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Patient Satisfaction as a Nursing Care Quality Indicator in the ICU

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Abstract

Aim. Patient satisfaction with provided nursing care is an important quality indicator. This study aimed to determine the factors and the level of patient satisfaction in the ICU. The aim was also to determine and compare satisfaction levels among patients with regard to their level of education and the length of their stay in the ICU.

Hypotheses. Hypothesis 1: The level of satisfaction with provided nursing care will be significantly lower among patients who have a higher level of education. Hypothesis 2: Patients will show a higher level of satisfaction with the provided nursing care when the length of their stay in the ICU is shorter.

Methods. A cross-sectional study was conducted on 150 patients treated in intensive care units at the University Hospital Centre Zagreb during a period of 6 months. The survey contained a total of 24 closed-ended questions. The study hypotheses were tested using the chi-squared test.

Results. The study confirmed the starting hypothesis 1, stating that patients with a higher level of education have lower satisfaction levels than patients with a lower level of education. The hypothesis 2, which assumed that patients with shorter hospital stays, defined in our survey as a stay of no more than five days, were more satisfied with conditions in the ICU than those who stayed longer than five days, has been dismissed.

Conclusion. Patients with a higher education level have higher expectations from health care providers which results in lower satisfaction levels with the provided nursing care. The longer patients stay in hospital wards, the higher the probability of finding potential reasons for dissatisfaction.

Introduction

New trends in healthcare economics cause greater need for better regulation and the introduction of a quality control system in the provision of health care. The continuing progress in medicine and other similar fields contribute to a growing application of quality standards in healthcare. The quality of treatment and nursing care provided to the patient also changed significantly through history. Different principles of quality management were being developed that were later adapted to specific features of health care. The aim of healthcare policies is to preserve and improve health and increase life expectancy and quality of life for the general population and individuals. Patients in the ICUs (intensive care units) have a broad spectrum of different health conditions and consequent complications so that their treatment is very complicated and expensive. (1). Environments such as the ICUs are extremely stressful, especially because of higher expectations placed upon health care providers to provide safe and quality health care (1). Complicated and expensive treatments put an even higher strain on healthcare staff, especially nurses, whose staffing levels are not in line with the recommended standards (2). Within healthcare there is a need for better indicators of quality that would enable head nurses to compare health care standards and introduce strategies for quality improvement (3). Health care quality indicators are a uniform measure made up of two or more quality measures that enable simple evaluation and comparison (4). The measurement of quality is a key factor in planning, organization and evaluation of performed activities (5) but in order to carry out these measurements, quality indicators are needed (5). In light of extensive globalisation, nursing is faced with the problem of providing quality nursing care through furthering scientific and technological knowledge (6). Strategies enabling the evaluation of provided health services, including nursing care, depend on the creation of good quality indicators aimed at efficiency and effectiveness (5). Quality indicators in the healthcare system are metric units whose purpose it is to supervise and evaluate the quality of the provided service – in this case health care. Professional practice in health facilities influences the quality and safety of nursing care provided to the patient (7). International literature gives consistent recommendations, especially to health facilities, regarding the work environment and its influence on nurses, i.e. the safety of the provision of nursing care (8, 9). Many other studies point out that patient safety and nursing care quality improve in work environments where professional practice is promoted which helps to foster a safe climate and reduce the incidence of adverse events (10, 11, 12, 13). The work environment in healthcare organizations is a determining factor in the provision of safe and good quality care (7). A number of international studies confirmed the importance of the adaptation of staffing levels and proved that a balance in workload and human resource planning guarantee patient safety and the quality of provided nursing care (14, 15, 16, 17, 18, 19). A lack of planning results in an inadequate distribution of workload and consequently a lack of nurses. The nurse is not capable of fulfilling all of the patient's needs which is a great leadership challenge. It is a known fact that larger patient numbers distributed to an insufficient number of nurses are linked to adverse events and decreased patient satisfaction (20). Quality indicators are a strong instrument that helps head nurses to prove how relevant adequate nurse staffing is to the provision of nursing care in health facilities (21). Patient satisfaction has become a priority in all healthcare systems and health facilities, and as such is an extremely important indicator of provided health care (22). Literature review has shown that there is little research in the Republic of Croatia has been done on the sources of dissatisfaction, especially in the area of nursing care in hospital institutions. This study has the following aims:

1. To determine the sources and the level of patient dissatisfaction with their stay in the ICU.
2. To determine and compare (dis)satisfaction levels among patients with different levels of education.
3. To determine and compare satisfaction levels among patients with regard to the length of their stay in the ICU.

The aim of the study was to prove the following hypotheses:

Hypothesis 1: The level of satisfaction with provided nursing care will be significantly lower among patients with a higher level of education.

Hypothesis 2: Patients will show a higher level of satisfaction with the provided nursing care when the length of their stay in the ICU is shorter.

Methods

A cross-sectional study has been done in order to determine the main sources of satisfaction among patients staying in the ICUs after general surgery, cardiac surgery and urological surgery procedures. The survey was conducted among 150 patients staying in the ICUs of the University Hospital Centre Zagreb between June and December of 2015.

The survey contained a total of 24 closed-ended questions. Six questions were intended to identify the study respondents' characteristics (sex, age, level of education, type of admission, length of stay and type of surgical procedure). The other 18 questions (indicators) were meant to provide a detailed study of the elements of patient satisfaction levels. For that purpose a balanced five-level Likert scale was used to measure attitudes. When using an odd number of levels, the central value stands for a neutral attitude meaning that the respondent is neither satisfied nor dissatisfied with the offered choice. On each side of the central value there is an equal number of levels of agreement (very satisfied and satisfied) and levels of disagreement (very dissatisfied and dissatisfied). Thus a very sensitive measuring instrument has been constructed offering to every respondent a broad range of elements and the possibility to gauge their satisfaction or dissatisfaction levels with regard to the provided nursing care, information about patients' rights, about catheters, length of stay and postoperative care, ways of communicating with the patients' families, visiting hours, peace and quiet in the hospital ward, personal hygiene as well as nutritional and even religious needs. In short, the purpose of the survey was to provide answers on patient satisfaction with regard to the nurses' rapport with them on the basis of five questions/indicators; five questions related to the levels of information provided about postoperative care, while four of the questions referred to the involvement of patients in nursing care, i.e. therapy and pain treatment. The measuring instrument had been subdivided into four sub-scales covering the four areas of care: nursing care, nurse rapport, postoperative care and pain treatment.

Ethical principles

The Ethics Committee of the University Hospital Centre Zagreb has approved this study. Patients freely agreed to participate in the study and filled in the questionnaires correctly. Owing to hospital regulations the respondents had to sign a consent form. During this study the principles of the Declaration of Helsinki were adhered to.

Statistics

For data input and processing the SPSS software for statistical data processing version 16 was used. The software was used to create summary tables containing frequencies, percentages, means, standard deviations and crosstabs, as well as to perform the chi-squared test (x^2-test) for testing the study hypotheses.

Results

The first 6 questions were used to collect demographic data, displayed in Table 1.

Table 1. **Demographic characteristics of the respondents**

Sex	**f**	**%**
Male	97	64.7
Female	53	35.3
Age		
25-35	9	6.0
36-45	9	6.0
46-55	26	17.3
56-65	46	30.7
>65	60	40.0
Education level		
Primary	22	14.7
Secondary	88	58.7
Post-secondary vocational	14	9.3
Tertiary	26	17.3
Type of surgical procedure		
Cardiac surgery	48	32.0
General surgery	53	35.3
Urological surgery	49	32.7
Length of stay in the ICU		
Up to 5 days	112	74.7
6 to 10 days	31	20.7
More than 10 days	7	4.7
Type of patient admission		
Elective	124	82.7
Emergency	26	17.3

The survey (in the annex) consisted of 18 questions on possible sources of patient satisfaction with their stay in the ICUs. The results are shown in table 2.

The results of the survey showed that 17.3% of the respondents marked none of the offered sources of dissatisfaction with their stay in the ICU. Among the other 83.7% a majority showed dissatisfaction with just one segment of their stay in the ICU. They accounted for 12.7% of all the respondents, and 15.3% of the respondents who expressed at least one grievance. Following the same reasoning in displaying results, two reasons for dissatisfaction were expressed by 9.3%, i.e. 11.3% of the respondents, three reasons by 7.3%, i.e. 8.9%, four by 10.7/12.9%, five by 10.0/12.1%, six by 8.7/10.5%, seven by 5.3/6.5%, and eight by 4.0/4.8% of the respondents. Nine or more sources of dissatisfaction were pointed out by 14.7%, i.e. by 17.7% of those surveyed among the group of respondents who expressed at least one grievance. Based on the presented data it is not possible to reach a valid conclusion, nor even to get an approximate proportion of respondents with prevailing dissatisfaction, i.e. the proportion of those who, despite some complaints, are nevertheless basically satisfied with their stay in the ICU. Therefore, the negative and positive answers were added up and their average proportions in every question calculated, in order to form a basis on which final average indicators of respondent satisfaction or dissatisfaction could be obtained. The obtained average values suggest that among respondents there are almost 2.5 times more answers with a positive attitude, i.e. expressions of satisfaction, than there is dissatisfaction regarding their stay in the ICUs (Figure 1).

Tables 3, 4 and Figures 2, 3 show the respondents' answers to all 18 questions designed as a 5 level Likert item for the expression of satisfaction and dissatisfaction as well as a dichotomous division after adding up the positive and negative levels of the Likert scale, along with the mean and the standard deviation.

Table 2. **The frequency of stating reasons for dissatisfaction**

Number of stated reasons for dissatisfaction	Percentage of all respondents (N=150)	Percentage of the respondent group that stated at least 1 reason for dissatisfaction (N=124)
None	17.3	-
1	12.7	15.3
2	9.3	11.3
3	7.3	8.9
4	10.7	12.9
5	10.0	12.1
6	8.7	10.5
7	5.3	6.5
8	4.0	4.8
9	3.3	4.0
10	2.7	3.2
11	1.3	1.6
12	-	-
13	2.0	2.4
14	1.3	1.6
15	0.7	0.8
16	2.0	2.4
17	1.3	1.6
18	-	-

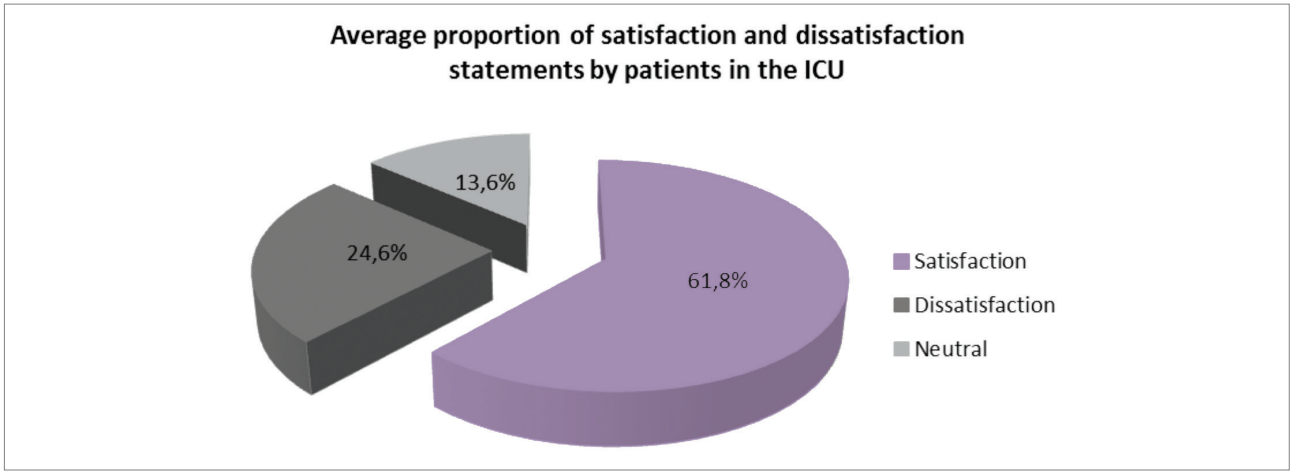

Figure 1. **Average proportion of satisfaction and dissatisfaction statements by patients in the ICU**

Table 3. **Percentage of respondent answers according to levels of dissatisfaction with the stay in the ICU**

