

# The importance of patient involvement in safe medication administration in a healthcare facility

Znaczenie zaangażowania pacjenta w bezpieczne podawanie leków w placówce opieki zdrowotnej

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## STRESZCZENIE

### ZNACZENIE ZAANGAŻOWANIA PACJENTA W BEZPIECZNE PODAWANIE LEKÓW W PLACÓWCE OPIEKI ZDROWOTNEJ

**Cel pracy.** Celem badania była ocena subiektywnego postrzegania przez pacjentów podawania leków w warunkach szpitalnych oraz ocena ich zaangażowania w ten proces.

**Materiał i metody.** Dane badawcze zebrano za pomocą ustrukturyzowanego kwestionariusza. Do badania włączono łącznie 300 respondentów z czterech szpitali w regionie południowych Czech, którzy byli hospitalizowani na oddziale opieki pooperacyjnej i rehabilitacji, oddziale chirurgicznym i oddziale chorób wewnętrznych.

**Wyniki.** Z perspektywy pacjenta nastąpiła znaczna poprawa w zachowaniu pielęgniarek podczas procesu podawania leków. Pielęgniarki zwracają większą uwagę na identyfikację pacjenta, czekają, aż pacjent połknie lek, nie kładą leku na stole pacjenta i zdają sobie sprawę, że ich koncentracja podczas podawania leków ma kluczowe znaczenie dla bezpieczeństwa całego procesu.

**Wnioski.** Kluczowe aspekty zaangażowania pacjenta w proces obejmują właściwą identyfikację pacjenta, identyfikację właściwego leku i właściwą metodę podawania, w tym dokumentowanie procesu w dokumentacji pacjenta i zgłaszanie wszelkich zdarzeń niepożądanych. Takie kompleksowe podejście do zaangażowania pacjenta w podawanie leków przyczynia się do bezpieczeństwa i jakości opieki.

**Słowa kluczowe:** pacjent, zdarzenie niepożądane, błąd lekowy, podawanie leków

## ABSTRACT

### THE IMPORTANCE OF PATIENT INVOLVEMENT IN SAFE MEDICATION ADMINISTRATION IN A HEALTHCARE FACILITY

**Aim.** This study aimed to evaluate patients' subjective perceptions of medication administration in the hospital setting and assess their involvement in the process.

**Material and methods.** The research data were collected using a structured questionnaire. A total of 300 respondents from four hospitals in the South Bohemia region of the Czech Republic, who were hospitalized in the aftercare and rehabilitation department, surgical department, and internal medicine department, were included in the research.

**Results.** From the patient's perspective, there was a significant improvement in the nurses' behavior during the medication administration process. Nurses pay more attention to patient identification, wait for the patient to swallow the medication, do not put the medication on the patient's table, and realize that their concentration during medication administration is critical to making the entire process safe.

**Conclusions.** Key aspects of patient engagement in the process include proper patient identification, identification of the correct medication, and proper administration method, including documenting the process in the patient's record and reporting any adverse events. This comprehensive approach to patient involvement in medication administration contributes to safety and quality of care.

**Key words:** patient, adverse event, medication error, Medication administration

## INTRODUCTION

The World Health Organization [1] reports that millions of patients worldwide are harmed each year due to errors in the provision of health services. Patient harm has personal, social and economic impacts, resulting in losses of trillions of US dollars globally [1]. Furthermore, the World Health Organization reports that medication errors, particularly in prescription and usage, are among the most common issues in providing health services [1]. Medication errors pose a significant risk to the patient and harm the patient's health [2]. Any misconduct associated with the medication process has profound consequences for patients and their families [3]. If the malpractice reaches the patient himself, it is already an irreversible process that can have physical, but more importantly, psychological consequences [4]. For the patient and their relatives, malpractice reduces the credibility of the health system. It can also increase the patient's morbidity and lead to disability or even death. For healthcare institutions, this means increasing healthcare costs or decreasing prestige [4]. Medication errors can occur at any stage of pharmacotherapy, such as prescribing, dispensing, preparing, or administering the medication itself, including monitoring its effects [5]. The World Health Organization's [1] efforts to minimize risks are based on greater patient involvement in health care delivery, thereby increasing safe practice.

