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Changes In Intracranial Pressure in Patients with External Ventricular Drainage of CSF During Nursing Interventions

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Abstract

Introduction. When managing intracranial pressure (ICP) disorders, that is, deviations from the normal value (5 - 15 mmHg), it helps to understand the variability of cerebral blood volume and cerebrospinal fluid.

Aim. To explore from a series of cases the impact of nursing interventions on the increase of intracranial pressure and the possibility of preventive action on possible oscillations of measured pressure values by modifying sedation and analgesia in order to avoid potentially negative effects on brain injury.

Methods. The study included six patients, with the average age of 59 years, hospitalized between December 2018 and May 2019, on whom measurements were performed before, immediately after and 30 minutes after the end of a particular intervention using an external drainage and monitoring system. Intracranial pressures of patients in an induced coma were compared with those who were in a natural coma.

Results. During morning nursing care and aspiration of secretions, an increase in the mean value of ICP was observed immediately after the intervention, but the t-test for dependent samples showed that it was not statistically significant, while in massaging patients with turning it to the side it was statistically significant. Combining all interventions into one, without categorization, there was also a statistically significant increase in intracranial pressure immedi-

ately upon completion of morning nursing care. After 30 minutes, the pressure values in all interventions approach the initial value and remain within the deviation of 1 mmHg.

Conclusion. Most nursing interventions are associated with a slight increase in ICP that is not statistically significant. Greater oscillations were observed in patients in an induced coma than in those in a natural coma, which could probably have been avoided by even stricter titration of analgosedation immediately before and during nursing interventions.

Introduction

The volume of the central nervous system is constant, so it is wrong to think of pathological ICP as the result of the "extra volume" in the intracranial space (1). Namely, if a massive lesion such as a hematoma, neoplasm, or parenchymal edema occurs, the other components must be displaced, and the final volume must remain unchanged (1). Because the brain is made up of three components, the parenchyma, the cerebrospinal fluid, and the vascular part, an increase in one of these volumes causes a decrease in the other two, with a concomitant increase in intracranial pressure (1). The normal range of intracranial pressure is usually 5 - 15 mmHg (2). In addition to pathological events, whose indirect indicator is the reactivity or non- reactivity of the pupils to light and motor function, the height of intracranial pressure can be influenced by some external factors. For example, inappropriate position of neurosurgical patients, airway obstruction, fever, and irregular and difficult defecation accompanied by strain and pain lead to an acceleration of metabolism, and consequently to an increase in intracranial pressure (3). While preventing the abovementioned, it is necessary to prevent complications of prolonged lying down, perform skin care and passive breathing exercises. In the case of a restless patient, it is necessary to prevent injury and calm him down (sedate him). Adhering to the rules of asepsis, it is also necessary to control the patency of the cerebrospinal fluid drainage system and the condition of the ventricular catheter. Although most nursing interventions are aimed at alleviating or eliminating predictors of increased intracranial pressure and despite proper nursing care, different interventions may directly or indirectly affect ICP. Several studies have been conducted about that connection so far. In 2013, DaiWai M. Olson, together with a team of experts, conducted a study "Effects of nursing interventions on intracranial pressure" (4). Twenty-eight patients were included in the study, and measurements were performed after the first and fifth minutes after the end of the intervention (4). The measured values varied widely, and it was concluded that the response of intracranial pressure to care-related interventions was inconsistent, which is attributed to the fact that nurses perform a wide range of interventions when providing routine care to patients whose ICP is monitored. Four years later, in the United States, a group of scientists, again led by DaiWai M. Olson, conducted research on new approaches to research about the impact of nursing care on intracranial pressure, a prospective pilot-observational study of 10 patients requiring ICP monitoring and nurses who agreed to participate (5). As the behavior of nurses was also successfully studied during the study about the pressures, it was concluded that the implementation of such a study is possible. Coordinating and analyzing mutually exclusive and exhaustive behaviors has shown that nursing behavior affects patients 'intracranial pressure (5). In 2002, a prospective non-randomized study was conducted in Milan to evaluate the impact of tracheal aspiration on intracranial dynamics in the acute phase of head injury (6). Seventeen patients with severe head injury (GCS ≤ 8, range 4-8), sedated and mechanically ventilated, were studied during the first week after trauma by measuring blood arterial gases and jugular oxygen saturation before and after the intervention (Sj02), ICP and mean arterial pressure (MAP) and cerebral perfusion pressure (CPP) was calculated (6). In the case of patients with head injuries who cough or move, it was suggested to deepen the level of sedation before the end of the procedure in order to reduce the risk of side effects (6). A 2014 pilot study aimed to investigate the secondary consequences for patients associated with well-defined nursing interventions (7). The definition of secondary deterioration was intracranial pressure more than 20mmHg, cerebral perfusion pressure less than 60 mmHg and systolic blood pressure less than 100 mmHg for 5 minutes or more, within 10 minutes of the start of nursing intervention (7). The minute of deterioration should not have been consecutive. The

study included 18 patients. Relocation and concurrent interventions were nursing interventions that caused most of the secondary exacerbations (7). In 2001, in the Central Intensive Care Unit (ICU), Sisters of Mercy University Hospital (KBCSM), the department where the current study was conducted, a study was conducted to determine the association of neurological status expressed as the Glasgow Coma Scale with intracranial cerebral perfusion and mean arterial pressure. (8). It was concluded that monitored intracranial and cerebral perfusion pressures were well associated with GCS (8). There was no statistically significant correlation between GCS and mean arterial pressure, which the authors interpreted by iatrogenic procedures maintaining mean arterial pressure (8). For this reason, the subjects in this study were included, among other things, according to the GCS criteria. These studies served as the basis for conducting a study of the impact of nursing interventions on changes in intracranial pressure in this study. This has been extended with several additional interventions and a well-defined measurement time, including some criteria from each of the studies already conducted.

Aim

The aim is to investigate from a series of cases the extent to which nursing interventions affect the increase of intracranial pressure and whether modification of sedation and analgesia and the most gentle performance of a particular intervention can have a positive effect on the absolute value of measured pressures and thus avoid potentially negative effects on brain tissue or on the general condition of patients.

Hypothesis

H1: Performing morning nursing care, which includes bathing and oral hygiene, tracheal aspiration, massage and turning of the patients, percutaneous tracheotomy and cannula replacement, significantly acutely increases intracranial pressure, but it returns to baseline after 30 minutes.

H2: By adjusting sedation and analgesic therapy and with as gentle manipulations with the patient as possible, clinically significant variations in intracranial pressure can be avoided.

Methods

The sample was formed so that the study included appropriate, available subjects who were hospitalized during the study (from December 2018 to May 2019) in the neurosurgical part of the Central Intensive Care Unit, University Hospital Centre Sestre milosrdnice. Thus, four male and two adult female patients in a coma with external ventricular cerebrospinal fluid drainage (EVD) were included. The first of these, a 43-year-old male subject, was diagnosed with intracerebral hemorrhage and underwent 51 sets of measurements over fifty days in a ratio of 24 sets using analgesic sedation and 27 without medication. The next male subject, aged 21 years, was a patient diagnosed with a brain tumor and due to a short coma was a participant in 3 series of measurements in the presence of analgesia. The remaining two male patients were hospitalized for a diagnosis of intracerebral hemorrhage. The first, aged 75 years, was the subject in 25 conducted series of measurements, 12 of which in the presence of analgesia. The last, aged 62, was a subject in 25 series of measurements, all under the influence of drug therapy. Of the two remaining subjects, the patient who was 82 years old and diagnosed with intracerebral hematoma, participated in 9 series of measurements, all without analgesia and in a natural state of coma, while the other, 68 years old, participated in 15 series of measurements, of which only one was performed without medical support. During statistical processing, patients in a state of analgesia in one group were compared with conditions without analgesia in another (GCS less than 5). Patients without analgesia are those who ended up in a coma due to pathological processes in certain parts of the brain. When measuring the value of intracranial pressure, the Duet external drainage and monitoring system, from the American company Medtronic, was used. It is a system that drains the cerebrospinal fluid by gravity. Although it can also be used for lumbar drainage, only patients with external ventricular drainage were included in the study. Monitoring is performed on each patient via the Infinity C700 and the Dräger Infinity Delta XL monitor, which is connected to the Infinity HemoMed Pod with a HemoMed cable. Through an invasive hemodynamic monitoring system that connects to the Duet switch of the external

drainage and monitoring system, the entire system is connected to the Infinity HemoMed Floor and to the monitor itself. The invasive hemodynamic monitoring system in this case comprises 100 ml of 0.9% sodium chloride infusion solution, a single, disposable Merit Medical invasive monitoring set and a corresponding cable that connects said set to the Infinity HemoMed Floor. Upon arrival of the patient from the operating room, the external drainage system is attached to the stand next to the patient. The connections on the system and its passability are checked. The system for measuring intracranial pressure, after it was washed, is connected to the first switch to the patient's head. Then, but also after each change of the patient's position, a laser is taken and connected to the intended part of the external drainage system at the number "0". The laser also contains a spirit level that shows the plane of the number "0" flush with the external auditory canal (ear canal). Values are measured in millimeters of mercury. System resetting is performed three times a day or after system disconnection, by resetting the values on the monitor, by lowering the external drainage system to an overflow point of 0 mmHg. The patient lies on his back, with the headrest raised by 30 degrees. In relation to the patient, the external cerebrospinal fluid drainage system is located in the previously described plane, is at the height of the external auditory canal, which means at the height of the third cerebral ventricle. Subjects were connected to a respirator when measured via an endotracheal tube or cannula. Conducting this prospective research all data were obtained by measurement.

Ethics

The procedures carried out for the purpose of conducting research on the impact of nursing interventions on ICP changes were in line with the Helsinki Declaration and the unique requirements for Biomedical manuscripts, and the implementation was approved by the ethics committee of the Sisters of Mercy University Hospital. Also, informed consent was requested from the caregivers of the subjects involved as well as from the only subject whose state of consciousness had risen to GCS 15 during the study.

Statistics

After the distribution of the collected data into classes, descriptive statistics were conducted. The data are being shown using a histogram. Because the measurements were performed in series related to the intervention (before the start of the intervention, immediately after the end and 30 minutes after the end), t-test for dependent samples for each intervention compared values obtained before the intervention with those immediately after the intervention and the procedure was repeated to compare baseline values with those 30 minutes after the end of the intervention. The obtained results are displayed in the boxplot.

The statistical software Minitab, used for data analysis and processing, is a 2019 version.

Results

During the research, a total of 128 series of measurements were performed: 17 during bathing, 82 aspiration of secretions, and 29 when turning patients sideways with massage. As an intervention, port transport of patients for diagnostic tests was treated in the same way, but comparing the arithmetic mean of the measured pressures with respect to the state of consciousness was not possible due to the small sample (N=4). Also, the sample in the interventions "Percutaneous tracheotomy" and "Sampling for microbiological tests" was too small and for the same reason was not included in further statistical processing. In 31.85% of measurements, patients were analgosedated with midazolam, sufentanil, and in a few cases isoflurane. In 21.41% of measurements, continuous analgesia with sufentanil was used, and in 1.48% only sedation with midazolam was used. In 39.26% of measurements, no drug was used during the implementation of a particular intervention. Because lower, along with the cerebral cortex activating parts of the brain that continuously excite the cortex with their impulses are needed to maintain normal consciousness, coma can result from damage to the cortex or damage of the lower parts (pons and midbrain) (9). The estimated state of consciousness of the subjects ranges from GCS 3 - 5, and the condition of all included patients occurred posttraumatic or as a consequence of surgery of the tumor process on the brain. The overflow point in the patients included in

this study, which determines at which height of the ICP the cerebrospinal fluid will begin to drain, was at 15 and 20 mmHg, respectively, and the drainage was also open at the measurement. The disadvantage of the system is the possibility of clogging with a blood clot or a piece of tissue. This happened, and consequently, the measurement values were extremely high, which is why they are only mentioned but excluded from statistical processing. In this patient, the external ventricular drainage (EVD) system was subsequently changed, while in the others the system was the same throughout the study. The results obtained during morning nursing care are shown in Table 1.

Table 1. **Descriptive statistics for the intervention: morning nursing care for all respondents in whom the mentioned intervention was performed**

Variable	df	Mean	SD	Min	Max
Before	16	12.71	5.05	5	21
Immediately after	16	15	7.07	5	30
30 minutes after	16	12	5.17	3	23

Comparing the values measured before the start of the intervention with those measured immediately after the end of the intervention, the values obtained are t=-1.62, *p*=0.124, while comparing the values before and 30 minutes after the end intervention we get t=0.64, *p*=0.530. If only the values of analgosedated patients are compared with the mentioned subjects, the data obtained before the beginning of the intervention and immediately after the end, we get t=-1.63, *p*=0.64, df=5, while in subjects without analgesic sedation we get t=-0.67, *p*=0.519, df=10. Values measured before the start of morning nursing care and those 30 minutes after the end of nursing care of analgosedated patients show t=0.61, *p*=0.566, and in patients without analgesic care t=0.28, *p*=0.785 (Table 2).

Table 2. **Descriptive statistics for the intervention: morning nursing care with a division between performing the intervention with or without analgesic sedation**

	Variable	Mean	SD	Min	Max
With analgosedation	Before	12	4.90	7	21
	Immediately after	16.67	7.76	10	30
	30 minutes after	10.67	4.93	3	16
Without analgosedation analgosedation analgosedation	Before	13.09	5.32	5	21
	Immediately after	14.09	6.88	5	30
	30 minutes after	12.73	5.39	7	23

Most ICPs were measured during the "Secretion aspiration" intervention (Table 3).

Table 3. **Descriptive statistics for the intervention: aspiration of secretions in all subjects in whom this intervention was performed**

Variable	df	Mean	StDev	Min	Max
Before	81	11.506	5.876	2	29
Immediately after	81	11.790	6.561	1	33
30 minutes after	81	11.272	5.831	2	30

Comparing the values obtained before and immediately after the completion of the aspiration of secretions, we obtained t=-0.71, *p*=0.477. Taking as a

sample only measurements with analgosedation t=-1.56, *p*=0.133, df=25, and without analgosedation t=-0.00, *p*=1,000, df=55. Comparing the initial value of all subjects involved in this intervention with that of 30 minutes after completion interventions, t=-0.74, *p*=0.459 was obtained, in analgosedation t=-0.42, *p*=0.678, and in patients without analgosedation t=1.06, *p*=0.292 (Table 4).

Table 4. **Descriptive statistics for intervention: aspiration of secretions with division between performance of intervention with or without analgesic sedation**

	Variable	Mean	SD	Min	Max
With analgosedation	Before	12.12	7.98	2	29
	Immediately after	13.04	8.95	1	33
	30 minutes after	12.32	8.26	2	30
Without analgosedation	Before	11.23	4.714	8	26
	Immediately after	11.23	5.159	8	29
	30 minutes after	10.80	4.354	8	25

No statistically significant difference was obtained in these measurements. ICP values obtained during the massage and lateral rotation of patients are shown in Table 5 with a division into analgosedated and non-analgosedated patients in Table 6.

Including all patients included in this intervention and comparing the values obtained before and immediately after the end of the massage and turning patients in the lateral position, t=-2.17, *p*=0.039. A statistically significant difference was observed in this, which can be explained by the small number of measurements (N = 29), and also by the fact that even after the division of patients according to the type, we get small p values compared to other interventions. Isolating only analgesic patients, t=-1.19, *p*=0.272, df=7 was obtained, and in those without analgesia t=1.76, *p*=0.094, df=20. Also, comparing the results before and 30 minutes after the interven-

Table 5. **Descriptive statistics for the intervention: massage and turning the patient to the lateral position in all subjects in whom the said intervention was performed**

Variable	df	Mean	SD	Min	Max
Before	28	11.65	5.11	2	21
Immediately after	28	13.10	6.66	1	30
30 minutes after	28	12.07	6.31	2	26

Table 6. **Descriptive statistics for the intervention: massage and turning the patient to the lateral position with a division into performing the intervention with or without analgesia**

	Variable	Mean	SD	Min	Max
With analgosedation	Before	12.38	7.65	2	21
	Immediately after	14.00	10	1	30
	30 minutes after	13.13	8.82	2	26
Without analgosedation	Before	11.38	3.981	5	21
	Immediately after	12.76	5.17	4	24
	30 minutes after	11.67	5.28	6	25

tion, t is -0.72, p=0.480. By division, in analgosedated patients t=-0.92, p=0.390 and t=-0.38, p=0.705 without analgosedation, respectively. In case we ignore the potentially different effect of certain interventions on ICP variations and group all measurements into a common group called "Intervention", we get the data shown in Table 7, divided into analgosedated state and a natural coma - without analgesation (Table 8).

Table 7. **Descriptive statistics of all interventions in all respondents**

Variable	df	Mean	SD	Min	Max
Before	127	11.684	5.636	2	29
Immediately after	127	12.571	6.687	1	33
30 minutes after	127	11.571	5.826	2	30

Table 8. **Descriptive statistics for values measured for all interventions with a division between performance of the intervention with or without analgesic sedation**

	Variable	Mean	SD	Min	Max
With analgosedation	Before	12.37	7.38	2	29
	Immediately after	14.02	8.82	1	33
	30 minutes after	12.51	7.76	2	30
Without analgosedation	Before	11.38	4.674	3	26
	Immediately after	11.92	5.409	4	30
	30 minutes after	11.15	4.714	2	25

The t-test for dependent samples, before and immediately after the end of the intervention, taking as a sample all subjects included in the study, obtained t=2.51, p=0.013, in analgosedated state t=-2.68, p=0.011, df=39 and t=-1.27, p=0.207, df=87 without analgosedation. Comparing the total results before and 30 minutes after the end of the measurement, we obtained t=0.41, p=0.685, for analgosedated t=-0.31, p=0.756, and for those without analgosedation t=0.66, p=0.508. From the abovestated, two statistically significant differences can be observed (p=0.013, p=0.011), both immediately after the end of the intervention, which is caused by an increase in intracranial pressure compared to the initial value measured at rest. Both increases are associated with interventions.

Discussion

Before and immediately after the intervention, taking as a sample all subjects included in the study, it was found that in most cases there is no statistically significant difference between the arithmetic means of the measured pressures before and immediately after the intervention. A small difference between the arithmetic means comparing the intracranial pressures during all interventions before the start and immediately after the end of the nursing intervention still exists in terms of the increase in ICP caused by the intervention. The largest differences in arithmetic means were recorded in the intervention "Morning nursing care", (μ_difference: mean of (Before - Immediately after) = -2.29 mmHg) in analgosedated patients (μ_difference: mean of (AS-before - AS- immediately after) = -4.67 mmHg). This can be explained by the fact that morning nursing care consists of a set of interventions, so this intervention is the most comprehensive. After 30 minutes, the pressure values in all interventions approach the initial value and remain within the deviation of 1 mmHg from the stated value. Looking at the aforementioned research conducted around the world, it can be concluded that the same problem was examined but using different methods and under the influence of different interventions. The study conducted in North Carolina, like this current one, had a

precisely defined measurement time (after 1 and 5 minutes from the intervention), but due to the wide range of interventions, some at the same time, it was concluded that the response of intracranial pressure to care interventions was inconsistent (4). Although different in the method of work and the inclusion of nurses as subjects in the study, a study conducted in Dallas examined the impact of nursing care on intracranial pressure and showed that behavioral care affected intracranial pressure in patients by aligning and analyzing mutually exclusive and comprehensive behaviors (5). In a study conducted in Milan, although only secretion aspiration intervention was included, patients differed by sedation groups (6). In the last-mentioned study, measurements were performed during nursing care according to a standardized procedure and almost all subjects had some harmful, secondary reaction (7). The first hypothesis, that performing morning nursing care (bathing and oral hygiene), tracheal aspiration, massage and turning patients, and the procedure of percutaneous tracheotomy and cannula replacement, significantly acutely increase intracranial pressure, but its value returns to baseline after 30 minutes, has not been proven because the observed pressure differences are not statistically significant for almost all interventions, although there is a possibility that with a larger sample and a larger number of measurements it would be possible to prove it. We can't reject the alternative hypothesis that clinically significant variations in intracranial pressure can be avoided by adjusting sedation and analgesic therapy and as gentle manipulations with the patient as possible, although it is difficult to prove it objectively based on our results. Namely, it was observed that patients in an induced coma had larger oscillations in intracranial pressure values than those in a natural coma, but these were not clinically significant. During the research itself, a small sample of respondents was encountered, which was partially bridged by a larger number of measurements in each of them during their stay in the ICU. In addition, there are a number of factors that can influence measurement errors, which have been observed and described by other authors conducting similar research. During various interventions, secretion in the endotracheal cannula appeared as a confusing factor. Since "Secretion aspiration" was not the primary study of intervention in this case, the patient would be disturbed during manipulation and a more abundant secretion would begin. Due to tracheal irritation with an aspiration catheter, the patient would in most cases start coughing in an attempt to expel the accumulated contents, vital functions would increase, and thus the intracranial pressure would increase as well. Another confusing factor was discovered when extremely high values of intracranial pressure occurred. Namely, several measurements were performed immediately before the catheter became impassable and it was necessary to replace it. The values of one measurement measured during aspiration and one during bathing were mentioned for this reason but were not statistically processed together with other results.

The study was conducted over a six-month period and included all patients who met the inclusion criteria. However, due to a certain degree of state of consciousness, i.e., GCS less than 5, the number of measurements divided by interventions is small and thus the results may be skewed ("sampling bias"). But the research conducted may be an introduction to further, longer-term research on a larger sample of patients. In different patients, measurements were performed during different interventions. Due to the short-term analgesia, but also the different length of stay in the ICU of the KBCSM, it was not possible to perform measurements during certain interventions in certain patients. The different length of follow-up made it impossible to compare ICP values between patients with one other (˝measurement and detection bias˝). Speaking of intracranial pressure, whose monitoring has become a common part of the treatment protocol for severe brain injuries, we are also talking about a very important indicator of mean perfusion pressure (CPP), the most reliable indicator of threatening ischemia and secondary brain injury (10). There are also different theories of ICP height reference values from different authors. Some authors take 15, some 25 mmHg as the upper limit, but most of them agree on the limit of 20 mmHg, so the height of the ICP above it is taken as an indication for the application of therapy and therapeutic procedures in order to reduce it (10). Patients with lower GCS are more prone to intracranial hypertension, and clinical experience suggests that even a small increase in ICP lowering CPP, greatly increases the risk of brain entrapment, which worsens the prognosis and/or prolongs patients' recovery (10). Pain and psychomotor anxiety affect the acceleration of metabolism, and thus blood flow in the brain, and ultimately contribute to an increase in intracranial pressure. Properly dosed sedation contributes to the reduction of in-

tracranial pressure, but it should be properly titrated with analgesia, paying attention to airway patency, elimination of secretions and the position of the patient (2). Opiates, benzodiazepines, and propofol are the most commonly used sedative drugs in neurological and neurosurgical intensive care units (11). Benzodiazepines, a group to which midazolam, the drug used in this study, belong, are cheaper than propofol and achieve a satisfactory sedative effect in addition to amnesia (11).