Questions	1. Very dissatisfied	2. Dissatisfied	3. Neither satisfied, nor dissatisfied	4. Satisfied	5. Very satisfied
1. Are you satisfied with the nurses' approach upon taking over their shift?	8.0	17.3	2.7	22.0	50.0
2. Are you satisfied with the time nurses spent talking with you?	10.0	19.3	6.0	19.3	45.3
3. Are you satisfied with the level of privacy during personal care?	8.0	17.3	8.7	19.3	46.7
4. Are you satisfied with the time the nurse spends on your care during their shift?	9.3	16.7	5.3	20.0	48.7
5. Are you satisfied with the peace and quiet during your stay in the ICU?	8.7	20.7	10.7	16.0	44.0
6. Are you satisfied with how the nurse is paying attention to your usual routines?	8.7	9.3	18.0	16.7	47.3
7. Are you satisfied with the attention paid to your nutritional habits?	6.0	10.0	19.3	18.0	46.7
8. Are you satisfied with the possibility to practice your religious needs?	1.3	4.0	19.3	12.7	62.7
9. Have you been informed about the course of postoperative care?	12.7	14.0	24.0	26.0	23.3
10. Have you been informed about your rights as a patient?	5.3	11.3	19.3	28.0	36.0
11. Are you satisfied with how your family was informed about your postoperative state and visiting hours?	2.0	3.3	6.7	23.3	64.7
12. Are you satisfied with the visiting hours during your stay at the ICU?	6.7	12.0	18.0	28.7	34.7
13. Are you satisfied with the information provided about catheters that were placed because of the surgical procedure?	16.7	24.0	12.7	20.0	26.7
14. Have you been informed about the average length of stay in the ICU?	6.7	12.7	15.3	16.0	49.3
15. Have you been informed about ways of pain treatment in postoperative care?	10.7	29.3	18.0	34.7	7.3
16. Were you asked questions about your tolerance to pain?	12.7	28.0	24.0	33.3	2.0
17. Did you get adequate pain treatment upon request?	11.3	20.7	20.0	44.0	4.0
18. Are you satisfied with the pain treatment in the ICU?	10.7	22.0	12.0	44.7	10.7

Table 4. **Percentage of respondent answers according to satisfaction or dissatisfaction expression statements with the stay in the ICU**

Questions	Dissatisfied (1+2)	Satisfied (3+4)	Mean	Standard deviation
1. Are you satisfied with the nurses' approach upon taking over their shift?	25.3	72.0	3.89	1.393
2. Are you satisfied with the time nurses spent talking with you?	29.3	64.7	3.71	1.454
3. Are you satisfied with the level of privacy during personal care?	25.3	66.0	3.79	1.392
4. Are you satisfied with the time the nurse spends on your care during their shift?	26.0	68.7	3.82	1.424
5. Are you satisfied with the peace and quiet during your stay in the ICU?	29.3	60.0	3.66	1.432
6. Are you satisfied with how the nurse is paying attention to your usual routines?	18.0	64.0	3.85	1.340
7. Are you satisfied with the attention paid to your nutritional habits?	16.0	64.7	3.89	1.265
8. Are you satisfied with the possibility to practice your religious needs?	5.4	75.3	4.31	1.004
9. Have you been informed about the course of postoperative care?	26.7	49.3	3.33	1.319
10. Have you been informed about your rights as a patient?	16.7	64.0	3.78	1.203
11. Are you satisfied with how your family was informed about your postoperative state and visiting hours?	5.3	88.0	4.45	0.909
12. Are you satisfied with the visiting hours during your stay at the ICU?	18.7	63.3	3.73	1.242
13. Are you satisfied with the information provided about catheters that were placed because of the surgical procedure?	40.7	46.7	3.16	1.470
14. Have you been informed about the average length of stay in the ICU?	19.3	65.3	3.89	1.324
15. Have you been informed about ways of pain treatment in postoperative care?	40.0	42.0	2.99	1.170
16. Were you asked questions about your tolerance to pain?	40.7	35.3	2.84	1.087
17. Did you get adequate pain treatment upon request?	32.0	48.0	3.09	1.123
18. Are you satisfied with the pain treatment in the ICU?	32.7	55.3	3.23	1.216
Total average value:	25.1	61.4	3.63	

If all statements of satisfaction are grouped according to the four areas of nursing care, the resulting data shows that slightly more than half of the respondents (53.7%) are very pleased with the provided nursing care in the ICUs, around 47% are pleased with the nurses' rapport, 40% with postoperative care and 6% are satisfied with pain therapy (Figure 3).

When ranking dissatisfaction among the respondents from three different ICUs three main reasons are in the lead: information about the tolerance to pain and catheters (40.7%) and ways of treating pain post-operationally (40%). Almost a third of the respondents say they are dissatisfied with ineffectual treatments and therapies against pain. Thus, among the first five sources of dissatisfaction the problem of pain is represented four times. Roughly 30 percent of the respondents are not satisfied with the peace and quiet during their stay in the ICU and the amount of time devoted to discussing their medical condition. Approximately a fourth of them state being poorly informed about the course of postoperative care, not being satisfied by the rapport of the nurses and having problems with privacy during personal care. Slightly less than a fifth are dissatisfied with the availability of information about the length of the treatment, visiting hours and the attention paid by the nurses to their usual daily routines. Dissatisfaction with information available about the pa-

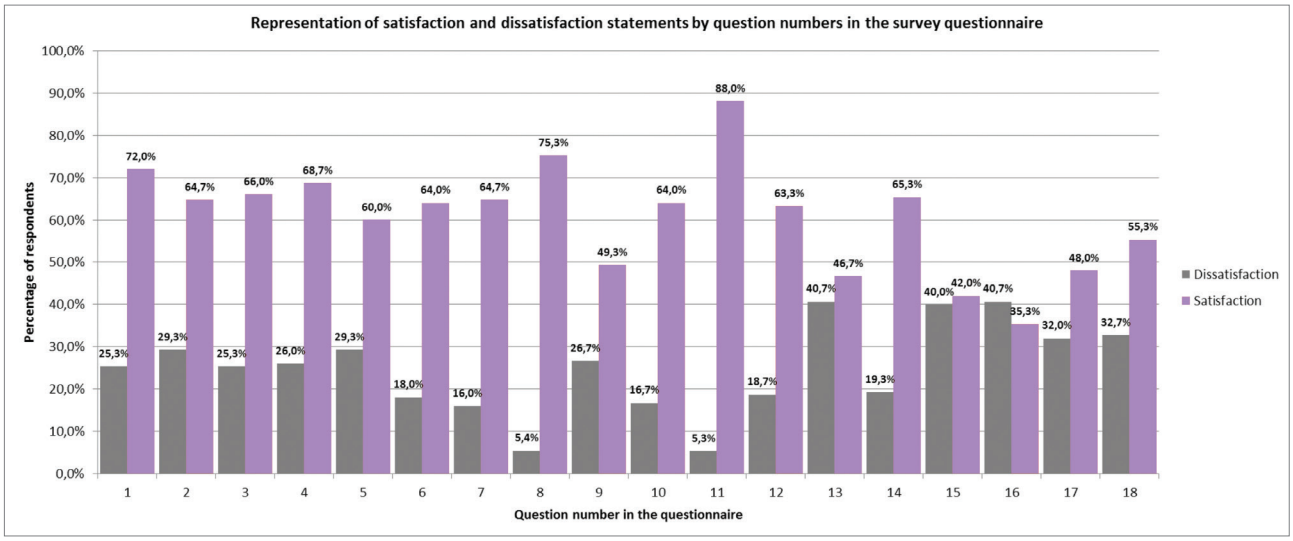

Figure 2. **Representation of satisfaction and dissatisfaction statements by question numbers in the survey questionnaire**

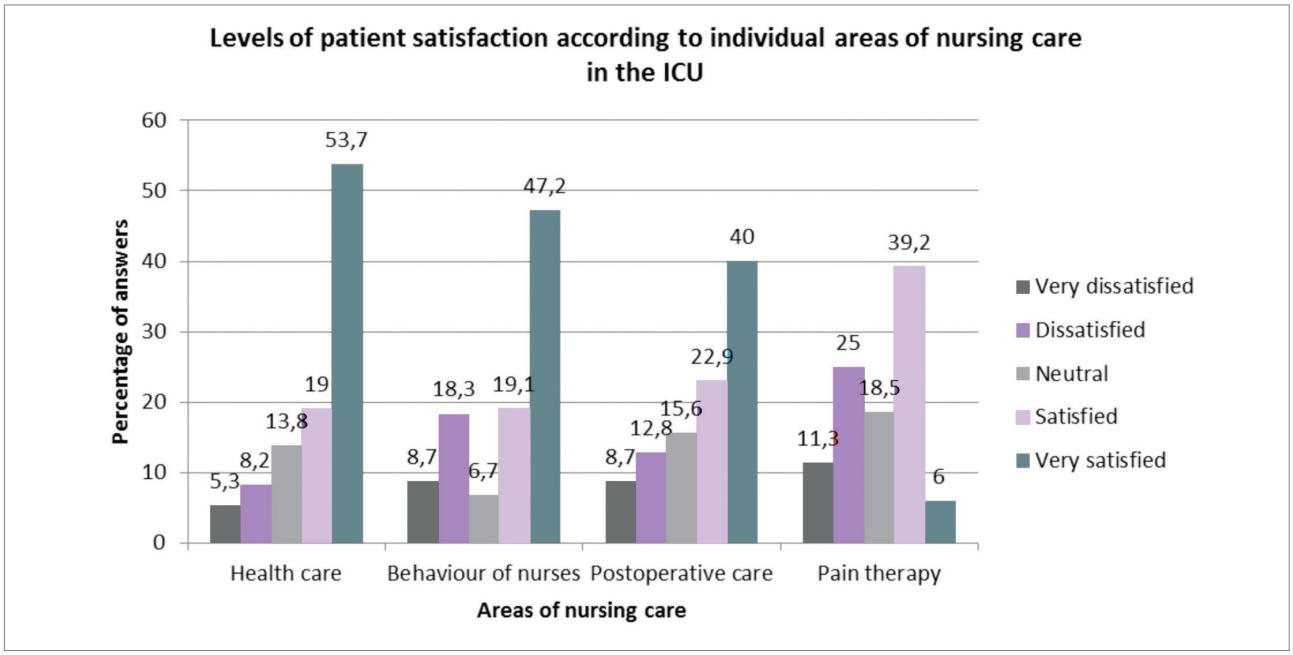

Figure 3. **Levels of patient satisfaction according to individual areas of nursing care in the ICU**

tient rights was expressed by 16.7% respondents, 16% expressed dissatisfaction with the attention devoted to their nutritional habits, whereas the least dissatisfaction was expressed with the possibility of practising ones religious needs (only 5%) and the way their family has been informed about the condition of their health after the procedure (5%). The processing of survey data with the aim of identifying the sources of patient dissatisfaction in the four areas of nursing care, taking into account all the questions (indicators) with regard to specific areas, showed that the respondents were mostly dissatisfied with pain therapies and treatments (34.6%), the rapport of the nurses (27.0%) and the amount of information available about postoperative care (21.7%), whereas they were least dissatisfied regarding their inclusion in nursing care (13.5%) (Figure 4).

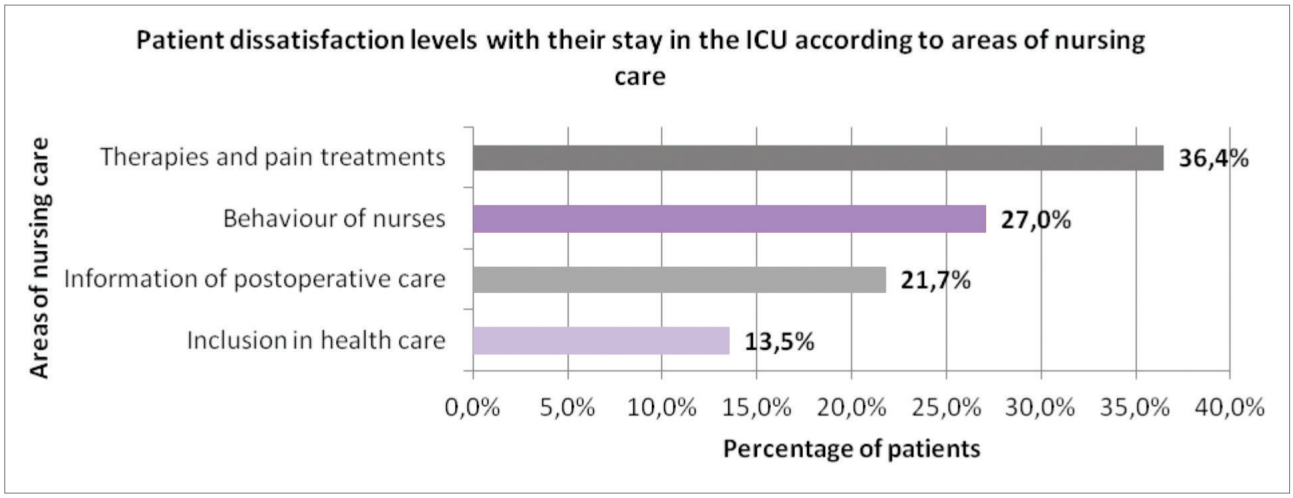

Figure 4. **Patient dissatisfaction levels with their stay in the ICU according to areas of nursing care**