Brabcová et al. [6] state that drugs administration in healthcare facilities is one of the most crucial and risky nursing processes, with the nurse's role being pivotal. Lawton et al. [7] add that the patient's role is equally important, at their attitude can help mitigate risks in the medication administration process and enhance their safety. In their study, O'Hara et al. [8] add that the patient's perspective is a crucial point of interest for improving patient safety while emphasizing the need to obtain patient feedback on the quality and safety of healthcare. In another paper, Veverková et al. [9] emphasize proper communication techniques between the nurse and the patient during medication administration, active patient involvement, and obtaining feedback. In the study of Sharma et al. [10], it is pointed out that the issue of promoting patient involvement in drug administration safety is not fully explored. Sharma et al. further note that in recent years, there has been an increased interest in patient involvement in safety practices and a growing interest in information technology with access to various patient portals that allow patients to access information, including communication with healthcare providers [10].

## AIM

The study aimed to evaluate patients' subjective perceptions of medication administration in the hospital setting, including their involvement in the process associated with medication administration.

## METHODS

### Research design

The presented study was cross-sectional. The researchers followed the STROBE checklist in designing it [11].

### Research sample

The study included patients from four selected hospitals in the South Bohemia region of the Czech Republic who were admitted to different types of wards: surgical, internal medicine, and aftercare and rehabilitation departments. Patients whose current state of health allowed them to complete the questionnaire participated in the survey.

### Research tools

The survey was conducted using a non-standardized questionnaire of our design. This research instrument was developed by Hajduchová et al. [12].

The questionnaire was structured into four main parts:

- Part A: Patient's communication with the nurse during admission to the ward
- Part B: Medication administration during hospitalization
- Part C: Patient involvement in the administration of medicines
- Part D: Errors

The questionnaire also included patient identification data, including gender, age, type of hospital, ward, highest completed education, marital status, and nationality. Responses to the questions were constructed into a seven-point scale ranging from 1 – never, 2 – very rarely, 3 – rarely, 4 – sometimes, 5 – often, 6 – very often, 7 – always. If the question did not concern the patient, they chose 0 (zero) as the answer. Patients who chose this answer were not included in evaluating statistically significant associations. Every part of the questionnaire contained 31 questions, and patients were allowed to make any comments freely in the questionnaire itself.

### Data collection

Data were collected in four selected hospitals in the South Bohemia region from patients admitted to the surgical, internal medicine, aftercare, and rehabilitation departments from June to July 2023. Independent data collectors were engaged to gather information from hospitalized patients, ensuring impartiality and no affiliation with the respective hospitals. The inclusion criteria for patients in the study were: willingness to cooperate, age over 18, and hospitalization in selected settings. Exclusion criteria included unwillingness to cooperate and a serious health condition that prevented patient participation in data collection.

### Statistical analysis of the data

Statistical data processing was performed using SASD 1.5.8 (Statistical Analysis of Social Data) and SPSS Statistics ver. 28. The first level of classification and contingency tables of selected indicators of the second level of classification were prepared. The degree of dependence

of the selected traits was determined based on the  $\chi^2$ -test, independence test, and other test criteria applied according to the nature of the traits and the type of their distribution. Based on this analysis, data interpretation was conducted, and relevant tables were prepared. The level of statistical significance was set at  $p < 0.05$ ,  $p < 0.01$  and  $< 0.001$ , respectively.

### Ethical approval

The ethics committee of the University of South Bohemia in Ceske Budejovice, Faculty of Health and Social Sciences approved the research study on 18 June 2019. The respondents who participated in the study were informed in advance of the research's focus and objectives and guaranteed that their data would be protected.

## RESULTS

### Demographics

Three hundred patients completed the questionnaire. The study was representative in relation to gender, age, hospital type, department type, and patient education (see Tab. 1 for complete demographic data).

Based on the average (M) and standard deviations (SD) from Tab. 2, the most critical parts of medication administration safety can be identified. Patients stated that nurses only paid attention to the patient for whom they were preparing the medication when they were administering it. Furthermore, the results show that patients received clear answers from the nurse regarding the prescribed medication. On the other hand, most patients stated that when the nurse administered the medication, she did not communicate with others.

