VIEWS OF HEALTHCARE WORKERS ON WASTEFUL BEHAVIOR IN HOSPITALS: A QUALITATIVE STUDY

OPINIE PRACOWNIKÓW SŁUŻBY ZDROWIA NA TEMAT NIEOSZCZĘDNYCH ZACHOWAŃ W SZPITALACH: BADANIE JAKOŚCIOWE

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Summary

Background. The continuous increase in healthcare spending and problems experienced in payment/insurance systems have brought the issue of hospital extravagance to the agenda. To achieve efficiency in the healthcare sector and prevent wasteful behavior, it is important to use all resources in a cost-effective manner. This study aimed to determine the views of healthcare workers on wasteful behavior in hospitals.

Material and methods. This study employed a descriptive qualitative design. The data were collected through in-person in-depth interviews with 60 participants working at private, university and state hospitals. A semi-structured interview form was used in the study. The Consolidated Criteria for Reporting Qualitative Studies (COREQ) were applied to organize and report the study.

Results. The data obtained in the study were examined under two themes named "Wasteful Behavior" and "Precautions", as well as categories under these two themes.

Conclusions. The participants stated that there are many aspects of extravagance practiced at hospitals, but they saw the sustainable use of resources with a set of precautions to be taken possible. Presenting the views and recommendations of healthcare professionals will provide an important source of data for administrators in terms of sustainability efforts.

Keywords: wasteful behavior, wastefulness, healthcare services, qualitative research, healthcare workers

Streszczenie

Wprowadzenie. Stały wzrost wydatków na służbę zdrowia oraz problemy doświadczane w systemach płatności/ubezpieczeń spowodowały dyskusję na temat kwestii nieoszczędności w szpitalach. Aby osiągnąć efektywność w sektorze opieki zdrowotnej i zapobiec niegospodarnemu zachowaniu, ważne jest, aby wykorzystać wszystkie zasoby w sposób oszczędny. Niniejsze badanie miało na celu określenie poglądów pracowników służby zdrowia na temat nieoszczędnych zachowań w szpitalach.

Materiał i metody. W niniejszej pracy zastosowano metodę badania jakościowego o charakterze opisowym. Dane zostały zgromadzone poprzez bezpośrednie, szczegółowe wywiady z 60 uczestnikami pracującymi w szpitalach prywatnych, uniwersyteckich i państwowych. W badaniach wykorzystano formularz wywiadu półstrukturalnego. Do organizacji i raportowania badań zastosowano Skonsolidowane Kryteria Raportowania Badań Jakościowych (COREQ).

Wyniki. Dane z badań zostały przeanalizowane pod kątem dwóch tematów: „Nieoszczędne zachowania" i „Środki ostrożności", a także kategorii w ramach tych dwóch tematów.

Wnioski. Uczestnicy stwierdzili, że istnieje wiele działań związanych z nieoszczędnością, które są praktykowane w szpitalach. Postrzegali jednak zrównoważone wykorzystanie zasobów oraz podjęcie środków jako możliwe do zrealizowania. Przedstawienie opinii i zaleceń pracowników służby zdrowia będzie stanowiło ważne źródło danych dla administratorów w zakresie działań na rzecz zrównoważonego rozwoju.

Słowa kluczowe: zachowania nieoszczędne, nieoszczędność, usługi służby zdrowia, badanie jakościowe, pracownicy służby zdrowia

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Introduction

Hospitals have to meet the changing demands of society and use resources necessary for future generations efficiently. Extravagance observed at hospitals leads to losses not only for hospitals and patients but also for the health of individuals and the planet. Ensuring the sustainability and renewability of the resources that are used should be the priority of administrators.

As a consequence of hospitals starting to operate as businesses as a result of neoliberal policies, healthcare services received started to be considered as determinants of social status. In this sense, an increase in healthcare spending also led to an increase in the cost of providing healthcare services. Today, as a result of the rapid exhaustion of natural resources, the profit maximization approach advocated by neoliberalism fails to meet expectations. Issues that do not add value to healthcare services such as increased waste, unnecessary tests, and inadequacies experienced in labor management are perceived negatively by society [1]. Moreover, policies that support sustainable healthcare services, social institutions, concerns of society, political views, and the transition of competitors to green hospital technologies are reflected in hospital costs. This creates pressure in terms of the effective and efficient use of resources [2].

