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*Original article*

# Attitudes and factors associated with adverse patient outcomes as perceived by nurses and medical doctors

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**Summary**

**Introduction**. The patient and his safety should be at the center of quality health care, which is a challenge for every health system. Adverse patient outcomes (APO) are defined as damage caused by a drug or other intervention in a primary, secondary or tertiary health care facility, which results in a complication of the primary or the emergence of a new disease or injury. The aim of our study was to determine how frequent the APO are, and to determine the differences between nurses and doctors in the frequency, causes and attitudes towards APO.

**Methods**. This cross-sectional study included 100 health professionals, nurses and medical doctors employed at the primary and secondary level of health care. The research was conducted in the period from May to October 2020. The questionnaire was partially taken from a general questionnaire offered on the website of the Agency for Healthcare Research and Quality and the standardized Perceived stress scale was used to measure the degree of subjective stress.

**Results**. Forty-four health professionals (44%) experienced adverse patient outcomes in their career, doctors (52%) significantly more often than nurses (36%) ($p = 0.039$). More than a half of respondents (52.3%) declared that APO happens few times a month. Seventy percent of the respondents blame their own stress burden as the main factor associated with APO. Doctors more often than nurses (69.2%) blame problems in communication between health professionals as the main cause of APO (27.8%) ($p = 0.046$).

**Conclusion**. For doctors, the main cause of APO is problem in communication, while nurses more often think that patient safety is priority when compared to doctors. Almost two thirds of respondents blame their own stress burden as a factor associated with APO.

**Key words:** frequency, attitudes, adverse patient outcomes

## Introduction

Adverse patient outcomes (APO) in the provision of health care have been happening since the beginning of medicine. As early as the 4th century BC, the preventive measure "primum non nocere", or "first, do no harm", is mentioned in Greece. As at that time, so now it is just

as important not to harm as it is to help those in need. The patient and his safety should be at the center of quality health care, which is a challenge and a priority of every health system [1, 2]. The adverse patient outcomes are defined as damage caused by a drug or other intervention in a primary, secondary or tertiary health care facility, which results in a complication of the primary or the emergence of a new disease, illness or injury. Adverse outcomes can also be called iatrogenic conditions and it is necessary to distinguish them from complications, which are also undesirable, but can also occur during proper treatment [3, 4]. Patient safety implies the effort and activities undertaken by the healthcare team to ensure that the application of all procedures and the environment around the patient allow the provision of health care with the aim to enable the desired outcome of treatment of patients [5]. Patient safety is known to be the most reliable indicator of the quality of the health system in all countries that provide health care in the public or private sector [6–8].

Despite the rapid development of medicine, the sophistication of medical equipment, as well as the increasing adoption of modern and effective risk control techniques, there is a growing possibility of errors in health care. According to data from the most of European Union countries, about 8–12% of patients suffer some damage as a result of treatment errors [9, 10]. One of the reports of the American Medical Institute says that every year over a million people suffer the consequences caused by mistakes in health care. An average of 44,000 to 98,000 people die each year from mistakes made by doctors or nurses, while the tax burden on taxpayers is $ 37.6 billion [11, 12].

According to the definition of the World Health Organization (WHO), work in a health team is defined as the cooperation of several experts in achieving a common goal, which is the treatment and provision of health care to patients, and work in a health team must not be divided but well-coordinated by the health team leader [13]. In order for the organization in the health team to be of high quality and professional, it is necessary for each member of the health team to take responsibility for the part of the work they perform. This is the only way for the health team to achieve good results in patient care through coordinated action, because a larger number of members of the healthcare team, compared to an individual, can achieve greater efficiency and scope of work, and the number of errors in this case is significantly lower [14]. The basic task of all members of the healthcare team is to ensure patient safety that is directly correlated with the occurrence of expected or unexpected adverse events. It has long been thought that a patient's safety depends most on the doctor-patient relationship. However, with the development of the nursing profession and the technology applied in nursing procedures, the provision of health care takes on another dimension, which largely depends on nurses who are also a significant part of the healthcare team. Therefore, we should strive to make the healthcare system as safe as possible at all levels [15–17]. There is a public opinion that nurses are most responsible for patient safety. The reason for this is that nurses play a central role in patient safety, which is why there is a danger that all medical errors are attributed to nurses, instead of errors to other members of the healthcare team or errors in the healthcare system. In contrast, research shows that thanks to nurses, a large number of unwanted mistakes and events have been prevented and that they protect patients from insecurity and certain omissions in clinical practice. It is therefore important to mention that almost every procedure in patient care requires and involves a certain degree of potential risk [18].