Conclusion

Based on the obtained results in which it was recognized that immediately after performing routine procedures ICP rises above the reference values, but it is not clinically significant, this can be interpreted as confirmation of relatively satisfactory titration of analgesia and sedation in the central intensive care unit. However, since a statistically significant difference was observed in analgosedated patients, there is still some space for even better titration of analgosedation directly before and during nursing interventions.

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PROMJENE INTRAKRANIJSKOG TLAKA U PACIJENATA S VANJSKOM VENTRIKULARNOM DRENAŽOM LIKVORA TIJEKOM SESTRINSKIH INTERVENCIJA

Sažetak

Uvod. Kod upravljanja poremećajima intrakranijskog tlaka, odnosno njegovim odstupanjima od normalne vrijednosti (5 do 15 mmHg), uvelike pomaže razumijevanje varijabilnosti volumena moždane krvi i cerebrospinalne tekućine.

Cilj. Istražiti utjecaj sestrinskih intervencija na povišenje intrakranijskog tlaka te mogućnost preventivnog djelovanja na moguće oscilacije izmjerenih vrijednosti tlakova modifikacijom sedacije i analgezije u svrhu izbjegavanja potencijalno negativnih učinaka na sanaciju ozljede mozga.

Metode. Istraživanjem je obuhvaćeno šestero pacijenata, prosječne dobi 59 godina, hospitaliziranih između prosinca 2018. i svibnja 2019., na kojima su s pomoću vanjskog sustava za drenažu i praćenje provođena mjerenja prije, neposredno nakon završetka i 30 minuta po završetku određene intervencije. Međusobno su uspoređivani intrakranijski tlakovi pacijenata za vrijeme inducirane kome s onima u prirodnoj komi.

Rezultati. Prilikom obavljanja jutarnje zdravstvene njege i aspiracije sekreta primijećen je porast srednje vrijednosti ICP-a neposredno nakon intervencija, ali je t-testom za zavisne uzorke utvrđeno da nije statistički značajan, dok kod masaže pacijenata uz okretanje na bok jest. Objedinjujući sve intervencije u jednu, bez podjele po kategorijama, također je došlo do statistički značajnog porasta intrakranijskog tlaka neposredno po završetku. Nakon 30 minuta, vrijednosti tlakova kod svih intervencija približavaju se početnoj vrijednosti i ostaju unutar odstupanja od 1 mmHg.

Zaključak. Većina sestrinskih intervencija povezana je s blagim porastom ICP-a koji nije statistički značajan. Veće oscilacije uočene su u pacijenata u induciranoj komi nego kod onih u prirodnoj, što bi se vjerojatno moglo izbjeći još striktnijom titracijom analgosedacije neposredno prije i tijekom sestrinskih intervencija.

Ključne riječi: intrakranijski tlak, sestrinska skrb, analgezija, sedacija, neurotrauma, koma, drenaža

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Nurses' Knowledge About Wound Care – Croatian Perspective

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Keywords: chronic wounds, nurses' knowledge, nursing education, wound care

Abstract

Introduction. Nurses' knowledge can directly lead to treatment outcomes.

Aim. To investigate the knowledge and attitudes of nurses regarding chronic wounds and to compare the nurses who participated in the study according to their level of education, years of experience, and place of work.

Methods. Anonymous questionnaire about wound care knowledge was completed by 193 nurses with different educational backgrounds in three counties from central Croatia. The study was conducted during lectures organized through plans for continued education.

Results. Most respondents had >5 years of experience, are employed in a hospital and have secondary education in nursing. Nurses with secondary education and less than five years of experience had better knowledge regarding leg ulcers. Hospital nurses state that they have insufficient knowledge about wound healing; however, doctors are more accessible to them.

Conclusion. This study examined nurses' knowledge and attitudes regarding wound care. Mixed results indicate the need for further and more detailed research.

Introduction

Chronic wounds are wounds that do not heal within 4–6 weeks of origination. They fail to undergo orderly and timely repair to create anatomical and functional integrity over a period of three months or heal (1,2). Roughly 1% to 2% of the general population in developed countries have chronic incurable wounds (3,4). Approximately 2% of all hospitalized patients in the world have a chronic wound, and older adults are at greater risk for developing these wounds because aging impairs the healing process (5,6).

Patients with wounds are cared for by individuals representing a spectrum of disciplines, including generalists, specialist physicians, surgeons, nurses, and related health professionals such as podiatrists (7,8). Chronic wounds are of global and local importance, serve as indicators of the quality of health care, and generate significant morbidity and health care costs (9).

Patients with chronic wounds are likely to be elderly, have difficulty accessing health care, have difficulty moving, be unable to take care of themselves, and/or suffer from dementia. Yet chronic wounds can also occur early in life as a result of certain medical conditions (e.g. sickle cell anemia, vasculitis (10,11)) or in association with immunosuppression (e.g. steroid use (12,13)), kidney impairment (e.g. calciphylaxis (14)), autoimmune diseases (e.g. systemic lupus erythematosus), dermatological diseases (e.g. bullous epidermolysis), or poor motility (which can lead to pressure ulcers (15,16)). They can also be a consequence of peripheral neuropathy (e.g. diabetes) and occur in patients with peripheral arterial and venous disease (e.g. arterial and venous ulcers).

Nurses encounter patients of all ages with chronic wounds, from neonatal to palliative patients. In order to provide care to these patients, it is necessary to have certain knowledge. Because such patients do not commonly present in the nursing discipline, it is often challenging to care for them. Previous research has shown mixed findings: either nurses do not have sufficient knowledge of wound care (17,18) or they have it but do not adequately apply it in practice (19,20).

Effective management of chronic wounds is complex, and to maximize positive outcomes for patients care providers should have appropriate knowledge and skills (5,21). Nurses should know the anatomical, physiological, and pathophysiological specifics of the skin and the most common pathophysiological entities. Adequate wound care requires knowledge of wound assessment procedures, diagnostics, and treatment, including local procedures and holistic approaches. Procedures related to improving the patient's quality of life and mitigating the psychosocial consequences of a chronic wound are no less important. Nevertheless, little is known about nurses' knowledge and skills in wound care, including their formal education and the information they have gathered from experiential learning and clinical practice (22). In Croatia, a sample of nursing students was surveyed on their knowledge of wound care (23).

Nursing education in Croatia has experienced significant changes in recent decades; previously, nurses could attend a secondary school for nurses, and there were few nurses with higher education. In the process which preceded joining the European Union (EU), many nurses completed a bachelor's program, but due to the agreement with the EU, those with only secondary school qualification retained their positions as nurses. The same practice still persists, which is why there are nurses with secondary school education, nurses with a bachelors' degree, and graduate nurses. There is only one specialist study for enterostomal nurses which includes wound care in it curriculum.

Given the changes in nurses' education over the past thirty years, we believe it is important to once again investigate the level of nurses' knowledge of wound care and define possible areas for improvement.

Aim

The aim of this study was to investigate the knowledge and attitudes of nurses about chronic wounds and to compare the participants of the study by level of education, years of experience, and place of work.

Participants and methods

Participants

The study included 200 nurses with secondary education, a bachelor's degree, and completed graduate studies. Multicenter research was conducted in three counties in central Croatia (Bjelovar-Bilogora, Požega-Slavonia, and Sisak-Moslavina). The research was conducted when nurses were present at compulsory educational lectures; these are usually held in each county (in hospitals or public health care centers) several times per year and their purpose is continuing nurses' education, which is necessary for retaining the nursing license. The participants volunteered to complete the survey. The data were collected from January to June 2017.

Methods

The respondents completed a questionnaire specifically created for this study based on a review of similar recent studies. It contained a total of 24 closed and open-ended questions. The first six questions were about demographics (education, years of work experience, job position, source of wound care knowledge, whether they have patients with wounds in their care, and the wound type they provide care for), six regarding basic wound care knowledge, eight about organizational factors related to wound care, and two open questions: one which asked the participants to give their opinion of wound care improvement on the organizational level and one which asked them to provide their own opinions on the topic. In the final question the participants were asked whether they would attend formal wound education if one existed.

SPSS was used to analyse the data.

Results

Demographic data

The study involved 200 respondents whose demographic data are shown in Table 1. We did not find it important to include the sex of participants, and we believe that the amount of work experience is more important than the age of the respondents.

Table 1. **Demographic characteristics of respondents**

Variable	High school education n (%)	Bachelor's degree n (%)	Graduate study n (%)	Total
	132 (66)	57 (28.5)	4 (2)	193
Work experience				
No experience	0 (0)	1 (1.8)	0 (0)	1
0-12 months	8 (6.1)	2 (3.5)	0 (0)	10
13-60 months	14 (10.6)	9 (15.8)	1 (25)	24
61 or more months	110 (83.3)	45 (79)	3 (75)	158
Workplace				
Hospital	81 (61.4)	35 (61.4)	2 (50)	118
Retirement home	12 (9.1)	2 (3.6)	0 (0)	14
Home health care	12 (9.1)	1 (1.8)	0 (0)	13

Patronage	2 (1.6)	12 (21.1)	1 (25)	15
Other	24 (12)	7 (12.3)	1 (25)	32
Source of knowledge of chronic wounds				
Formal education	49 (37.1)	15 (26.3)	2 (50)	80
Internal training at work	29 (22)	21 (36.9)	0 (0)	50
Courses by pharmaceutical companies	15 (11.4)	6 (10.6)	0 (0)	21
Other (work or study)	38 (28.8)	14 (24.6)	2 (50)	54
Type of chronic wound cared for				
Pressure ulcer	153	72	6	231
Diabetic foot	54	27	1	82
Lower leg ulcer	137	58	7	202
Other (postoperative wounds, burns, bite wounds)	14	9	1	24

Knowledge about chronic wounds

Regarding wound knowledge, the questionnaire contained four questions related to common chronic wounds (pressure ulcers, venous ulcers, diabetic foot) and diet. The three questions on specific wounds were true/false questions (Table 2). When asked to answer a multiple-choice question about the type of nutrition preferred in wound healing, the participants mostly selected the answer 'food with proteins' (184, or 95%), with no mutual difference, which is why this answer was not further analysed.

Table 2. **Results of nursing knowledge – true or false questions about education, workplace, and work experience**

Level of education				**Total**	**Value**	**df**	**Asymptotic significance (2-sided)**
		undergraduate	graduate				
	incorrect	0	3	3	5.955a	1	0.014
	correct	129	63	192			
Total		129	66	195			
Work experience							
		<5 years	>5 years		.690[a]	1	0.406
	incorrect	0	3	3			
	correct	36	156	192			
Total		36	159	195			

Place of work							
		in hospital	outside hospital		.048[a]	1	0.826
	incorrect	2	1	3			
	correct	116	76	192			
Total		118	77	195			
Level of education				**Total**	**Value**	**df**	**Asymptotic significance (2-sided)**
		undergraduate	graduate				
	incorrect	78	55	133	7.944[a]	1	0.005
	correct	47	12	59			
Total		125	67	192			
Work experience							
		<5 years	>5 years		5.662[a]	1	0.017
	incorrect	19	114	133			
	correct	17	42	59			
Total		36	156	192			
Place of work							
		in hospital	outside hospital		2.772[a]	1	0.096
	incorrect	84	48	132			
	correct	30	29	59			
Total		114	77	191			
Level of education				**Total**	**Value**	**df**	**Asymptotic significance (2-sided)**
		undergraduate	graduate				
	incorrect	117	61	178	.391[a]	1	0.532
	correct	5	4	9			
Total		122	65	187			

Work experience							
		<5 years	>5 years				
	incorrect	33	145	178	1.206[a]	1	0.272
	correct	3	6	9			
Total		36	151	187			
Place of work							
		in hospital	outside hospital				
	correct	102	75	177	1.433[a]	1	0.231
	incorrect	7	2	9			
Total		109	77	186			

Descriptive statistics and the chi-squared test were used to analyse the results for the three true/false questions, which are shown in Table 3.

In this set of questions, the statement "A patient with a pressure ulcer has to change position every two hours" was correct.

Regarding the level of education, two groups were formed: those with secondary school education and graduate nurses.

A statistical difference was found in the answers to this question: nurses with secondary education and less than five years of experience answered the question correctly. This can be explained by the fact that they received more education about wound care during secondary school (as they can choose "Wound Care" as an elective course) and the fact that less experienced nurses work as home care nurses more frequently, and therefore encounter patients requiring wound care.

The answers to the open-ended question regarding what the choice of wound dressing depends on are shown in Figure 1.

Attitudes toward organizational factors related to wound healing

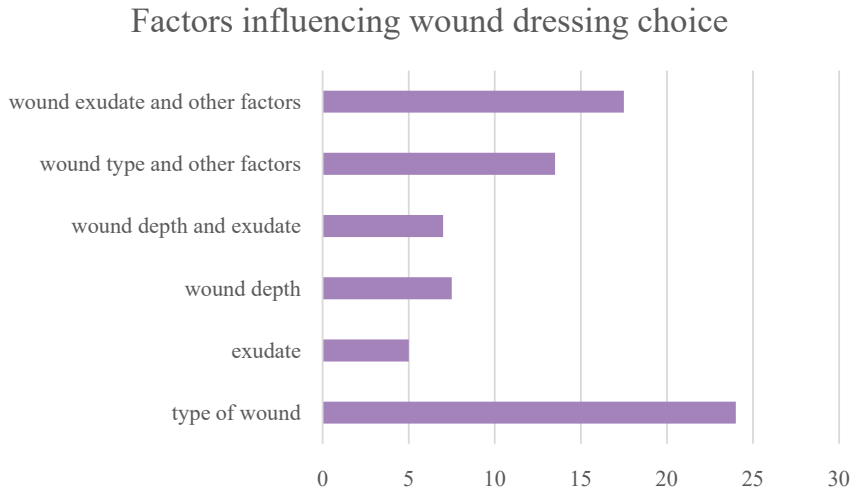

Figure 1. **Respondents' answers about the choice of wound dressing**

Table 3. **The results of the t-test of the participants' answers to questions regarding organizational issues according to work experience**

	t	df	Sig. (2-tailed)	Mean difference	Std. error difference	95% confidence interval of the difference	
						Lower	Upper
T.1. I do not have sufficient knowledge about wound care products.	0.133	193.000	0.894	0.031	0.232	-0.427	0.488
T.2. I feel confident in my abilities in the area of wound management.	-0.677	192.000	0.499	-0.133	0.197	-0.521	0.255
T.3. Better availability of wound care products is necessary	-0.415	189.000	0.679	-0.090	0.216	-0.516	0.337
T.4.Wound care patients would benefit from a regional wound care centre.	-1.206	191.000	0.229	-0.232	0.192	-0.611	0.147
T.5. Better communication between home care nurses and doctors is needed.	-1.270	191.000	0.206	-0.240	0.189	-0.613	0.133
T.6. A specialist doctor is easily available when I need advice.	1.424	192.000	0.156	0.357	0.251	-0.137	0.851
T.7. Wound healing is delayed due to inadequate treatments recommended by the doctor.	-0.847	190.000	0.398	-0.188	0.222	-0.626	0.250
T.8. Wound healing is delayed due to patients' non-concordance with treatment.	0.661	190.000	0.509	0.134	0.203	-0.266	0.535

The respondents rated eight statements on a Likert scale from 1 to 5, where 5=completely agree, 4=agree, 3=neither agree nor disagree, 2=somewhat disagree, and 1=completely disagree. The answers are shown in Tables 4-8.

Table 4. **Demographic data on answers to questions regarding organizational issues according to work experience**

	Work experience	N	Mean	Std. deviation	Std. error mean
T.1. I do not have sufficient knowledge about wound care products.	<5 years	36	2.86111	1.073120	0.178853
	>5 years	159	2.83019	1.293643	0.102593
T.2. I feel confident in my abilities in the area of wound management.	<5 years	36	3.6389	0.89929	0.14988
	>5 years	158	3.7722	1.09950	0.08747
T.3. Better availability of wound care products is necessary.	<5 years	35	4.00000	1.057188	0.178697
	>5 years	156	4.08974	1.177048	0.094239
T.4. Wound care patients would benefit from a regional wound care centre.	<5 years	36	3.97222	1.133543	0.188924
	>5 years	157	4.20382	1.017405	0.081198
T.5. Better communication between home care nurses and doctors is needed.	<5 years	35	4.11429	1.050810	0.177619
	>5 years	158	4.35443	1.003662	0.079847
T.6. A specialist doctor is easily available when I need advice.	<5 years	36	3.5278	1.40379	0.23397
	>5 years	158	3.1709	1.34587	0.10707
T.7. Wound healing is delayed due to inadequate treatments recommended by the doctor.	<5 years	35	3.0286	1.09774	0.18555
	>5 years	157	3.2166	1.20532	0.09620
T.8. Wound healing is delayed due to patient non-concordance with treatment.	<5 years	35	3.8286	1.01419	0.17143
	>5 years	157	3.6943	1.10164	0.08792

Table 5. **The results of the t-test of the participants' answers to questions regarding organization according to the level of education**

	t	df	Sig. (2-tailed)	Mean difference	Std. error difference	95% confidence interval of the difference	
						Lower	Upper
T.1. I do not have sufficient knowledge about wound care products.	0.707	194.000	0.480	0.133	0.188	-0.238	0.503
T.2. I feel confident in my abilities in the area of wound management.	-0.344	193.000	0.732	-0.055	0.160	-0.371	0.261
T.3. Better availability of wound care products is necessary.	1.729	190.000	0.085	0.302	0.175	-0.042	0.647
T.4. Wound care patients would benefit from a regional wound care centre.	-0.257	192.000	0.797	-0.040	0.157	-0.350	0.269
T.5. Better communication between home care nurses and doctors is needed.	0.301	192.000	0.763	0.046	0.153	-0.255	0.347
T.6. A specialist is easily available when I need advice.	0.557	193.000	0.578	0.114	0.204	-0.289	0.517
T.7. Wound healing is delayed due to inadequate treatments recommended by a doctor.	-0.004	191.000	0.997	-0.001	0.180	-0.356	0.354
T.8. Wound healing is delayed due to patient non-concordance with treatment.	0.405	191.000	0.686	0.066	0.164	-0.257	0.390

Table 6. **Demographic data on answers to questions regarding organizational issues according to level of education**

	Level of education	N	Mean	Std. deviation	Std. error mean
T.1. I do not have sufficient knowledge about wound care products	undergraduate	128	2.88281	1.214227	0.107324
	graduate	68	2.75000	1.320052	0.160080
T.2. I feel confident in my abilities in the area of wound management.	undergraduate	127	3.7244	1.05166	0.09332
	graduate	68	3.7794	1.09061	0.13226
T.3. Better availability of wound care products is necessary.	undergraduate	125	4.16800	1.060554	0.094859
	graduate	67	3.86567	1.313052	0.160415
T.4.Wound care patients would benefit from a regional wound care centre	undergraduate	126	4.15079	1.103213	0.098282
	graduate	68	4.19118	0.918424	0.111375
T.5. Better communication between home care nurses and doctors is needed.	undergraduate	126	4.32540	1.026289	0.091429
	graduate	68	4.27941	0.990184	0.120078
T.6. A specialist doctor is easily available when I need advice.	undergraduate	127	3.2756	1.34328	0.11920
	graduate	68	3.1618	1.38876	0.16841
T.7. Wound healing is delayed due to inadequate treatments recommended by a doctor.	undergraduate	127	3.1811	1.15757	0.10272
	graduate	66	3.1818	1.23922	0.15254
T.8. Wound healing is delayed due to patient non-concordance with treatment.	undergraduate	126	3.7381	1.11124	0.09900
	graduate	67	3.6716	1.03555	0.12651

Table 7. **The results of the t-test of the participants' answers to questions regarding organization according to place of work**

	t	df	Sig. (2-tailed)	Mean difference	Std. error difference	95% confidence interval of the difference	
						Lower	Upper
T.1. I do not have sufficient knowledge about wound care products.	3.890	193.000	0.000	0.688	0.177	0.339	1.037
T.2. I feel confident in my abilities in the area of wound management.	-1.679	192.000	0.095	-0.260	0.155	-0.564	0.045
T.3. Better availability of wound care products is necessary.	1.047	189.000	0.296	0.179	0.171	-0.158	0.517
T.4. Wound care patients would benefit from a regional wound care centre.	0.543	192.000	0.588	0.083	0.153	-0.218	0.384
T.5. Better communication between home care nurses and doctors is needed.	1.445	191.000	0.150	0.215	0.149	-0.078	0.508
T.6. A specialist is easily available when I need advice.	2.844	192.000	0.005	0.555	0.195	0.170	0.940
T.7. Wound healing is delayed due to inadequate treatments recommended by a doctor.	0.575	190.000	0.566	0.101	0.175	-0.244	0.445
T.8. Wound healing is delayed due to patient non-concordance with treatment.	0.510	190.000	0.611	0.081	0.159	-0.233	0.395

Table 8. **Demographic data on answers to questions regarding organizational issues according to place of work**

	Place of work	N	Mean	Std. deviation	Std. error mean
T.1. I do not have sufficient knowledge about wound care products	hospital	117	3.11111	1.216112	0.112430
	other than hospital	78	2.42308	1.200857	0.135970
T.2. I feel confident in my abilities in the area of wound management.	hospital	117	3.6496	1.10887	0.10251
	other than hospital	77	3.9091	0.96220	0.10965
T.3. Better availability of wound care products is necessary.	hospital	114	4.14035	1.096069	0.102656
	other than hospital	77	3.96104	1.250700	0.142531
T.4. Wound care patients would benefit from a regional wound care centre	hospital	116	4.19828	1.006240	0.093427
	other than hospital	78	4.11538	1.092843	0.123740
T.5. Better communication between home care nurses and doctors is needed.	hospital	116	4.39655	0.940669	0.087339
	other than hospital	77	4.18182	1.108903	0.126371
T.6. A specialist doctor is easily available when I need advice.	hospital	116	3.4655	1.26099	0.11708
	other than hospital	78	2.9103	1.43415	0.16239
T.7. Wound healing is delayed due to inadequate treatments recommended by a doctor.	hospital	115	3.2174	1.14542	0.10681
	other than hospital	77	3.1169	1.24577	0.14197
T.8. Wound healing is delayed due to patient non-concordance with treatment.	hospital	115	3.7565	0.98757	0.09209
	other than hospital	77	3.6753	1.20789	0.13765

Differences were found in two claims: hospital nurses claimed that they have insufficient knowledge and stated that doctors are more available for consultations.

Almost 73% (N=146) of participants would attend formal wound care education. 4% (N=8) of those would attend such education only if it were free, and 69% (N=138) would attend it in any case.

Discussion

In Croatia, a specific system of education provides the health care system with nurses with secondary education who are actively involved in the health care process in accordance with the competencies of the Croatian Chamber of Nurses. Nurses with higher education provide health care in accordance with learning outcomes but with less clearly defined competencies, especially in the field of wound care (24). Moreover, in most cases nurses with secondary education work in home health care, which is reflected in our data.