■ Tab. 1. Patient demographic data

| Characteristic               | Participants (N = 300) [n (%)] |
|------------------------------|--------------------------------|
| Gender                       |                                |
| Female                       | 184 (61.3)                     |
| Male                         | 116 (38.7)                     |
| Age                          |                                |
| Up to and including 45 years | 50 (16.7)                      |
| 46 – 60 years                | 73 (24.3)                      |
| 61 – 75 years                | 100 (33.3)                     |
| 76 and more years            | 77 (25.7)                      |
| Hospital type                |                                |
| University/regional          | 83 (27.7)                      |
| Local/district               | 217 (72.3)                     |
| Department type              |                                |
| Surgical                     | 108 (36.0)                     |
| Internal medicine            | 120 (40.0)                     |
| Aftercare and rehabilitation | 72 (24.0)                      |
| Education                    |                                |
| Unfinished/basic             | 51 (17.0)                      |
| Secondary                    | 170 (56.7)                     |
| Higher/university            | 79 (26.3)                      |

■ Tab. 2. Evaluation of the safety of medication administration from the patient's perspective

| Questions                                                                                                                    | Mode | min-max | s <sup>2</sup> | M ± SD      |
|------------------------------------------------------------------------------------------------------------------------------|------|---------|----------------|-------------|
| Does the nurse check the medication you have with you on admission?                                                          | 7    | 0 - 7   | 8.02           | 4.88 ± 2.83 |
| Does the nurse check the amount of medication you bring in?                                                                  | 7    | 0 - 7   | 8.31           | 4.61 ± 2.88 |
| Does the nurse write down the amount of medication you have with you?                                                        | 7    | 0 - 7   | 9.09           | 3.60 ± 3.01 |
| Did the nurse inform you not to take the medication you brought in?                                                          | 7    | 0 - 7   | 9.04           | 4.42 ± 3.00 |
| Do you check that the names of medications administered by the nurse match the names of the medications you take at home?    | 7    | 0 - 7   | 6.82           | 3.60 ± 2.61 |
| Do you check that the amount of medication administered by the nurse matches the amount of medication you take at home?      | 7    | 0 - 7   | 7.28           | 4.14 ± 2.69 |
| Do you check the amount of medication administered by the nurse at each administration?                                      | 7    | 1 - 7   | 5.80           | 4.53 ± 2.40 |
| Do you check the shape of the medication the nurse gives each time it is administered?                                       | 1    | 1 - 7   | 5.94           | 4.07 ± 2.43 |
| Do you check the color of the medication the nurse gives each time it is administered?                                       | 1    | 1 - 7   | 6.19           | 4.01 ± 2.48 |
| Do you ask about the names of the medications the nurse administered?                                                        | 1    | 1 - 7   | 5.38           | 3.63 ± 2.32 |
| Do you ask for an explanation if you find a discrepancy in the name, number, color, or shape of the medication administered? | 7    | 0 - 7   | 8.90           | 3.59 ± 2.98 |
| If you are given a new medication (different from what you usually take), do you ask the nurse for an explanation?           | 7    | 0 - 7   | 7.84           | 4.28 ± 2.80 |
| If you asked about the medication the nurse gives you, did you get an understandable answer?                                 | 7    | 0 - 7   | 5.69           | 5.34 ± 2.38 |
| If you do not want the medication administered, does the nurse insist that you take it?                                      | 0    | 0 - 7   | 7.26           | 2.11 ± 2.69 |
| Will the nurse call the doctor if you do not want the medication administered?                                               | 0    | 0 - 7   | 8.57           | 2.40 ± 2.92 |
| Is the nurse waiting for you to swallow the medication?                                                                      | 7    | 1 - 7   | 4.84           | 4.40 ± 2.20 |
| If you are not at the bedside when your medication is administered, will the nurse leave your medication on the table?       | 1    | 1 - 7   | 5.77           | 3.74 ± 4.40 |
| Does the nurse ask your name before giving you medication?                                                                   | 7    | 1 - 7   | 4.81           | 4.92 ± 2.19 |
| Does the nurse check your ID bracelet before administering each medication?                                                  | 7    | 0 - 7   | 5.65           | 4.47 ± 2.37 |
| When the nurse administers your medication, does she communicate with another person?                                        | 1    | 1 - 7   | 2.38           | 1.95 ± 1.54 |
| Does the nurse only address you when administering medication?                                                               | 7    | 1 - 7   | 2.84           | 5.74 ± 1.68 |
| Would you like to be more involved in deciding what medication you take?                                                     | 5    | 1 - 5   | 2.11           | 3.20 ± 1.45 |
| Would you like family members to be involved in decisions about your treatment?                                              | 1    | 1 - 5   | 2.45           | 2.99 ± 1.56 |
| Have you ever been given a medication other than the one prescribed by your doctor?                                          | 2    | 1 - 3   | 0.29           | 2.23 ± 0.54 |