The fact that hospitals are institutions that produce large quantities of medical waste and prevalently consume single-use goods demonstrates the need for a sustainable healthcare system and draws attention to the concept of "Wastefulness in Hospitals" (WH) [3].

Although it is seen that WH is widespread at hospitals, no qualitative study has ever presented the views of healthcare workers about WH. Qualitative studies are an effective method of uncovering attitudes and details about a topic. There is a need for information to be obtained through in-depth interviews with healthcare workers (HCW). To create a sustainable healthcare system, decision-makers need to understand the real-life causes of WH.

In this study, it was aimed to obtain data for improvements that could be made at healthcare institutions by collecting the views of HCW from three different hospital sectors in Turkey. It is intended for the obtained results to contribute to agenda-setting in healthcare policies on a global level.

Material and methods

Design

In this study, a qualitative descriptive design was used. This design provided a comprehensive summary of the participants' views related to the topic studied [3]. The results are reported in accordance with the Consolidated Criteria for Reporting Qualitative Studies (COREQ) [4].

Research team

The research team consists of two academic researchers who have received qualitative research training and are all currently faculty members in the nursing department. The interviews began with one of the researchers – a 31-year-old researcher who is a nurse, a PhD student and has a qualitative researcher and analyst certificate – introducing herself and explaining the purpose and necessity of the study. The second researcher is the supervisor of the doctoral dissertation of the first researcher, who is an expert experienced in the field of qualitative research. The second researcher has been using qualitative research methods for master's and doctoral dissertations since the year 2000 in a supervisory position.

Setting and participants

The population of the study consisted of HCW working at three Ministry of Health hospitals, one university hospital and one private hospital. The sample of the study consisted of seven cleaning staff, seven head nurses, nine secretaries, twenty nurses, twelve physicians, four patient care staff, and one emergency medical technician from different hospitals, with different levels of professional experience and education. Data saturation was assessed continuously, taking the different hospital sectors into consideration. Wastefulness is not a phenomenon that only concerns a single profession. Recruitment for the study involved the maximum variation sampling method to explore a wide range of HCW experience and training levels. Dependability was achieved by holding interviews with different sources of data on the topic (data source triangulation). When the same data were repeated in the interviews, and no new view was introduced, it was decided that data saturation was reached, and the data collection process was terminated [5]. There were 60 participants recruited in total. There was no participant who refused to participate in the study or left the study. Preliminary meetings were held with the participants before the data were collected. In these meetings, the researcher introduced herself and the study, answered questions from the participants, provided information about the duration and details of the interview, and made explanations to win their confidence. Appointments were set to carry out interviews with the participants who voluntarily agreed at their own institutions at the date and time they were available.

Data collection

In the study, a "Semi-Structured Interview Form", which was developed by reviewing the relevant literature, was used to collect data on the views of the participants [6]. While developing the form, the intention was to obtain detailed information from the interviewees regarding the objective of the study. Accordingly, the form consisted of open-ended questions to reflect the knowledge-beliefs and experiences of the participants under the categories of "Wasteful Behavior" and "Precautions". To boost credibility, the member checking method was used, and the researcher asked questions in the form of "am I understanding it right?" [7].

Before the main interviews, three pilot interviews were carried out to test the applicability of the interview form, and the results of these pilot interviews were not included in the analyses.

The interviews were carried out in person in a calm and appropriate setting at a date and time determined by the availability of the participants. Before starting each interview, the participant was asked to read and fill out an informed consent form. After receiving the consent of the participant, the individual interview was recorded with an audio recorder, the responses of the participants were noted in details, and data reliability was achieved. There was no need to repeat the interviews. The obtained data were sent back to the participants for their comments or corrections.

During the interview, the reactions and gestures of the participants were observed, and behavior such as silence and pauses for thought were recorded and evaluated. The shortest interview took 22 minutes, and the longest interview took 160 minutes, with an average interview length of 52.8 minutes. In the study, 52 hours 47 minutes of interview recordings were obtained from 60 people. The interviews took place between May and September 2019.