This combination of factors means that the majority of patients with chronic wounds are cared for by nurses with the least education in that area. Unfortunately, the model of providing additional education and recognition of nurses' qualifications regarding wound care has not taken root in Croatia, although nurses themselves have recognized the need for such education. The European Wound Management Association (25) recommends education at levels 5, 6, and 7 (26-28) . With the exception of formal schooling, our respondents have gained the most knowledge from further education, mostly that provided by pharmaceutical companies. Brazilian researchers have drawn similar conclusions, with the difference that their respondents mostly looked for answers in newspapers, magazines, and similar sources (29).

Four questions were about wound knowledge, one for each of the most common chronic wounds (pressure ulcers, diabetic foot, venous ulcers) and one related to diet.

Small differences in knowledge were found, which was in accordance with previous research (23). This may explain longer healing times for venous ulcers in Croatia (30,31). Several studies have been conducted on nurses' knowledge of wound care, for example on the care of patients with pressure ulcers (32) or venous ulcers (33), on caring for patients in a hospital setting (34,35), and on knowledge of wound care in general (36). Some studies have found knowledge gaps (33,34,36). Others, such as that by Dougdall and Watson, directly cite the link between education and the existence of specialist education in wound care and better wound care (37). Innes-Walker et al. have shown that nursing education directly affects the positive health outcomes of patients with wounds (38), primarily quality of life, because better educated nurses provide their patients with improved education on chronic wounds, and consequently these patients live better with their wounds. Sturkey et al. have shown that improved education among nurses in home care reduces the incidence of wound infection and leads to fewer nurse visits, which in turn reduces costs. Unfortunately, in Croatia there are no calculations of the cost of treatment and care of chronic wounds, nor are there data on the quality and outcomes of treatment.

Our study did not find a correlation between knowledge and work experience, similarly to Zarchi et al. (39), unlike studies in which no difference was observed in terms of either work experience, age, or education (40,41). A more detailed study conducted in Sweden has shown differences in knowledge of the assessment and management of pressure ulcers after graduation (42).

The nutritional status of patients with chronic wounds is extremely important. Such patients often have eating disorders, such as obesity or malnourishment, or they take in too little protein (43). It is promising that so many nurses in this study answered the question on diet correctly.

The participants who work in hospitals are less secure in their knowledge and application of dressings. This may be because nurses in the community treat more wounds and are more likely to encounter medical supplies and innovations in the field of wound care. Otherwise, nurses consider themselves capable of caring for a patient with a wound (44), although a discrepancy can be seen between their knowledge and their self-assessed willingness to provide care.

Nurses in this study did not differ in their responses regarding organizational factors (apart from the ex-

pected result that specialist doctors are more readily available to hospital nurses), generally agreeing that their main problems were poor wound dressings, poor communication between doctors and nurses, and patient interference in their own treatment. Such problems are common in the area of wound care (21,45).

Continuing education provides numerous opportunities for professional advancement, so any nurse who is specially trained in the treatment of chronic wounds can educate not only other health professionals but also patients and their families. This would greatly contribute to the overall health system at all levels of care.

Chronic wounds are a major socioeconomic problem because of their long course of healing and treatment. They also greatly reduce the quality of life of patients and their families. Caring for a patient with a chronic wound requires a multidisciplinary approach that touches on all aspects of the wound. Health care professionals must also be mindful of health care costs, and thus they must be educated to treat chronic wounds as painlessly and efficiently as possible

Limitations of the study

The data were collected using a questionnaire that was based on similar studies and specific Croatian legislative and organizational situations, which is why the results are not generally applicable. As the participants were in a group while answering the questions, there is a possibility that they commented on them among themselves. Although the data are old, they can be used for comparison in future research.

Conclusion

This study examined nurses' knowledge and attitudes about wound care. The research was adjusted to the local educational and legislative framework. It provided mixed results, especially in the knowledge section, with the obvious need for further research in this area.

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ZNANJE MEDICINSKIH SESTARA O ZBRINJAVANJU RANA – HRVATSKA PERSPEKTIVA

Sažetak

Uvod. Znanje medicinskih sestara pridonosi boljim ishodima liječenja.

Cilj. Cilj ovog istraživanja bio je steći uvid u znanje i stavove medicinskih sestara o zbrinjavanju rana s obzirom na duljinu staža, razinu edukacije te mjesto rada.

Metode i ispitanici. Istraživanje je provedeno s pomoću posebno kreiranog anonimnog upitnika. Ispitanici su 193 medicinske sestre i medicinska tehničara različitog stupnja obrazovanja iz tri županije u središnjoj Hrvatskoj. Istraživanje je provedeno tijekom raznih predavanja u sklopu planova trajne edukacije Hrvatske komore medicinskih sestara.

Rezultati. Većina ispitanika imala je više od pet godina radnog staža, zaposleni su u bolnici te imaju srednjoškolsko obrazovanje. Statistički značajne razlike uočene su na području zbrinjavanja venskog ulkusa, gdje su bolje znanje pokazale sestre sa srednjom stručnom spremom i manje godina staža. Medicinske sestre zaposlene u bolnici smatraju da imaju nedostatno znanje o liječenju rana te da su im liječnici dostupniji za konzultacije.

Zaključak. Ovo istraživanje dalo je miješane rezultate s područja znanja i stavova medicinskih sestara o zbrinjavanju kroničnih rana, što ukazuje na potrebu za provođenjem budućih detaljnijih studija

Ključne riječi: palijativna medicina, palijativna skrb, palijativni bolesnik

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Croatian Use of The Hospital Survey on Patient Safety Culture: A Psychometric Validation in A Sample of Croatian Nurses

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Abstract

Introduction. Patient safety during hospitalisation is one of the biggest concerns for hospitals worldwide and one obligation of all medical professionals is to create a safe environment for patients and prevent accidents. Approximately 50% of adverse events can be prevented with a systematic approach.

Aim. This study aimed to examine the underlying dimensions and psychometric properties of the Hospital Survey on Patient Safety Culture questionnaire in Croatian hospital settings, and to compare the results with the original questionnaire from the United States of America.

Methods. The sample consisted of 438 nurses from four Croatian university hospitals. All participants signed an informed consent document, and the questionnaires were provided to the nurses in their units by the head nurses of their departments. Data analysis was performed using IBM SPSS 25.0. Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) indicator were performed with Cronbach's alpha test and sample standard deviation.

Results. All factors explain the total of 59% of variance of the measured questionnaire. Additionally, the reliability of the entire questionnaire was determined by using the internal consistency coefficient (Cronbach's alpha) on the Hospital Survey on Patient Safety Culture with 12 of 0.88 particles, which is high internal consistency reliability. Our results show that the particles that make up the questionnaire are very homogeneous according to their object of measurement.

Conclusion. The results of our study found that the survey can be applied to Croatian settings and used in hospitals. We also believe that more research on this topic is needed and is crucial for improving patient safety in hospitals. It is necessary to emphasize continuous education of nurses regarding patient safety in hospitals.

Introduction

Patient safety during hospitalisation is one of the biggest concerns for hospitals worldwide. Medical professionals such as doctors, nurses, and physiotherapists must create a safe environment for patients and prevent accidents. Approximately 50% of adverse events are judged to be preventable (1). It is believed that hospitals can affect patient safety by creating a culture of patient safety among their staff. A positive safety culture guides the many discretionary behaviours of healthcare professionals toward viewing patient safety as one of their highest priorities (2). A positive safety culture will improve a hospital's patient safety performance, which could help the organization strengthen its safety outcomes (3). If an accident happens during hospitalisation, after processing it becomes an example of learning and creating a safer environment for patients. The Institute of Medicine of the United States of America claims that if there is a safety culture where adverse events can be reported without people being blamed, they have the opportunity to learn from their mistakes and it is possible to make improvements in order to prevent future human and system errors, and thus promote patient safety (4). Patient safety, defined as the prevention of patient injury, requires solid systems that prevent errors; if they occur, they serve as a source of learning, generating a safety culture that involves all health professionals, organizations and the patients themselves (5). Of all medical professionals, it is known that nurses spend the most time with patients by caring for them, listening to their problems and fulfilling their needs. Although all health professionals play a relevant role in patient safety, nursing has a fundamental role due to its involvement in most hospital processes, making it the profession that has the closest contact with patients and is a key factor in reducing adverse outcomes (6). Despite patient accidents that might occur, it is fundamental for hospitals to create unique tools for evaluation of patient safety during hospitalization. There are a few instruments available for assessing the safety culture in hospitals (7). One of these instruments is the Hospital Survey on Patient Safety Culture (HSOPSC) of the Agency for Healthcare Research and Quality (AHRQ) (8). Used in practice, the HSOPSC questionnaire can provide an insight into a specific hospital unit or a hospital in general. It should be implemented at every hospital level, from general units and ICU's to surgical units, and be easily available for healthcare workers and tracked in real time during patient hospitalization. A group of researchers explored the hospital safety culture in four European countries and the instruments they used were HSOPSC and Perceived Implicit Rationing of Nursing Care (9-11). This study aimed to validate the Hospital Survey on Patient Safety Culture questionnaire in a Croatian setting. University hospital centres and university hospitals included in this study have a strong policy on patient safety during hospitalization. Nurses are educated on creating an empathetic relationship with the patient as well as assessing their psychophysical condition. Continuous assessment of patients in wards and intensive care units kept adverse events to a minimum. The most common ones are related to the physical stability of patients which results in falls (such as in patient rooms, bathrooms or hallways). If an adverse event occurs, an official form is filled in and nurses' interventions for patient safety during ward stay are evaluated.

An adverse event reduction policy in hospitals includes routine checking of patient identity, sex, age, drug or food allergies, etc. The best example comes from surgical wards, where the patient is asked if they understand the planned operation and where on their body it is going to be performed. It is concerning that even if all such approaches are used, many patients experience adverse events. Approximately 400,000 hospitalized patients experience some type of preventable harm each year (12). The aim of this study was to perform linguistic and psychometric validation of the Croatian version of the HSOPSC questionnaire.

Methods

Participants

The participants were registered nurses working in hospital wards in four university hospitals in the Republic of Croatia (University Hospital Centre Zagreb, University Hospital Centre Sestre milosrdnice, Clinical Hospital Dubrava and Clinical Hospital Sveti duh). Nurses were asked to participate voluntarily, and copies of the questionnaire were provided to them by their head nurse. The questionnaire was filled in by 438 nurses who signed an informed consent form. The survey was completely anonymous. The data were collected between April 2018 and November 2018. The inclusion criteria were as follows: nurses with at least one year of service and nurses working in direct patient care. The exclusion criteria were as follows: nurses in leading positions and nurses with less than one year of experience.

Ethics

The study was approved by the ethical committees of all four institutions. The research group followed all ethical principles of the Declaration of Helsinki (13).

Instrument

The Hospital Survey on Patient Safety Culture (HSOPSC) is validated by the Agency for Healthcare Research and Quality (AHRQ) and is used for assessing the safety culture for patients in hospitals (14). This survey was developed with the aim of increasing staff awareness of patient safety, assessing the current level of patient safety in hospitals, identifying strong sides and practices of patient safety culture, examining growing trends and evaluating the cultural impact on patient safety in hospitals. In 10 to 15 minutes, participants provide their opinions about patient safety issues, medical errors, and event reporting in their hospital. The survey consists of 51 questions divided into 14 sections (A to H). The questions related to section A refer to "Your Work Area/ Unit", section B to "Your Supervisor/Manager", section C to "Communications", section D to "Frequency of Events Reported", section E to "Patient Safety Grade", section F to "Your Hospital", section G to "Number of Events Reported" and section H to "Background Information". Section I is left empty for the participants' comments. The questionnaire's subscales are listed in table 2. The Likert Scale ("Strongly Disagree" to "Strongly Agree" and "Never" to "Always") is most commonly used for multiple choice questions. The questionnaire was translated into Croatian and then into English. The results of the original questionnaire show that a higher score on the subscales indicates increased patient safety in hospitals.

Statistics

The principal component factor analysis with varimax rotation was used as exploratory factor analysis to verify the factor structure of the instrument. Negatively worded items were first recoded according to the manual. Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) indicator show that the data are adequate for factor extraction (KMO Measure of sampling adequacy: 0.887; Bartlett's test of sphericity: χ^2= 6895.231, df=946, p<0.001). The reliability of the HSOPSC questionnaire was determined by using the internal consistency coefficient Cronbach's alpha. Data analysis was done using IBM SPSS 25.0 (IBM Statistics for Windows, Version 25.0. Amonk, NY:IBM Corp).

Results

The study was conducted on 438 nurses in four university hospitals in the Republic of Croatia. Table 1 shows factor structure and loadings for HSOPSC items in the Croatian sample. Table 2 shows item-total correlations and Cronbach's alpha if an item was deleted.

There were 11 factors with eigen-values above 1, but with only three factors that have substantially large eigenvalues (the first factor with eigenvalue of 9.593, and the next two factors with eigenvalues of 3.141 and 2.470). All factors explain a total of 59% of variance of measured construct. Principal Component Analysis was used to check the factoring structure of the instrument.

That is why factor analysis with a fixed number of factors was calculated. The results are shown in Table 1. Only factor loadings above minimum cut-off 0.30 are shown and sorted by size. Lowest loadings show the weakest association with the factor.

Table 1. **Factor structure and factor loadings for HSOPSC items in the Croatian sample**

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14
People support one another in this unit (a1)	0.789													
In this unit, people treat each other with respect (a4)	0.765													
When a lot of work needs to be done quickly, we work together as a team to get the work done (a3)	0.759													
When one area in this unit gets really busy, others help out (a11)	0.640													
We are actively doing things to improve patient safety (a6)	0.528							0.318						
Mistakes have led to positive changes here (a9)	0.466													
Problems often occur in the exchange of information across hospital units (f7)		0.772												
It is often unpleasant to work with staff from other hospital units (f6)		0.746												
Important patient care information is often lost during shift changes (f5)		0.659						0.369						
Things "fall between the cracks" when transferring patients from one unit to another (f3)		0.592						0.385						
Shift changes are problematic for patients in this hospital (f11)		0.561												
The actions of hospital management show that patient safety is a top priority (f8)			0.774											

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14
Hospital management provides a work climate that promotes patient safety (f1)			0.689											
Hospital units work well together to provide the best care for patients (f10)			0.624											
There is good cooperation among hospital units that need to work together (f4)		0.379	0.548											
Hospital management seems interested in patient safety only after an adverse event happens (f9)		0.330	0.427							0.340				
Hospital units do not coordinate well with each other (f2)		0.335	0.422							0.376				
When a mistake is made, but has no potential to harm the patient, how often is this reported? (d2)				0.876										
When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported? (d1)				0.834										
When a mistake is made that could harm the patient, but does not, how often is this reported? (d3)				0.791										
We are informed about errors that happen in this unit (c3)					0.680									
We are given feedback about changes put into place based on event reports (c1)					0.600									

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14
Staff will freely speak up if they see something that may negatively affect patient care (c2)	0.311				0.549									
In this unit, we discuss ways of preventing errors from happening again (c5)	0.401				0.528									
My supervisor/ manager seriously considers staff suggestions for improving patient safety (b2)						0.759								
My supervisor/ manager praises us when they sees a job done according to established patient safety procedures (b1)	0.308					0.698								
My supervisor/ manager overlooks patient safety problems that happen repeatedly (b4)						0.584				0.340				
The staff worry that mistakes they make are kept in their records (a16)							0.720							
The staff feel like their mistakes are held against them (a8)							0.697							
When an event is reported, it feels like the person responsible is addressed, and not the problem (a12)							0.681							
The staff are afraid to ask questions when something does not seem right (c6)							-0.469							
We have patient safety problems in this unit (a17)								0.676						

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14
Our procedures and systems are good at preventing errors from happening (a18)	0.406							0.498						
Patient safety is never sacrificed to get more work done (a15)			0.314					0.482					0.437	
Please give your work area/unit in this hospital an overall grade on patient safety (e1)								-0.397						
After we make changes to improve patient safety, we evaluate their effectiveness (a13)	0.316				0.360			0.365						
The staff in this unit work longer hours than is best for patient care (a5)									0.726					
We work in "crisis mode", trying to do too much, too quickly (a14)							0.320		0.605					
We have enough staff to handle the workload (a2)	0.402								0.555					
Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts (b3)										0.765				
We use more agency/temporary staff than is best for patient care (a7)											-0.842			
It is just by chance that more serious mistakes do not happen around here (a10)												0.814		
The staff feel free to question the decisions or actions of those with more authority (c4)					0.356								0.677	

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14
In the past 12 months, how many event reports have you submitted? (g1)														0.908
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.														

Factor analysis was performed on 14 factors according to the authors of the original scale. (Table 1.) The first factor is partially in line with expectations – all 4 particles (a1, a3, a4 and a11) are mostly saturated with this factor, which the authors call *Teamwork within units*. However, our results in this factor also contain two additional particles (a6 and a9), which should actually belong to the *Organizational Learning — Continuous Improvement* factor along with a13. The second extracted factor most closely matches the author's subscale *Handoffs & Transitions* (f3, f5, f7, f11), with the addition of the particle f6, which originally belonged to the ninth subscale, *Teamwork Across Units*. The third extracted factor combines two subscales, *Management Support for Patient Safety* and *Teamwork Across Units*, although the last 3 particles show low saturation with the second extracted factor, and the particles f2 and f9 also show low saturation with the tenth extracted factor. The fourth factor is completely consistent with the author's eighth subscale, *Frequency of Events Reported.* The fifth factor corresponds to the *Feedback & Communication About Error* (c1, c3, c5), with the addition of c2, which otherwise belongs to *Communication Openness*. The sixth factor contains particles of the second subscale, *Supervisor/Manager Expectations & Actions Promoting Patient Safety* (b1, b2, b4), while particle b3 (*Whenever pressure builds up, my supervisor /manager wants us to work faster, even if it means taking shortcuts*) here stands out in a separate tenth factor. The seventh factor is saturated with particles of the subscale *Nonpunitive Response to Errors* (with the addition of the particle b4, which otherwise belongs to the subscale *Supervisor/ Manager Expectations & Actions Promoting Patient Safety*, and particle c6, from the subscale *Communication Openness*). The eighth factor contains particles of the *Overall Perceptions of Patient Safety*

Table 2. **Hospital Survey on Patient Safety Culture questionnaire's subscales on the Croatian sample**

Subscale	Mean	N	Std. Deviation	Min	Max
Teamwork Within Units	14.42	438	3.027	4	20
Supervisor/Manager Expectations & Actions Promoting Patient Safety	14.06	438	2.936	4	20
Organizational Learning – Continuous Improvement	10.53	438	1.891	3	15
Management Support for Patient Safety	8.90	438	2.245	3	15
Overall Perceptions of Patient Safety	14.04	438	2.548	4	20
Feedback & Communication About Error	10.45	438	2.411	3	15
Communication Openness	10.02	438	2.100	4	15
Frequency of Events Reported	8.47	438	3.078	3	15
Teamwork Across Units	12.91	438	2.364	4	20
Staffing	11.04	438	2.361	4	19
Handoffs & Transitions	14.53	438	2.685	5	20
Nonpunitive Response to Errors	8.71	438	2.256	3	15
Patient Safety Grade	2.21	438	0.824	1	5
Number of Events Reported	1.59	438	1.031	1	6

subscale, with a lack of particle a10, which makes a separate 12th factor, and the addition of particles e1 (which otherwise forms a separate item *Patient Safety Grade*) and particles a13 (originally in the subscale *Organizational Learning – Continuous Improvement*). The ninth factor corresponds best to the *Staffing* subscale, although here particle 7 is singled out in a separate factor 11 instead of being grouped into this one. Particle c4 is also singled out in a separate factor instead of being within the *Communication Openness* subscale. Some results were negative, but the rotated version of data analysis provided better results and that is why it is shown in this study.

Cronbach's alpha was used as indicator of internal consistency. The reliability of total HSOPSC with 44 items is .88, which is very satisfactory. Table 3 shows item-total correlations and change in Cronbach's alpha if an item was deleted. In this Croatian validation the structure does not match exactly with the original HOSCPSC. Factor analysis demonstrated that in our study, based on Croatian settings, particles factorize differently.

Table 3. **Item-total correlations and Cronbach's alpha if an item was deleted**

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
People support one another in this unit	0.554	0.869
We have enough staff to handle the workload	0.362	0.872
When a lot of work needs to be done quickly, we work together as a team to get the work done	0.503	0.870
In this unit, people treat each other with respect	0.569	0.869
The staff in this unit work longer hours than is best for patient care	-0.047	0.879
We are actively doing things to improve patient safety	0.533	0.870
We use more agency/temporary staff than is best for patient care	-0.111	0.881
The staff feel like their mistakes are held against them	0.371	0.872
Mistakes have led to positive changes here	0.418	0.872
It is just by chance that more serious mistakes don't happen around Here	0.135	0.877
When one area in this unit gets really busy, others help out	0.472	0.870
When an event is reported, it feels like the person responsible is being addressed, and not the problem	0.433	0.871
After we make changes to improve patient safety, we evaluate their effectiveness	0.450	0.871
We work in "crisis mode", trying to do too much, too quickly	0.350	0.873
Patient safety is never sacrificed to get more work done	0.495	0.870
The staff worry that mistakes they make are kept in their records	0.349	0.873
We have patient safety problems in this unit	0.377	0.872
Our procedures and systems are good at preventing errors from happening	0.477	0.871
My supervisor/manager praises us when they see a job done according to established patient safety procedures	0.532	0.869

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
My supervisor/manager seriously considers staff suggestions for improving patient safety	0.553	0.869
Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts	0.186	0.875
My supervisor/manager overlooks patient safety problems that happen over and over	0.491	0.870
We are given feedback about changes put into place based on event reports	0.427	0.871
The staff will freely speak up if they see something that may negatively affect patient care	0.544	0.869
We are informed about errors that happen in this unit	0.476	0.871
The staff feel free to question the decisions or actions of those with more authority	0.287	0.874
In this unit, we discuss ways to prevent errors from happening again	0.589	0.868
The staff are afraid to ask questions when something does not seem right	-0.356	0.885
When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported?	0.377	0.872
When a mistake is made, but has no potential to harm the patient, how often is this reported?	0.328	0.873
When a mistake is made that could harm the patient, but does not, how often is this reported?	0.369	0.872
Please give your work area/unit in this hospital an overall grade on patient safety	-0.473	0.884
Hospital management provides a work climate that promotes patient safety	0.512	0.870
Hospital units do not coordinate well with each other	0.333	0.873
Things "fall between the cracks" when transferring patients from one unit to another	0.398	0.872
There is good cooperation among hospital units that need to work together	0.499	0.871
Important patient care information is often lost during shift changes	0.404	0.872
It is often unpleasant to work with staff from other hospital units	0.295	0.874
Problems often occur in the exchange of information across hospital units	0.385	0.872
The actions of hospital management show that patient safety is a top priority	0.493	0.870
Hospital management seems interested in patient safety only after an adverse event happens	0.361	0.873
Hospital units work well together to provide the best care for patients	0.432	0.872
Shift changes are problematic for patients in this hospital	0.329	0.873
In the past 12 months, how many event reports have you filled out and submitted?	0.090	0.877

The reliability of subscales is shown; two of them (*Patient Safety Grade* and *Number of Events Reported*) have only 1 item, so Cronbach's alpha cannot be calculated.