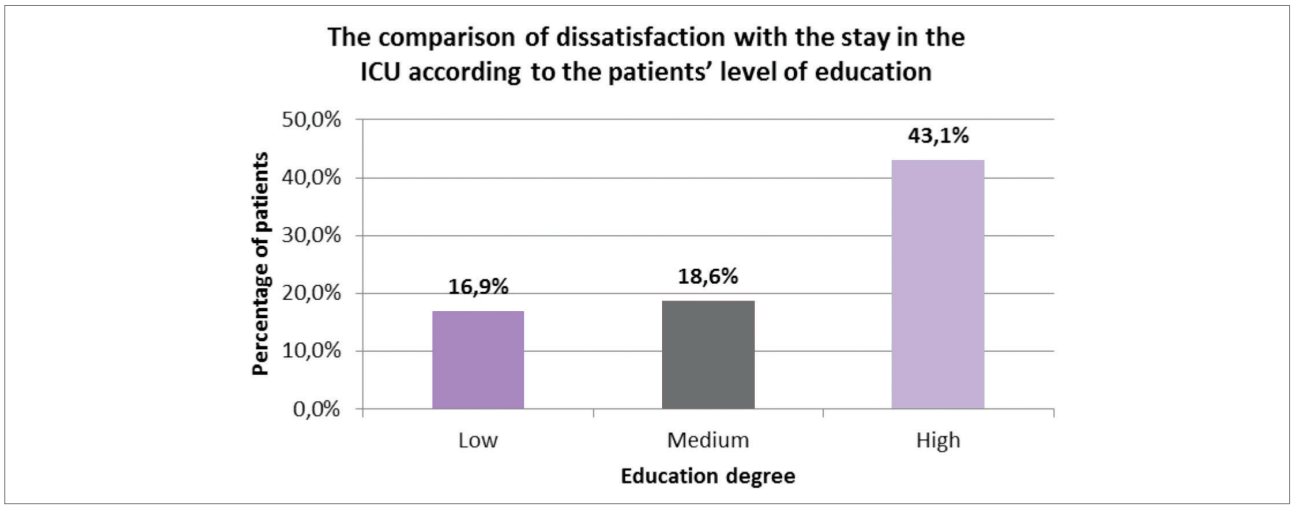

Figure 5. **The comparison of dissatisfaction with the stay in the ICU according to the patients' level of education**

Further data analysis shows statistically relevant differences in the perception of satisfaction or dissatisfaction among certain groups of patients (subpatterns of respondents). Dissatisfaction levels are expressed differently by patients in the three ICUs; there are differences between patients admitted for elective procedures and patients admitted through the emergency ward, as well as differences between patients who stayed more than five days and those who spent less time recovering post-operationally; at the same time, according to the demographic profile of the respondents, dissatisfaction grows proportionally to the level of education. Lowest levels of dissatisfaction were shown by respondents with primary education (16.9%), followed by those with a secondary level of education (18.6%), while patients with post-secondary vocational and tertiary education had much more complaints about the conditions of their stay in the ICUs and constituted a majority among those expressing dissatisfaction, with a proportion of 43.1% (Figures 5 and 6).

Patients with lower education are mostly dissatisfied with the availability of information on postoperative pain treatment (54.5%) as well as the fact that they were not asked about their tolerance to pain (36.4%). About 23% are not satisfied with the visiting hours and the amount of time devoted to them by the nurses.

Other complaints about the work of the nurses were poorly represented, in other words, the vast majority of patients with a lower level of education were on the whole satisfied with the nurses' rapport with the

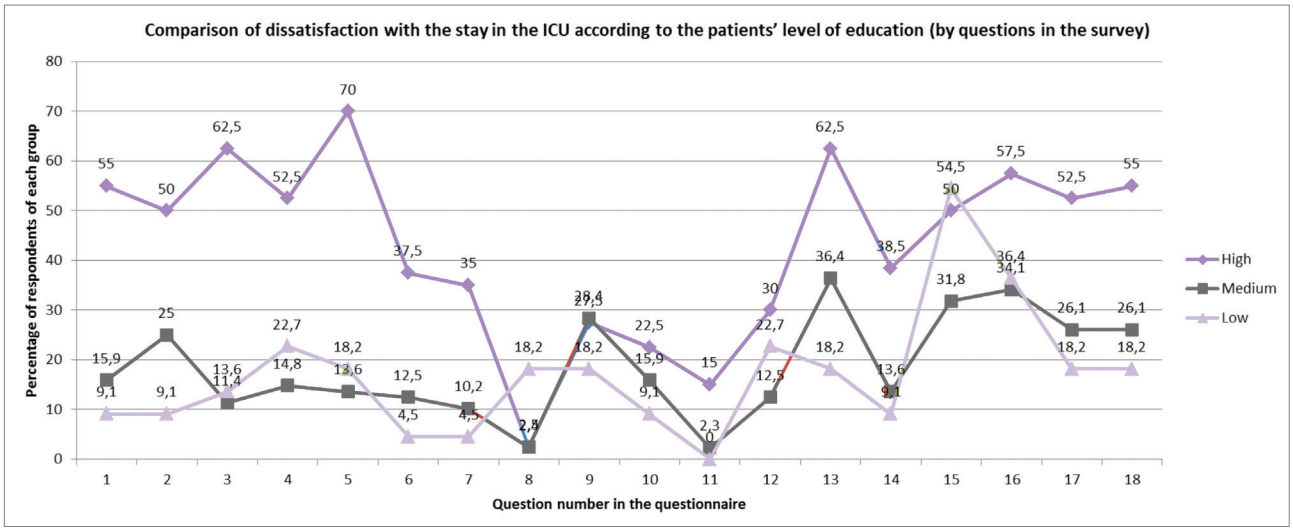

Figure 6. **Comparison of dissatisfaction with the stay in the ICU according to the patients' level of education (by questions in the survey)**

patients. It should be pointed out that patients with a low level of education did not protest about the way their families were informed about the condition of their health and visiting hours and that just 4.5% complained about nutrition or the attention paid by the nurses to their usual daily routines. What is interesting to mention is the dissatisfaction with the possibility of practising religious needs ranked in the middle (18.2%), whereas for respondents with secondary education this reason is in the penultimate place (17th place), and in the last place among patients with post-secondary vocational and tertiary education. For patients with secondary education the reason number one on the dissatisfaction list is poor level of information about central venous catheters (36.4%), followed by, as in those with a lower level of education, nurses failing to inquire about tolerance to pain (34.1%). Less than a third (31.8%) are not satisfied with the information about postoperative pain treatment (31.8%), whereas 28.4% are dissatisfied with the course of postoperative care as such. The first mention of dissatisfaction about the nurses' work among patients in this group is in the 8th place (15.9%) and refers to the nurses' approach to the patients when starting their shift, followed by the dissatisfaction about the amount of time nurses spent on patient care in the 10th place (14.8%). Least dissatisfaction has been expressed with the way patients' families were informed about their condition and visiting hours (just 2.3%) as well as the possibility to practice religious rituals (3.4%). 70% of patients with post-secondary vocational and tertiary levels of education were dissatisfied with the peace and quiet during their stay in the ICUs; 62.5% were dissatisfied with ensuring privacy during personal care and the availability of information about catheters; 57.5% criticized insufficient inquiries about their tolerance to pain, while 55% were dissatisfied with pain treatment and the nurses' rapport. As mentioned earlier, only 2.5% of respondents in this group were dissatisfied with the possibility to practice their religious needs. Dissatisfaction with information available to patients' families about the condition of their health is in the penultimate place of the dissatisfaction list for respondents with tertiary education, but it is mentioned by as much as 15% of respondents in this group. Dissatisfaction statements which have been grouped according to the areas of nursing care clearly show that the levels of dissatisfaction among patients with tertiary education is much higher than in other groups and that they were mostly dissatisfied with the nurses' rapport (58%) and pain relief therapy (53.8%) (Figure 7).

This study tried to confirm the hypothesis that the level of satisfaction with the provided nursing care is significantly lower among patients with a higher level of education, i.e. that the dissatisfaction level grows proportionally to the patient's level of education. Since a chi-squared with two degrees of freedom (df=2; P=0.002) above the critical value has been obtained, the hypothesis can be accepted. The study also tried to confirm that patients will show a

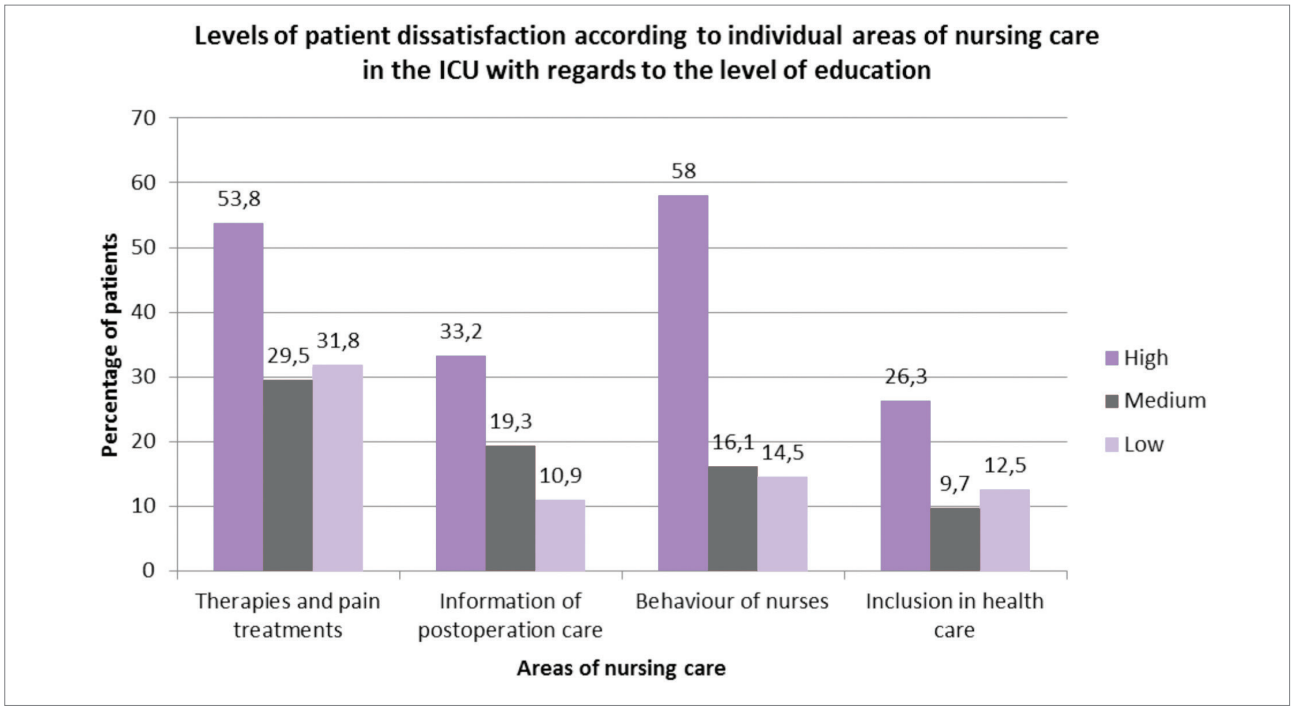

Figure 7. **Levels of patient dissatisfaction according to individual areas of nursing care in the ICU with regard to the level of education**

higher level of satisfaction with the provided nursing care when the length of their stay in the ICU is shorter. A normal stay in the ICU is for the purpose of this study defined as being no more than five days long. Namely, the longer patients stay in hospital wards, the higher the probability of finding potential reasons for dissatisfaction. However, a larger ratio was expected than the ratio of 65.2:52.8 in favour of the satisfied patients who spent up to 5 days in the ICUs as opposed to those who stayed for more than 5 days (Figure 8). We also tried to prove that the level of satisfaction is affected by the length of

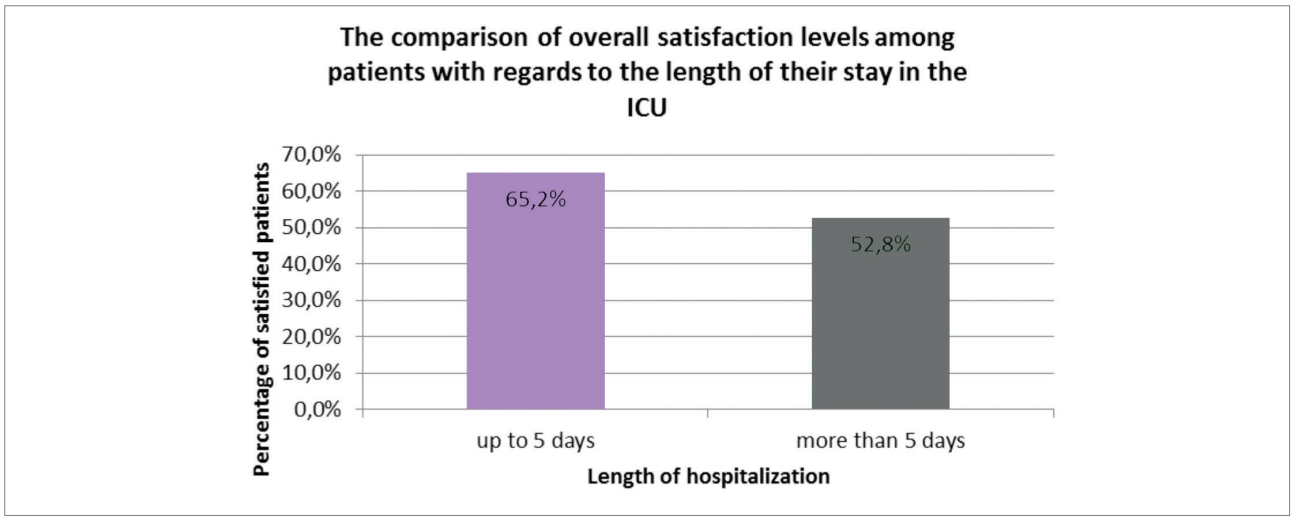

Figure 8. **The comparison of overall satisfaction levels among patients with regard to the length of their stay in the ICU**

stay through statistical hypothesis testing. The second hypothesis that needed to be confirmed or dismissed, stated that patients will show a higher level of satisfaction with the provided nursing care when the length of their stay in the ICU is shorter. The hypothesis has been tested using the chi-squared test. The resulting values suggest that the hypothesis should be dismissed because the value of the chi-squared test was lower than the critical value.