Data analysis

Content analysis was used in the analysis of the qualitative data for confirmability. At the beginning of the content analysis, a 987-page interview report was created by transferring the data from the audio recordings and the notes taken during the interviews to a computer. After the researchers had listened to the recordings three times, they created codes for the meanings of the participants' statements. The concepts that were

repeated in the text were categorized under the same codes, and meaningful units were obtained. The data were grouped under sub-titles, codes, themes and categories. The codes obtained as a result of the content analysis of the interviews were listed, codes that had common aspects were associated with each other, and themes were created using the inductive method. The NVivo package program was used in the analysis.

In the content analysis in this study, the following steps reported by Zhang and Wildemuth (2009) were followed [8]:

– preparation for the analysis,
– coding the text,
– grouping the coded data,
– creating themes and categories,
– computer-assisted analysis
– reporting.

To determine data saturation and analyze the focus points in the study, the researcher listened to each audio recording three times on the day of the interview and then transferred it to the digital environment in text form. The researchers read the text independently, and descriptive codes were obtained. The obtained codes were grouped under associated concepts. Meaningful categories were obtained from these groups. The data analysis process is explained in detail to ensure reliability, and direct quotations from the participants are included, ensuring the originality of the data. A translator was hired for the translation of the report into English to preserve the meaning and context. All the interviews were carried out by the same researcher (STBM) to provide consistency. The independent coding processes of the researchers were gathered at the end and finalized by consensus.

Ethical approval

The present study was approved by the Istanbul University-Cerrahpaşa Faculty of Medicine Clinical Research Ethics Committee (approval number: 13022260-300-55078).

Results

The participants included 12 physicians, 7 head nurses, 20 nurses, 4 patient care staff, 9 secretaries, 1 emergency medical technician, and 7 cleaning staff. Twenty-four participants were working at state hospitals (SH) affiliated with the Turkish Ministry of Health, 21 were working at university hospitals (UH), and 15 were working at private hospitals (PH). The mean professional experience of the participants was 17.2 years, and their mean duration of employment at their institutions was also 17.2 years.

The two main themes were determined as "Wasteful Behavior" and "Precautions". The rates of the participants who provided similar views under the two main themes are presented in Figure 1 and Figure 2. Each theme is discussed below, and selected quotes from the participants (translated from Turkish) are included. The themes and categories are shown in Figure 3.
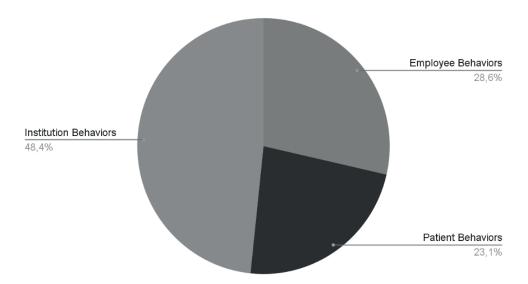
Figure 1. Percentage distributions of the participants providing views under the theme of "Wasteful Behavior"
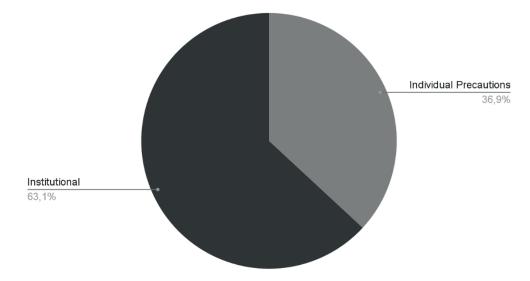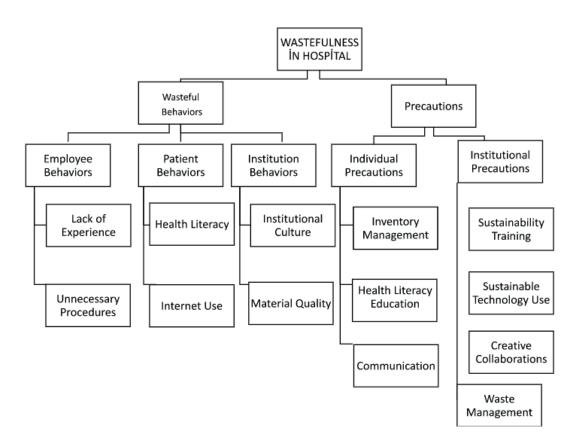