Table 4. **Inter-correlations between subscales**

Dimension**/items (internal consistency reliability coefficient)**	Cronbach'**s Alpha**
F1 Teamwork Within Units	0.81
F2 Supervisor/Manager Expectations & Actions Promoting Patient Safety	0.72
F3 Organizational Learning–Continuous Improvement	0.59
F4 Management Support for Patient Safety	0.67
F5 Overall Perceptions of Patient Safety	0.49
F6 Feedback & Communication About Error	0.70
F7 Communication Openness	0.48
F8 Frequency of Events Reported	0.84
F9 Teamwork Across Units	0.64
F10 Staffing	0.32
F11 Handoffs & Transitions	0.76
F12 Nonpunitive Response to Errors	0.66

Correlations between subscales were checked. The level is expected to be 0.4-0.7, so that the scales do not measure the exact object of measurement, that is they are homogeneous to a sufficient extent.

Table 5. **Correlations between subscales**

	Scale2	Scale3	Scale4	Scale5	Scale6	Scale7	Scale8	Scale9	Scale10	Scale11	Scale12	Scale13	Scale14
Scale1	0.48**	0.60**	0.31**	0.43**	0.51**	0.46**	0.22**	0.30**	0.20**	0.22**	0.34**	-0.33**	0.02
Scale2		0.41**	0.30**	0.35**	0.51**	0.51**	0.21**	0.24**	0.12*	0.26**	0.39**	-0.24**	0.05
Scale3			0.41**	0.47**	0.53**	0.38**	0.30**	0.33**	0.08	0.25**	0.25**	-0.41**	0.04
Scale4				0.35**	0.33**	0.21**	0.30**	0.56**	0.20**	0.37**	0.34**	-0.34**	0.06
Scale5					0.35**	0.33**	0.21**	0.34**	0.18**	0.44**	0.30**	-0.39**	0.05
Scale6						0.53**	0.39**	0.30**	0.04	0.18**	0.27**	-0.34**	0.04
Scale7							0.27**	0.19**	0.14**	0.22**	0.35**	-0.26**	0.12*
Scale8								0.16**	-0.01	0.12*	0.11*	-0.21**	0.08
Scale9									0.15**	0.59**	0.28**	-0.31**	0.03
Scale10										0.11*	0.32**	-0.08	0.04
Scale11											0.29**	-0.37**	0.04
Scale12												-0.19**	0.08
Scale13													0.03

Most of the correlations do not exceed 0.4, but there are very low, which indicates that some subscales are different from the content of the total HSOPSC measuring instrument, such as Scale 14, with which all scales are zero-correlated. This can be explained in two ways: first, only one question is in the "scale", and secondly, the question is related to specific behaviour, i.e., frequency, and the rest relate to attitudes and assessments more subject to subjective impression, so they are methodologically different.

Discussion

The aim of this study was to perform linguistic and psychometric validation of the Croatian version of the HSOPSC questionnaire. The HSOPSC survey has been translated into 24 languages in 45 countries in order to measure patient safety culture in their own healthcare organizations (15). Factor analysis determined that all preconditions for factor extraction were met and based on exploratory analysis using the Principal Component Analysis. Three of eleven factors have substantially large eigenvalues on a unidimensional scale. We also noticed that the reliability on some subscales is fairly low, but all factors explain the total of 59% of variance of measured construct.

Smits et al. found a variance of 57.1% in their study on psychometric properties of the HSOPSC questionnaire in Dutch hospital settings (1). The question set from Factor 1: *Teamwork within departments* mostly matches those from a psychometric evaluation conducted on a Palestinian sample by Najjar et al. (16).

Cronbach's alpha in our study is 0.88, showing high reliability. This refers to the reliability of internal consistency, so it can be concluded that the particles that make up the questionnaire are very homogeneous according to their object of measurement. This can be copared with Najjar et al. (16), whose Crombach alpha was 0.087, as well as Nie et al. (17), whose crombach alpha was 0.84. It can be concluded that the reliability of the adapted questionnaire is satisfactorily high and comparable to the original version. However, it should be noted that for two subscales (*Patient Safety Grade* and *Number of Events Reported*), Cronbach's alpha could not be calculated. Also, some subscales are different from the content of the total HOSP measuring instrument, such as Scale 14, with which all scales are zero-correlated.

In their evaluation of the HSOPSC questionnaire conducted in Sweden, Hedsköld et al. found that the instrument can be used in both hospital and primary care settings after minor adjustments of wording (18). Future studies should use the HSOPSC in Croatian settings for primary care.

Conclusion

The purpose of this study was to translate and validate the HSOPSC questionnaire. The results of the study show that the questionnaire can be applied to Croatian settings and used in hospitals. We also believe that more research on this topic is needed and is crucial for improving patient safety in hospitals. Although we managed to adapt this questionnaire for Croatian hospital settings, it is important to continue nurses' education about patient safety during hospitalization and the prevention of adverse events.

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UPORABA ANKETNOG ISTRAŽIVANJA O SIGURNOSTI PACIJENATA U BOLNICAMA NA HRVATSKOM JEZIKU: PSIHOMETRIJSKA VALIDACIJA NA UZORKU HRVATSKIH MEDICINSKIH SESTARA

Sažetak

Uvod. Sigurnost pacijenata tijekom hospitalizacije predstavlja jednu od najvećih briga bolnicama diljem svijeta. Obveza je svih medicinskih stručnjaka stvoriti sigurno okruženje za pacijente i spriječiti nesreće. Približno 50 % nuspojava može se spriječiti sustavnim pristupom.

Cilj. Cilj ove studije bio je ispitati temeljne dimenzije i psihometrijska svojstva upitnika Hospital Survey on Patient Safety Culture u hrvatskim bolničkim uvjetima te usporediti rezultate s izvornim upitnikom iz Sjedinjenih Američkih Država.

Metode. Uzorak se sastoji od 438 medicinskih sestara iz četiri kliničke bolnice. Svi sudionici potpisali su dokument o informiranom pristanku, a upitnike su medicinskim sestrama u njihovim jedinicama dostavile glavne sestre njihovih odjela. Analiza podataka provedena je s pomoću softvera IBM SPSS 25.0. Bartlettov test sferičnosti i Kaiser-Meyer-Olkinov (KMO) indikator izvedeni su s Cronbachovim alfa testom i standardnom devijacijom uzorka.

Rezultati. Svi čimbenici objašnjavaju ukupno 59 % varijance izmjerenog upitnika. Pouzdanost upitnika određena je primjenom internog koeficijenta konzistentnosti (Cronbachov alfa) na Hospital Survey on Patient Safety Culture s 12 čestica od 0,88, što je visoka interna pouzdanost konzistencije. Naši rezultati pokazuju da su čestice koje čine upitnik vrlo homogene prema objektu mjerenja.

Zaključak. Rezultati našeg istraživanja pokazali su da se upitnik može primijeniti u hrvatskim uvjetima i upotrebljavati u bolnicama. Također vjerujemo da je potrebno više istraživanja na ovu temu i da je to ključno za poboljšanje sigurnosti pacijenata u bolnicama. Potrebno je naglasiti kontinuiranu edukaciju medicinskih sestara o sigurnosti pacijenata u bolnicama.

Ključne riječi: njega, HSOPSC, sestrinstvo, pacijent, sigurnost, validacija

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Nutritional Habits of Preschool Children

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Abstract

Introduction. Proper nutrition is crucial for maintaining good health and provides the basis for proper growth and development of children and adolescents. Insufficient physical activity and inadequate nutrition are among the leading causes of mortality and morbidity.

Aim. The aim of this research paper was to examine the nutritional habits of preschool children.

Methods. The study was conducted in April 2018 and included a survey of kindergarten children and their parents. A questionnaire consisting of 24 questions was created for the purposes of the study. The survey was conducted entirely anonymously and voluntarily. Of the 100 respondents included in the study, 52% (52) were boys and 48% (48) were girls. The average age of the respondents was 5.12 years.

Results. Out of a total of 100 children, 98% (98) have a hot meal every day, while 2% (2) do not. Cereals and cereal products are consumed by 97% of children, while 3% stated that they do not consume cereals. As with cereals, 97% of children use milk and dairy products, while only 3% do not consume them. 29 (76%) boys have normal body weight. Four (5%) were malnourished and 3 (8%) boys were overweight. 30 (70%) girls have normal body weight, 3 (7%) are malnourished, and one (2%) girl is overweight. 8 (21%) girls were obese.

Conclusion. According to the obtained research results, it can be concluded that most of the examined children ate properly and had normal body weight. It

is a worrying fact that most of the children consume sweets/snacks on a daily basis, while on the other hand a large number of surveyed children do not consume vegetables and fruits on a daily basis. Nurses in preschools face the challenging task of integrating their professional knowledge into the educational process.

Introduction

Proper nutrition is crucial for the maintenance of good health and forms the basis for proper growth and development in children and adolescents. Insufficient physical activity and inadequate nutrition are among the leading causes of mortality and morbidity (1). The human body uses nutrients such as carbohydrates, fats, proteins, vitamins, minerals and trace elements. Other fibres such as cellulose, pectin and lignin, which are most often indigestible, are also included among the basic nutrients (2). A generally accepted and simple model for a balanced diet is the pyramid of proper nutrition. According to the pyramid of proper nutrition, foods are divided into six groups: cereals, vegetables and fruits, proteins and fats (1). The tasks of nurses as health managers in kindergartens include monitoring the growth and development of children as well as planning and preparing menus, taking care of hygienic and sanitary conditions and implementing children's health care. According to the World Health Organization, obesity among children and adolescents aged five to nineteen has increased from 4% in 1975 to more than 18% in 2016, and it is estimated that today 340 million children are overweight (3). The survey of the European Initiative for Monitoring Childhood Obesity in Croatia in 2015/2016 shows that 34.9% of children are overweight and obese, while in 2003 this figure was 20.8% of children with a body mass index ≥ 25 kg/m^2 (3). 67.3% of girls have normal body weight, while 1.6% are malnourished, 20.3% are overweight and 10.7% are obese. Among boys, 60.8% have normal body weight, 0.4% are malnourished, 21.5% are overweight and 17.2% are obese (4). Also, the data show that more than 1/3 of children do not engage in any physical activity, while more than half, as many as 56.1% spend two or more hours a day using electronic devices or watching TV. More than 1/3 of children use snacks or "fast food" 1 to 3 times a week (3). Juices with added sugar are consumed more than three times a week by more than 29.1% of children. 66.5% of children do not eat fresh fruit every day, while as many as 82.8% of children do not eat vegetables every day (4).

To prevent obesity in children, it is necessary to adopt healthy living habits from an early age, consume a varied diet, spend as little time as possible sitting while using computers, tablets, mobile phones or watching television, and engage in various physical activities (3). In order to be informed about the nutrition of their children during their stay in kindergarten, parents are provided a weekly menu (5). The preschool period is a time of intensive growth and development of the child, and nutrients are needed for normal functioning of the body. Inadequate energy intake results in children being overweight and in malnutrition and susceptibility to infections. The diet of a preschool child should consist of 50-60% carbohydrates, 30-35% fats and 10-15% proteins (6). Carbohydrates form the basis of energy needs, but complex carbohydrates with a medium or low glycaemic index (whole grains, legumes, vegetables) have an advantage. Sugars or simple carbohydrates (sweets, biscuits, juices) should be consumed in as small quantities as possible (7). Excessive protein intake can burden the liver and kidneys, and the best choice are proteins of animal origin because they are biologically more valuable than plant proteins, of which legumes are in the first place (6). The fats to be avoided are the trans unsaturated fats found in industrial bakery products and margarine (7). A healthy child who eats a normal diet receives enough minerals and vitamins and does not need supplements. Due to large ethnic and family variations in food intake, precise quantitative and qualitative recommendations are not possible, but a healthy preschool diet should be varied, protein and energy intake must allow for proper growth and development, food must be high in fibre and the intake of salt should be reduced to a minimum (8). It is important for a kindergarten to have a nurse as the health manager who can supervise children's eating habits and monitor their health status, food intake, body mass index, etc. Nurses can play a crucial role in the detection of allergic reactions to food ingredients or specific allergens. In children, special attention should be paid to an allergic reaction to food or a food ingredient (9).

The evaluation of the nutritional status is complex and based on a series of anthropometric, laboratory, clinical and dietary measurements (10, 11). A person's nutritional status is defined as a health status that depends on nutrient intake and bioavailability of nutrients in the body.

In this research paper, the aim is to assess the nutritional habits of preschool children.

Methods

This survey was conducted in April 2018. The survey included children at a kindergarten in the county of Kloštar Ivanić, with their parents responding on their behalf. Of the 100 respondents included in the survey, 52% (52) were boys and 48% (48) were girls. The average age was 5.12 years, and the participants were 1-8 years old. A questionnaire was developed specifically for the purposes of this study. It consisted of 24 questions, including those about the age and sex of the child, their daily activities, their food allergies, foods most often consumed during the day and the frequency of intake of fast food and sweets. A total of 160 survey questionnaires were distributed, of which a total of 107 were completed. Of these, 100 were properly completed and 7 were invalid. The survey questionnaire was conducted entirely anonymously and voluntarily. The computer program Microsoft Excel 2010 was used for data analysis. The results are presented using the methods of descriptive statistics and the Chi-square test.

Results

Out of a total of 100 respondents, the largest age group consisted of children born in 2011 – 28% (28). The smallest group of respondents consisted of children born in 2010 and 2017. Children born in 2012 make up 21% (21), those born in 2013 make up 22% (22), those born in 2014 make up 10% (10), those born in 2015 make up 12% (12), and those born in 2016 make up 5% (5) (Table 1).

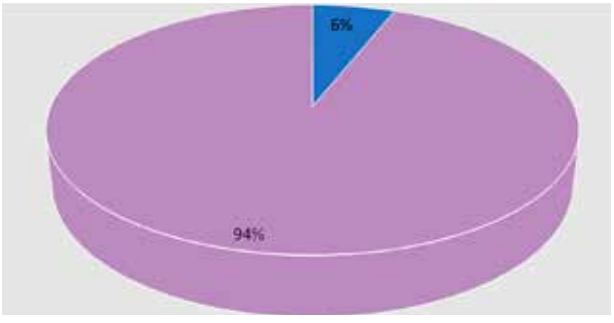
Table 1. **Number of births per year**

YEAR OF BIRTH	BOYS	GIRLS	SUM (%)
2010	1	0	1%
2011	11	17	28%
2012	9	12	21%
2013	14	8	22%
2014	5	5	10%
2015	8	4	12%
2016	3	2	5%
2017	1	0	1%
SUM	52	48	100%

The descriptive statistics show that the median for boys is 5, and for girls it is 6. The standard deviation is 5,33.

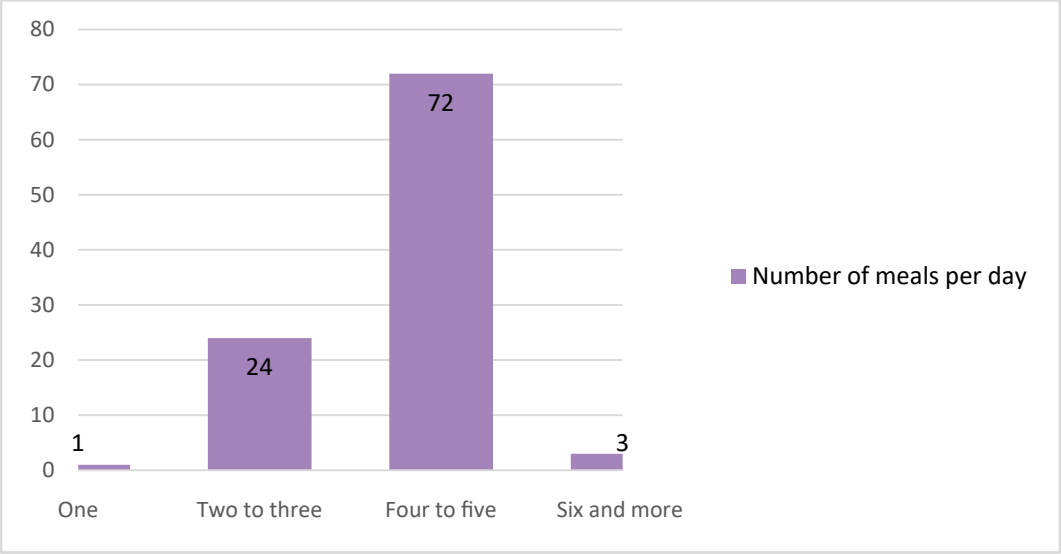
Nutritional habits of preschool children

The second part of the questionnaire consists of specific questions about children's eating habits. The question "Does your child have a food allergy?" 94 participants answered "No" (94%), and only 6 answered "Yes" (6%). Of these, 5 girls have a food allergy to hazelnuts, milk, and nuts, while only 1 boy reports an allergy to spinach. One person did not list the food they were allergic to (Graph 1).



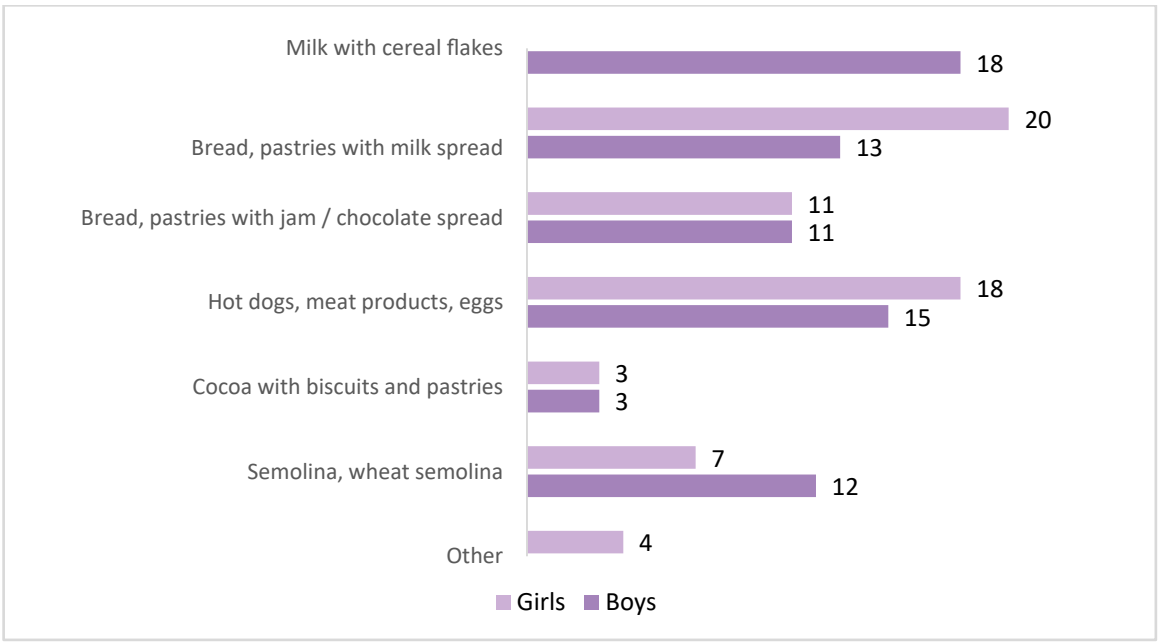
Graph 1. **Food allergies**

The data obtained about the number of meals per day show that most children (72%) have four to five meals a day. This is followed by children who have two to three meals a day (24%), while 3% have six or more meals. It is worrying that one child (1%) had only one meal per day (Graph 2).



Graph 2. **Number of meals per day**

Milk with cereal is consumed by most children (25%), 22 girls and 18 boys. Bread or pastries with milk spread are consumed by 20 girls and 13 boys (20%); hot dogs, meat products and eggs are eaten by 20% of the participants. Bread or pastries with jam or chocolate spread are consumed by 13% of participants, semolina or wheat semolina by 12%, while cocoa with biscuits or pastries is consumed by only 4% of the participants. 6% answered "Other" but provided no details. More than one answer was selected by 39 parents (Graph 3).



Graph 3. **Food that is most often consumed for breakfast**

Out of a total of 100 children, 98% (98) have a hot meal every day, while 2% (2) refused to eat a hot meal in kindergarten. According to the obtained data, most boys (58%) and girls (54%) consume vegetables 2-3 times a week. 33% of the boys consume vegetables every day, while 7% consume them once a week, and 2% do not consume vegetables at all. 17 girls (36%) consume vegetables every day, and 6% once a week, while 2 girls (4%) do not consume vegetables at all. No participants answered that they consume vegetables once a month or 2-3 times a month (Table 2).

Fruits are consumed daily by 31 boys (60%) and 25 girls (52%). 2 girls (4%) consume fruit once a week, and no boy (0%) consumes fruit once a week. 19 boys (36%) and 21 girls (44%) consume fruit two to three times a week. Fruit is not consumed at all by 2 boys (4%) (Table 2). Table 3 shows the statistical significance in the observed sample.