Note. M – average; SD – standard deviation; s<sup>2</sup> – dispersion; min – minimum; max – maximum

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■ Tab. 3. Statistical analysis of selected variables

| Questions |                                                                                                                               | Age |          |    |       | Gender |          |    |       | Education |          |    |       | Hospital type |          |    |           | Department type |          |    |           |
|-----------|-------------------------------------------------------------------------------------------------------------------------------|-----|----------|----|-------|--------|----------|----|-------|-----------|----------|----|-------|---------------|----------|----|-----------|-----------------|----------|----|-----------|
|           |                                                                                                                               | N   | $\chi^2$ | df | p     | N      | $\chi^2$ | df | p     | N         | $\chi^2$ | df | p     | N             | $\chi^2$ | df | p         | N               | $\chi^2$ | df | p         |
| A         | Does the nurse check the medication you have with you on admission?                                                           | 237 | 10.747   | 6  | 0.097 | 237    | 0.856    | 2  | 0.652 | 237       | 3.445    | 4  | 0.486 | 237           | 1.495    | 2  | 0.474     | 237             | 13.469   | 4  | <0.01**   |
|           | Does the nurse check the amount of medication you bring in?                                                                   | 231 | 5.844    | 6  | 0.441 | 231    | 3.392    | 2  | 0.183 | 231       | 6.379    | 4  | 0.173 | 231           | 7.674    | 2  | <0.05*    | 231             | 10.191   | 4  | <0.05*    |
|           | Does the nurse write down the amount of medication you have with you?                                                         | 210 | 8.672    | 6  | 0.193 | 210    | 4.507    | 2  | 0.105 | 210       | 5.903    | 4  | 0.207 | 210           | 0.754    | 2  | 0.686     | 210             | 24.692   | 4  | <0.001*** |
|           | Did the nurse inform you not to take the medication you brought in?                                                           | 226 | 8.142    | 6  | 0.228 | 226    | 1.326    | 2  | 0.515 | 226       | 3.316    | 4  | 0.506 | 226           | 3.666    | 2  | 0.160     | 226             | 22.085   | 4  | <0.001*** |
| B         | Do you check that the names of the medications administered by the nurse match the names of the medications you take at home? | 255 | 3.839    | 6  | 0.699 | 255    | 0.259    | 2  | 0.878 | 255       | 2.692    | 4  | 0.611 | 255           | 1.340    | 2  | 0.512     | 255             | 19.202   | 4  | <0.001*** |
|           | Do you check that the amount of medication administered by the nurse matches the amount of medication you take at home?       | 257 | 7.760    | 6  | 0.256 | 257    | 0.092    | 2  | 0.955 | 257       | 0.828    | 4  | 0.935 | 257           | 0.692    | 2  | 0.708     | 257             | 12.375   | 4  | <0.05*    |
|           | Do you check the amount of medication administered by the nurse at each administration?                                       | 300 | 11.712   | 6  | 0.069 | 300    | 0.433    | 2  | 0.805 | 300       | 0.662    | 4  | 0.956 | 300           | 2.800    | 2  | 0.247     | 300             | 9.759    | 4  | <0.05*    |
|           | Do you check the shape of the medication the nurse gives each time it is administered?                                        | 300 | 11.435   | 6  | 0.076 | 300    | 1.598    | 2  | 0.450 | 300       | 0.484    | 4  | 0.975 | 300           | 1.428    | 2  | 0.490     | 300             | 11.087   | 4  | <0.05*    |
|           | Do you check the color of the medication the nurse gives each time it is administered?                                        | 300 | 9.159    | 6  | 0.165 | 300    | 3.685    | 2  | 0.158 | 300       | 2.177    | 4  | 0.703 | 300           | 6.281    | 2  | <0.05*    | 300             | 8.486    | 4  | 0.075     |
|           | Do you ask about the names of the medications the nurse administered?                                                         | 300 | 6.724    | 6  | 0.347 | 300    | 5.288    | 2  | 0.071 | 300       | 4.529    | 4  | 0.339 | 300           | 0.136    | 2  | 0.934     | 300             | 10.066   | 4  | <0.05*    |