Figure 2. Percentage distributions of the participants providing views under the theme of "Precautions"

Figure 3. Themes and categories of the study

Wasteful Behavior

The views of the participants on "Wasteful Behavior" were organized under three categories: "Employee Behavior", "Patient Behavior", and "Institution Behavior".

Employee Behavior

The views of the participants on "Employee Behavior" were organized under two codes: "Lack of Experience" and "Unnecessary Procedures"

<u>Lack of Experience</u>

The participants stated that working with inexperienced personnel as a result of the turnover rate at hospitals caused waste. It was emphasized that especially physicians give priority to examinations in diagnosis, and this situation had become ingrained in the institutional culture over time. These practices were reported to cause unnecessary procedures.

> *"...Our friends who come here are just getting started or are in the learning process. When this is the case, extra examinations are carried out"* (34-SH-Nurse).

> *"...Especially in viral cases, it becomes misleading to order tests in the early period..."* (31-SH-Physician).

Unnecessary Procedures

Conducting routine tests before examining the patient at clinics and the emergency service and redoing tests that have recently been conducted at external centers were listed as some of the unnecessary procedures. Moreover, it was stated that it might not be possible to take a patient's history in detail due to communication problems with foreign patients. The participants considered it wasteful to perform tests due to the hostile behavior of patients whose demands are not met.

> *"...the patient comes from another institution, they had a CT taken one day ago, and the physician says let's take it again. This is harmful to the patient and waste for the hospital... What will have changed in a day? I don't think this is right..."* (39-UH-Head Nurse).

> *"For example, proper anamnesis is not possible when foreign patients arrive, and thus, we order several blood tests. Yes, I accept that this is wasteful"* (35-SH-Physician).

> *"Patients object when you don't order tests, they want you to order tests"* (33-SH-Physician).

Patient Behavior

The views of the participants on "Patient Behavior" were organized under two codes: "Health Literacy" and "Internet Use".

Health Literacy

The participants stated that patients presented to emergency services as they did not know they have to make an appointment with outpatient clinics for their ongoing health problems.

> *"...If the patients were responsible, if they knew the doctor to whom they should apply for which complaint, extravagance will be eliminated anyway..."* (35-SH-Physician).

The participants emphasized that all the society, especially foreigners, should be educated about resource use and health literacy.

> *"...It will take a long time to educate these people [foreigners]. Let us say we have educated our people, but [they are] all foreigners, Syrians, Afghans... They should also have gone through an education process"* (34-SH-Nurse).

Internet Use

It was reported that patients made their own diagnoses using unreliable information sources such as the internet and television when they presented to the hospital, they also made requests for diagnosis and treatment, and this situation was stated to be related to unnecessary diagnosis and treatment practices by healthcare professionals.

> *"I think, the greatest opportunity and peril of today is the internet. ...because there is such a group of people as Google physicians. Do I have cancer? Let me go to the hospital, then"* (33-SH-Physician).

"...Unnecessary screening of blood samples, referrals may occur, even patients may request these. This may be considered extravagance..." (35-SH-Physician).

Institutional Behavior

The views of the participants on "Institution Behavior" were organized under two codes: "Institutional Culture" and "Material Quality".

Institutional Culture

The participants stated that there was a hierarchical structure in conveying the encountered problems to the senior management, progress in this structure had difficulties, and in this sense, caused waste.

"...perhaps, we haven't adopted such a culture much, or no such culture has formed. This is very saddening" (24-SH-Nurse).

Material Quality

The participants considered the increase in the use of first-class materials at private hospitals a waste. At the same time, it was argued that patients who have a certain income level and desire to receive healthcare services with expensive and high-quality materials are satisfied with this situation.