The most common APO associated with the healthcare process are nosocomial infections, poor hand hygiene that can cause infections, adverse drug side effects, pressure ulcers, and patient falls [19]. The consequences

of medical errors can be fatal, severe physical or mental damage, as well as minor damage [20–22]. After mistakes occur, members of the healthcare team (nurses and doctors) become demoralized and dissatisfied, in addition, the consequence of APO can be a direct material or criminal liability for healthcare workers, with possibility to lose licence for clinical practice [23–25].

The occurrence of APO in the healthcare system is a global problem. However, there is not much data in the literature on the difference in frequency, attitudes, and factors associated with APO between nurses and doctors. That is why in our research we paid special attention to determine how frequent the adverse patient outcomes are, and to determine the differences between nurses and doctors in the frequency, causes and attitudes towards APO.

## Methods

The research was conducted as a cross-sectional study in the population of health professionals, medical doctors and nurses employed at the primary and secondary level of health care. The sample consisted of health professionals from the "University Hospital Foca" and the "Health Center Foca". The study included 100 subjects (50 nurses and 50 medical doctors) of both genders, aged 20 to 65 years. Prior to the start of the research, the written consent of the competent institutions was obtained. Participation in the study was voluntary, and the survey was anonymous.

Data were collected by survey. To obtain the data, a questionnaire was used which was composed of questions for collecting socio-demographic data, as well as the frequency of perceived APO, causes and types of APO, as well as attitudes about APO. The questionnaire was consisted of twenty questions that were partially taken from a general questionnaire offered on the website of the United States of America (USA) Agency for Healthcare Research and Quality [26]. The questions are tailored to the needs of this research, and a number have been designed and intended specifically for this topic.

An integral part of the questionnaire was a standardized Perceived stress scale (PSS). This scale measures the degree to which respondents experience their lives as unpredictable, uncontrolled, and overburdened, the three basic components of experiencing stress. The PSS measures the degree of subjective stress through assessments of lack of control, feelings of satiety and unpredictability of life. The scale is consisted of 10 particles that are like: How confident are you that you can deal with your problems in the last month? Respondents rate their experience of a particular stressor on a Likert scale with scores from 0 to 4 (0 never, 1 almost never, 2 sometimes, 3 quite often and 4 very often). The total score is obtained by summing the responses where a higher score indicates a higher level of perceived stress.

The methods of descriptive and analytical statistics were used in the paper. Among the methods of descriptive statistics, measures of central tendency and measures of variability were used, namely: arithmetic mean with standard deviation and relative numbers for categorical variables. Among the methods of analytical statistics Student's t test was used for bound samples. Of the nonparametric tests, the chi-squared test was used to assess the difference between the groups. The usual value of $p< 0.05$ was taken as the level of statistical significance of differences, while the values of $p< 0.01$ were considered highly statistically significant. Results were statistically analyzed in GraphPad Prism software (GraphPad, La Jolla, CA, USA) and SPSS software package version 21.0 (Statistical Package for Social Sciences SPSS 21.0 Inc, USA).

## Results

Our sample was consisted of 100 health professionals divided by profession in two groups, the first group was consisted of 50 nurses (50%) and the second group was consisted of 50 (50%) doctors. The mean age of the subjects was 45.53 ± 12.64 years. Respondents were divided into two categories in relation to age, the category of younger respondents, from 20 to 40 years (34%) and the category of older respondents (from 41 to 65 years) (66%). There was no significant difference between the groups of respondents divided by profession in relation to age. Fifty-four percent of respondents had more than 21 years of work experience. Fifty percent of respondents work in primary health care, i.e. in the health center, while the remaining 50% of respondents work in secondary health care, i.e. in the hospital. Statistical analysis showed that there was a high statistically significant gender difference between the groups of respondents divided by profession ($p = 0.001$), with significantly more women (88%) in the group of nurses than in the group of doctors (54%). Also, nurses significantly ($p = 0.001$) more often had a longer work experience (74%) compared to doctors (34%). According to the PSS, prevalence of stress among respondents was 57% and there was significantly ($p< 0.001$) higher number of doctors who had a high level of stress (76%) compared to nurses (38%) (Table 1). Also, Figure 1 shows that doctors had significantly ($p< 0.001$) higher level of PSS total score (19.04 ± 4.65) when compared to nurses (14.72 ± 2.53) (Figure 1).