|           | Do you ask for an explanation if you find a discrepancy in the name, number, color, or shape of the medication administered?  | 211 | 6.012    | 6  | 0.422 | 211    | 6.596    | 2  | 0.037 | 211       | 0.372    | 4  | 0.985 | 211           | 2.260    | 2  | 0.323     | 211             | 5.088    | 4  | 0.278     |
|           | If you are given a new medication (different from what you usually take), do you ask the nurse for an explanation?            | 245 | 4.407    | 6  | 0.622 | 245    | 5.417    | 2  | 0.067 | 245       | 0.402    | 4  | 0.982 | 245           | 2.255    | 2  | 0.324     | 245             | 10.622   | 4  | <0.05*    |
|           | If you asked about the medication the nurse gives you, did you get an understandable answer?                                  | 262 | 1.499    | 6  | 0.960 | 262    | 1.448    | 2  | 0.485 | 262       | 5.015    | 4  | 0.286 | 262           | 1.640    | 2  | 0.440     | 262             | 9.841    | 4  | <0.05*    |
|           | If you do not want the medication administered, does the nurse insist that you take it?                                       | 136 | 5.300    | 6  | 0.506 | 136    | 2.978    | 2  | 0.226 | 136       | 3.412    | 4  | 0.491 | 136           | 5.633    | 2  | 0.060     | 136             | 2.104    | 4  | 0.717     |
|           | Will the nurse call the doctor if you do not want the medication administered?                                                | 137 | 8.092    | 6  | 0.231 | 137    | 4.422    | 2  | 0.110 | 137       | 0.655    | 4  | 0.957 | 137           | 0.080    | 2  | 0.961     | 137             | 6.550    | 4  | 0.62      |
|           | Is the nurse waiting for you to swallow the medication?                                                                       | 300 | 4.084    | 6  | 0.665 | 300    | 4.309    | 2  | 0.116 | 300       | 2.851    | 4  | 0.583 | 300           | 2.277    | 2  | 0.320     | 300             | 29.358   | 4  | <0.001*** |
|           | If you are not at the bedside when your medication is administered, will the nurse leave your medication on the table?        | 300 | 10.856   | 6  | 0.093 | 300    | 0.494    | 2  | 0.781 | 300       | 5.951    | 4  | 0.203 | 300           | 15.871   | 2  | <0.001*** | 300             | 6.607    | 4  | 0.158     |
|           | Does the nurse ask your name before giving you medications?                                                                   | 300 | 9.215    | 6  | 0.162 | 300    | 4.619    | 2  | 0.099 | 300       | 3.947    | 4  | 0.413 | 300           | 1.136    | 2  | 0.567     | 300             | 22.349   | 4  | <0.001*** |
|           | Does the nurse check your ID bracelet before administering each medication?                                                   | 294 | 8.770    | 6  | 0.187 | 294    | 6.802    | 2  | 0.033 | 294       | 4.294    | 4  | 0.368 | 294           | 8.417    | 2  | <0.05*    | 294             | 31.763   | 4  | <0.001*** |
|           | When the nurse administers your medication, does she communicate with another person?                                         | 300 | 9.877    | 6  | 0.130 | 300    | 4.899    | 2  | 0.086 | 300       | 5.354    | 4  | 0.253 | 300           | 1.312    | 2  | 0.519     | 300             | 13.365   | 4  | <0.01**   |
|           | Does the nurse only address you when administering medication?                                                                | 300 | 7.015    | 6  | 0.320 | 300    | 3.082    | 2  | 0.214 | 300       | 6.219    | 4  | 0.183 | 300           | 0.716    | 2  | 0.699     | 300             | 10.022   | 4  | <0.05*    |
| C         | Would you like to be more involved in deciding what medication you take?                                                      | 300 | 14.720   | 12 | 0.258 | 300    | 9.220    | 4  | 0.056 | 300       | 8.898    | 8  | 0.351 | 300           | 10.033   | 4  | <0.05*    | 300             | 6.424    | 8  | 0.600     |
|           | Would you like family members to be involved in decisions about your treatment?                                               | 300 | 20.668   | 12 | 0.055 | 300    | 2.797    | 4  | 0.592 | 300       | 13.483   | 8  | 0.096 | 300           | 12.928   | 4  | <0.05*    | 300             | 8.295    | 8  | 0.405     |
| D         | Have you ever been given a medication other than the one prescribed by your doctor?                                           | 328 | 2.175    | 6  | 0.903 | 300    | 5.565    | 2  | 0.062 | 300       | 6.719    | 4  | 0.152 | 300           | 2.623    | 2  | 0.269     | 300             | 22.334   | 4  | <0.001*** |