The chi-square statistic is 2.17 and the p-value is 0.140437. The results shown in table 3 are not significant at $p<.05$. The chi-square statistic with Yates's correction is 1.24 and the p-value is 0.265679. There were no significant differences in results at $p<.05$ after Yates's correction

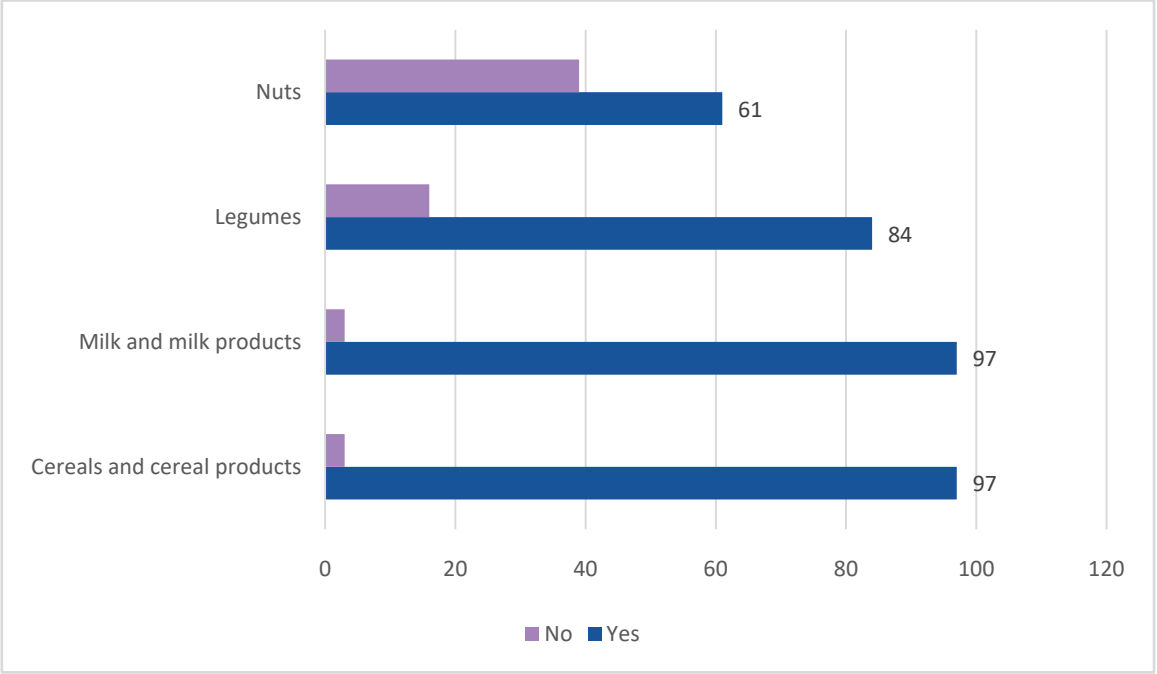
Cereals and cereal products are consumed by 97% of the participants, while 3% stated that they do not consume cereals. As with cereals, 97% of the children use milk and dairy products, while only 3% do not consume them. In the case of legumes, 16% do not consume them, while a larger number (84%) consume legumes. Nuts such as walnuts, almonds, hazelnuts and others are consumed by 61% of the children, while 39% do not consume them due to allergies to certain foods (hazelnuts) or because the children are too young, and their parents fear the risk of suffocation (Graph 4).

Table 2. **Frequency of fruit and vegetable consumption in boys and girls**

FREQUENCY	VEGETABLE		FRUIT	
	BOYS	GIRLS	BOYS	GIRLS
DAILY	17	17	31	25
2-3 TIMES PER WEEK	30	26	19	21
ONCE A WEEK	3	3	0	2
ONCE A MONTH	0	0	0	0
2-3 TIMES A MONTH	0	0	0	0
DOES NOT EAT	1	2	2	0

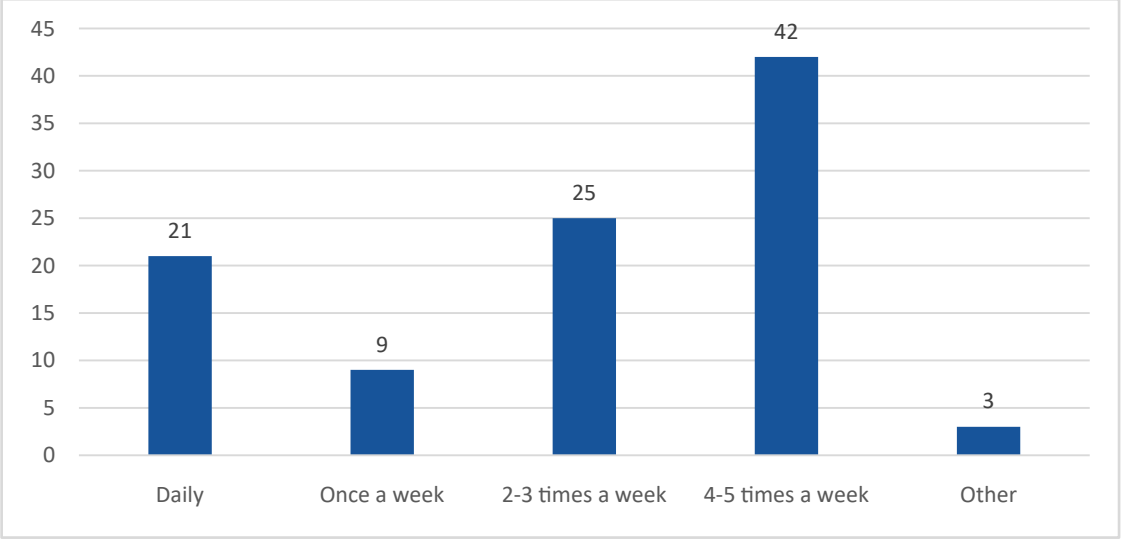
Table 3. **Statistically significant difference in fruit and vegetable consumption in boys and girls**

	Vegetable	Fruit	Marginal row totals
Daily and/or weekly	90 (92.04) [0.05]	96 (93.96) [0.04]	186
Once a week/monthly	6 (3.96) [1.05]	2 (4.04) [1.03]	8
Marginal column totals	96	98	194 (total)



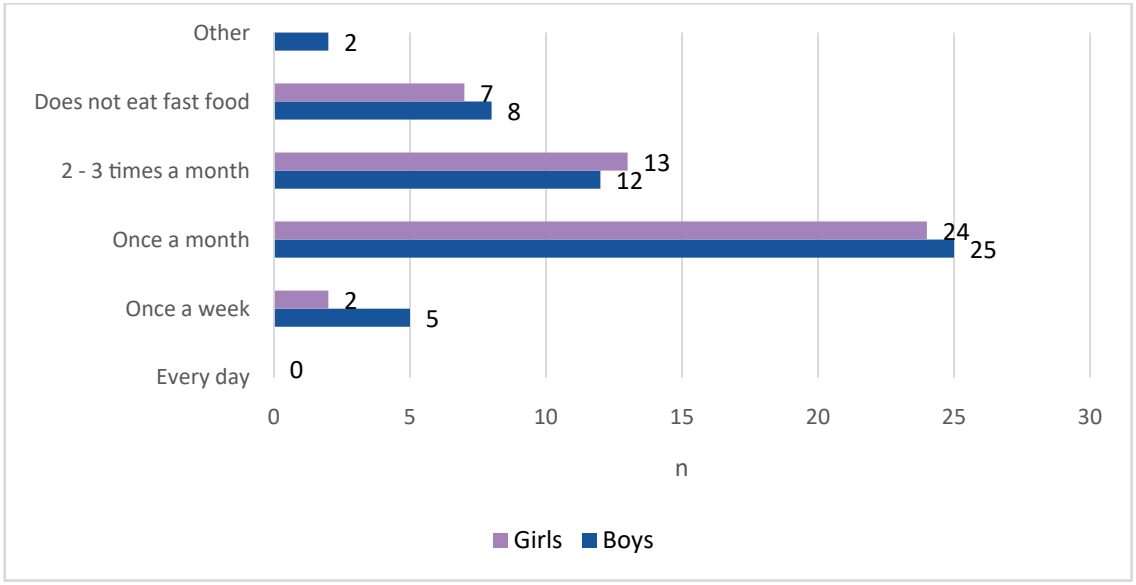
Graph 4. **Consumption of cereals, milk, legumes, and nuts**

According to the above chart, we see that 42% of the children eat meat 4-5 times a week, while 25% consume it 2-3 times a week. 21% of the children consume meat every day, while 9% consume meat once a week. 3% answered "Other" but provided no details (Graph 5).



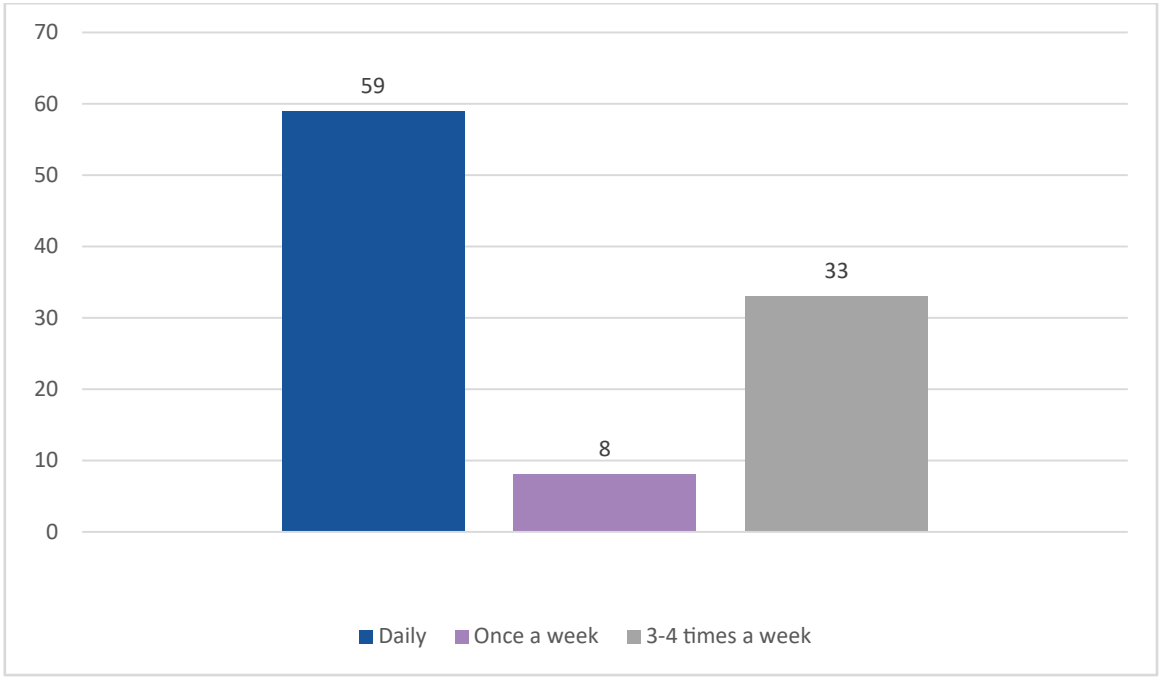
Graph 5. **Frequency of meat consumption in boys and girls**

Most of the children, 24 girls and 25 boys (49%), consume fast food once a month, while 13 girls and 12 boys (25%) consume it 2-3 times a month. Fast food is consumed once a week by 2 girls and 5 boys (7%). 15% of the children (7 girls and 8 boys) do not consume fast food at all. 4% answered "Other", while the answer "Every day" was not selected by any parent (0%) (Graph 6).



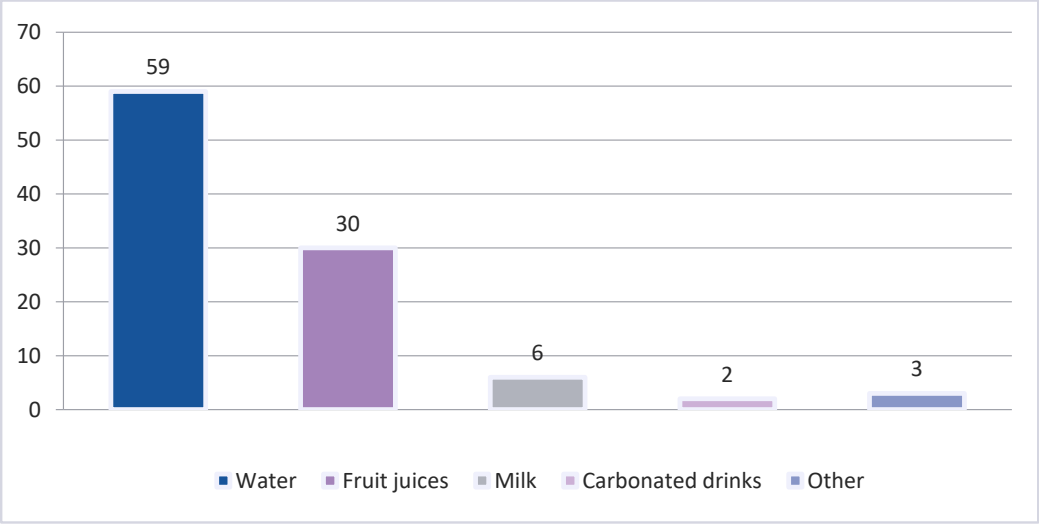
Graph 6. **Consumption of fast food**

Most boys (60%) and girls (58%) consume sweets/snacks every day. 2% of the boys and 15% of the girls consume sweets/snacks once a week, and 38% of the boys and 27% of the girls consume them 3-4 times a week. No child consumes sweets/snacks once a month, and there are no children who do not consume sweets/snacks. Therefore, it can be concluded that 59% of all participants consume sweets/snacks daily, 8% consume sweets/snacks once a week and 33% consume them 3-4 times a week (Graph 7).



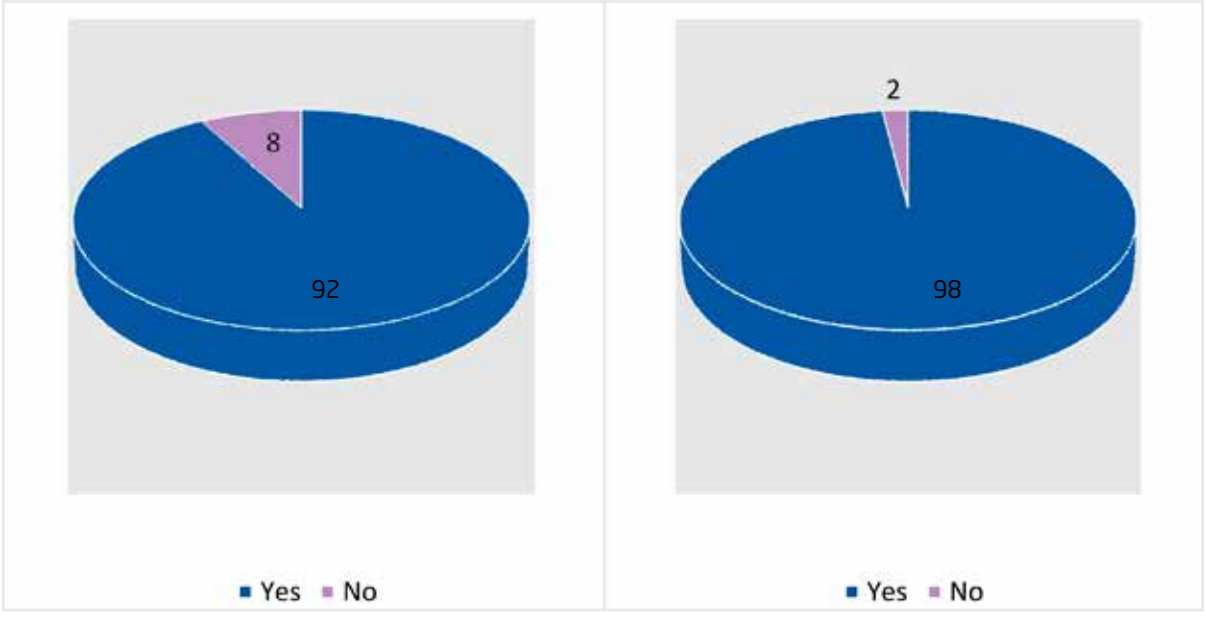
Graph 7. **Consumption of sweets/snacks**

Graph 8 shows that most of the children (59%) consume water when they are thirsty. This is followed by fruit juice (30%), and milk (6%), which was the answer selected by 5 boys and 3 girls. 2% answered that they drink carbonated drinks, while the answer "Other" was chosen by 3% of participants, who said that they drink tea. More than one answer was selected by 26 parents.



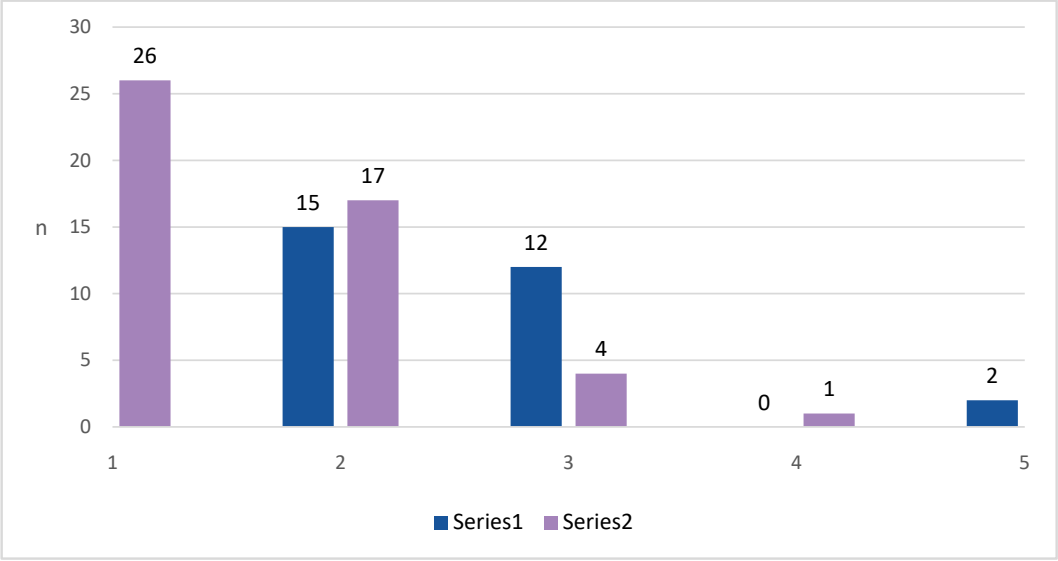
Graph 8. **The most common drink that children drink when they are thirsty**

Graph 9 shows that most of the parents (92%) are familiar with their children's diet at the kindergarten, while 8% claim that they are not familiar with it. Most parents, 98%, claim to be satisfied with the food, while 2% state the opposite. If the parents answered "No" to the question "Are you satisfied with the food your child consumes in kindergarten?", they should have stated the reason for their dissatisfaction, but none of the parents provided an explanation (Graph 9).



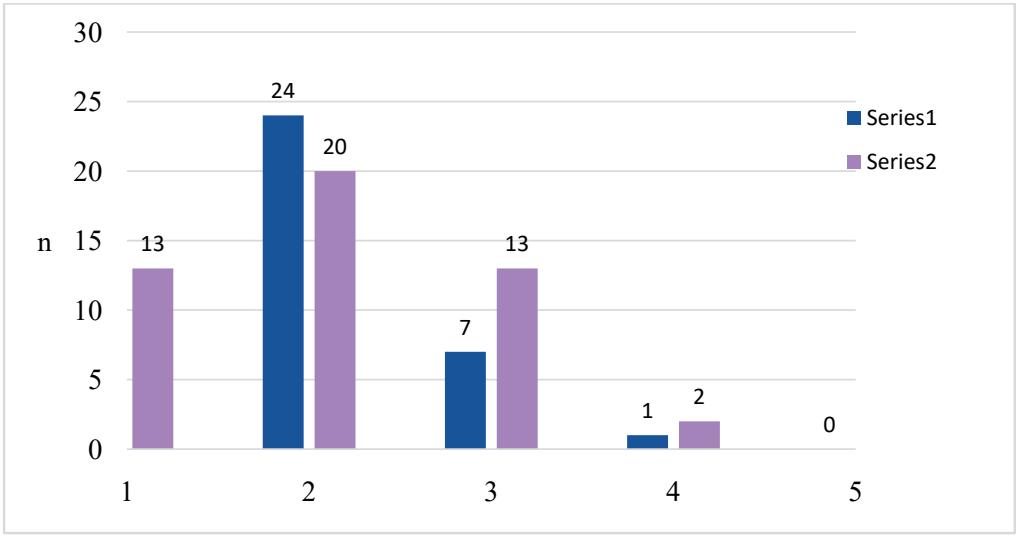
Graph 9. **Parent responses to familiarity with the menu and food consumed by their children in kindergarten**

49 children (49%) spend less than an hour playing on a computer/mobile phone, while 32% spend 1-2 hours. 16 children (16%) spend 2-3 hours playing on a computer/mobile phone, while one child spends 4-5 hours. Two children spend more than 5 hours a day on a computer/mobile phone (Graph 10).



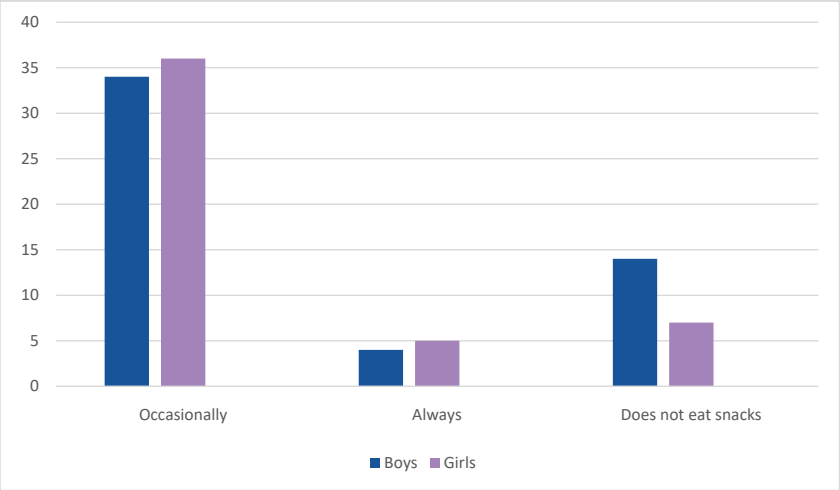
Graph 10. **Time spent on a computer/mobile phone**

Out of a total of 52 boys, 20 (38%) watch less than one hour of television, while 24 (46%) watch television for 1-2 hours a day. 1 boy (2%) spends 4-5 hours a day watching television. Of the 48 girls surveyed, 20 of them (42%) watch television for 1-2 hours a day. 13 girls (27%) watch television for less than one hour, and the same number watch television for 2-3 hours a day, while 4 girls (4%) watch television for 4-5 hours a day. None of the surveyed boys and girls watch television for more than 5 hours a day (Graph 11).



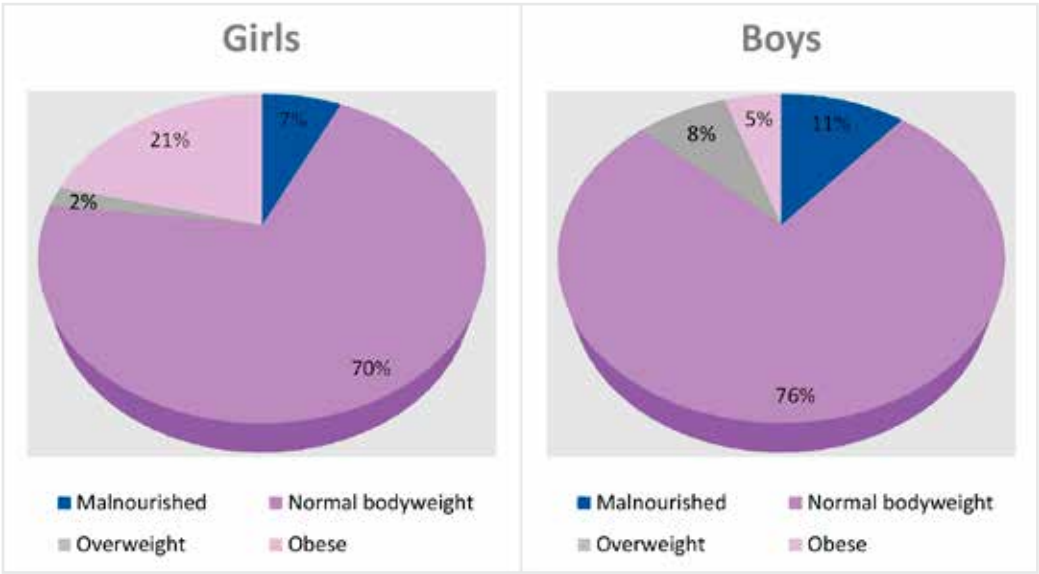
Graph 11. **Time spent watching television**

Most boys (65%) and girls (75%) occasionally eat snacks while watching television and playing games on a computer/mobile phone. 4 boys (8%) and 5 girls (10%) always consume snacks while watching television, while 14 boys (27%) and 7 girls (15%) do not snack at all when watching television and playing on a computer or mobile phone (Graph 12).