Discussion

Through the analysis of quality indicators for nursing care we acquired results on the basis of which changes could be implemented and the quality of nursing care improved. Since expert supervision based on the implementation of professional standards is one of the most widespread systems for the evaluation of the quality of professional work, these standards can be used to create work standards applicable to workplaces in Croatia. The measurement and comparison of processes and aims with the clinical indicators fits the concept of quality assurance and is the starting point for nursing care quality management. The results, obtained with the goal of identifying the sources of patient dissatisfaction in four areas of nursing care, taking into account all the questions with regard to specific areas, showed that the patients who participated in the study were mostly dissatisfied with pain therapies and treatments (34.6%), the rapport of the nurses (27.0%) and the amount of available information on postoperative care (21.7%), whereas they objected the least to their inclusion in nursing care (13.5%). Based on the resulting data, it is evident that the largest percentage of dissatisfaction is linked to pain therapy, indicating a lack of developed pain treatment protocols, which should be a necessity in an ICU, i.e. the assessment and therapy of pain should be standardised procedures. The rapport of nurses with the patients holds the second place on the list of complaints, pointing to the need for an improvement in the way nurses relate to the patients. The obtained results oblige us to make better care plans and improve the provided nursing care. The last on the list of reasons for dissatisfaction is the availability of information on postoperative care which indicates a possible problem regarding the multidisciplinary approach to patient education in the preoperative period. In view of the results obtained by the comparison between levels of satisfaction for different levels of education, the somewhat expected nature of obtained data points to the fact that patients with a higher level of education were less satisfied than patients with a lower level of education. As it was already pointed out, the level of education is a common variable used to follow differences in opinions. It is also to be expected that patients with a lower level of education would avoid taking part in the study for fear of not understanding the questions, thus distorting the results to a large extent. After testing the hypothesis it was determined that that patients with a higher level of education were less satisfied than patients with a lower level, which confirmed the hypothesis. From a sociological point of view the obtained result was expected because patients with higher education have higher expectations from the medical staff. Higher expectations arise from being better informed about patients' rights and better knowledge of the medical issue at hand. Hypothesis 2 was based on the assumption that patients who stayed longer in the ICU would be less satisfied. The starting hypothesis, which assumed that patients with shorter hospital stays, defined in our survey as a stay of no more than five days, were more satisfied with conditions in the ICUs than those who stayed longer than five days, has been dismissed by the study results. As a rule, the longer patients stay in hospital wards, the higher the probability of finding potential reasons for dissatisfaction, but this study determined that there is no statistical significance in the level of satisfaction with regard to the length of stay in the ICU.

Conclusion

The aim of this study was to show the importance of ensuring, managing and improving quality in the process of nursing care for patients. Nurses as the most numerous group among healthcare professionals have the greatest responsibility for the provision of quality health care. Patient satisfaction as a quality indicator in the healthcare system is one of the

most important quality indicators because it provides direct feedback.

Based on the obtained results we can conclude that activities regarding pain therapy are the largest source of patient dissatisfaction in all three ICUs. Pain as a vital parameter must be regularly controlled and patients must be given proper therapy. In our case, it is obvious that a standardization of pain treatment is necessary along with an implementation of protocols for the use of analgesics and alternative pain relief methods. To improve quality, a multidisciplinary approach and close cooperation between physicians, nurses, physiotherapists and other staff is needed. Other sources of dissatisfaction, like the lack of information about postoperative care and intravascular catheters, as well as the ones mentioned above, point to the need for more involvement by medical staff, particularly nurses and physicians, in the education and psychological preparation for surgical procedures as an indispensable part of nursing care. In this regard it would be beneficial to develop informative brochures where patients could find part of the information, but at the same time not to stop talking to the patient as a key part to successful preoperative preparation, designed to satisfy the needs of all patients regardless of their level of education. The patients' stay in the ICU should be as brief as possible to avoid situations of reduced levels of patient satisfaction with the treatment.

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ANNEX

PATIENT SATISFACTION AS A NURSING CARE QUALITY INDICATOR

Thank you for taking part and filling out this questionnaire. It takes about 10 minutes to fill out the questionnaire.

Answer the questions by circling a number between 1 and 5, where 1 represents the lowest level of satisfaction, and 5 represents the highest level of satisfaction.

GENERAL DATA

AGE: 25 – 35 35 – 45 45 – 55 55 – 65 > 65

SEX: M F

EDUCATION: Primary Secondary Tertiary Post-secondary vocational

SURGICAL PROCEDURE: cardiac surgery general surgery urological surgery

LENGTH OF STAY IN THE ICU: Up to 5 days 5 to 10 days More than 10 days

ADMISSION: elective emergency

QUESTIONNAIRE

1. Are you satisfied with the nurses' approach upon taking over their shift?

   1 2 3 4 5

2. Are you satisfied with the time nurses spent talking with you?

   1 2 3 4 5

3. Are you satisfied with the level of privacy during personal care?

   1 2 3 4 5

4. Are you satisfied with the time the nurse spends on your care during their shift?

   1 2 3 4 5

5. Are you satisfied with the peace and quiet during your stay in the ICU?

   1 2 3 4 5

6. Are you satisfied with how the nurse is paying attention to your usual routines?

   1 2 3 4 5

7. Are you satisfied with the attention paid to your nutritional habits?

   1 2 3 4 5

8. Are you satisfied with the possibility to practice your religious rituals?

   1 2 3 4 5

9. Have you been informed about the course of postoperative care?

   1 2 3 4 5

10. Have you been informed about your rights as a patient?

    1 2 3 4 5

11. Are you satisfied with how your family was informed about your postoperative state and visiting hours?

    1 2 3 4 5

12. Are you satisfied with the visiting hours during your stay at the ICU?

    1 2 3 4 5

13. Are you satisfied with the information provided about catheters that were placed because of the surgical procedure?

    1 2 3 4 5

14. Have you been informed about the average length of stay in the ICU?

    1 2 3 4 5

15. Have you been informed about ways of pain treatment in postoperative care?

    1 2 3 4 5

16. Were you asked questions about your tolerance to pain?

    1 2 3 4 5

17. Did you get adequate pain treatment upon request?

    1 2 3 4 5

18. Are you satisfied with the pain treatment in the ICU?

    1 2 3 4 5

ZADOVOLJSTVO PACIJENTA KAO INDIKATOR KVALITETE ZDRAVSTVENE NJEGE U JEDINICI INTENZIVNOG LIJEČENJA

Sažetak

Cilj. Zadovoljstvo bolesnika pruženom zdravstvenom njegom jedan je od važnih indikatora kvalitete. Cilj istraživanja bio je utvrditi čimbenike i razinu zadovoljstva pacijenata u jedinici intenzivnog liječenja. Također, cilj je bio ustanoviti i usporediti razine zadovoljstva među pacijentima s obzirom na stupanj obrazovanja i duljinu boravka u jedinicama intenzivnog liječenja.

Hipoteze. 1. hipoteza. Razina zadovoljstva kvalitetom pružene zdravstvene njege kod pacijenata koji imaju viši stupanj obrazovanja znatno je niža. 2. hipoteza. Pacijenti pokazuju veću razinu zadovoljstva pruženom zdravstvenom njegom ako je vrijeme boravka u jedinici intenzivnog liječenja kraće.

Materijali i metode. Istraživanje je provedeno slučajnim odabirom 150 bolesnika koji su bili liječeni u jedinicama intenzivnog liječenja u Kliničkom bolničkom centru Zagreb u razdoblju od šest mjeseci. Anketni upitnik sadržavao je ukupno 24 pitanja zatvorenog tipa. Hipoteze istraživanja testirane su hi-kvadrat testom.

Rezultati. Istraživanjem je potvrđena početna 1. hipoteza da pacijenti s višim stupnjem obrazovanja imaju nižu razinu zadovoljstva nego pacijenti s nižom razinom obrazovanja. Druga je hipoteza, kojom je pretpostavljeno da su pacijenti s kraćim boravkom, koji je u našoj anketi definiran duljinom do maksimalno pet dana, zadovoljniji uvjetima na odjelima intenzivne skrbi od onih koji su zadržani dulje od pet dana, odbačena.

Zaključak. Kod pacijenata s višom razinom obrazovanja postavljaju se veća očekivanja od zdravstvenih djelatnika tako je da samim tim i razina zadovoljstva zdravstvenom njegom niža. Pretpostavka da duljim boravkom pacijenata na bolničkim odjelima raste i vjerojatnost pronalaženja eventualnih razloga nezadovoljstva nije statistički značajna pa ova varijabla nema značenje u procjeni zadovoljstva pacijenata.

Ključne riječi: indikatori kvalitete, zadovoljstvo bolesnika, medicinska sestra, zdravstvena njega

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Conflict Perception and Emotional Labour in Nursing

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Abstract

More and more intense way of life and work, global crisis which causes lack of work resources, make it more difficult to provide adequate health care and lead to stress and conflict at different levels of healthcare activities. Healthcare professionals are exposed to emotional labour on a daily basis. Continuous management and regulation of their emotions may exhaust them, make their work harder and increase the occurrence of conflict. On the other hand, it is possible that conflict itself could be the source of stress and negative emotions which require greater emotional labour in order to be concealed or suppressed.

The aim of this research was to examine different features of conflict in the workplace, the level of emotional labour experienced by nurses, and the relationship between the perception of conflict and emotional labour.

The research was carried out anonymously on the convenience sample of 104 female (94.2%) and male (5.8%) nurses at the Hospital for Infectious Diseases in Zagreb. The average age of the participants was 36 years, and their average work experience was 15.9 years. For the purpose of the research the Questionnaire on Various Features of Conflict by Stojčić & Perković, and the Questionnaire on Emotional labour by Näring, Briët & Brouwers were used.

76% of the participants perceive conflict as destructive. Conflict in the workplace is not frequent, and the majority of the participants consider themselves as successful in constructive resolution of conflict.

Persons with longer work experience enter into conflict more often. Nurses are not exposed to intense emotional labour; workers with secondary education invest greater emotional labour than those with university education. The hierarchical analysis has shown that it is possible to explain 38.4% of the variance of conflict frequency with sets of predictors (age, education level, different work problems, emotional labour). The most important predictors were age, problematic behavior of colleagues and expressing positive emotions. Emotional labour has a significant, but small part in conflict frequency.

Introduction

A nurse's job includes teamwork, as well as direct contact with the patient to whom, except for nursing care, they also provide emotional support (1). Since the foundation of the nursing profession is interaction with patients, colleagues and other healthcare and non-healthcare professionals, well-developed communication skills are of great importance and they include recognition and constructive resolution of conflict. Conflicts are an inevitable part of interpersonal relationships, which makes them an inevitable part of the nursing profession as well. The term *conflict* denotes a situation in which there are opposite occurrences and tendencies, behaviors, emotions and the like (2). Every person has their own notion of the world, their value system and criteria of judging everyday life situations, therefore it is no wonder that, in interaction with others, we come into conflict for many different reasons on a daily basis. Conflict is a social process which consists of many episodes of different intensity and manifestation. It occurs because needs, wishes, goals and ways of their fulfillment are not harmonized, and the actions of one side hinder the other in achieving its goals (3). An attempt to provide an unambiguous definition of conflict is made more difficult by its dynamism, because it may assume qualitatively different shapes and manifestations (4).

In everyday life, conflict is often identified with a confrontation, disrespect, loss or violence. It is considered as a negative, stressful and unpleasant occurrence, which people tend to avoid because it causes negative emotions such as anger, hatred, rage or fear. The negative consequences of conflict are dissatisfaction and weakening of relationships, work efficacy and communication. However, conflict could be also seen as an opportunity to improve interpersonal relationships. Every change and progress is the result of some sort of conflict, so conflict itself is neither good nor bad. Conflict can be constructive, it can improve the quality of decisions, provoke creativity and innovativeness, stimulate interest and curiosity within a team, become an instrument for reducing tensions and, in the end, enable better adjustment to changes (4). Consequently, it is very important to know how to resolve conflict in a constructive way.