**Table 1.** Differences in age, gender, level of health care, years of work experience and level of stress between nurses and doctors

| Variables | Nurses (n=50) | | Doctors (n=50) | | Total (n=100) | | P ($\chi^2$) |
|---|---|---|---|---|---|---|---|
| | n | % | n | % | N | % | |
| **Age** | | | | | | | |
| 20 to 40 years | 16 | 31 | 18 | 36 | 34 | 34 | 0.673 |
| 41 to 65 years | 34 | 68 | 32 | 64 | 66 | 66 | |
| **Gender** | | | | | | | |
| Male | 6 | 12 | 23 | 46 | 29 | 29 | 0.001 |
| Female | 44 | 88 | 27 | 54 | 71 | 71 | |
| **Level of health care** | | | | | | | |
| Primary | 24 | 48 | 26 | 52 | 50 | 50 | 0.841 |
| Secondary | 26 | 52 | 24 | 48 | 50 | 50 | |
| **Years of work experience** | | | | | | | |
| 1 to 20 years | 13 | 26 | 33 | 66 | 46 | 46 | <0.001 |
| 21 do 42 years | 37 | 74 | 17 | 34 | 54 | 54 | |
| **Perceived stress scale** | | | | | | | |
| Average level of stress | 31 | 62 | 12 | 24 | 43 | 43 | <0.001 |
| High level of stress | 19 | 38 | 38 | 76 | 57 | 57 | |

$\chi$2 - Chi-squared test

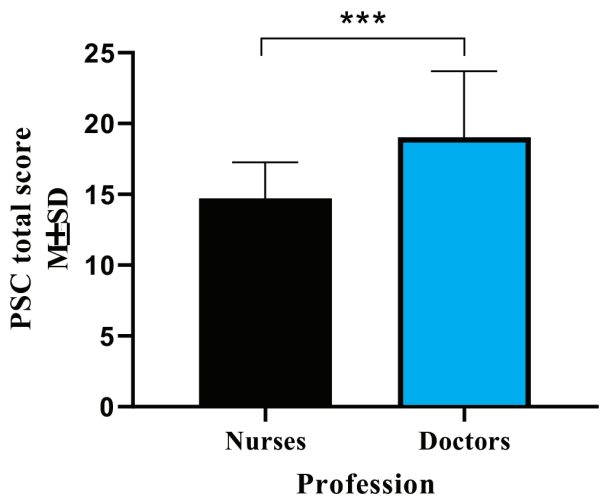


**Figure 1.** Mean values of Perceived stress scale total score between respondents divided by profession. PSS - Perceived stress scale; M - mean, SD - standard deviation; *p< 0.05; **p<0.010; ***p< 0.001

Table 2 shows differences in experience and cause of APO between nurses and doctors. Forty-four health professionals (44%) experienced adverse patient outcomes in their career, doctors (52%) statistically more often than nurses (36%) (p = 0.039). More than a half of respondents (52.3%) declared that APO happens few times a month, 31.8% stated that APO happens annually and 15.9% respondents stated that it happens every day. Between nurses and doctors significant difference in frequency of APO was not observed. Fifty-two percent (52.4%) of respondents stated that the main cause of APO is problem in communication between healthcare professionals, 38.6% said that the main cause is problem in organization at workplace, while only 9% of respondents said that the cause of their experience of APO was personal problem. Doctors significantly more often (69.2%) blame problems in communication as main cause of APO than nurses (27.8%), while nurses more often (22.3%) than doctors (0%) declare that the cause of APO is on personal level (p = 0.046). More than a half of respondents (54.5%) stated that the fall of a patient was their experience with APO, 29.5% stated that the mistake was related to medication error, and 15.9% said that the APO arose as consequence of identity replacement. Nurses (63%) significantly more often than doctors (41.2%) declare that falls are the type of APO according to their experience (p = 0.031). When they are asked to express their opinion whether a COVID-19 pandemic affects a more often occurrence of APO, 44% of respondents agreed with this statement, 39% of them did not know, while 17% of respondents declared that they do not think that pandemic could affect more frequent occurrence of APO. Doctors significantly more often (54%) stated that pandemic could affect more frequent occurrence of APO than nurses (34%) (p = 0.021). Seventy percent of health professionals declared that their own stress burden is a main cause of APO, but between groups of respondents the statistical significance was not observed (Table 2).

