducing contamination [13]. We believe that it is important to inform nurses on this issue and ensure that they have a leading role in clinical practice.

CONCLUSIONS

This study presented the attitudes of nurses regarding the cleaning of blood pressure cuffs. It was determined that the nurses agreed on the necessity of cuff cleaning and that the cuffs could be a source of infection when they were not cleaned. Since nurses have an essential role in infection control, they should play an active role in cuff cleaning and receive training on this issue. At the same time, nurses must be informed by new studies on whether the substances they use in cuff cleaning provide effective cleaning. Nurses undertake cuff cleaning with agents that are easily accessible in the clinic, such as alcohol and hand disinfectant. For this reason, we think that conducting new studies on cleaning methods and the adequacy of cleaning agents may guide the nursing practices.

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Conflicts of interest

No conflict of interest has been declared by the authors.

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