Conflicts are present in all types of organizations, thus they are present in health care institutions as well. Unresolved conflict among healthcare professionals can have bad influence on patient care, so it is necessary to resolve it before it could impact the quality of provided care.

Each conflict has a cause, but the attempt to define the cause in an unambiguous way can have the same obstacles as defining the conflict itself. We can distinguish between the causes of conflict at the level of the organization and on an individual level (5). The most common causes at the level of an organization are changes in the organization (reorganization, dismissals, changes in law), differences between the employees (sex, age, origin or education), differences in strategy issues (health care procedures are regulated in advance but they need to be adapted according to the needs and characteristics of every patient) and limited resources (lack of human resources or materials). Vaguely determined responsibility or a bad reward system can cause conflicts among individuals or work departments, and the same can happen with different aims or expectations – although the general purpose of a healthcare organization is clear, different problems appear in practice because of the discord between effectiveness and high cost of medical procedures. Demanding workload or high professional and ethical standards, which are characteristic for the medical profession, for example irregular and more frequent shifts, result in diminishing professional and personal satisfaction, which can lead to a higher number of conflicts (6). The causes of conflict on the individual level could be different experience of reality, different value system, the sense of being threatened or lack of confidence.

Conflict is almost always a combination of many causes. Working in an organization, as well as teamwork, presents a challenge for everybody involved because it demands from different people to connect in a harmonious unit which acts as one. Therefore, resolution of conflict becomes a complex process. It is possible to use different strategies in conflict resolution (5): avoidance, giving in, competition, compromise or cooperation. Cooperation includes open and direct confrontation with the conflict and searching for mutually acceptable solution. It is the only strategy which resolves the conflict completely because it does not leave place for unresolved questions which could turn into conflict again.

Along with constructive conflict resolution, the work of nurses demands managing and regulating emotions as well because they have a professional obligation to express feelings which are in accordance with their work, and which are often not the ones they really feel. Every day they find themselves in situations which require expressing compassion, interest, kindness and empathy, and if they don't really experience these emotions, then they have to conceal their own emotions and act, i.e. try to feel the emotions expected from them. In critical situations nurses have to remain focused and neutral. Such emotional labour could be extremely demanding, and although it can momentarily lead to increased efficacy, if it is continuous it causes higher stress and faster burnout, as well as diminished work satisfaction (7). Conflict and emotional labour are mutually related: increased emotional labour exhausts nurses and in that way contributes to harder work conditions, which are then a good foundation for conflict. A reverse situation is possible as well: conflict could be the source of stress and negative emotions which, in working conditions, demand higher emotional labour in order to conceal or suppress those emotions (8). In literature, authors distinguish the following types of emotional labour (9): surface acting – showing emotions which are appropriate to the situation, but without actually feeling them, for example smiling to an unpleasant patient; deep acting – which includes effort of controlling thoughts and feelings to really experience and express the expected emotions; and suppressing or concealing unpleasant emotions, such as dislike towards certain team members or patients, aversion or fear in critical situations. Analyzing the relation between conflict and emotional labour was of secondary interest in the nursing practice, and was not a subject of any research in Croatia. Therefore, the purpose of this research is to examine the relation between perception of conflict and emotional labour among nurses. To achieve this aim what needs to be determined are the characteristics of conflict which nurses experience in their workplace, participants, sources and intensity of conflict and ways of conflict resolution. Another aim is to examine in which measure are the participants exposed to emotional labour in their workplace and the relation between the characteristics of conflict and emotional labour in nursing practice.

Methods

Participants

This research was carried out on the convenience pattern of 115 participants who completed an anonymous questionnaire at the Clinic for Infectious Diseases "Dr. Fran Mihaljević" in Zagreb in September 2016. 9 questionnaires were declared invalid due to them having incomplete answers. Among the 104 participants, 98 were female (94.2%) and 6 male (5.8%) nurses, which is an expected sex distribution because it matches the general sex distribution in the profession. More than half of the participants graduated from secondary school (61.5%), 27.9% had a college degree and 10.6% had a university degree. The average age of the participants was 36 years (in the range 20-60), and average work experience was 15.9 years (in the range 1-40).

Instruments and procedure

The research was carried out in written form by means of two questionnaires. The first questionnaire, by Stojčić & Perković, has 14 closed-ended questions which refer to the presence of different problems in the workplace as potential sources of conflict, frequency, participants and ways of resolving conflict. The participants had to:

a) choose the most accurate definition of conflict among 3 offered answers;
b) estimate the frequency of 16 problematic behavior of colleagues in the workplace (such

as *Lack of patience when working with the patients*), and determine in what degree are specified behaviors the cause of them entering into conflict. The exploratory factor analysis was conducted on questions about the frequency of problematic behavior in the work of colleagues and three factors were identified which accounted for 60% of the total variance, but even after rotation the identified factors could not be interpreted in a meaningful way. As all items were saturated by the first factor, which alone accounted for the 43% of the variance, we decided to use a single-factor structure and expressed the whole score on this question/subscale. For the question how much the specified behaviors were the cause of them coming into conflict, we got a similar situation, and because all items had moderate to high saturation by the first factor which accounted for over 43% of the variance, this question/subscale is also treated as a single-factor structure.

c) estimate the presence of 9 potential problems in the organization of work (such as *Personnel shortage*). The conducted factor analysis has clearly indicated the existence of two factors which could be interpreted as *relationship problems* and *lack of resources* problems. *Relationship problems* accounted for the 31% of the variance, and this factor saturated six items, such as *lack of reward system*. The second factor – *lack of resources* accounts for the additional 28.8%, and saturates three items: shortage of personnel, shortage of working resources and shortage of space.

d) estimate the frequency of their own conflicts with the superiors, colleagues, subordinates or patients.

e) estimate the way of resolving conflict (immediately or at a later time, directly or hierarchically). For the questions marked b) to e) answers were offered on the scale from 1 – *never* to 5 – *always*.

f) estimate their own success in constructive resolution of conflict at work, and the answers were offered on the scale from 1 – *not successful* to 5 – *excellent*.

The permission to use this questionnaire was granted by the authors and some closed-ended questions were added. The questions referred to when the participants last participated in a conflict, how often conflict happens at work, which strategy they mainly use when they find themselves in a conflict (such as *establish cooperation*, or *avoid discussion*), what is the most common source or conflict (for example *age* or *sex differences*, *conflict personalities*), and what conflict influences the most (for example *productivity*, *low self-confidence*).

The second questionnaire used was the Questionnaire on Emotional Labour from 2007, by Näring, Briët & Brouwers (9). It contains 25 closed-ended questions whose answers range from 1 – *never* to 4 – *always*. Because this questionnaire was rarely used among the Croatian population, its structure was verified using the confirmatory factor analysis on 3 factors, modeled on the three-factor structure which was obtained using the Croatian sample (10). The following factors were identified: acting (14 items; such as *I pretend to be kind at work*), expressing positive emotions (8 items; such as *I calm down agitated people at work*) and applying emotional labour (3 items, such as *I try really hard to feel the emotions I need to show to others*). After recoding the items 7, 13, 16 and 21, the higher total score on the subscales shows more prominent acting, more positive emotions and higher emotional labour.

In instructions for the participants it was pointed out that completing the questionnaires was voluntary and anonymous, and in order to ensure that, the completed questionnaires were put in a special envelope in every department.

The results were processed by SPSS software program, version 17.0.

Results

Firstly, we wanted to examine how nurses define conflict. Among the offered answers, as much as 76% participants defined conflict as a negative situation in which there is a confrontation, insulting, aggression and hostility. 13.5% participants chose the definition of conflict as an unwanted clashing situation, and only 5.8% thought that conflict is only a situation in which some people openly express their opin-

ion, disagreement or frustration. The remaining 4.7% did not choose any of the offered definitions, and did not provide their own definition either.

The average score for perceiving the frequency of problematic behavior of colleagues is in the lower half of the score scale, which shows relatively rare observation of such behavior in the work of colleagues. The participants stated that they very rarely come into conflict because of the problematic behavior of their colleagues (the arithmetic mean – the sum divided by number of statements – equals 2.1, which is closest to the answer *very rarely*). On the subscale of problems in relationships with coworkers, the average score is in the middle of the score scale, which shows periodical presence of such problems. Lack of resources is also present in the organization of participants' work activities, and the average answer is somewhere between *sometimes* and *often*.

The majority of the participants chose the answer *never* or *very rarely* to the question how often and with whom they come into conflict for all offered categories, which shows low conflict frequency. Most often superiors are the cause of conflict, while patients and their relatives and subordinates are groups with whom participants most rarely come into conflict.

For the question *When do you solve conflict in the workplace*, our participants most often decide to resolve the conflict immediately – 57.7% of them chose the terms *often* or *always* in regard to this answer, while 18.3% decide to resolve it at a later time. Only 5.7% of the participants stated that they *often* or *always* do not resolve conflicts at all. 68.3% of the participants claimed that they *often* or *always* resolve conflicts directly, while 15.4% of them prefer to do it hierarchically.

A bit more than half of the participants consider themselves successful in constructive conflict resolution (51%), 21.2% consider themselves as very successful, while one person considered herself or himself as excellent. 26.9% of them thought they are unsuccessful or not successful enough in constructive resolution of conflicts.

For the question when they took part in conflict in the workplace, as much as 50% of the participants stated that they do not remember, 18.3% claimed it was in the previous month, while 12.5% stated the conflict occurred in the previous 6 months. For 10.6% of the participants it happened in the previous year, while only 8.7% participants experienced conflict in the previous week.

Table 1. **Descriptive statistics for the subscales Frequency of problematic behavior of colleagues, Coming into conflict because of problematic behavior, Relationship problems and Lack of Resources (N = 104)**

Subscale	M	D	SD	Min	Max	Theoretical range
Problematic behavior of colleagues	47.73	33	11.884	25	75	16 – 80
Coming into conflict because of the problematic behavior	33.55	26	9.955	20	70	16 – 80
Relationship problems	17.75	16	4.906	6	28	6 – 30
Lack of resources	10.41	9	2.657	3	15	3 – 15

Legend: M — Arithmetic mean; D — Mode; SD — Standard deviation

Table 2. **Percentage of answers to the question with whom participants most often come into conflict (N = 105)**

Answer	Never	Very rarely	Sometimes	Often	Always
Superiors	49.0	32.7	13.5	1.0	3.8
Co-workers	26.0	53.8	16.3	1.9	1.9
Subordinates	46.2	46.2	6.7	0.0	1.0
Patients or relatives	51.0	42.3	6.7	0.0	0.0

The majority of the participants (41.3%) think that conflict in the workplace happens once a month, while 23.1% or them think that conflict happens only once in 6 months. 18.3% of the participants consider that conflict in the workplace happens very often. Only 10.6% of the participants experienced conflict in the workplace only once a year, while the smallest number of the participants (5.8%) state that there are almost no conflicts at all. As the cause of conflict, more than half of the participants (56.7%) most often see conflict personalities, which implies that the majority of conflicts are personal and that they occur at the individual level, while at the same time, 5.8% of them think that the cause is age or sex difference. 19.2% of the participants think the cause of conflict is unclear division of work, and 8.7% consider the unreliability of co-workers and bad management as the cause.

The great majority of the participants think that conflicts mostly affect productivity in the workplace (70.2%), 14.4% of them think that they mostly have an effect on low self-confidence, 11.5% of the participants think that conflicts mostly have an effect on psychosomatic diseases, and one participant thinks that they have an effect on mental diseases.

Table 3 shows the descriptive statistics of the extracted factors from the Questionnaire on Emotional Labour. The average score of the group of statements which are projected on the factor *Acting* is 25.36, which is a low score which shows that the participants do not tend to act out emotions, while the average score on the subscale *Expressing positive emotions* shows that they often express such emotions. The score on the subscale *Investing emotional effort* shows relatively high effort in understanding the patients' problems.

Participants with secondary education invest significantly higher emotional labour, compared with the groups of participants with college or university education (t =2.081; df = 102; p = 0.040), and they enter into conflict with fewer people (M for college and university education – 7.58; M for secondary education – 6.59); (t = 2.183; df = 102; p = 0.031).

The correlation between the examined constructs was checked, and only the significant correlations will be shown. Participants with longer work experience come into conflict in the workplace more often (r = 0.278, p = 0.004), even though the correlations are not significantly high. Furthermore, with regard to the effect of work experience, partial correlations with the control variable of work experience were calculated. The participants who act more in the workplace consider themselves less successful in constructive resolution of conflicts, but here the correlation is low as well (r = – 0.270; p = 0.006). The ones who perceive problematic behavior of colleagues more often, come more often into conflict because of such behavior (r = 0.444; p = 0.000) with a greater number people (r = 0.487; p = 0.000), they more often perceive problems in interpersonal relationships (r = 0.603; p = 0.000), as well as problems regarding the lack of resources (r = 0.260; p = 0.008), and in higher degree act out their emotions in the workplace (r = 0.265, p = 0.007).