Seventy-three percent of respondents stated that patient safety is priority in the work of healthcare staff. However, significantly more doctors (38%) did not agree with this statements when compared to nurses (16%) (p = 0.013). Eighty percent of health professionals stated that they are actively working to improve patient safety and 89% of respondents stated that the protocols are followed and because of that the possibility of APO is reduced,

**Table 2.** Differences in experience, frequency and causes of adverse patient outcomes between nurses and doctors

| Variables | Nurses (n=50) | | Doctors (n=50) | | Total (n=100) | | P ($\chi^2$) |
|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | |
| **The expirience of APO** | | | | | | | |
| No | 32 | 64 | 24 | 48 | 56 | 56 | 0.039 |
| Yes | 18 | 36 | 26 | 52 | 44 | 44 | |
| **Frequency of APO (n=44)** | | | | | | | |
| Annually | 7 | 38.9 | 7 | 26.9 | 14 | 31.8 | 0.655 |
| Few times a month | 8 | 44.4 | 15 | 57.7 | 23 | 52.3 | |
| Every day | 3 | 16.7 | 4 | 15.4 | 7 | 15.9 | |
| **The main cause of APO (n=44)** | | | | | | | |
| Organizational | 9 | 50 | 8 | 30.8 | 17 | 38.6 | 0.046 |
| Personal | 4 | 22.3 | 0 | 0 | 4 | 9 | |
| Communication between health professionals | 5 | 27.8 | 18 | 69.2 | 23 | 52.4 | |
| **Type of AOP (n=44)** | | | | | | | |
| Medication errors | 7 | 25.9 | 6 | 35.3 | 13 | 29.5 | 0.031 |
| Falls | 17 | 63.0 | 7 | 41.2 | 24 | 54.5 | |
| Identity replacement | 3 | 11.1 | 4 | 23.5 | 7 | 15.9 | |
| **A COVID-19 pandemic affects a more frequent occurrence of APO** | | | | | | | |
| No | 12 | 24 | 5 | 10 | 17 | 17 | 0.021 |
| I don't know | 21 | 42 | 18 | 36 | 39 | 39 | |
| Yes | 17 | 34 | 27 | 54 | 44 | 44 | |
| **Stress at work is the main cause of APO** | | | | | | | |
| No | 13 | 26 | 17 | 34 | 30 | 30 | 0.762 |
| Yes | 37 | 74 | 33 | 66 | 70 | 70 | |

APO - adverse patient outcomes; χ2 - Chi-squared test

**Table 3.** Differences in attitudes of nurses and doctors about the safety of patients and occurrence of adverse patients outcomes

| Variables | Nurses (n=50) | | Doctors (n=50) | | Total (n=100) | | P ($\chi^2$) |
|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | |
| **Patient safety is a priority in the work of healthcare staff** | | | | | | | |
| I agree | 42 | 84 | 31 | 62 | 73 | 73 | 0.013 |
| I don't agree | 8 | 16 | 19 | 38 | 27 | 27 | |
| **We are actively working to improve patient safety** | | | | | | | |
| I agree | 39 | 78 | 41 | 82 | 80 | 80 | 0.617 |
| I don't agree | 11 | 22 | 9 | 18 | 20 | 20 | |
| **The protocols are followed and thus the possibility of APO is reduced** | | | | | | | |
| I agree | 46 | 92 | 43 | 86 | 89 | 89 | 0.338 |
| I don't agree | 4 | 8 | 7 | 14 | 11 | 11 | |
| **APO prevention is discussed in the depart**ment | | | | | | | |
| Never | 13 | 26 | 12 | 24 | 25 | 25 | 0.048 |
| Frequently | 23 | 46 | 33 | 66 | 56 | 56 | |
| Allways | 14 | 28 | 5 | 10 | 19 | 19 | |
| **Information about APO is available to healthcare professionals** | | | | | | | |
| I agree | 36 | 72 | 36 | 72 | 72 | 72 | 1.000 |
| I don't agree | 14 | 28 | 14 | 28 | 28 | 28 | |
| **Patient safety always comes first** | | | | | | | |
| I agree | 46 | 92 | 48 | 96 | 94 | 94 | 0.400 |
| I don't agree | 4 | 8 | 2 | 4 | 6 | 6 | |
| **The frequency of reporting APO** | | | | | | | |
| Allways | 14 | 28 | 2 | 4 | 16 | 16 | 0.003 |
| Frequently | 14 | 28 | 21 | 42 | 35 | 35 | |
| Rarely | 7 | 14 | 15 | 30 | 22 | 22 | |
| Never | 15 | 30 | 12 | 24 | 27 | 27 | |