Note.  $\chi^2$  – Chi-square; df – degrees of freedom; p-value – Statistical signification at:  $p < 0.05^*$ ,  $p < 0.01^{**}$ ,  $p < 0.001^{***}$ .



The results show a statistically significant relationship in Part A, where checking the quantity of medication brought by the patient is done significantly more often in district hospitals than in regional hospitals. In part A, we observe that the checking of the medication brought by the patient, including their quantity, is performed to a significantly greater extent by nurses in surgical departments and to a significantly lesser extent by nurses in aftercare and rehabilitation departments. In this context, it was also identified that noting medications and informing the patient not to take personal or unapproved medications was significantly higher by nurses in surgical departments and to a significantly lower extent in internal medicine and aftercare and rehabilitation departments.

Part B highlighted that the color of the medication administered by the nurse at each administration was significantly more likely to be checked by patients in district hospitals and, to a significantly lesser extent, by patients in regional hospitals. In this area, it was also statistically demonstrated that in the absence of the patient, the medication is left on the table at a significantly higher rate by nurses from regional hospitals and at a significantly lower rate by nurses from district hospitals. In contrast, the patient's identification bracelet is checked before administering the medication to a significantly greater extent by nurses from district hospitals than by nurses from regional hospitals. Part B shows that checking the names, numbers, and shapes of medication administered is done to a significantly greater extent by patients admitted to surgical departments and a significantly lesser extent by patients admitted to internal medicine and aftercare and rehabilitation departments. A statistically significant association was also identified in this area, with patients admitted to surgical departments being significantly more likely to ask about the names of medications than patients admitted to internal medicine departments. Patients admitted to surgical departments were also significantly more likely to ask the reason for a new medication than patients admitted to internal medicine and aftercare and rehabilitation departments. Surgical department patients are significantly more likely to report that nurses clearly answer questions about medication for patients admitted to internal medicine departments. In addition, surgical department patients are significantly more likely to report that the nurse waits for the patient to swallow the medication. Patients in internal medicine departments are significantly more likely to report that the nurse does not wait or waits very rarely. Nurses from surgical departments are significantly more likely to verify the patient's name before administering medication, and nurses from internal medicine and aftercare and rehabilitation departments are significantly less likely to do so. Nurses from surgical departments are significantly more likely to check the patient's ID bracelet before administering medication, and nurses from the internal medicine and aftercare and rehabilitation departments are significantly less likely to do so. Furthermore, a statistically significant association was identified between the situation when a nurse communicates with another person while administering medication and the type of department. Patients from surgical

departments were significantly more likely to report that the nurse never or rarely behaves this way. Patients in surgical departments are significantly more likely to report that the nurse attends exclusively to the patient when administering medication. In contrast, patients in internal medicine departments are significantly more likely to report that the nurse behaves in this way less frequently.