Participants who come into conflict in the workplace more often because of the problematic behavior of others, do it with a greater number of people (r = 0.614; p = 0.000), notice problems in interpersonal relationships more often (r = 0.380; p = 0.000), and act more (r = 0.281; p = 0.004). Coming into conflict in the workplace more often because of the problematic behavior of others is negatively correlated with expressing positive emotions (r = – 0.248; p = 0.012). Noticing problems in relationships more often is correlated with a higher score on the subscale *Lack of resources* (r = 0.433; p = 0.000) and with coming into conflict with a greater number of people in the workplace (r = 0.493; p = 0.000). There is low positive correlation between the level of education of the

Table 3. **Descriptive statistics for the factors in the Questionnaire on Emotional Labour (N=104)**

Factor	M	D	SD	Min	Max	Theoretical range
Acting	25.36	23	5.377	14	41	14 – 56
Expressing positive emotions	25.71	28	3.026	19	32	8 – 32
Investing emotional effort	6.90	6	1.983	3	12	3 – 12

Legend: M – Arithmetic mean; D – Mode; SD – Standard deviation

participants and success in constructive resolution of conflict (*ro* = 0.284; p = 0.004): if the participants are more educated, then they in some degree consider themselves more successful in resolving conflicts at work.

Hierarchical regression analysis was conducted for the criterion of conflict frequency, and it was expressed in the question with whom and how often participants most often come into conflict in the workplace. We wanted to determine if adding a specific predictor, in this case emotional labour, significantly increases the predictive value of the criterion. Variables which correlate moderately with the criterion, as well as among themselves, between 0.28 and 0.6, were used as predictors

In the first step of the regression equation age and education level of the participants were introduced. According to the corrected estimate (which is in this case a better indicator than R^2, because of the greater number of predictors), 10% of the variance of the criteria was accounted for, and both predictors proved as significant: older participants and those with a higher level of education come more often into conflict. The second step included various difficulties in the workplace: problematic behavior of colleagues, relationship problems and lack of resources. By introducing this group of predictors additional 23.8% of the variance was accounted for, which represents significant contribution. The important predictors in the second step are problematic behavior of colleagues and relationship problems. Coming more often into conflict is connected with noticing unsuitable or inappropriate behavior of others more often, or it is connected with relationship problems. In the third step the group of predictors of interest were introduced, and they were the aspects of emotional labour which only account for the additional 4.6% of the variance, among which expressing positive emotions is the only significant predictor. Hierarchical analysis explained a total of 38.4% of the variance of conflict frequency. The most important predictor is problematic behavior of colleagues, and a bit less significant predictor is expressing positive emotions: there are more conflicts if a person more often notices problematic or inappropriate behavior of colleagues and if they express positive emotions at work as less as possible.

Table 4. **The hierarchical regression analysis for the criterion of conflict frequency between nurses and different categories of people (with whom and how often they come into conflict) (N = 115)**

Predictors	beta	P	Summary
1st step			***1st step***
Education	0.197	*0.039*	Adjusted R^2 = 0.100
Age	0.270	*0.005*	F (2, 100) = 6.694; P = 0.002
2nd step			
Problematic behaviors of colleagues	0.278	*0.008*	***2nd step***
Relationship problems	0.293	*0.009*	Adjusted R^2 = 0.338
Lack of resources	0.014	0.882	Δ F (3, 97) = 12.988; P = 0.000
3rd step			***3rd step***
Acting	0.055	0.525	Adjusted R^2 = 0.384
Expressing positive emotions	– 0.169	*0.044*	Δ F (3, 94) = 3.381; P = 0.021
Investing emotional effort	– 0.142	0.093	***Change of adjusted R^2 (ΔR)***
			1st step – ΔR = 0.100
			2nd step – ΔR = 0.238
			3rd step – ΔR = 0.046

Discussion

We were interested in how nurses experience conflict in the workplace, the causes, frequency and some other characteristics of conflict, and whether their perception of conflict is in some way connected with the aspects of emotional labour they are exposed to at work. More than three quarters of the participants think that conflict is a very destructive experience with which they connect aggression, hostility, confrontations and insults, while only 5.8% of the participants see the constructive side of conflict – expressing one's opinions, disapproval or frustration openly. These results show the basic lack of knowledge of the nature of conflict, which is not a good foundation for its successful resolution. Experiencing conflict in such a way causes chronic relationship problems, and this is harmful not only for the organization itself, but for providing quality nursing care as well. For comparison, in a research conducted in Bjelovar General Hospital, 54% of nurses evaluated conflict as extremely negative, which is a high percentage as well (4). Since conflict can increase the quality of decision making and enable better adjustment to change, it is not favourable that great majority of the participants evaluate conflict as a very negative experience. Therefore, a continuous education of nursing staff about conflict and its potential is needed. The assumption is that nurses with a higher level of education will provide more of the correct answers, but that was not proven. The problem probably stems from the insufficient education of undergraduate students or the atmosphere in individual organizations. Conflict is still a topic avoided in society, although it is present in some form on a daily basis. For example, in some graduate specialist nursing studies, the course Conflict Management is an elective course, and taking into consideration the importance of the topic, it would be good to include it as an obligatory course, which could contribute to changing the perception of conflict as something which is necessarily negative or unwanted.

Most of the participants have chosen answers *never* or *rarely* for the question with whom and how often they mainly come into conflict. On average, 15% of the participants sometimes come into conflict with their superiors or colleagues. Therefore it is not unusual that they avoid conflict because most of them consider conflict as an extremely negative experience. People who cause conflict are not very popular, which is a consequence of an anti-conflict culture in which we grew up (11).

Majority of the participants often or always resolve conflict immediately and in a direct manner, and more rarely hierarchically or at a later time. This means that conflicts are solved "face to face", without involving other colleagues at work. Direct and prompt resolution of conflict is usually more constructive than hierarchical or postponed approach. Hierarchical conflict resolution is adequate in situations of long lasting personal conflicts which were not resolved directly, or when the main cause of conflict is the organization of work. Therefore, it is not surprising that majority of the participants consider themselves successful in constructive conflict resolution, because they manage to solve them on their own, without the interference of their superiors. A confirmation that conflict is not frequent in the workplace can be found in the information that as much as half of the participants do not remember when they were involved in a conflict at work, and 30% of them think that conflicts occur once a month or once every six months. The great majority of participants thinks that conflicts most often harm productivity in the workplace (70.2%), which is an argument in favor of the presumption that conflicts should be resolved constructively, because otherwise, they directly impact the quality of the provided health care.

A little more than half of the participants see conflict personality as the most often cause of conflict, and only a smaller part think that the cause can be found in age or sex differences. Therefore it is possible to conclude that the main cause of conflict can mostly be found in character traits. For comparison, in hospitals in Rijeka and Zadar the causes of conflict in the workplace are in the highest percentage of non-professional character (72%), i.e., to be more precise, due to differences in character traits (12). Professional causes are marginalized in comparison to personal differences. It should not be surprising that the most often causes of conflict are interpersonal relationships, since nursing always encompasses teamwork, which is exceptionally demanding; every member has their role and responsibility, which opens up a possibility for potential escalation of conflict between them. Many situations can be a possible source of conflict: maltreatment or violence towards coworkers, marginalization of those who are

different, different perception of work among colleagues of different age, work experience, education level or cultural values, the fact that trainees and/or new workers do not have the support of the experienced nurses or organization system of the hospital, etc. (13). Therefore, it is somewhat surprising that the participants think that sociodemographic differences very rarely become the source of conflict, and at the same time, we experience emphasis of such differences and polarization in our society. At the same time, it has been shown that participants with college or university degree come into conflict with more people than the participants with secondary education; so there is the difference which is linked to certain sociodemographic characteristics. Of course, these results should be taken with caution, because the research was conducted in only one health institution, which could have its own specific organizational characteristics.

The most often cause of conflict at the level of an organization is unclear division of work, followed by unreliability of coworkers and bad management. However, character traits remain the main cause of conflict. In almost every organization there are people with difficult personality, who see a great problem in a small difficulty, who are demanding or tend to constantly complain. Such individuals tend to also come into conflict more often. This may also be pointed at by the finding that those who notice inappropriate or problematic behavior of others at work come into conflict more often, with more people and more often notice problems in interpersonal relationships because of the organization of work. This could have something to do with perfectionism as a character trait when a person is very demanding at work and experiences frustration when people around them do not meet their high standards, especially when this interferes with workplace obligations of that person.

Regarding the emotional labour to which participants are exposed, it cannot be stated that it is very significant: *expressing positive emotions* occurs more often than *acting* or *investing emotional effort:* employees of the Clinic only sometimes act out emotions, and often feel or try to feel positive emotions. The results are in accordance with the research by Petrak and associates, which showed that nurses only sometimes turn to acting out or concealing emotions, and a bit more often show positive emotions sincerely, and often behave in accordance with workplace demands (10). The nurses with secondary education invest significantly more emotional labour than nurses with college or university degree. The reason for this could be education in the field of health psychology and communication skills, which is a part of the curriculum at higher levels of education.

Participants with college or university degrees come into conflict with a greater number of people, which is as expected, because college or university include a broader scope of education (such as learning about emotional intelligence, conflict and assertiveness as way of conflict resolution, etc.) which gives higher self-confidence and active approach to problems which participants encounter at work. Participants with a higher level of education cooperate with more people of different professions and education levels, manage various groups of employees, negotiate, manage and motivate their subordinates.

Participants with more work experience come into conflict with a greater number of people in the workplace. The results are as expected, because the experience gives them greater self-confidence, security and greater freedom, because of which they will not avoid conflicts when they appear. This finding could be interpreted by the cumulation of the number of people with whom a participant came into conflict, which happens during greater period of time.

Participants who act more at work, as well as those with secondary education, see themselves as less successful in constructive resolution of conflicts, which is what was expected. Namely, constructive resolution of conflicts demands a certain level of knowledge and experience and developed communication skills. The conditions which are necessary for constructive conflict resolution are trust among the participants in the conflict, revealing who the participants are, accurate perception of the conflict, cooperation among the participants in the process of resolving conflict and their sincere communication (14, 15).

Participants who more often come into conflict at work because of the problematic behavior of colleagues, more often notice problems in the organization of work regarding interpersonal relationships and come into conflict with a greater number of people. The results of an Australian research (16) indicate that nurses come into conflict most often during shift handover, just because of work overload during their shift. After a hard day or night at work, it is very difficult to hide negative emotions which appear af-

ter physical, psychological and emotional overload. Those who more often state shortcomings in the organization of work, come into conflict with more people in the workplace. It is very hard to work in a place with any type of poor organization. Insufficient number of nurses in a shift frustrates individuals and the whole team, because there is always fear that something will not be done in time or that a patient will be left without care, and lack of equipment and unclear task delegation make the situation even worse (17).

Hierarchical regression analysis with the criterion of conflict frequency, which was expressed by the question with whom they most often come into conflict at work, was conducted in three steps and it explains over 30% of the criterion variance. In the first step, age and education level have solid and significant contribution to explaining the criterion. As it was mentioned earlier, it was expected that the frequency of conflict increases with age because of the accumulation of such experiences through the years, and people with a higher level of education are more conscious of their rights and more self-confident as well, and they have higher skills of standing up for what they believe in, so they are more ready to enter into conflict. In the second step, by controlling age and education level, perception of problematic colleague behavior and relationship problems appeared as significant predictors. Their contribution to the explanation of the variance of conflict frequency is significantly higher than with previous predictors (over 23%). This indicates that relationships are primarily the foundation for conflict, but we cannot be completely sure about the background of this finding. Namely, it is possible that a health professional has very high criteria (which can be of decisive importance in health care), and justifiably requires from their colleagues to adhere to those criteria, but the colleagues do not agree with that. However, the situation could be different as well, for example, there is a person with conflict personality who notices and points to the smallest mistakes made by others, and with such behavior causes conflict more often, because they exaggerate in their criticism. It is known that some types of personalities, for example rigid, inflexible people, are more prone to conflict than others (18). Although emotional labour in the third step significantly and independently contributes to the explanation of the variance of conflict frequency, this contribution is still limited, and the only significant predictor in this group is expressing positive emotions which is in negative relationship with the criterion. This analysis does not explain causal relationship between the variables, so it is possible that a person who feels better and expresses this enters into conflict less. On the other hand, it is possible that positive emotions are the consequence of the pleasant work atmosphere with fewer number of conflicts. The contribution of emotional labour in the explanation of conflict frequency is significant, but still weak.

Suggestions for further research are oriented towards the verification of the specified constructs on other, larger samples, and the improvement of the Questionnaire on Various Features of Conflict, which participants mainly found to be too comprehensive, and some questions were unclear to them, especially those related to the problematic behavior of colleagues and frequency of entering into conflict. Therefore, the recommendation for future users is to shorten the questionnaire and make the questions more simple. It is also necessary to find a more precise quantitative measure of conflict frequency than the one used in this research (such as: with whom and how often do you come in conflict), and introduce some personality dimensions which could additionally explain the relationship between the cause of conflict and its frequency.