APO - adverse patient outcome; $\chi^2$ - Chi-squared test

94% of them stated that patient safety comes first and 72% stated that information about APO is available to healthcare professionals, but the difference between nurses and doctors was not observed. However, significantly more nurses (28%) stated that APO prevention is always discussed in the department when compared to doctors (10%) (p = 0.048). Also, nurses more often (28%) stated that they always report APO when compared to doctors (4%) (Table 3).

## Discussion

Our research was conducted on a sample of 100 health professionals (50% of nurses and 50% of medical doctors) and aimed to identify the most common causes, types and frequency of adverse events in clinical practice. Also, the aim of the study was to determine the factors that affect the occurrence of APO in the workplace and whether there is a difference in these parameters and attitudes between nurses and doctors. The observed population is mostly female (70%), aged 41 to 63 years (66%) in direct contact with patients in healthcare facilities of primary (50%) or secondary level (50%).

In the most developed countries of the world, despite the use of the most modern technologies, the frequency of APO ranges from 10% to 12%, and more than half of the cases can be prevented if the health service is well organized and coordinated [27]. However, the results of the frequency of APO in our country and in the world vary, and this especially depends on whether studies have been done on patients or based on assessment of health professionals. According to a research by Hodak et al. [19] conducted in Osijek in March 2016, on a sample of 100 nurses, it was found that 45% of the surveyed health professionals had workplace experience in the form of APO [19]. Our results are similar to this study, out of the total number of respondents, 44% of our respondents had an APO at workplace by the time of the survey, and doctors (52%) statistically more often than nurses (36%) (p = 0.039). Almost third of our respondents (31.8%) stated that the APO happens once a year, 52.3% stated that APO occurs several times a month, while 15.9% of respondents report that adverse events occur every day. However, there are studies with a much higher frequency of APO. In the research by Jušić et al. [28] from 2015, performed on the sample of 90 nurses working at the General Hospital Šibenik, 67.8% of health professionals state that they have had an APO in their practice, 1.1% state that APO occurs once a week, up to 66.7% of respondents report that APO occurs several times a year [28]. Cross-sectional study by Chakravarty et al. [29] performed on a sample of 175 doctors and 60 nurses reported that 72% of doctors and 80% of nurses have experienced an APO at least five times a year, but there was no significant difference between nurses and doctors [29].

Studies not based on perception of health professionals, but instead done on patients, show different results. A study by Cho et al. [30] performed in 232 hospitals in California on 124,204 patients showed that APO were quite rare and that in this patient population APO occurred in 6.8% of cases, while the remaining 93.2% of patients were without APO [30]. However, it should be borne in mind that this study was performed only in the surgery departments with 20 groups of patients with surgical diagnoses. The results of this study also showed that this number is not negligible and that it is crucial to reduce the number of APO in the health system. The authors have also concluded that adequate health care by nurses is key to addressing the frequency of APO [30]. These results of lower frequency of APO are supported by many multi-centric studies. According to a study by Baker et al. [31] conducted in Canada in 2004 on a sample of 3745 patients, it was found that the frequency of APO was 7.5%. According to a systematic review article by Vrijes et al. [32]

from 2008, in which eight studies with 74,485 patients were analyzed, the frequency of APO was 9.2%, with an estimate that 43.5% of them were preventable [32]. These results of a much lower frequency of APO could be explained by the fact that in these countries the health system is better organized. The same authors [32] state that about 39.6% of APO are caused by surgery, 15.1% are caused by drugs, 7% are caused by diagnostic procedures, 5.5% are caused by the application of therapeutic procedures, 3.4% are caused by decline, 1.6% was caused postpartum, 1.1% occurred as a result of anesthesia, while 3% occurred as a result of neonatal birth injury. While, in our study more than a half of respondents (54.5%) stated that the fall of a patient was their experience with APO and 29.5% stated that the mistake was related to medication error, where nurses (63%) significantly more often than doctors (41.2%) had experience of APO in the form of falls ($p = 0.031$).