"It is a private business and a large business, and of course, they do not charge in the same way as in other hospitals, but patients come here already knowing this..." (30-PH-Secretary).

Patient care with poor-quality materials and failure to provide the necessary materials were stated as reasons for WH by the participants.

"The pumps were changed recently; the new pumps were leaking. They were so bad and poor quality... If there are two venous drips, we draw two pumps. Isn't this wasteful?" (22-PH-Nurse).

Precautions

The views of the participants on "Precautions" were organized under two categories: "Individual Precautions" and "Institutional Precautions".

Individual Precautions

The views of the participants on "Individual Precautions" were organized under three codes: "Health Literacy Education", "Communication", and "Inventory Management".

Health Literacy Education

The participants argued that society should be educated about the effective use of resources and health literacy starting with childhood. Furthermore, they highlighted that health policies should be developed in this direction.

"...The solution is in the children, unless we educate children properly, every practice we do will go into a vicious circle ..." (33-SH-Physician).

"...This can only be possible through education. ...or policies, politics..." (30-SH-Nurse).

Communication

According to their statements, the participants warned people in their immediate surroundings and only when they were uncomfortable with the wasteful behavior. It was found that the participants avoided warning physicians, and it was reported that this was due to their hesitation to get undesirable reactions. Additionally, it was stated that healthcare workers were able to warn others at institutions where the communication among healthcare workers was strong.

"...I do not warn the physicians, they may snub me. I can say it to nurses, patient relatives..."
(30-PH-Patient Care Staff).

"...When they order unnecessary tests, we question it. We warn them again saying 'the blood gasses of this patient were just measured, should we test it again?' or 'hemoglobin was measured an hour ago, do we need to measure it again?', and they listen to us"
(34-SH-Head Nurse).

Inventory Management

The participants emphasized that storing materials and drugs in units was a wasteful behavior, ordering materials and medicines in hand according to their expiration date and their consumption before these dates, and the implementation of the necessary procedures in case they are not used were the most crucial precautions to be taken.

"...We pay attention to expiration dates, we put those [close to expiration] in the front, we send the ones that have expired back to the pharmacy..." (30-SH-Nurse).

"...I don't keep an excessive inventory; I don't order excess drugs. I emptied the storage myself when I came here first. Otherwise, it is waste, I don't like it. I occasionally go there [storage space] and empty it" (44-UH-Head Nurse).

Institutional Precautions

The participants' views on "Institutional Precautions" were organized under four codes: "Sustainability Training", "Sustainable Technology Use", "Creative Collaborations", and "Waste Management".

Sustainability Training

The participants emphasized that the hospital administration actively worked to raise awareness about sustainability.

"There are training programs like 'What is an emergency? What do unnecessary visits to the emergency service cause? Which resources are used?' ...because the best way of reaching people nowadays is social media, or public service announcements..."
(33-Physician).

Sustainable Technology Use

The participants highlighted the usage of sustainable technologies such as making the use of smart building systems that switch themselves off when unused prevalent and using e-order systems.

> *"I've heard that there are systems where all computers automatically turn off in 20-30 minutes when not in use. They turn on again and continue to work [when needed]. ...idle computers stay off..."* (30-UH-Physician).

> *"We used to print out doctors' orders every day. Loss of printing resources, toner, time... These are not needed when e-orders are used"* (55-SH-Nurse).

Creative Collaborations

The participants emphasized the importance of making creative collaborations in efforts to raise awareness at institutions. They considered using warning signs, striking images, and training programs as a step towards reducing wasteful behavior that is not noticed during the day.

> "*For example, fine arts students can come and paint the walls in multiple colors. ...or a computer science student can code a useful program for the obstetrics inpatient clinic as a project for the semester, and they can receive grades for this...*" (44-UH-Head Nurse).

Waste Management

The participants stated that they were very sensitive about waste management, and they were satisfied with the "Zero Waste Project," which was being carried out in the form of the separation and collection of wastes, and they used it effectively.

> *"Now, the zero-waste project has arrived, it is followed very well..."* (35-SH-Cleaning Staff).