Conclusion

Conflict is a significant part of our everyday life and we react to it in the way we learned through life. However, through formal education we become aware of the skills needed to manage and solve it. It seems that in Croatia we still do not hear enough about this "undesirable" topic. Namely, the great majority of the participants in this research see conflict as an exclusively destructive occurrence. Conflict defined in this way is not frequent in the work of nurses. Participants stated that they enter into conflict very rarely and in most cases with their superiors. More educated and older participants enter into conflict more often. Interpersonal relationships turned out to be the most important feature of conflict. Regardless of the effort, difficulties and lack of resources which

nurses encounter, it seems that quality relationships are of decisive importance for creating a working atmosphere without incidents, and could in some degree compensate for hard working conditions.

Nurses in the institution in which the research was conducted are not very exposed to emotional labour. Only sometimes they turn to acting out emotions, the emotional labour is not significant, and they often feel or try to feel positive emotions. A lower education level is connected with greater emotional labour. Hierarchical regression analysis has shown that conflict is more frequent as the participants are older, as they notice more problematic behavior of colleagues or when they show positive emotions to a lesser degree. Emotional labour plays a significant, but small part in conflict frequency.

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PERCEPCIJA SUKOBA I EMOCIONALNI NAPOR U SESTRINSTVU

Sažetak

Sve intenzivniji način života i rada te globalna kriza koja za sobom povlači nedostatak sredstava za rad otežavaju pružanje adekvatne zdravstvene skrbi i dovode do stresa i sukoba na različitim razinama zdravstvene djelatnosti. Zdravstveni djelatnici svakodnevno su izloženi emocionalnom naporu – upravljanju i reguliranju svojih emocija, što ih može iscrpljivati, otežavati rad i pospješiti pojavu sukoba. No moguće je i da su sukobi izvor stresa i negativnih emocija koje zahtijevaju veći emocionalni napor za njihovo prikrivanje ili potiskivanje.

Cilj istraživanja bio je ispitati različita obilježja sukoba na radnom mjestu, razinu emocionalnog napora koje doživljavaju medicinske sestre te odnos percepcije sukoba i emocionalnog napora.

Istraživanje je provedeno anonimno na prigodnom uzorku od 104 medicinskih sestara (94,2 %) i tehničara (5,8 %) u Klinici za infektivne bolesti u Zagrebu. Prosječna je dob sudionika 36 godina, a radnog staža 15,9 godina. Korišten je upitnik o različitim obilježjima sukoba autora Stojčić i Perković te Upitnik emocionalnog napora autora Näring, Briët i Brouwers.

76 % sudionika percipira sukob kao destruktivnu pojavu. Sukobi na radnom mjestu nisu učestali, a većina sudionika smatra se uspješnima u konstruktivnom rješavanju sukoba. Više se sukobljavaju oni s dužim radnim stažem. Medicinske sestre nisu izložene intenzivnom emocionalnom naporu; djelatnici sa srednjom stručnom spremom ulažu veći emocionalni trud u odnosu na one s višim obrazovanjem. Hijerarhijska analiza pokazala je da se setovima prediktora (dob i stručna sprema, različiti problemi u radu, emocionalni napor) može objasniti 38,4 % varijance učestalosti sukoba, pri čemu su značajni prediktori dob, problematična ponašanja suradnika i izražavanje pozitivnih emocija. Emocionalni napor ima značajan, ali skroman udio u učestalosti sukoba.

Ključne riječi: medicinske sestre, sukob, emocionalni napor, emocionalni rad

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Quality of Life and Awareness of the Role of Physiotherapy in Patients with Leukemia and Lymphoma

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Abstract

Leukemias and lymphomas are malignant tumors and leading primary haematological diseases that can significantly impair the quality of life of the affected person. The aim of this study is to gain insight into the quality of life and functioning of patients with leukemia and lymphoma and their awareness of the role of physiotherapy in the process of treatment and rehabilitation. The study was conducted on 24 patients with leukemia or lymphoma, using the Personal Wellbeing Index (PWI) and a standardized questionnaire of the European Organisation for Research and Treatment of Cancer, the EORTC QLQ-C30, for assessing certain aspects of quality of life. In addition, data were collected on the awareness and experience of patients with physiotherapy.

The assessment of quality of life showed that emotional functioning may be impaired in the long term in people with leukemia and lymphoma, while cognitive function positively correlated with the time elapsed since the diagnosis. Respondents were generally well-informed about the role of physical activity and physiotherapy in the process of leukemia and lymphoma treatment and rehabilitation. This was particularly pronounced in those respondents who reported engaging in sports activities. On the other hand, a small number of respondents got recommendations to engage in physiotherapy, which is also confirmed by their opinion that physiotherapy is not readily available to people with leukemia and lymphoma.

Introduction

Leukemias and lymphomas are malignant tumors that make the predominant group among the primary hematological diseases. They develop in the bone marrow from hematopoietic stem cells when numerous genetic rearrangements and dying of a large number of cells during apoptosis take place. These processes are susceptible to the development of oncogenic changes with the development of leukemia and lymphoma (1, 2).

The primary clinical feature of leukemia is the accumulation of leukemia cells in the bone marrow and their presence in peripheral blood, while lymphomas are manifested by the increase of lymph nodes and other organs containing lymphatic tissue, such as the spleen, tonsils, gastrointestinal tract, skin, lungs and central nervous system (3).

The quality of life in people with leukemia and lymphoma is affected not only by the symptoms of the disease, but also by the side effects of the treatment, which is long-lasting and exhausting (4, 5). Due to the illness itself, the treatment (6) and the hospitalization (7), as well as the recommendations for the patients to rest and avoid physical activity (8), there is an increase of immobility and reduction of physical fitness leading to muscle atrophy (9).

Oncologic diseases can be looked upon as chronic diseases because, with the advancement of medicine, many types of tumors are successfully cured today. In addition to medical treatment, physiotherapy within oncology rehabilitation allows patients to return to their daily life activities, and it is therefore necessary in order to maintain the quality of life (10). Some research suggests that there are positive effects of physiotherapy intervention on the improvement of the quality of life of the patients (11).

Oncological rehabilitation is the rehabilitation that is concerned with achieving maximum functioning in all areas (physical, mental, social, spiritual and professional) within the constraints caused by the illness and treatment procedures (12).

It represents a complex and challenging area of rehabilitation where different professionals from the field of biomedicine, humanities, social and other sciences have their place (13).

The aim of this study was to gain insight into the quality of life and functioning of patients with leukemia and lymphoma and their awareness of the role of physiotherapy in the process of treatment and rehabilitation.

Methods

Sample description

26 patients participated in the research. Two of them were underage and due to the specific nature of childhood age they were excluded from analysis. The average age of respondents was 45 years, with the youngest being 23 and the oldest 80 years. 17 (71%) of the respondents were female and 7 (29%) male. Half of the respondents have completed college or university education. Also, 50% of the respondents were married, 20% of the respondents declared themselves as single, while the remaining 30% indicated other marital status. The average time elapsed from the diagnosis in the sample was 7 ± 6 years. The most recent diagnosis was given two months before the research was carried out, and the oldest 23 years ago.

Measuring instrument

For the purposes of data collection, an online questionnaire was created containing the questions that were grouped into four categories: general sociodemographic data, quality of life, personal wellbeing, use of physiotherapy in the treatment of leukemia and lymphoma. The European Organization for Research and Treatment of Cancer's Quality of Life Questionnaire (EORTC QLQ-C30, Version 3.0) was used to assess the quality of life (14). The questionnaire consists of five functional scales (physical, role, cognitive, emotional and social functioning), three scales of symptoms (fatigue, pain, nausea/ vomiting), scales of global health status and quality of life and six single items representing the most common symptoms of malignant diseases (loss of appetite, insomnia, dyspnea, constipation, diarrhea and financial difficulties due to the illness and treatment). All

the items were scored on a Likert scale from 1 to 4, except for the global health status / quality of life score that was scored on a linear analogue scale of seven points. The quality of life assessment refers to seven days preceding the test. All results were linearly transformed and converted into a scale from 0 to 100. A higher score on functional scales indicates better functioning, while the higher score on symptom scales indicates a greater presence of symptoms. Personal Wellbeing Index (PWI) was used to estimate personal wellbeing (15). Together with the National Wellbeing Index (NWI) it is an integral part of the International Wellbeing Index (IWI). The Personal Wellbeing Index in this study consisted of seven items that were scored on a Likert scale from 0 to 10. The results were transformed and converted into a scale from 0 to 100. A higher result means a higher degree of satisfaction with a particular area of life. Questions related to the use of physiotherapy in the treatment of leukemia and lymphoma included respondents' personal experience with physiotherapy. Satisfaction with physiotherapy was assessed on the Likert scale from 1 to 5. Furthermore, awareness of the role of physiotherapy in leukemia and lymphoma treatment and rehabilitation was investigated. Respondents expressed the degree of agreement with a series of statements about physiotherapy using a Likert scale from 1 to 5. Finally, closed single-choice questions were used to collect data on the respondents' sports activities.

Procedure

The questionnaire was distributed and submitted online, with the help of the Croatian Leukemia and Lymphoma Society (HULL) and groups of patients with leukemia and lymphoma on social networks. Data was collected anonymously in December 2016. SPSS Statistics 17.0 was used for statistical data analysis.

Results

Personal wellbeing in patients with leukemia and lymphoma

Personal wellbeing of the respondents was evaluated based on the satisfaction with the items shown in Table 1. These are standard of living, health, life achievements, relationships with the loved ones and relatives, community affiliation, current sense of security and a sense of security in the future. Respondents were most satisfied with the relationship with their loved ones and relatives, while security in the future was the worst rated item.

Quality of life of patients with leukemia and lymphoma

Quality of life was estimated based on the current degree of physical, cognitive, role, emotional and social functioning as shown in Table 2 and the occurrence of common symptoms such as fatigue, nausea and pain (Table 3).

Table 1. **Assessment of personal wellbeing of leukemia and lymphoma patients**

Factor of personal wellbeing	Average score	Standard deviation
Standard of living	68.8	20.5
Personal health	70.4	22.7
Achieving in life	72.1	22.3
Personal relationships	90.8	11.4
Personal safety	77.9	22,5
Community – connectedness	77.1	22.4
Future security	62.1	26.0

Table 2. **Assessment of quality of life of leukemia and lymphoma patients**

Quality of life factor	Average value	Standard deviation
Physical functioning	75.8	21.2
Role functioning	59.0	30.7
Cognitive functioning	61.1	29.8
Emotional functioning	49.3	30.3
Social functioning	57.6	32.6

Table 3. **Presence of symptoms in patients with leukemia and lymphoma**

Symptom	Average value	Standard deviation
Fatigue	56.9	29.5
Nausea and vomiting	55.6	32.1
Pain	39.6	38
Dyspnea	30.6	38
Insomnia	44.4	40.1
Loss of appetite	31.9	41.1
Constipation	50	33.6
Diarrhea	38.9	39.3
Financial difficulties	59.7	23.9

Physical functioning was rated as the best, while the worst rated was emotional functioning.

Of the typical problems, the respondents were most affected by financial difficulties caused by illness and treatment, fatigue, nausea and vomiting. The average satisfaction of the respondents with their general health condition at the time of the study was 73 out of the possible 100 points. Statistical analysis has shown that cognitive function correlated positively with the time elapsed since the diagnosis ($r = 0.493$, $p = 0.014$). In other words, the cognitive function improved with time elapsed since the diagnosis was established. Time elapsed since the diagnosis was not statistically significantly related to other aspects of functioning. Also, those who reported sporting activities ($N = 10$) have statistically significantly better rated their role functioning ($t = 2.062$; $p = 0.051$). On the other hand, the presence of characteristic symptoms did not show correlation with the time elapsed since the diagnosis. Age was not significantly related to any single aspect of functioning or frequency of symptoms.

Use of physiotherapy in rehabilitation of people with leukemia and lymphoma

When asked if they had any personal experience with physiotherapy, 10 (42%) respondents responded positively. Four reported leukemia or lymphoma related complications as the reason, while the remaining six reported some other reason unrelated to the primary disease and the treatment did not take place at the same time as the treatment for leukemia or lymphoma. Among the respondents whose physiotherapy was associated with primary disease, one reported the use of physiotherapy for the duration of therapy, one for both during and after the completion of the therapy, and two after the completion of the treatment for leukemia or lymphoma. Therapeutic exercises were the main therapeutic modality. They were reported by all four respondents. Breathing exercises were reported by two respondents out of four. Also, one person reported the use of lymph drainage. The average satisfaction with physiotherapy, regardless of the duration and the reason for the use of physiotherapy, was 3.7 ± 1.2. When asked whether physiotherapy was recommended or prescribed to them during the treatment and rehabilitation, three (13%) respondents responded positively.