Communication in the field of health care is of great importance because the way of communication of health professionals affects the course and manner of treatment of patients, their satisfaction, and consequently their health condition. It is very important that healthcare professionals have experience in the field of communication and are able to patiently and actively listen to and observe the patient. Also, in order for the treatment of the patient to be effective, it is necessary for the members of the health team to have good and positive communication with each other. Although communication is very important in healthcare. Unfortunately, very little attention is paid to it and it is neglected, and heavy workload of healthcare workers, lack of time and fatigue could be the reasons for being neglected [33]. In our study more than a half (52.4%) of respondents stated that the main cause of their experience of APO was a problem in communication (52.4%), 38.6% of respondents said that the challenges in organization at workplace were the main cause of their experience of APO, while only 9% of them said that the cause of their experience of APO was personal problem. Doctors significantly more often (69.2%) blame problems in communication as the main cause of APO than nurses (27.8%), while nurses more often (22.3%) than doctors (0%) declare that the cause of APO is on personal level. Our results coincides to a study by Chakravarty et al. [29], where doctors significantly more often blame the communication problems as a main factor associated with APO ($p< 0.05$) [29]. In the study of Holton et al. [34] the psychological well-being of Australian clinical staff during the corona virus infection (COVID-19) was assessed. The authors concluded that one-quarter of respondents reported symptoms of psychological distress, with significantly higher scores of stress ($p< 0.001$), anxiety ($p< 0.001$) and depression ($p< 0.001$) in comparison to doctors [34]. This is the reason why we examined the perception of health professionals related to COVID-19 pandemic as possible contributing factor of more frequent occurrences of APO and 44% of respondents confirmed that during pandemic APO were more common, where significantly more doctors (54%) than nurses (34%) had this opinion ($p = 0.021$). While, even 70% of our respondents state that stress is the major factor associated with APO, the difference between nurses and doctors was not observed. However, our results showed that prevalence of stress measured by PSS was 57%, and doctors ($19.04 \pm 4.65$) had significantly higher levels of PSS total score when compared to nurses ($14.72 \pm 2.53$) ($p< 0.001$). Stress is a feeling of pressure that people experience when demands placed on them exceed the resources they have to meet these demands [35]. In the cross-sectional study of Sathiya et al. [35] among 84 doctors and 116 nursing staff prevalence of stress measured by PSS was found to be 39.5%, with higher levels of PSS score in doctors ($18.35 \pm 4.7$) when compared to nurses ($17.16 \pm 5.5$), but without significant difference in mean scores [35]. Higher mean values of PSS total score in our doctors could be associated with higher prevalence of APO in doctors when compared to nurses. According to a study

by Kakemam et al. [36] from 2019, performed in 115 hospitals in Iran, on a sample of 2895 nurses and technicians, it was determined that 29.1% of nurses and technicians experienced an adverse event in the last 6 months, and logistic regression analysis found that workplace stress was one of the statistically significant predictors of more frequent occurrence of adverse events [36].

Even though the patient safety is the first aim of every health professional and it should be in the center of every health system, despite intense advances in technology, the prevalence of APO is still very high [9, 10, 30]. However, there is a very little data in literature about perception from front-line nurses and doctors, who are working in health centers and hospitals, even though any possible success in error reduction depends on full support from these workers only [29]. With the aim to elucidate the attitudes of front-line nurses and doctors towards APO we found out that for 73% of them patient safety is priority, 80% are actively working to improve patient safety, for 94% patient safety comes first, 89% strictly follow protocols in aim to reduce occurrence of APO and 75% discuss about APO prevention in their departments. The study by Jušić et al. [28] also examined the attitudes of nurses about patient safety as a priority in the workplace, and it was found that only 35.6% of respondents agree with this statement, which is a significantly lower percentage when compared to our research. Possible explanation is that in our study significantly more doctors (38%) do not agree with this statements when compared to nurses (16%) ($p = 0.013$). In the same study [28] 70% of respondents believe that they are actively working to improve patient safety, while 64% state that patient safety always comes first regardless of the amount of work in the ward. Also, 92% of respondents state that they follow protocols in their daily work and 85% state that they discuss the prevention of APO that occur in the departments [28]. According to the study of American Agency for Healthcare Research and Quality Patient Safety Indicators (AHRQ) from 2014, which was performed in 653 hospitals, which involved 405,281 patients, of which 35% were nurses, 81% of respondents rated patient safety as excellent or very good, but only 38% of nurses reported regularly occurrence of APO [37], while in our study 73% of respondents reported occurrence of APO on regular basis.