> *"...We pay attention a lot. We even segregate rubbish, and we show others [how it should be done] saying, 'we will fold these cardboard boxes one by one, and we will take them to the paper waste area'"* (38-SH-Cleaning Staff).

Discussion

In this study, HCW who were working at different positions at hospitals were asked about their views on WH. The reasons for the individual wasteful behavior of HCW were determined by the study as lack of experience and unnecessary procedures.

Inexperience may be associated with the working conditions of HCW, as well as healthcare policies that are implemented. Healthcare institutions should follow an effective administrative process to bring their costs under control without lowering the quality of their services and keep their experienced employees. In this case, the departure of experienced HCW from an institution and high turnover rates may be considered WH.

In previous studies, it has been stated that WH levels are increasing due to repeated procedures and undesirable consequences of practice errors caused by reasons such as the provision of healthcare services for too many patients by healthcare professionals due to staff shortages, long working hours, and undesirable results [9]. Among such procedures, defensive medicine practices are frequently encountered.

Defensive medicine practices not only expose patients to unnecessary interventions but also create financial burdens on the institution and the public. It was reported that defensive medicine practices in the United States alone led to an additional healthcare spending of at least 60 billion dollars annually [10]. Defensive medicine practices are not just unethical behavior exhibited by physicians but are also a systemic problem [11]. The most frequently encountered positive defensive medicine practices were reported as unnecessary biopsies (78.7%), imaging (72.3%), and laboratory tests (70.6%) [11].

It may be argued that low levels of health literacy, which is accepted as a key determinant of health and prosperity by the World Health Organization (WHO) and patients coming to the hospital with inaccurate information obtained from the internet are the most significant reasons for WH behavior [12]. Health literacy is defined as the participation of adults in decisions about their health in a responsible manner in their own social and cultural contexts [13]. In the literature, it is stated that information obtained from the internet is unreliable, and these sources often include personal opinions and experiences. Additionally, it is known that negative situations such as the incomplete and incorrect understanding of medical terms pose a risk for public health [14]. In the interviews in this study, the participants stated that patients visiting the hospital by making their own diagnosis through misinformation obtained from the internet caused "clinically unnecessary" healthcare procedures to be practiced.

The term "clinically unnecessary" refers to practices that go beyond the levels of clinical care and urgency required by the patient's effective treatment [15]. The case that the majority of the demand in emergency services comes from non-emergencies and consists of the medically unnecessary demands of patients is worrying in terms of WH [16]. A study determined that there were patient applications in the emergency services for the red zone (critical) at a rate of 0.4% [17]. This finding is very important in terms of revealing that resources are misused by providing services outside the purpose of emergency units because of factors such as concerns about patient satisfaction, fear of physician reactions, and insecurities. The results of previous studies have supported the findings obtained in this study [18].

This study found that other factors that led to unnecessary procedures were reported as communication problems with foreign patients and the hostility of patients. The unlikelihood of accessing the medical histories of foreign patients undermines the level and quality of healthcare services [19]. It may be considered that the perception of patient hostility and violence at hospitals by the HCW as an element of worry increased their tendency to use defensive medicine practices.

The participants of this study stated that WH was caused by the lack of an institutional culture that supports sustainability at hospitals and the provision of care with low-quality materials. Although a vertical organization is conventionally seen in their structures, hospitals are open systems [20]. This hierarchical structure brings about difficulty in adaptation to changing environmental conditions and resistance to change and necessitates participatory administrative systems. It was asserted that an organizational culture and administrative approach that has an understanding of modern management is effective for the formation of a strong and innovative leadership approach [21]. An innovative organizational culture that is open to change makes it a requirement to receive the opinions of employees in the supply of resources that are used in healthcare services where market economics is dominant. Similarly, while the participants in this study specified that trying to find the required materials when the materials are not supplied on time or when the low-quality materials that are supplied malfunction frequently causes a waste of labor and time, they said materials and medications remaining from discharged patients are not utilized, and providing patient care with cheaply produced low-quality materials leads to a waste of both time and materials.

Another theme that was found in this study regarding the views of the HCW on wasteful behavior was named "Precautions". It covered individual and institutional precautions that need to be taken to prevent WH.