Graph 12. **Eating snacks while watching television or playing games on a computer/mobile phone**

The following diagram shows that 29 (76%) boys have normal body weight. Four boys (5%) were malnourished, and 3 (8%) boys were overweight. 12 (11%) boys were obese, while four boys did not report their body weight and height. 30 (70%) girls have normal body weight. 3 (7%) were malnourished and one (2%) girl was overweight. 8 (21%) girls were obese. 6 girls did not report body weight and height (Graph 13).



Graph 13. **Nutritional status in boys and girls**

Table 4. **Statistical significance in body weight in boys and girls**

	Boys	Girls	Marginal row totals
Malnourished and normal body weight	87 (82) [0.3]	77 (82) [0.3]	164
Overweight and obese	13 (18) [1.39]	23 (18) [1.39]	36
Marginal column totals	100	100	200 (total)

These results were also checked using the Chi-Square test to see if there is any statistical significance. The results are shown in table 4.

The chi-square statistic is 3.3875. The *p*-value is 0.065691. These results are not significant at p< .05. Also, the chi-square statistic with Yates' correction is 2.7439. The p-value is 0.097626. and the results are not significant at p< .05.

Discussion

The aim of this study was to assess children's nutritional habits. The health manager of the kindergarten is a nurse with knowledge in medical sciences, organizational models and health care processes. They also transfer their knowledge and skills to kindergarten teachers and take on the role of educator and promoter of health and healthy lifestyles. The nurse in the preschool system has the task of integrating their professional knowledge into the educational process and providing the best possible conditions necessary for optimal child development. It is very important to educate parents and children from an early age about the importance of proper nutrition and eating habits and to encourage children to engage in physical activity. Nurses are guided by the principles of nursing care, respect for individuality and a holistic approach.

A similar number of girls and boys participated in this study. 6% of the participants had food allergies, which is similar to the percentage (9.3%) in a study by Lao-araya et al. (12). Most of the children (72%) had four to five meals per day, which is similar to Kostecka's result that children ate 4 meals in the kindergarten and 2 meals at home (13). Kostecka also found that 58% of the children ate at least one serving of sweets per day, while our study showed that 65% of the boys and 75% of the girls eat snacks occasionally (13). Our study showed that vegetables are not consumed daily by 63% and fruits by 42% of the children. Dennison et al. found that most of the children in their study (~97%) do not consume enough vegetables on a daily basis (14), and the results of a study by Figueiredo et al. conducted on Finnish children found that 43.3% avoid fruits and vegetables (15). A Hong Kong study found that 94% of the children included in the study consume grains (16), which is similar to our result of 97%. Ebenegger at al. found that 27.9% of children consume meet daily (17), which can be compared to our result of 21%. In a study by Taveras et al., 22% of parents reported that their child ate at fast food restaurants at least once per week (18), but our study found that 7% of pre-schoolers eat fast food weekly.

Our study showed that 49% of the children spend less than one hour a day on a computer/mobile phone, 32% spend one to two hours, 16% spend two to three hours, and 1% spend four to five hours. 2% spent more than 5 hours a day on a computer/mobile phone. According to Gralczyk, 52.74% of preschool children use mobile devices for 1 hour a day and 19.78% use their smartphone/tablet for 1.5-2 hours a day (19). 44% of children spend 1-2 hours watching television every day, while none of the participants watch television for more than 5 hours a day. Dennison et al. found that the 1-, 2-, 3-, and 4-year-old children watched, on average (mean ± SEM), 10.9 ± 0.6, 14.9 ± 0.6, 1 6.3 ± 0.7, and 18.4 ± 0.8 hours of television/videos per week (20).

Concerning the participants' nutritional status, most of the girls (70%) are of normal body weight, while

2% of the girls are overweight. 21% of the girls were obese and 7% were malnourished. Most of the boys (76%) have normal body weight, while 11% are malnourished. 8% of the boys are overweight and 5% are obese. Jovančević et al. found that 6.8% of boys and 6.4% of girls were overweight in their study of Croatian pre-schoolers (21).

Our results showed that most children of preschool age have regular eating habits for their age, although they could reduce the intake of snacks. It is positive that more than half the children choose water as their first choice when they are thirsty. Kindergartens have daily meal and activity plans, and questions regarding eating habits can also tell us what children eat when they are at home, not only in kindergarten. Parents might apply their kindergarten's meal plans at home while the intake of snacks while watching television should be reduced or replaced with healthier options (dried fruits, nuts, etc.). Nurses in kindergartens could help parents make meal plans while respecting children's wishes and/or finding healthier solutions. Also, attention should be paid to breakfast cereals, which is a type of food most commonly consumed. Unhealthy sugars are among their most common ingredients, and those should be avoided. For instance, oatmeal can be sweetened with stevia or honey. Future studies should include questions about eating habits at home as well as sociodemographic questions.

Conclusion

According to the results of this study, it can be concluded that most of the child participants eat properly and have normal body weight. Furthermore, most of the children have four to five meals a day and eat a varied diet. Cereals and cereal products are consumed by a large number of children, just like milk and dairy products. No child consumes fast food daily. It is a worrying fact that most children consume sweets or snacks on a daily basis, while on the other hand a large number of the surveyed children do not consume vegetables and fruits every day.

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PREHRAMBENE NAVIKE PREDŠKOLSKE DJECE

Sažetak

Uvod. Pravilna prehrana ključna je za održavanje dobrog zdravlja i predstavlja temelj za pravilan rast i razvoj djece i adolescenata. Nedovoljna tjelesna aktivnost i neadekvatna prehrana među vodećim su uzrocima smrtnosti i morbiditeta.

Cilj. Cilj ovog istraživačkog rada bio je ispitati prehrambene navike djece predškolske dobi.

Metode. Istraživanje je provedeno u travnju 2018. i temelji se na anketi djece vrtićke dobi i njihovih roditelja. Za potrebe istraživanja izrađen je upitnik koji se sastoji od 24 pitanja. Anketa je provedena potpuno anonimno i dobrovoljno. Od 100 ispitanika uključenih u studiju, 52 % (52) bili su dječaci, a 48 % (48) djevojčice. Prosječna dob ispitanika bila je 5,12 godina

Rezultati. Od ukupno 100 djece, 98 % (98) ima topli obrok svaki dan, dok 2 % (2) nema. Žitarice i proizvode od žitarica konzumira 97 % djece, dok je 3 % izjavilo da ne konzumiraju žitarice. Kao i kod žitarica, 97 % djece konzumira mlijeko i mliječne proizvode, dok ih samo 3 % ne konzumira. Normalnu tjelesnu težinu ima 29 (76 %) dječaka. Četiri (5 %) su bila pothranjena, a tri (8 %) dječaka imala su prekomjernu tjelesnu težinu. Normalnu tjelesnu težinu ima 30 (70 %) djevojčica, tri (7 %) su pothranjene, a jedna (2 %) djevojčica ima prekomjernu tjelesnu težinu. Pretilo je bilo osam (21 %) djevojčica.

Zaključak. Prema dobivenim rezultatima istraživanja može se zaključiti da se većina ispitane djece pravilno hrani i ima normalnu tjelesnu težinu. Zabrinjava činjenica da većina djece svakodnevno konzumira slatkiše/grickalice, dok s druge strane veliki broj ispitane djece ne konzumira povrće i voće na dnevnoj bazi. Medicinske sestre u predškolskim ustanovama suočene su s izazovnim zadatkom integriranja svojeg stručnog znanja u obrazovni proces.

Ključne riječi: medicinska sestra, prehrana, predškolski odgoj

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Nursing and Ethics: Link Between the Ethics of Emmanuel Levinas and The Theory of Jean Watson

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Keywords: Levinas, Other, Watson, nursing, care

Abstract

Introduction. Emmanuel Levinas' ethics had an impact on Jean Watson's 1979 *Theory of Human caring*. Watson suggests that nursing ethics may be closest to the ethics of care as determined by Levinas.

Aim. To establish arguments for and against abovementioned thinking.

Methods. After an initial comparison of the statements made by Watson and the statements made by Levinas, a review of scientific articles was made to establish the link between nursing ethics and the ethics of Levinas.

Results. About 20 articles and books were analyzed. A dozen references have been singled out to establish a link in argumentation, one paper presented a partial critique, while one suggested that nursing ethics should be based on some other ethical theory.

Conclusion. Watson suggested that nursing ethics could be based on the ethics of Levinas. Since the 1990s some authors have made affirmative claims to this proposal, while others question the real possibility of its application in practice. Most authors agree that nursing ethics should not be based on the virtues of Christian charity, nor on deontological foundations or bioethical principlism. No other theory invokes that level of responsibility to another human being as Levinas does. Critics say his ethics are extremely abstract and as such are difficult to apply in a practical discipline such as nursing.

Introduction

Anyone who has looked into the eyes of a person in pain and suffering at least once knows the message that that look sends, and we can paraphrase it in the words of Emmanuel Levinas "*Don't hurt me!*"

The development of medical sciences has led to a number of solutions to once unsolvable health problems, but at the same time the solutions offered are often in conflict with thinking about the well-being of the person to whom the health service is provided. People today are looking for individualized comprehensive care, and the health system (in order to provide it) began to adapt by introducing various formal methods of individualized care. The existing ethical practice in the health care system is predominantly realized based on deontological ethics or on principlism in bioethics, which is not in line with the stated expectations. What is according to the code of ethics ethical, and what is stated in contemporary bioethical texts, has become dubious.

With the appearance of *Theory of human caring* by Jean Watson in 1979 the moral dimension of nursing was shown through the ethics of Emmanuel Levinas. Nursing ethics is thus close to the ideas of the ethics of care. Watson argued that the state of illness increases the responsibility of nurses to man just as described by Levinas who emphasizes that responsibility consists in not allowing the Other to be left alone (1).

Although during the 1980s the opinion that nursing should take over the ethics of care as professional ethics began to dominate in the USA, and Watson in her works remains faithful to the views of Levinas, it is not negligible that these opinions hardly reached the general professional public. Thus, a search of the literature reveals only a few dozen articles in which an analysis is made between the ethical settings of Levinas and the ideas of nursing.

The question arises - are the ethical postulates of Emmanuel Levinas appropriate as a foundation on which nursing could build its normative ethics? First of all, Levinas' ethics belongs to descriptive ethics, and thus any transformation of it into norms or guidelines would actually grossly jeopardize fundamental ideas and assumptions. At the same time, it is extremely abstract, and difficult for the average reader to understand. It is therefore not negligible that as such it could be misinterpreted in its uncritical application (2). It is not negligible that the presentation of Levinas' ethics is actually a strong call for the health system to be directed towards a human as a person and to become ethically grounded which is the ideal on which nursing is based (2).

Methods

For the purposes of this paper, an initial comparison of the statements made by Watson and Levinas were made. The review of scientific articles was made to establish the links between nursing ethics and the ethics of Levinas. About 20 references were found and analysed in which the issue of the nursing ethics in connection with the ethics of Levinas was problematized. In five of them, a link in argumentation between the two authors was found, one paper presented a partial critique, while one suggested that nursing ethics should be based on some other ethical theory.

Ethics of Emmanuel Levinas

The *Ethics of the Other* is one of the synonyms for the ethical theory of Emmanuel Levinas (1906-1995), one of the most influential philosophers of the 20th century. He does not define ethics as one of the philosophical disciplines but as the first philosophical discipline.

Other, one of Levinas' fundamental notions, emerges as face, interlocutor, and transcendence. The Other is a person who has his own dignity. Unlike Kant's ethics, which was based on the principle of duty, Levinas' ethics is based on the principle of responsibility (3). The Other is always marked in Levinas' ethics with the capital letter O. In the act of accepting the Other, I become aware of myself, and by doing good to the Other, I am doing good to myself. The term face of the Other is also a significant notion of his ethics, one that invites us to forget ourselves to care for the Other. From this care, and especially in states of uncertainty, fear of death, arises the ques-

tion of the meaning of life and the desire to find the answer to this question in selfless giving of oneself to another. The Other thus becomes the purpose of our action, the diminution of all ethical egoism, emphasizing that love is a deeper relation of human existence - rational goodness (4).

Levinas does not explain to us who the Other is, and what his relationship is to us and to the totality, but simply emphasizes the importance of striving for the Other. Thus, the two central notions of his ethics are the Other and responsibility. True transcendence is realized only in responsible care for the Other. If we have not achieved transcendence in our relationship with the Other, then this means that the original interpersonal relationship has not actually taken place (5).

His expression is metaphysically demanding. In his definition of good, subjectivity and transcendence he makes very complex comparisons and concepts. He criticizes the assumption that ethics should be reduced to instructions or objective guidelines for doing the right thing, because the idea of good is always present in the uniqueness of each interlocutor. *„Goodness is not spilled on the anonymity of one collective, which is offered panoramically to be absorbed there (...) It has a principle, a beginning, it comes from a self, it is subjective. It is not regulated by the principles that are inscribed in an individual being that manifests it, nor by state codes"* (6).

In ethics, Levinas gives priority to the experience of meeting the Other - it is a privileged phenomenon, the epiphany. In meeting the Other, the individual immediately recognizes the transcendence and heteronomy of the Other. To strive for the Other also means to seek meaning, and the encounter achieved, especially in borderline situations, also means finding meaning. The Other is thus a call - an appeal that directs us towards a pure experience of awareness of the closeness of another person (4).

Getting to know yourself is just as difficult as getting to know another. The only way to achieve this, or at least strive for it, is precisely through an encounter with the Other. His closeness allows us to reach that level of transcendence that Levinas is talking about, and at the same time to know ourselves in it. But that doesn't mean simple addition. *„Absolutely other is the Other. He doesn't add up to me. A community in which I tell you or we is not a plural of me"* (6). Other and other people represent the whole of humanity that transfers to me the responsibility for each person (4). To aspire to the Other is actually to aspire to humanity. Affirming oneself through serving another does not only mean finding meaning but becoming the realization of meaning.

Although he was a critic of traditional religion, Levinas identifies Holy in moral responsibility to the Other. That responsibility, that moral moment, determines the essence of the relationship from which arises the feeling of togetherness and closeness that is not imposed but desired. The nearness of God is thus in meeting me with another man. It is then a holy commandment without holy authority. Levinas emphasizes that sensitivity to the Other actually allows one to transcend one's own egocentrism in order to elevate oneself ethically and accept the Other (7).

Although it is emphasized that Levinas' ethics is descriptive, the question arises as to how responsibility towards the Other is presented in practice and what caring for the other should mean. The relationship with the Other in care means sending the message "I'm here". The notion of service is emphasized here, which, if we wanted to describe it in one word, then it is love. Service that is transformed into giving is the best testimony because man realizes the deepest and most mysterious connection with the Other (1).

Nursing, ethics, and care

From the period of Florence Nightingale nursing finds its foundation in the ethics of virtue. During the first half of the 20th century, nursing continued to develop its moral views on the principles of Christian ethics. The first code of ethics for nurses was proposed in 1926, and the first international code of ethics was proposed in 1953. With the development of bioethics, begins the debate over whether nursing ethics can be found within the framework of bioethical principles. During the 1950s and 1960s, the development of the first autonomous theories and conceptual models began in the United States. This shift inevitably meant abandoning previous ethical considerations and attempting to determine professional ethics (8,9).

Given that the 1960s and 1970s were marked by the development of nursing theories in which the term *care* was problematized as a fundamental concept, it was clear that establishing professional ethics on the

deontological basis of prescribed rules, or principles of operation, could not be sufficient.

Theorists, among whom Jean Watson stands out, began to build a new approach to the profession in which care, altruism, love, begin to dominate not only as professional ideals but also as a paradigmatic basis on which to build the overall power of the reformed profession. Following this, the reorientation of professional ethics to the field of ethics of care began, and Watson will emphasize in her works that in this domain it is closest to the ethics of Emmanuel Levinas: „*Along the temporal and social-historical path, which serves as the backdrop for us to build ourselves as human beings, we need to give care and receive care. However, care is not solely a necessity or an imposition of life, but can be understood as intrinsic to the existence, something that naturally exists before human beings do anything. It is expressed as a way of relating to the Other, but not always conforms comprising the ethical and aesthetic dimensions in this relationship with the Other*" (10).

The terms *nursing*, *care* and *nursing care* are the basic concepts of the nursing profession. Nursing is attempted to be paradigmatically defined by the concept of nursing care. This attempt is a reaction to the realization that care is a universal concept that could not belong to one professional group. But if we were to remove the term care from health care the only thing that would remain are medical interventions that in etymological definition neglect the concept of the person as the one being cared for. There is usually no distinction between *nursing* and *care*, and these terms are often interchangeable (1).

From a logical point of view, the notion of *nursing* adds some specific difference to the general notion of *care*. In other words, the knowledge inherent in the discipline of nursing should be compared to those essential dimensions of care that do not have to be found in everyday "care", but in *nursing care* receive a moral obligation and ultimate focus on the person. Levinas interprets how to care for the other (s'occuper de l'autre) means to respect humanity portrayed in the face of the Other (1). It is not surprising, therefore, that the conceptualization of nursing care includes values, and ethics in nursing becomes a paradigmatic basis (7).

Ethics of care

The ethics of care is one of the newer ethical theories based on feminist moral theories. The basis of this theory is the principle of doing good for people in need of care. Due to the fact that nursing is based on altruism and emotional support to other people, the ethics of care is often posed as an alternative to deontology (11). Nursing has taken care of ethics as the dominant ethical theory in which a caring relationship during patient care determines the morality of the act. However, the ethics of care in certain segments is not the best choice for nursing because it requires unconditional care for patients, even when this is not possible. By imposing this way of thinking we would often find ourselves in front of our own judgment of conscience because due to a number of factors we would not meet moral expectations.

Theory of human caring by Jean Watson

Jean Watson is the founder of the *Watson caring science institute* and a retired professor and a retired dean of the College of Nursing, University of Colorado. She presented the *Theory of human caring* in 1979 as one of the foundations of the philosophy of the nursing profession in which the central emphasis is on moral action. The basic idea of the theory is contained in the idea that health care is based on joint care and love, which is the basis of the actions of nurses. By combining the idea of care and love, an attempt was made to define a new, deeper interpersonal relationship. Watson, guided by ideas of the ethics of care, defines the transpersonal relationship as the foundation of nursing. To emphasize the meaning of her theory Watson introduces *caritas factors* using the Greek word caritas which means nurture, appreciate, pay attention (12).

Today, her theory has three basic features, which are:

1. Caritas processes - initially listed ten caritas factors that were later renamed clinical caritas processes.
2. Transpersonal caring relationship - represent the connection of two individuals on a deep inner level. Transpersonal means transcending the personal ego and reaching the level of the spiritual, even the cosmic, by combining the abilities and potentials of interpersonal action for healing.
3. Caring moments and caring occasions.

The theory of human caring goes beyond the practical guidelines for conducting health care. The importance of connection and transpersonality is more important than physical well-being because cosmic connection represents a certain link to healing and well-being. Such well-being of the individual equally affects the well-being of the nurse as a person and thus nursing as a profession. By doing so, the ultimate benefit extends to the community and beyond (13).

Application of the ethics of Emmanuel Levinas within the *Theory of human caring*

The ethics of Emmanuel Levinas was part of Jean Watson's theory in the 1979 book *Nursing: the Philosophy and Science of Caring*. In her works, Watson emphasizes how Levinas' ethics had a strong influence on her and how she sees its practical value in the ontological and epistemological basis of nursing. In this context, it should be emphasized that Watson is a critic of the dominance of the biomedical model in modern health care, stating that it only diminishes the exceptional therapeutic and healing power of interpersonal relationships (2). Reductionism has reduced a human to a set of constituent parts, and human, lowered to the level of a machine, is brought into the moral status of an object. Although sophisticated medical technology interventions have many advantages, there are dangerous trade-offs, especially in the domain of digitalized health communications. It has become the standard, instead of interpersonal, embodied face-to-face interaction. "*This foremost stumbling block in our healthcare system generates an urgent moral imperative to resuscitate embodied presence in healthcare*" (14).

Instead of looking at a person as a bio-psychological and social being, preference should be given to the person's experience. It then reveals what it means to be a human being, existing through physical, emotional, relational, and spiritual experiences (1). Care whose development is based on reason, guided by established epidemiological-clinical and technical evidence concerning therapeutic intervention, is indispensable. However, it is necessary to create space to integrate indigenous knowledge and practices of health promotion, disease prevention and treatment, and healing practices, since, in order to meet the needs and specificities of a differentiated population group, each knowledge should not be more prevalent than the other, since both are complementary (10).

Watson emphasizes ideals that have moral significance. Referring to Levinas, she presents the concept of man as a person who shows us his wholeness through his face, telling us that he exists. Taking such an interpretation changes the attitude towards man - he as a whole becomes a criterion of performance. In this regard, Watson emphasizes that: *„the philosophy of Emmanuel Levinas and his notion of the Ethics of Face help us connect with this ancient and contemporary truth. Likewise, I acknowledge the work of Knud Logstrup, a Danish philosopher who mirrors views similar to Levinas, but from the metaphor of Hand, in that he reminds us that: Holding another person's life in one's hand, endows this metaphor with a certain emotional power ... that we have the power to determine the direction of something in another person's life ... we're to a large extent inescapably dependent upon on another...we are mutually and in a most immediate sense in one another's power"* (15).

The Other thus confirms my meaning to me. This takes on special value when the human I serve needs my care because without it he disappears. *„When working with others during times of despair, vulnerability, and unknowns, we are challenged to learn again, to reexamine our own meaning of life and death. As we do so, we engage in a more authentic process to cultivate and sustain caring healing practices for self and others. Such care and practices elicit and call upon profound wisdom and understanding, beyond knowledge, that touch and draw upon the human heart and soul"* (15).