## Conclusion

Our research has shown that 44% of healthcare professionals experienced APO, doctors significantly more often than nurses. For more than a half of respondents, significantly more often doctors, the main cause of APO is a problem in communication. Also, more than 50% of respondents, mainly nurses, stated that the fall of a patient was their experience of APO. Doctors significantly more often blame COVID-19 pandemic as a contributing factor of APO. Almost two thirds of respondents blame their own stress burden as a factor associated with APO, and perceived stress level was significantly higher in doctors when compared to nurses. More than a two thirds of respondents share attitude that patient safety comes first, as well as that they are actively working to improve patient safety and that they would report APO regularly. Nurses more often think that patient safety is priority and they more often report APO when compared to doctors.

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**Ethical approval.** The Ethics Committee of the "University Hospital Foca" approved the study and informed consent was obtained from all individual respondents. The research was conducted according to the Declaration of Helsinki.

**Conflicts of interest.** The authors declare no conflict of interest.

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# Učestalost, stavovi i faktori povezani sa pojavom neželjenih događaja kod pacijenata iz perspektive medicinskih sestara i doktora medicine

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**Uvod**. Sigurnost pacijenta bi trebalo da bude na prvom mjestu svakom zdravstvenom radniku, što je izazov svakog zdravstvenog sistema. Neželjeni događaji pacijenata se definišu kao šteta uzrokovana lijekom ili drugom intervencijom na primarnom, sekundarnom ili tercijarnom nivou zdravstvene zaštite, što dovodi do nastanka komplikacije primarne bolesti ili pojave nove bolesti ili povrede. Cilj naše studije je bio da utvrdimo učestalost neželjenih događaja i da utvrdimo razlike između medicinskih sestara i doktora medicine u učestalosti, uzrocima i stavovima prema neželjenim događajima.

**Metode**. U ovoj studiji presjeka je učestvovalo 100 zdravstvenih radnika, medicinskih sestara i doktora medicine zaposlenih u primarnom i sekundarnom nivou zdravstvene zaštite. Istraživanje je sprovedeno od maja do oktobra 2020. godine. Upitnik je djelimično preuzet sa vebsajta Istraživačke Agencije za istraživanje zdravstvene njege i njenog kvaliteta, a standardizovana skala doživljenog stresa je korišćena za mjerenje nivoa subjektivnog stresa.

**Rezultati**. Četrdeset četiri zdravstvena radnika (44%) su tokom svog radnog staža doživjeli pojavu neželjenog događaja kod pacijenata, doktori (52%) značajno češće u odnosu na medicinske sestre (36%) ($p = 0,039$). Više od polovine ispitanika (52,3%) je izjavilo da se neželjeni događaji dešavaju nekoliko puta mjesečno. Sedamdeset posto ispitanika navode da je njihov sopstveni stres povezan sa pojavom neželjenog događaja. Doktori značajno češće (69,2%) navode da je problem u komunikaciji između zdravstvenih radnika glavni uzrok pojave neželjenih događaja u odnosu na medicinske sestre (27,8%) ($p = 0,046$).

**Zaključak**. Za doktore, glavni uzrok nastanka neželjenih događaja je problem u komunikaciji između zdravstvenih radnika, dok medicinske sestre češće navode da je sigurnost pacijenata prioritet u odnosu na doktore medicine. Dvije trećine ispitanika navode sopstveni stres kao faktor koji je udružen sa pojavom neželjenog događaja.

**Ključne riječi**: učestalost, stavovi, neželjeni događaji kod pacijenata