The participants argued that extravagance can be prevented by raising health literacy. Previous studies have reported the expectation that as a consequence of receiving education on health literacy, society will act more responsibly regarding the use of resources [22].

An issue that was emphasized by the HCW who participated in this study was communication. The participants stated that their warnings about WH behavior led to tensions when the right communication technique was not used; they could warn patients and patient relatives, but they did not want to warn physicians as they thought physicians would react negatively. It may be highlighted that patient relatives consider that HCW should provide information and warnings within their professional roles. In the literature, it has been stated that when patients are correctly guided by HCW, unnecessary procedures would be reduced [23].

The participants of this study reported that they avoided extravagance by checking inventories to use resources efficiently. Results in the literature have been similar to our finding that storing medical materials and prioritizing them based on their expiration dates increased communication in the team and efficiency, as well as making patient care easier [24]. Similar studies have reported the practice of various approaches involving the identification and prevention of factors that can lead to interruptions in the workflow such as ordering materials beforehand without waiting for them to be used completely [25]. As an institutional precaution that should be taken to prevent WH, the participants recommended sustainability training. It is known that education is a basic process that will allow individuals to establish a meaningful relationship with natural resources. Studies have emphasized that to achieve behavioral change, adults need to be interested and motivated to perform the relevant task [26]. Such motivation may be provided by underlining the threat posed by the inefficient use of resources to global health and the importance of an interdisciplinary response to this threat. It should be accepted that education and training programs are a professional and ethical necessity for preventing WH and achieving sustainability in healthcare [27]. Accordingly, educators of health-related professions should participate in the active implementation of such programs.

The participants frequently mentioned that they came up with solutions by applying their own creativity and problem-solving skills while using limited hospital resources. It is known that creativity has a strong relationship with the performance of hospital personnel regarding the efficient use of resources [28]. Institutions should support individuals who can think flexibly while solving global problems that can be evaluated from several perspectives. Hospitals should embrace creative approaches that are presented and be open to change.

Another recommendation that was made by the participants in this study was to support the sustainable technologies and waste management systems that are used at hospitals. Designing the hospital's architecture based on simple and sustainable engineering principles reflects the efficient use of resources. "Green hospitals" that provide services that have an ecological, economic, social, and functional quality are just some of the noteworthy sustainable healthcare practices [29]. It was reported that green hospitals affected not only the environment but also the mood of patients positively, and these patients were discharged in a shorter time [24]. If such hospital buildings are buildings that can produce their own energy and manage their wastes in an environmentally sensitive manner, it can be possible to reduce water use, healthcare costs, energy use, and CO_2 emissions.

In the interviews, the participants stated that they followed the "Zero-Waste Project", which requires the separation and collection of wastes, actively. Other studies have also emphasized that materials that are used at hospitals are selected from among environment-friendly materials, and HCW support these practices in line with waste reduction goals [30].

Limitations

The data obtained in this study cannot be generalized because they reflect the perspectives of the participants and are limited to the period of the interviews and the interviewees.

Conclusions

In this study, while HCW stated that WH is associated with a set of individual and institutional causes, they also underlined the effects of patient behavior. They asserted that these causes can be prevented through individual and institutional precautions. Among the issues related to causes and recommendations, in addition to cultural behavior, sustainability suggestions were also mentioned. Individual precautions alone will not be sufficient to prevent WH. The results of this study should be a prioritized topic of discussion in national and international policy agendas about institutional sustainability, and an institutional culture that supports the effective and efficient use of resources at hospitals should be established. Moreover, a safe work environment for HCW where they can make use of their knowledge and experience should be provided, and patient referrals should be made in a way suitable for the referral chain. Awareness about health literacy and sustainability should be raised in society, which should be informed about healthcare spending, and foreigners should be integrated. The architectural structures of hospitals should be reinforced with technology to allow the production of their own energy, and these systems should be appropriate for the effective and efficient use of resources. Waste that is created as a consequence of providing healthcare services should be recycled as much as possible. Preventing the extravagance that is experienced at hospitals requires national and international political efforts, as well as social change.

Disclosures and acknowledgements

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