The primary value of Levinas' ethics is not dialogue, but service - giving oneself to the Other. Only when a man is ready to serve is he ready to take a share on the principle of responsibility, and that means behaving and acting morally. Watson suggests a reversal and emphasizes that nursing offers a solution versus a mechanistic bio-medical model. It is a solution in the interconnectedness of care, love, and infinity in which we take our humanity as a mystery to be revealed not by neglecting the biomedical approach, but by complementing it (16). Watson even says that if we fail to do that, some new group of professionals will have to show up to do it because patients can't wait any longer. The relation of man's care to man, in every given moment, becomes with all its moral characteristics the foundation of humanity which unites every individual, with every individual through, as

Watson states, the cosmic energy of love. *„How can we dare to be so bold as to bring caring and loving and infinity of souls into our lives and work and world again? Because, without returning to this ancient place of cosmic power, energy, and beauty, we are inclined toward what Levinas referred to as a totalizing of self and other – that is, a congealing of our humanity, separating us from any connection with spirit, with infinity, with the great divine – with no hope for healing and wholeness... So rather than asking how can we dare to bring love and caring together into our lives and work? We can ask: How can we bear not to?"* (15).

She further explains to us that not confronting our humanity can actually be an act of cruelty. So, in these deep ethical philosophical views of Levinas and Logstrup, which unite with the theory of care, we recognize that only through our being, through our human presence towards facing ourselves and others, do we hold others in our hands, whether in good or evil, either opening horizons to infinity. In this respect of ethics and metaphysics, through the metaphors of love, face, and hand, Levinas placed ethics above ontology: he placed ethics as the first principle of philosophy. It is an acknowledgement of ethical responsibility for another, understood through vulnerability and closeness. In this respect, love is original (15). In the introduction to the chapter *Global human caring for a sustainable world*, Jean Watson states: "*Nursing's practice of human caring is an emergent quality of whole systems, making new connections between the unitary energetic patterns of worldwide human caring practices and peace in our world. This relationship between human caring and peace represents a fundamental path of consciously attending to the pattern of unity and the human-environmental global-universal field of oneness of all*" (17).

Critique

Birgit Nordutg makes several comments and criticisms in which she emphasizes that Watson often uncritically refers to Levinas in order to legitimize his arguments and thoughts. This critique nonetheless focuses more on Watson's work over the past decade but given that this is a continuity in the development of her theory is not negligible (2). Watson has achieved global readership over the decades and has a significant role to play in raising the science of nursing to the level of an independent discipline within the nursing profession that, she herself claims, is stifled by dominant scientific thinking in medicine. But in emphasizing the criticism, the following stands out: *"Watson underlines that her authorship has developed in the same direction. However, is this the same Holy as Levinas writes about? As already noted, I do not think so – even though she claims otherwise. While Levinas relates the holiness of the Holy to his notion of singularity, arguing for a holiness that breaks with all kinds of ontological thinking, Watson seems to think that she follows Levinas's footsteps by mixing different kinds of religious and spiritual approaches ... she ignores the pure metaphysical character of Levinas's Holy and his critique of all kinds of religious and spiritual thinking which applauds the sacred. For Levinas, God exists only as an invisible metaphysical desire that keeps the responsibility for the Other going on"* (2).

It should also not be overlooked that for Levinas, vulnerability is actually the first presumption of responsibility. However, if we were to build ethics on these foundations, we should quickly be reminded that exposure to other people's vulnerabilities causes other side effects such as emotional burnout and numerous mental difficulties of those who are part of the helping professions in the most challenging emotional relationships. In his conclusion, analyzing why Watson opted for Levinas Nordtug states: *„Levinas's ethical perspective has in the last decades acquired a significant popularity in a number of academic fields – not only in Nursing and Caring Science. It is hard to say what makes a particular perspective popular. There is a tendency that popular perspectives become popular simply because they are popular"* (2). While Nordtug expresses fear that the uncritical application of any ethical teaching may do more harm than good if applied only for its popularity, it still fails to prove that that harm is real or greater than any possible neglect of man as a person.

Conclusion

Since the Theory of Human Care was introduced in 1979, the nursing public has also been offered the ethics of Emmanuel Levinas as the ethical frame-

work on which nurses could build their professional ethics. Jean Watson emphasizes that we still do not have a better ethical basis for the development not only of ethics but also the ontological basis of the whole profession. The core of Levinas' ethics – his analysis of establishing our subjectivity in an ethical encounter with our neighbour or Other – applies to both health practice and the identity-building project of nursing science and science of care.

Through the idea of the Other, in fact, Levinas offers us the knowledge of our own transcendence, considering that only through caring for the Other we realize our own meaning and reach the level of the sacred.

No profession is as close to a human in need as nursing is. Yet, after 150 years of professional development, nursing has probably not yet achieved the status of discipline and profession it desires. That is why it is important to determine a theoretical basis on which to build it, and theorists have undoubtedly agreed that a single profession could be found in a moral dimension that is unquestionably more pronounced than in all other health professionals. Precisely because of this unique relationship, Watson suggested that instead of a deontological or utilitarian approach (the bioethical approach is not even considered), it should be approached through the ethics of care, according to the ethical teachings of Emmanuel Levinas. It is impossible to ignore its contribution and define it as irrelevant, moreover, it should be accepted and studied even more intensively. The objections raised by certain authors are worth considering and it remains to be seen whether it is possible to find another, more autonomous ethical path. But until then, patient care based on Watson's theory and Levinas ethics has been shown to have significantly better outcomes for patients themselves who are offered alternatives between cold mechanistic medicine and the emotionally caring, ethical basis of human care.

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SESTRINSTVO I ETIKA: POVEZNICE IZMEĐU ETIKE EMMANUELA LEVINASA I TEORIJE JEAN WATSON

Sažetak

Uvod. Etika Emmanuela Levinasa imala je znatan utjecaj na *Teoriju skrbi o čovjeku* Jean Watson iz 1979. Watson predlaže da etika sestrinstva može biti najbliže etici skrbi kako je to odredio Levinas

Cilj. Utvrditi argumente za i protiv navedenog razmišljanja.

Metode. Nakon početne poredbe postavki koje iznosi Watson i tvrdnji koje određuje Levinas, učinjen je pregled stručnih i znanstvenih članaka kojima se utvrđuje poveznica između etika u sestrinstvu i etike Levinasa.

Rezultati. Analizirano je oko 20 članaka i knjiga u kojima se problematizira pitanje etike sestrinstva u vezi s etikom Levinasa. Izdvojeno je desetak referencija u kojima se utvrđuje poveznica u argumentaciji, u jednom radu iznosi se djelomična kritika, dok se u jednom predlaže kako bi se etika sestrinstva trebala utemeljiti na nekoj drugoj etičkoj teoriji.

Zaključak. Watson je predložila da se sestrinstvo može bazirati na etici Levinasa. Od 1990-ih neki autori iznose afirmativne tvrdnje tom prijedlogu, dok drugi propituju stvarnu mogućnost primjene u praksi. Većina se autora slaže da etika medicinskih sestara ne bi smjela biti utemeljena na vrlinama kršćanskog milosrđa ni na deontološkim osnovama ili bioetičkom principalizmu. Nijedna druga teorija ne zaziva tu razinu odgovornosti prema drugom čovjeku kako to čini Levinas te se može razmatrati kao alternativa. Kritičari navode kako je njegova etika iznimno apstraktna te ju je kao takvu teško primijeniti u praktičnoj disciplini kao što je sestrinstvo.

Ključne riječi: Levinas, Drugi, Watson, sestrinstvo, skrb

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Occupational Therapists on The Front Line: The Importance of The Occupational Therapy Role in The Emergency and Acute Care Setting

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Abstract

Introduction. There is a growing focus on the need for an increased number of allied health professionals to reduce the pressure on acute hospitals through admission avoidance. There is little in the way of guidelines on how services should be delivered and a lack of evidence base demonstrating effectiveness.

Methods. An audit has been carried out by the occupational therapy team in the Emergency Department to capture the total number of referrals to the occupational therapy service in the Emergency Department at Royal Berkshire Hospital and to capture discharge decisions made following occupational therapy input.

Results. The occupational therapy team in the Emergency Department focuses particularly on admission avoidance using a home first approach to prevent patients from being admitted to acute wards. The results showed that the service was beneficial regarding both the number of referrals and the utilisation of various discharge destinations from the Emergency Department.

Conclusion. The report has identified several areas for further research by the same team and implications for the wider literature base. The hope is that this report would highlight the role of occupational therapists working in the emergency department at Royal Berkshire Hospital and encourage the completion of further research in this area of practice.

Introduction

In 2020, The Royal College of Occupational Therapists (RCOT) set out key priorities for Occupational Therapy research in the United Kingdom. Priority 8 has highlighted that research is essential to clarify what impact the role of occupational therapists has on reducing hospital admissions (1). Occupational therapy is emerging as a profession within the context of emergency care, particularly within Emergency Departments. Based on recent evidence, there is limited understanding of the role of occupational therapy within the Emergency Department (2). Thus, the need for further robust research to underpin occupational therapy practice in the Emergency Departments is imperative.

Each year, nearly 350,000 patients spend more than three weeks in acute hospitals (3). Staying in the hospital for longer than necessary can have a negative impact on patient outcomes (4). Therefore, it is imperative to enable patients, particularly older people, to continue their recovery in their own home environment or, for those who cannot go straight home from the hospital, within a care location most suited to their needs (3).

The Emergency Department can be an unsettling experience for many patients. An occupational therapy intervention in the Emergency Department supports patients' ability to continue taking part in daily occupations and activities that are meaningful and purposeful to them (1). This support can make a real difference giving people a renewed sense of purpose, opening up new horizons, and changing the way they feel about the future" (1).

The British Journal of Occupational Therapy highlighted a selection of occupational therapy core skills that are specific to the Emergency Department. Such unique skills include the provision of rapid assessments, efficient discharge planning, triaging referrals in a timely manner, prioritising referrals, rapid risk assessment, assessing for discharge home, having knowledge of acute medical conditions and effective clinical reasoning skills (2). Occupational therapists in the emergency department work collaboratively with other members of the multidisciplinary team (MDT) to provide timely, patient-focused assessments and treatment for patient groups who are mainly elderly, frail, or who have had a change in function (5).

Occupational Therapy in the Emergency Department at Royal Berkshire Hospital

For occupational therapists working in the Emergency Department, it is important to provide an effective and prompt intervention (2). The emergency department occupational therapy team in the Royal Berkshire Hospital (RBH) provide various services such as therapy assessments, equipment provision, advice, signposting, cognitive assessments, review of care needs, rapid response referrals and admission avoidance referrals from early in the patient journey. There are multiple risks associated with older people attending the emergency department as they tend to have longer admissions (6). Therefore, concise safe discharge plans are fundamental.

The service provides seven-day cover from 8am-8pm. The team consists of five highly specialist occupational therapists (four full-time and one part-time), one senior occupational therapist and one occupational therapy assistant.

Referrals are received via the telephone, the bleep system, verbally and via written referrals on the Electronic Patient Records (EPR). Any member of the multi-disciplinary team can refer and discuss potential referrals. These referrals are then screened and accepted or declined as appropriate. The referrals are then put onto a spreadsheet for statistics and prioritised. In terms of who is prioritised first, the team would see the medically stable patients who are ready to be discharged.

Early intervention from the occupational therapists ensures that patients are safely discharged to the appropriate setting with the suitable intervention. Admission avoidance services support occupational therapists to prevent medically stable patients from being admitted into the hospital. This then reduces the pressures on the hospital.

The Occupational Therapy Team in the Emergency Department aims:

1. Reduce hospital admissions by reviewing patient's holistically, education and intervention.
2. Reduce the length of stay for patient's attending the Royal Berkshire Hospital Emergency Department.

3. Reduce the amount of patient's deconditioning due to early mobilisation.

Literature review

A literature review was carried out to identify literature related to the specialist area of occupational therapy practice in question. The literature review has shown limited published evidence on the role of occupational therapy in the Emergency Department (7). Most published articles indicate the need for occupational therapy assessments from the admission avoidance perspective (8). The accessible literature without doubt demonstrates an increase in presence of occupational therapists in the Emergency Department, especially in England where occupational therapy has been observed as an emerging role with limited evidence to guide its development (9).

Although most studies relied on evidencing that there are no precise set of principles of occupational therapy in the Emergency Department, a small number of researchers have managed to complete their studies on how the needs of patients attending the Emergency Department should be met (10). In the study by James et al. (11), it was reported that attendances to Emergency Department are described by deteriorating conditions, falls, complex social issues or functional changes resulting in changes in productivity and mobility. In most hospitals in England, more than 50% of elderly patients with extremity, rib or back trauma would have left the Emergency Department struggling with basic activities of daily living (12). However, Hendriksen and Harrison recommend approaching this problem by setting occupational therapy services in the Emergency Department to assess and meet the needs of patients before returning home from the hospital (13).

The literature searches have also shown a lot of outdated publications on occupational therapy teams in the Emergency Department, however most of them still prove the efficiency of existing occupational therapy services and prove that it has major contributions to the reduction of inessential admissions (14). Even though there remains a limit to research evidence one study reveals occupational therapists as health professionals who provide actions that lead to prevention of hospital admission or return to the Emergency Department (15). Finally, it is evident from the literature that occupational therapists can make better use of their competencies to assure continuous care and to make admission avoidance services more reachable (1). This situation suggests that not only are there more roles for occupational therapists in the Emergency Department, but the professionals in these roles are more likely to be facing increasingly challenging competencies.

Overall, to direct attention to the lack of research in this particular area and to address the gap, the establishment of up-to-date research in occupational therapy is required. Due to this examining the impact of the occupational therapy service in the Emergency Department was of high importance for the profession in general.

Audit rationale and method

The focus of this report is to demonstrate the role of occupational therapists within the emergency setting based on the analysis of an audit completed by the occupational therapy team in the Emergency Department at the Royal Berkshire Hospital. The team consists of five highly specialist occupational therapists, of which four are employed as full-time therapists and one as a part-time therapist, one senior occupational therapist and a therapy assistant.

As part of the occupational therapy service in this study, daily statistics are inputted and recorded on Excel charts. The audit scheme was constructed by the multidisciplinary team within the emergency department with a view to capturing relevant data which can be easily interpreted by designated practitioners involved in patient care. These statistics record the number of patients seen by an occupational therapist, patient details (location in which they were seen, name, National Health Service (NHS) number, presenting complaint) and their discharge destination. Following a successful referral to the occupational therapy service, all patients were attended to in a timely manner.

The study was conducted at three sites: observation bay in the Emergency Department, majors and minors' unit in the Emergency Department and Acute Medical Unit, all located at the Royal Berkshire Hospital. To participate in completing the audit, the practitioners were required to be licenced specialist occupational therapists with relevant experience in assessing patients in the emergency department.

To analyse the role of occupational therapy in the emergency department further, an individual coding

Table 1. **The intervention and transfer location categorized into codes**

	Occupational Therapy in Emergency Department codes
A	Home with previous support – includes family support, previous care at home, previous support via community teams
B	Home with Rapid Response Team – rapid community support with patient care needs, also provides rapid therapy input and equipment provision
C	Home with Social Services Follow Up – social care support with long term care needs
D	Transferred to Community Hospital – provides further inpatient rehabilitation
E	Not medically well and transferred to the ward – patients that require further medical intervention
F	Increase in Package of Care – increased care calls at home to a maximum of four times a day

system was used to describe the discharge activity and discharge plan (Table 1). Even though the code system is self-explanatory, a separate paper version had to be created and displayed in the office area to obtain insight into the feasibility of this tool and the audit itself.

These statistics were audited over August, September, and October 2019 to avoid increased pressures during winter months and to provide data about occupational therapy interventions provided. The analysis was completed monthly, and the findings are summarized in the charts below.

This audit was an efficient method of providing data for the following:

1. Total number of referrals to the occupational therapy team in the Emergency Department.

2. The rates of transfer and discharge decisions following occupational therapy service in the Emergency Department.

The total number of patients referred to the emergency department occupational therapy team, and the occupational therapy in the emergency department codes were analysed and tabulated. In this study a variable of interest, the occupational therapy in the emergency department codes and the number of patients assessed and discharged with occupational therapy input versus the number of patients assessed but transferred to the ward as not medically fit, were compared for the period of August, September, and October 2019.

Results

Referrals to the occupational therapy service in the emergency department

Figure 1. clearly illustrates the total of 1422 referrals to occupational therapy service in the Emergency Department from August to September 2019. Data also demonstrates a small difference in the number of referrals to the occupational therapy service for the months of August and September 2019 compared to the number of referrals in October 2019 (Figure 1). It is noticeable that the number of referrals had increased by 5.35% compared to the number of referrals in September and up by 3.31% compared to the number of referrals in August 2019.

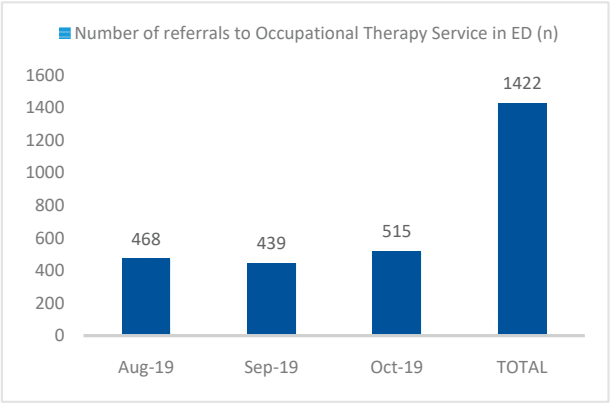

Figure 1. **Number of referrals to the occupational therapy service in Emergency Department for August, September, and October 2019**

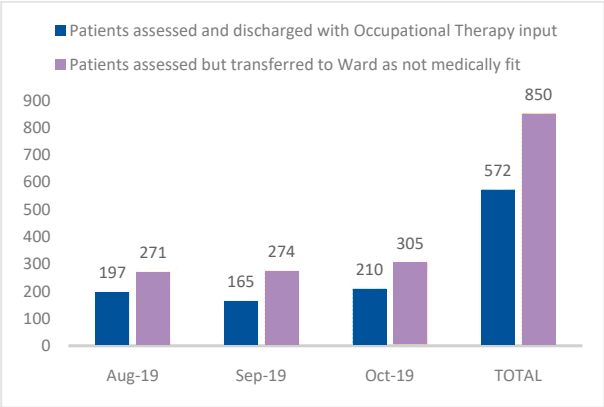

Figure 2. **Number of patients assessed and discharged with occupational therapy input versus number of patients assessed but transferred to the ward as not medically fit**

Of the 1422 patients referred to the occupational therapy service in the Emergency Department during a three-month period, 572 (40.23%) were assessed and discharged with Occupational Therapy input (Figure 2). No patients assessed by occupational therapists following a referral (n=572) were admitted onto a reward as a result of occupational therapy input in the ED. 850 (59.77%) patients were assessed by occupational therapy service but had to be admitted to the hospital due to presenting as medically unwell (Figure 2).

The outcome of OT intervention and transfer location

Overviews of the outcomes of occupational therapy intervention and discharge destination are illustrated in Fig. 3 and refer only to the group of patients that were discharged following occupational therapy input (572). The chart demonstrates 13.99% (80) of patients who were discharged home with support from the Rapid Response Team. Following their attendance to the Emergency Department from August to October 2019 only 1.22% (7) of patients required input from social services on discharge. A total of 20.1% (115) patients were discharged to local community hospitals for further rehabilitation purposes.

Figures suggest that the majority of patients referred to the occupational therapy service in the Emergency Department and AMU were assessed and discharged back home with their previous level of support. This equalled 57.52% (329) patients in total during the three-month period.

Discussion

The completion of the audit has provided information that characterises the journey of patients seen

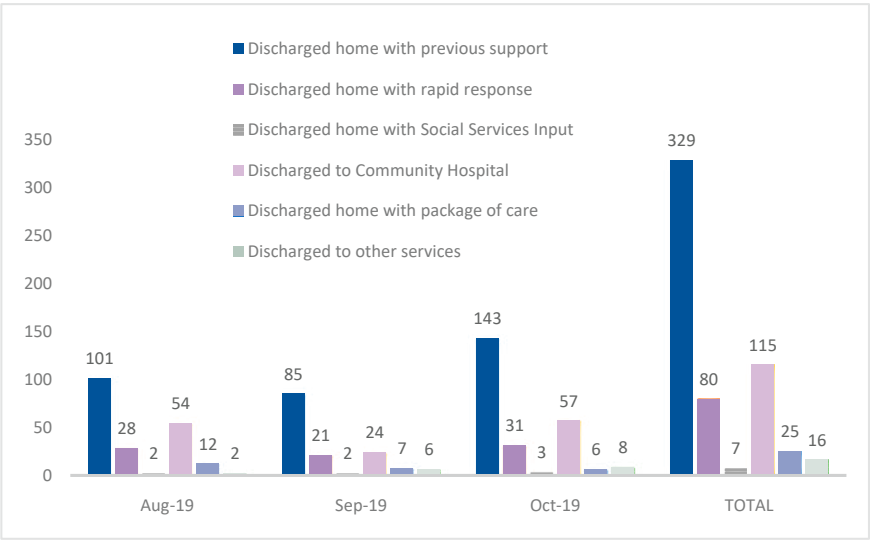

Figure 3. **Occupational therapy intervention and discharge destina**

by occupational therapists during this period at the Royal Berkshire Hospital. The audit found a 40.23% referral conversion rate whereby 572 of the total 1422 referrals translated into occupational therapy assessment which means that patients were not well enough medically for occupational therapy input at the time of the referral. This highlights the need for doctors to complete a more thorough medical review before referrals are made to the occupational therapy service, and for a more robust referral pathway to be taken into consideration.

Approximately one fifth of the patients seen (20.1%) were discharged to local community hospitals as a result of the occupational therapy intervention. An interesting area for further investigation would be exploring why this may be the case and compare to other relevant occupational therapy services. The current criteria for referral to community hospitals in the localities served by the Royal Berkshire Hospital require the identification of goals, an up-to-date assessment of functional mobility and justification as to why the patient cannot return home on discharge. It is therefore the therapists that are required to make these referrals, which demonstrates the value of occupational therapists in the urgent care setting. One interesting outcome elicited by the audit review is that only 7% required social service support on discharge. It would be valuable to explore this further and identify whether this is down to the nature of patients' needs in the acute setting or whether this is due to access to other services facilitating a quicker discharge. This may provide some evidence that the acute and emergency setting is not as reliant on social service-based interventions at that point in the service-users' journey through acute healthcare or that the majority of social service interventions are not required to be in place at the time of discharge (16).

One further explanation could be a lack of understanding of the access to and services available through adult social care in the localities served by the RBH and therefore are not being as frequently used.

One issue was highlighted during the audit process with regards to the use of the codes when recording the statistics. An issue of consistency of how to categorise certain patient outcomes was identified whereby some occupational therapists would use a different code to their colleagues for the same scenario. This would have an impact on some of the data and would provide rationale for completing further studies on the same topic in the future. The issue of coding disagreement was addressed on daily team meetings which as a result had benefited the occupational therapists and allowed a better understanding of the individual codes in categorizing service outcomes. Ongoing in-service training on coding implementation has been introduced to the occupational therapy service in the Emergency Department since. In future research a detailed review of the codes and their reliability should be considered.

It would also be valuable for health and social care research to conduct more studies into the role of adult social services in helping people better manage long-term health and social care needs with the view of preventing deterioration that leads to presentation to hospital. This would allow an early review of community support and the need for social care interventions. Potentially, this would tie nicely with the implications presented in this study, furthermore it would support collaborative working between health and social care teams and the occupational therapy team in the Emergency Department.