In Part C, a statistically significant association was identified between hospital type and patient willingness to be involved in decisions about which medication to take. Patients from district hospitals were significantly less willing to be involved in this decision. In contrast, patients from regional hospitals want their family members to be involved in decisions about medication use to a significantly greater extent.

A statistically significant association was identified in Part D between patients' views of nurse misconduct in administering a non-prescribed medication and department type. Patients in surgical departments were significantly more likely to report that such an error had never occurred, whereas patients in internal medicine departments were significantly more likely to report uncertainty.

## DISCUSSION

This study aimed to evaluate patients' subjective perceptions of medication administration in the hospital setting, including their involvement in the process associated with medication administration. This study indicated that in district hospitals, there is a statistically significantly higher rate of the medication brought in by the patient being checked. Checking the medication prescribed before a patient is admitted to the hospital can have a major impact on patient safety. Inaccurate medication history prior to admission to the hospital can cause significant harm to patients, reducing their safety in the hospital environment. Thus, the nurse can significantly impact the elimination of medication errors [13]. Our study found that nurses were significantly more likely to check the patient's ID bracelet before administering medication in district hospitals. Compared to a previous investigation in 2021, the results show that nurses are more aware of some medication errors due to interactive workshops. By verifying patient identity and the appropriateness of the medication, healthcare providers can reduce the risk of administering the wrong medication or dosage. This is especially important in high-stress environments. A study by Salami et al. [14] identified several factors that influence the importance of checking patients before administering medications. These factors include the nurse's perception of potential harm, the type of medication administered, the nurse's knowledge of the medication or patient, and the patient's age. It has been found that all of these factors can affect how carefully nurses check patients' ID bracelets before administering medications. In their paper, Nitro et al. [15] and Härkänen et al. [16] describe the use of an ID bracelet as one of the most important strategies for establishing patient identification. Nitro et al. [15] further point out that this process is rarely used in practice and usually only when specific procedures are performed.

In addition, Luokkamäki et al. [17] add that nurses should also check the patient's allergy, appropriateness of the medication, time, form, and technique before administering the medication, even if the nurses already know the patient. By following these guidelines, nurses can ensure that medications are given to the right patient, at the right dose, in the right way, at the right time, and for the right reason [18]. According to the results of the questionnaire surveys, in comparison with a survey conducted in 2021, it can be concluded that from the patient's perspective, there has been a significant improvement in nurses' behavior during the medication administration process. Nurses pay more attention to patient identification, wait for the patient to swallow the medication, do not put the medication on the patient's table, and realize that concentration during administration is very important to make the entire process safe. One of the possible strategies to address the high incidence of medication errors is to encourage patient participation. This study found that patients in district hospitals are significantly less willing to participate in the medication administration process. On the contrary, they would like their family members to be significantly more involved in the process. Patient involvement is particularly important, but nurses do not involve them in medication administration activities because of time constraints [19]. However, there is little evidence that patient involvement affects the incidence of medication errors during hospitalization. Research results show that patients in surgical departments are significantly more likely to report that no medication errors ever occurred, whereas patients in internal medicine departments are more likely to report uncertainty. A study by McLeod et al. [20] suggests that some nurse-patient interactions may contribute to improved safety. Specifically, three different forms of interactions with patients have been identified as a defense against medication errors. First, patients have been observed to function as an active source of information and voluntarily share information about their medication without prompting. Second, patients functioned as a passive source of information and provided information about their medication when asked or prompted. Third, patients were observed as „double-checkers” who wanted to check on their prepared or administered medication [20].

## CONCLUSIONS

Medication safety is a global priority in the context of patient protection and potential harm. Therefore, patient involvement in the medication administration process plays a significant role in patient safety and subsequent improvement of the quality of care provided in healthcare facilities. Research results highlight critical areas of patient involvement in the medication process to reduce the prevalence of medication errors.

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