Implications for future research

Several considerations for future research in this specialist area of occupational therapy practice have been identified from the discussion of the data presented.

On the discussion of the findings of this current study, several questions and areas for reflection have been identified. One over-arching theme is that this is an area of practice that is relatively underrepresented and lacking in the literature base. There appears to be a significant research-practice gap as in reality, a large number of occupational therapists are actively working in this setting.

Future research could seek to address some of the following questions:

- What are the components of the occupational therapy assessment in the acute setting?
- What is the role of adult social services in preventing hospital admission and/or reducing the length of stay?
- Is there variation in similar occupational therapy services in the acute setting across the UK?

Conclusion

The need for occupational therapy service in the Emergency Department was clearly shown in the overall number of referrals, furthermore, the importance of the service and the utilisation of the various discharge destinations could not be overemphasised. This report should highlight the role of occupational therapists working in an urgent care setting and encourage the completion of further research on this area of practice.

The need for larger-scale evaluation of acute medical and emergency department occupational therapy service provision has been demonstrated emphatically. This is required in order to produce evidence-based guidelines, inform team structures, the scope of services as well as informing local policies and procedures. This will also help create the basis for standardisation in the occupational therapy role and assessment process in the acute setting in addition to providing the evidence of our effectiveness in reducing pressure on acute hospitals.

A further hope of the current research would be to begin more discussion and information sharing amongst occupational therapists working in this clinical area to celebrate the work of the profession as well as to work towards excellence in occupational therapy practice.

The ongoing venture of clinical research is to demonstrate the effectiveness of practice, to explore perspectives and experiences and develop an understanding of knowledge areas. As much as this is a requirement of practising clinicians, it is ultimately about the individual service user. In the end, practice and research alike is for the benefit of service users.

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RADNI TERAPEUTI NA PRVOJ LINIJI: VAŽNOST RADNE TERAPIJE U HITNOJ I AKUTNOJ MEDICINSKOJ SKRBI

Sažetak

Uvod. Sve je veća potreba za povećanjem broja zdravstvenih djelatnika kako bi se smanjio pritisak na odjele za akutno zbrinjavanje kroz prevenciju prijama. Postoji vrlo malo smjernica za prevenciju prijama primjenom radnoterapijske procjene te ne postoje dokazi koji ukazuju na njezinu učinkovitost.

Metode. Radni terapeuti na odjelima hitne medicine proveli su istraživanje u cilju prikupljanja podataka o broju pacijenata upućenih radnoterapijskom timu na odjelima hitne medicine bolnice Royal Berkshire i odlukama oko otpusta pacijenata iz bolnice nakon radnoterapijske procjene.

Rezultati. Radni terapeuti posebno su se usredotočili na prevenciju prijama pacijenata na odjele za akutno zbrinjavanje tako da su pacijente uputili na kućno liječenje. Rezultati studije pokazuju da je radna terapija na odjelima hitne medicine važna, kako po broju upućenih pacijenata radnoterapijskom timu tako i po različitim odredištima za liječenje na koja su pacijenti upućeni nakon hitnog prijama.

Zaključak. Izvješće je identificiralo niz područja koja bi vrijedilo dodatno istražiti, ali i važnost radnoterapijskih usluga na odjelima hitne medicine u cilju prevencije daljnjeg prijama u bolnicu. Ovo istraživanje trebalo bi pridonijeti važnosti radne terapije na odjelima hitne medicine u bolnici Royal Berkshire, ali i potaknuti daljnja istraživanja na ovom profesionalnom području.

Ključne riječi: radna terapija, odjel hitne medicine, istraživanje, prevencija prijama

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Guidelines In the Work of Operating Room Nurses

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Abstract

Introduction. The use of guidelines in the work of operating room nurses makes daily tasks easier and enables treatment in accordance with set procedures based on scientific evidence. Additionally, the use of set guidelines in the work of operating room nurses enables traceability of healthcare and the best care for the patient, which also increases the safety of the patient in the operating room during the perioperative period.

Aim. The goal of this article is to investigate and determine if operating room nurses are aware of the guidelines, if they use them in their daily work, and if the guidelines are available at their workplace. The goal is also to determine the opinion of operating room nurses about legal protection that the guidelines provide in case of unforeseen events, as well as the necessary level of education of the personnel setting the guidelines, and the effect of the guidelines on the patient's safety in the operating room. Additionally, it is to determine if the use of the guidelines reduces inconsistencies in the work of operating room nurses in different hospitals, and which institutions are in charge of setting them.

Methods. The survey for this research was conducted by the author of this paper and was distributed at the Congress of Operating Room Nurses in October of 2019. 210 operating room nurses completed the survey, being of different levels of formal education, and are employees of various Clinical Hospital Cen-

tres, Clinical Hospitals and General Hospitals in the Republic of Croatia.

Results. According to the results of the survey, 90 respondents were Bachelors of Nursing, 60 respondents had a university degree, and 60 respondents had a high school diploma. The length of work experience of the operating room nurses who participated in the survey was between 1 and 30 years. The results of the research showed that the majority of operating room nurses were familiar with the existence of the guidelines and recommendations, and they used them in their work. Results show that most respondents are aware of the need to use the guidelines, and that they are available at their work place. Results also show that operating room nurses feel that the use of the guidelines has a very strong influence on the level of patient safety. Operating room nurses know that the guidelines provide legal protection and that the level of the nurses' education is important for setting the guidelines.

Conclusion. Operating room nurses use the guidelines in daily work whenever they are applicable. Respondents have also developed an awareness of the obligation to use the guidelines, as well as their benefits in improving patient safety. They also provide legal protection in the event of unforeseen circumstances.

Introduction

Using clinical guidelines, doctors, nurses and other healthcare staff have clearly defined algorithms to follow, which greatly eases the work of healthcare workers and can enable, to an extent, legal protection in case of an unforeseen event during treatment. Clinical guidelines are not all-encompassing and it is not possible to use them in every situation. During treatment, the complexities of each individual case have to be taken into account, and the guidelines sometimes cannot be followed due to a lack of staff, materials or other resources. Considering nursing as a science - as opposed to healthcare as a specific area of a nurse's work - demands a level of expertise based on evidence. Unlike in other scientific disciplines, in the field of nursing, historically, the distinctive patient-nurse relationship is a very specific phenomenon (1). In view of the legal obligation of documenting nursing work and the development of tracking care indicators, as well as analyzing patient safety indicators and the quality of healthcare (including the outcome of patient care), nurses have to be able to demonstrate measurable outcomes and work on constantly improving them (2).

The guidelines are systematically developed statements which help users make decisions on appropriate healthcare for the patient in certain clinical circumstances (3).

Work guidelines are made by professional boards, using the latest knowledge and nursing, based on evidence. Additionally, the guidelines must contain the best and strongest available evidence on which we base our decisions in patient care.

EORNA – The European Operating Room Nurses Association, recognized the importance of the guidelines and has created operating room recommendations in a way to ensure the highest possible level of safety and quality of healthcare during operating procedures. The recommendations and guidelines issued by EORNA are based on empirical evidence during perioperative care. EORNA sets the guidelines in the following areas: perioperative healthcare, patient and staff safety, hygiene and sanitation in the operating room, and work guidelines during pandemics. The main idea in setting and using the guidelines for operating nurses, according to EORNA, is the need to implement standard operating procedures that are made by national and international bodies approved by European regulatory institutions. Also, one of the main goals of the guidelines is to give evidence-based answers to matters of perioperative care, so that the best decision can be applied in practice. It is necessary to keep in mind that the guidelines are not and cannot be all-encompassing, which means that they cannot cover every individual case, particularity of the operating room, surgical procedure or available instruments. The process of developing the guidelines is long and demands a multidisciplinary and exact methodological approach, grading evidence and good technical support. While setting the guidelines, there is a focus on the methodological process of systematically consulting literature and seeking evidence, but the quality of the guidelines also depends on the social process, affected by the equality of all members of the workgroup in constructively discussing and applying the evidence. The cohesion and di-

versity of the team are important, as small teams are inexperienced but large teams are hard to manage. It is considered that the optimal team consists of 8 to 10 members, but larger groups can also work in a satisfactory manner (4).

The guidelines state that a team constitutes a certain number of members who must in no way be in a conflict of interest and there should not be any other factors that could influence making decisions and defining the guidelines. Because of this, members of the team are obligated to state any possibility of a conflict of interest. The guidelines must be of a suitable quality, purposeful and all-encompassing. The attributes of good guidelines are that they are based on evidence and set by multidisciplinary and independent teams. When following the guidelines, it is mandatory to grade the importance of the recommendations used in making the guidelines. It is also necessary to revise the guidelines if there is new evidence or a change in the level of importance of the recommendation. Before publishing the guidelines, it is necessary to carry out quality control, as the quality of the guidelines is one of the main conditions for its use and assistance in everyday work. The Appraisal of Guidelines for Research & Evaluation Instrument (AGREE II) is used for grading the quality of the guidelines. The tool was developed in 2009 and updated in 2013. It consists of 23 items, and the aspects that are graded are scope and purpose, stakeholder involvement, rigour of development, clarity of presentation, applicability, and editorial independence. It is also recommended that the assessment according to AGREE II is made by two independent appraisers. The Registered Nurses Association of Ontario has set the basic framework for the content of the guidelines, both nursing and clinical. The framework consists of a cover, details of the organization issuing the guidelines, content, and the basic data of the process in defining the guidelines (introduction, field, summary of recommendations, interpretation of evidence, list of team members, list of external editors and stakeholders, context in the development of the guidelines, recommendations, implementation strategy, renewing guidelines, acknowledgments, conflict of interest statement, literature and appendices) (5). In addition to the above, it is clear that the process of developing guidelines is extremely comprehensive and complex, and demands a significant amount of resources. There are not a lot of guidelines in nursing in the Republic of Croatia, but the work of nurses is defined through the standard process of healthcare and the standards of operating rooms. Taking into account the claim that the unique role of nurses is defined in the theory of healthcare (the basis of nursing as a science), which means that nursing is not merely a part of another profession, but that it consists of theory, practice and research (6). Nursing work must be in accordance with the latest scientific knowledge, which is provided by the guidelines. In the rigorous environment of the operating room, the standards are not sufficient for quality work that would provide the highest possible level of safety for the patient and staff. Because of this, operating room nurses use the available recommendations and guidelines. Additionally, the guidelines are necessary to manage, categorize and revise risks in the operating room. If there are no adequate guidelines, it is impossible to manage the risks in each and every work place. The ISO 31000:2018 guidelines consist of risk management awareness, and this document can be adapted to any organization. It does not apply to any specific sector or industry, and is applicable to any life situation or work process.

Aim

The aim is to determine:

1. Years of work experience of the survey respondents.
2. Level of education of operating room nurses (respondents).
3. Whether operating nurses are aware of the guidelines.
4. Whether operating room nurses come into contact with the guidelines.
5. How often operating room nurses use the guidelines.
6. If the guidelines affect the safety of patients and staff.
7. If the use of guidelines provides legal protection.
8. If the use of guidelines decreases inconsistencies between health institutions.
9. Which institutions participate in developing the guidelines.

Hypothesis

H1: operating room nurses use guidelines in their everyday work if they are applicable.

H2: the guidelines affect the safety of patients in the operating room.

H3: the use of guidelines decreases inconsistencies between health institutions.

Methods

The research included 210 operating room nurses who completed the survey. Their work experience is between 1 and 30 years. The questionnaire for this research was designed in Microsoft Word, it was created for the purpose of this research, and completed by the respondents in person. The anonymity of the respondents is guaranteed by not asking for their identification or health institution they work at. There were three possible answers to the questions – 1. Agree, 2. Partly agree, and 3. Disagree.

The questions were comprised of the following: job description, years of experience in the operating room, category of their institution, level of education, awareness of the guidelines, contact with the guidelines, opinion of the guidelines, awareness of the process of developing the guidelines, use of the guidelines in their everyday work, their perception of the importance of using the guidelines, the influence of education level in setting the guidelines, awareness of institutions that set the guidelines, the influence that implementing the guidelines has on patient safety and work quality in the operating room, awareness of legal protection the guidelines offer, whether the guidelines reduce variability in the work of operating room nurses, what the foundations of the guidelines are, priorities in setting the guidelines, and willingness to participate in defining the guidelines. The research was conducted in October of 2019. The data was entered and processed in an Excel table.

Results

Table 1. **Work experience of respondents**

Work experience in operating room	Number of respondents	Percentage (%)
1-5	20	9.5
5-10	20	9.5
10-15	30	14.2
15-20	35	16.6
20-25	50	23.8
25-30	35	16.6
30 and more	20	9.5

The survey was completed by 210 respondents, of which the highest number of nurses has operating room work experience of between 20 and 25 years (23.8%). The percentage of respondents with 25 to 30 years of operating room work experience is 16.6%.

Table 2. **Education level of respondents**

Education level	Number of respondents	Percentage (%)
High school	60	28.5
Bachelor	90	42.8
Master	60	28.5

42.8% of respondents are Bachelors of Nursing, while the same percentage (28.5%) of respondents have a high school or Master's degree. The data confirms that the respondents have a high level of formal education and most of them understand and are aware of the guidelines.

Table 3. **Awareness of the existence of guidelines**

Awareness of guidelines	Number of respondents	Percentage (%)
Aware	136	64.7
Not aware	74	35.2

64.7% of respondents are aware of the existence of the guidelines. This is a relatively low percentage and this is why there is a need for additional distribution of information about the existence of the guidelines.

Table 4. **Contact with guidelines in everyday work**

Contact with guidelines	Number of respondents	Percentage (%)
Has contact	115	54.7
Has partial contact	48	22.8
Has no contact	47	22.3

More than half of the respondents (54.7%) have contact with the guidelines in their everyday work.

Table 5. **The use of guidelines in everyday work**

Use of guidelines	Number of respondents	Percentage (%)
Regularly	136	64.7
Sometimes	0	0
Never	74	35.2

64.7% of respondents use the guidelines in their everyday work, which signals the need for additional information and education about the use of the guidelines and their availability to operating room nurses.

Table 6. **Influence of guidelines on patient safety**

Influence on patient safety	Number of respondents	Percentage (%)
Strong	184	87.6
Partial	21	10
None	5	2.3

The majority of respondents (87.6 %) consider the guidelines to have a strong influence on patient safety in the operating room, which supports the use of the guidelines in everyday work.

Table 7. **Legal coverage with the use of guidelines in everyday work**

Legal coverage with the use of guidelines	Number of respondents	Percentage (%)
Agree	154	73.3
Partly agree	48	22.8
Disagree	8	3.8

73.3% of respondents agree with the statement that using the guidelines in the operating room allows for legal protection in the case of an unforeseen event.

Table 8. **Inconsistencies in work among health institutions**

Reduced variability in work	Number of respondents	Percentage (%)
Agree	168	80
Partly agree	41	19.5
Disagree	9	4.2

80% of respondents agree that using the guidelines reduces inconsistencies in the work of various health institutions.

Table 9. **Institutions which participate in developing guidelines**

Institutions which participate in developing guidelines	Number of respondents	Percentage (%)
Expert operating room nurses	112	53.3
Croatian operating room nurses association	80	38
Croatian nursing council	18	8.5

A total of 91.3% of respondents claim that the guidelines must be developed by experts, operating room nurses and the Croatian Operating Room Nurses Association.

Discussion

210 operating room nurses participated in the research, of which 66.5% had more than 15 years of work experience in operating rooms. 71.3% of respondents are operating room nurses with a Bachelor's or Master's degree, which gives us a great insight into the educational structure of operating room nurses, and that is one of the main conditions for recognizing the guidelines and their everyday use. 64.7% of respondents regularly use all the guidelines in the operating room, which confirms Hypothesis 1. 35.2% of respondents do not use the guidelines in their everyday work, which necessitates additional education of staff concerning the existence and benefits of regularly using the guidelines. The responses of 87.6% of participants prove Hypothesis 2, which refers to increasing the level of patient and staff safety in the operating room. This is due to the fact that the guidelines always provide data about the latest approach in patient care based on scientific evidence and is proven by independent experts, greatly ensuring that the guidelines are a safety tool as well. 80% of respondents confirmed that the use of guidelines reduces inconsistencies in the work of operating room nurses in certain health institutions, which is a basic requirement for quality healthcare for all patients, confirming Hypothesis 3. The use of the guidelines reduces inconsistencies in work, as they have been devised by experts in specific fields, based on specific studies, multiple studies of the same type or with the same analytical goal. Prior to publication, they are regularly revised in accordance with the latest research, as well as quality checked and edited to be clear and applicable. Taking into consideration that 54.7% of operating room nurses use the guidelines in their everyday work in the operating room, it is clear that half of the respondents have an insight into the latest scientific approach concerning the patient during perioperative care.

The use of the guidelines greatly eases work in the operating room, where new technologies are implemented on a daily basis. This includes ultrasonic knives, electrosurgical platforms, gamma knives, as well as the latest surgical procedures. Frequently introducing the latest technologies and procedures into the operating room environment can often lead to mistakes, in spite of education. Mistakes can be made while using technology on a patient in regular perioperative healthcare procedures, and in that case, the guidelines can somewhat provide legal protection. More than two-thirds of respondents agree with this claim.

Almost all respondents (91.3%) feel that the guidelines for operating room nurses must be devised by expert operating room nurses and the Croatian Operating Room Nurses Association.

Moreover, it is obvious that nursing has to be closely tied to guideline development because it provides a scientific approach to the profession and ensures accessible information about existing options in quality patient care.

Other research on this topic does not provide a significant amount of data. In the conclusion of "Good Practices for Patient Safety in the Operating Room: Nurses' Recommendations", Louisa de Siquiera Gutieres, et all. (2018), it was stated that the use of guidelines in the operating room is one of the basic tools that operating room nurses use and they are a necessity in the strategy development for patient care in the operating room (7), which affirms the results of this research paper.

In the prologue of their guidelines and recommenda-

tions issues, The Association of periOperative Registered Nurses (AORN) and The European Operating Room Nurses Association (EORNA) also state that the use of guidelines is one of the primary advantages within healthcare, especially in the operating room (8).

The guidelines cannot always cover every single aspect of the patient, the operating room and available technology (highly sophisticated equipment that is regularly used during surgery). Sometimes we are unable to apply them, so the final decision on using the guidelines lies on the healthcare worker, although it is highly recommended they are followed in every possible situation.

Conclusion

The use of guidelines in the work of nurses and operating room nurses is imperative for all healthcare institutions, as it provides significant benefits.

In the research results, and through discussion, it is evident that operating room nurses are aware of guidelines for their work, and a significant number use them. The majority of respondents perceive the guidelines to be necessary. The research also shows that the guidelines are available at their workplaces. According to the results of the research, it is also clear that operating room nurses believe the guidelines offer sufficient legal protection in the case of unforeseen events. They also consider them to have a significant impact on increasing patient safety during perioperative care, as well as increasing the level of work quality in the operating room. The majority of respondents agree with the statement that the work guidelines need to be devised by expert associations. They also agree that the use of guidelines in everyday work enables the reduction of inconsistencies, as the same approach, method and procedures are used in their application in all workplaces.

We must take into account the fact that the guidelines are systematic insights into scientific truths, and have the primary goal of educating healthcare workers. Their end goal is to improve decision-making, consequently improving the outcomes of healthcare procedures.

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SMJERNICE U RADU OPERACIJSKIH SESTARA INSTRUMENTARKI

Sažetak

Uvod. Primjena smjernica u radu operacijskih sestara instrumentarki uvelike olakšava njihov svakodnevni rad i omogućuje postupanje u skladu s propisanim procedurama koje su zasnovane na znanstvenim dokazima. Također, primjena smjernica u svakodnevnom radu operacijskih sestara instrumentarki omogućuje je sljedivost zdravstvenog postupka i najbolju moguću skrb za bolesnika, što ujedno povisuje razinu sigurnosti bolesnika u operacijskoj sali tijekom perioperacijskog perioda.

Cilj. Cilj je ovog rada istražiti i utvrditi imaju li operacijske sestre informacije o postojanju smjernica, primjenjuju li operacijske sestre instrumentarke smjernice u svojem svakodnevnom radu i jesu li im smjernice dostupne na radnim mjestima. Također, cilj je rada utvrditi stav operacijskih sestara instrumentarki o pravnoj zaštiti koju omogućuje primjena smjernica u slučaju nastanka neželjenog događaja, potrebnoj razni edukacije osoba koje sudjeluju u izradi smjernica, utjecaju primjene smjernica na razinu sigurnosti bolesnika u operacijskoj sali, utvrditi smanjuje li primjena smjernica varijabilnosti u radu operacijskih sestara instrumentarki između pojedinih zdravstvenih ustanova te koje su institucije nadležne za izradu smjernica.

Metode. Upitnik za potrebe ovog istraživanja izradio je autor rada i distribuiran je na Stručnom skupu operacijskih sestara koji je održan u listopadu 2019. U ispunjavanju anketnog upitnika sudjelovalo je 210 operacijskih sestara i tehničara instrumentara, koji su različitih razina formalne edukacije i zaposlenici su kliničkih bolničkih centara te kliničkih i općih bolnica u Republici Hrvatskoj.

Rezultati. Prema rezultatima anketnog upitnika, ispitanici su najvećim dijelom prvostupnici sestrinstva, ukupno 90 ispitanika, 60 ispitanika medicinske sestre i tehničari visoke stručne spreme, 60 ispitanika medicinske su sestre i tehničari srednje stručne spreme. Broj godina rada ispitanika u operacijskim salama kreće se od jedne do 30 i više godina. Rezultati istraživanja pokazali su da je najveći dio operacijskih sestara instrumentarki upoznat s postojanjem smjernica i preporuka za rad te ih primjenjuju u svojem svakodnevnom radu. Također, rezultati pokazuju da je kod najvećeg dijela ispitanika razvijena spoznaja o obvezi primjene smjernica za rad i da su smjernice za rad dostupne na radnim mjestima. Rezultati pokazuju kako operacijske sestre i tehničari smatraju da upotreba smjernica ima snažan utjecaj na razinu sigurnosti bolesnika, kao i da smjernice omogućuju pravnu zaštitu i da je za izradu smjernica važna razina edukacije medicinskih sestara.

Zaključak. Zaključak je da operacijske sestre instrumentarke redovno primjenjuju smjernice kad su im god dostupne. Također kod ispitanika je razvijena svijest o obvezi primjene smjernica i njihovim koristima u unaprjeđenju sigurnosti bolesnika, kao i o tome da smjernice omogućuju pravnu zaštitu u slučaju neželjenog događaja.

Ključne riječi: smjernice, operacijska sestra instrumentarka, sigurnost pacijenta

Author Guidelines

AIM AND SCOPE

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Use only standard abbreviations. The full term for which an abbreviation stands should precede its first use in the text unless it is a standard unit of measurement.

Acknowledgments

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