The availability of physiotherapy was generally estimated as low (M = 2.1; SD = 0.9). Examining the awareness of the role of physiotherapy in the treatment and rehabilitation in patients with leukemia and lymphoma showed that respondents felt that physiotherapy could alleviate the side effects of therapy and contribute to the recovery from the disease and rehabilitation in patients with leukemia and lymphoma. An overview of the level of information on the role of physiotherapy is presented in detail in Table 4. No statistically significant difference was found between respondents who do and do not have personal experience of physiotherapy in terms of agreeing with any of the statements as well as the availability of physiotherapy (t = -0.983; p = 0.330).

Respondents generally consider engaging in physical activity as desirable. 42% of the respondents were recreationally involved in some sporting activities. None of the respondents reported being involved in competitive sports. They mostly reported aerobic exercises such as walking, running, swimming and cycling.

Respondents who reported being engaged in sports activities were statistically significantly better informed about the following physiotherapy-related statements: "Physiotherapy can alleviate unwanted side effects of leukemia and lymphoma treatment" (t=2.093; p=0.048) and "People with leukemia and lymphoma should avoid physical activity to maintain their strength" (t=-2.756, p=0.012). For the statement "Physiotherapy is an integral part of the treatment and rehabilitation of people with leukemia and lymphoma" (t=2.003; p=0.058), the level of statistical significance ($p<0.05$) was not reached, but the tendency to agree with that statement is still slightly higher among those who are engaged in sports. The results of the connection between sporting activities and awareness of the role of physiotherapy in the process of treatment and rehabilitation of people with leukemia and lymphoma are given in detail in Table 5.

Table 4. **Awareness of patients about the role of physiotherapy in leukemia and lymphoma treatment and rehabilitation**

Statement	Average score	Standard deviation
"Physiotherapy is an integral part of the treatment and rehabilitation of people with leukemia and lymphoma"	3.5	1.3
"Physiotherapy can contribute to the recovery and rehabilitation of people with leukemia and lymphoma"	3.8	1.3
"Physiotherapy can alleviate unwanted side effects of leukemia and lymphoma treatment"	3.7	1.0
"People with leukemia and lymphoma should avoid physical activity to maintain their strength"	1.9	0.9

Table 5. **Relationship between sports activities and awareness on the role of physiotherapy in the process of treatment and rehabilitation of people with leukemia and lymphoma**

Statement	t-test	
	t-value	p-value
"Physiotherapy is an integral part of the treatment and rehabilitation of people with leukemia and lymphoma"	2.003	0.058
"Physiotherapy can contribute to the recovery and rehabilitation of people with leukemia and lymphoma"	1.022	0.318
"Physiotherapy can alleviate unwanted side effects of leukemia and lymphoma treatment"	2.093	**0.048**
"People with leukemia and lymphoma should avoid physical activity to maintain their strength"	-2.756	**0.012**

Discussion

Rehabilitation of patients with leukemia and lymphoma is a relatively new and unexplored area. The current medical knowledge focuses mainly on primary therapy and recovery, which are becoming more and more successful. However, we should not neglect the quality of life and the functioning of people, which can be significantly impaired in the process.

The data obtained by this research are based on a relatively small number of respondents who make a very heterogeneous group with regard to the time of the diagnosis and treatment of the disease. Only three respondents were diagnosed with leukemia or lymphoma within a year with regards to the time of the study. It would be of interest to identify the reasons for the low turnout of the newly diagnosed. Some of the possible reasons are their own psychological barriers in publicly acknowledging their illness and lack of awareness of a support system in the form of a patient association, which was the main source of respondents for this research. It is important to strengthen the connection between healthcare professionals and associations whose activities are aimed at people with leukemia and lymphoma in the future. In addition to the wellbeing of the patients, it also enhances the monitoring of their functioning and quality of life, which is the basis for creating future health guidelines for this population. Furthermore, it would be advisable to distinguish between patients with leukemia and lymphoma in future studies in order to detect the possible difference between these two populations.

When it comes to personal wellbeing of the respondents, the item that has proved to be the most critical is uncertainty in what the future brings. Without a healthy control group, it is difficult to ascertain to what extent this insecurity is the consequence of the illness and how much of the general state of the society. Research on a sample of healthy Croatian citizens has also shown that they are on average the least satisfied with the security in the future and their standard of living, and most satisfied with relationships with their family and friends (16). In any case, it would be desirable to involve patients in transdisciplinary rehabilitation programs that will contribute to the preservation and enhancement of both physical and psychological functions that may be affected by the disease. In support of this is the fact that emotional functioning has shown to be the worst of all evaluated functions. It is followed by social functioning, while the physical functioning has been rated as the best by far. Similar results were obtained in women with breast cancer (17) and laryngectomized persons (18) where the area of emotional functioning was identified as the worst. It should be taken into account that the respondents in this study are people whose acute phase of treatment and rehabilitation, associated with the greatest physical difficulties, is mainly behind them. It is therefore logical that the prevailing problems are psychological problems. An important determinant of their psychological state is the financial burden of a disease whose effect can be felt even a certain amount of time after the treatment is over. In the examined sample, financial difficulties are the ones defined as the greatest accompanying burden of the disease. Accordingly, the standard of living is also estimated as relatively low. On the other hand, relations with the loved ones and relatives were most satisfying for the patients, which is encouraging given the important role of family and friends in the process of treatment and rehabilitation. Based on the meta-analysis, Allart-Vorelli et al. concluded that the quality of life of the people with hematological tumors is significantly impaired, with the most pronounced symptoms of tiredness, pain and reduced overall vitality due to illness and treatment, which is consistent with the results of our research (19).

Data relating to the role of physiotherapy in the treatment and rehabilitation of patients with leukemia and lymphoma is difficult to comment as fewer than 50% of respondents have experience with physiotherapy, and only four (17%) used physiotherapy in the context of the primary disease. What is certainly a devastating fact is that only three (13%) of the respondents were referred to some form of physiotherapy in the process of their treatment and rehabilitation. What would be of interest to find out in the future, and is not covered by this questionnaire, is the source of recommendation. Are they health professionals, families and friends or patient associations who have the greatest influence on inclusion of physiotherapy in the treatment process?

It is encouraging that respondents are generally well-informed about the role of physiotherapy in the context of treatment of leukemia and lymphoma.

Unfortunately, the availability of physiotherapy is considered lacking, which is consistent with a small number of recommendations for its implementation. Engaging in a sport activity is associated with greater awareness of the role of physiotherapy in treatment, which can be interpreted as a result of personal experience of beneficial effect of physical activity. More research suggests that physical activity can have a significant effect on different aspects of functioning and diminishing the occurrence of symptoms in people with tumors (19). Thus, effective exercise has been shown to improve the quality of life, cardiorespiratory functions, physical functioning and fatigue in breast cancer patients (20). Taking into account the impaired emotional functioning of our respondents, the impact of physical activity on mental health should also not be neglected. A possible reason for that is the contribution of social interactions involving group exercising as well as the effect of distracting attention from the disease and treatment, which helps to reduce the negative impact (21). Mishra et al. found in their meta-analysis the positive effects of exercise on health-related quality of life in different domains of functioning in cancer patients after the treatment was completed (22). This points to the importance of systematically involving different physical activity programs in clinical guidelines or recommendations for work in phases of rehabilitation and inclusion of a physiotherapist as a mandatory member of a multidisciplinary team.

Conclusion

This research has shown that psychological and emotional functioning can be impaired in the long term in people treated for leukemia and lymphoma. Consideration should be given to the possibility of active inclusion of patients in some form of organized psychological support. Regular physical activity is also a significant factor in psychological wellbeing and it should be adapted to the specifics of this population in order to prevent injuries and further damage to the health status. In this sense physiotherapy is certainly the method of choice.

Respondents are generally well-informed about the role of physical activity and physiotherapy in the process of leukemia and lymphoma treatment and rehabilitation. This was particularly pronounced in those respondents who reported engaging in sports activities. On the other hand, few respondents got recommendations to engage in a physiotherapy process, which is also confirmed by their opinion that physiotherapy is not readily available to people with leukemia and lymphoma.

The availability of physiotherapy is directly related to the awareness of all participants in the treatment process about its contribution. That is why the first step in better implementation of physiotherapy in the treatment of people with leukemia and lymphoma is the education of the patients and their families, as well as health professionals. Important links in this process are patient associations in which the experiences of patients and members of the health team come together. Additionally, it is important to continue research on a greater number of respondents with an emphasis on people who are in the process of treatment or have just completed it.

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KVALITETA ŽIVOTA I INFORMIRANOST O FIZIOTERAPIJI MEĐU OSOBAMA OBOLJELIMA OD LEUKEMIJE I LIMFOMA

Sažetak

Leukemije i limfomi zloćudni su tumori i vodeće primarne hematološke bolesti koje mogu znatno narušiti kvalitetu života oboljelih osoba. Cilj je ovog istraživanja dobiti uvid u kvalitetu života i funkcioniranje osoba oboljelih od leukemije i limfoma te njihovu informiranost o ulozi fizioterapije u procesu liječenja i rehabilitacije. Istraživanje je provedeno na 24 osobe oboljele od leukemija ili limfoma, pri čemu je primijenjen Indeks osobne dobrobiti (PWI) te standardizirani upitnik Europske organizacije za istraživanje i liječenje raka EORTC QLQ-C30 za procjenu pojedinih aspekata kvalitete života. Također, prikupljeni su podaci o informiranosti i iskustvu pacijenata s fizioterapijom.

Procjena kvalitete života pokazala je da emocionalno funkcioniranje može biti dugoročno narušeno u osoba oboljelih od leukemije i limfoma, dok je kognitivna funkcija pozitivno korelirala s vremenom proteklim od postavljanja dijagnoze. Ispitanici su uglavnom dobro informirani o ulozi tjelesne aktivnosti i fizioterapije u procesu liječenja i rehabilitacije kod leukemije i limfoma. To je bilo posebno izraženo u onih ispitanika koji su prijavili bavljenje sportskom aktivnošću. S druge strane, mali broj ispitanika dobiva preporuke da se uključe u fizioterapijski proces, što potvrđuje i njihovo mišljenje da fizioterapija nije lako dostupna osobama oboljelima od leukemije i limfoma.

Ključne riječi: fizioterapija, kvaliteta života, leukemija, limfom, tjelesna aktivnost

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The Difference in Body Temperature Measured on the Tympanic Membrane, in the Axilla and with Infrared Sensor Thermometer in Pulmonary Intensive Care Patients

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Abstract

Introduction. Measurement of body temperature in an intensive care unit is a standard procedure that provides quick insight into the patient's condition and possible changes in that condition. The measurement is carried out at different parts of the body and with the help of different thermometers. Patients in intensive care units are hemodynamically unstable, subjected to various invasive methods, and temperature indicates possible changes in their condition.

Aim. The aim of this research was to determine if there are differences between the body temperature values measured in the axilla, on the tympanic membrane and using the infrared sensor thermometer on the patient's forehead with regard to the age, gender and the diagnosis of the patient.

Methods. The research was carried out in the Intensive Care Unit of the Clinic for lung diseases Jordanovac, in the period from January 2nd to July 2nd 2017. Author of the research did the measurements by herself during her work shifts. Research included 100 patients. Methods that were used were descriptive statistics (measures of central tendency, arithmetic mean, median and mod) and measures of variability (standard deviation, minimum and maximum). One-way analysis of variance (ANOVA) was also conducted.

Results. A statistically significant difference was determined in the measured temperature values using the infrared sensor thermometer on the patients'

forehead which were higher than the axillary and tympanic temperatures in male patients, patients younger than 70 years and in patients with COPD.

Conclusion. It is important to choose the adequate method of body temperature measurement, taking into account the peculiarities and the clinical condition of the patient, and the advantages and disadvantages of each measurement procedure. It is necessary to combine or repeat measurements in order to be completely sure of the obtained values. In patients in pulmonary intensive care units taking axillary temperature is recommended.

Introduction

Body temperature is an important vital sign measured every day, few times a day in pulmonary intensive care units in order to have an insight into the patient's condition. Body heat is constantly created by the exchange of matter in tissue cells and organs (core temperature), and is released into the environment at the surface of the body (peripheral temperature) by radiation, evaporation, sweat and body fluids (1). The hypothalamus and its control center for body temperature (preoptic frontal area of the hypothalamus) play the main role in the regulation of body temperature (2). Most nerves are sensitive to heat, and a small part is sensitive to cold. When nerves are warming up the body starts to sweat, and when they are cooling down every mechanism for controlling heat loss is inhibited. There are more cold receptors in the body periphery and they are all controlled by the hypothalamus. Heat receptors can also be found in the deep tissue and they are exposed to the core body temperature. Specific factors that have an impact on the body temperature are a 24-hour rhythm (body temperature is lower in the morning and higher in the afternoon), hormones (progesterone increases body temperature) and emotions (anxiety also increases body temperature) (3).

Most body heat is created in the muscles and liver, excess of heat is given out of the organism, mostly through skin, by process of radiation, convection, conduction and evaporation (4). Radiation is the process of losing heat to the environment by radiating, and in this way about 60% of the heat is lost. Convection is releasing heat to the environment by airflow, and in this way about 12% of the heat is lost. The conduction is the loss of the heat by transferring heat directly from the body surface to other objects (e.g. bed), in such a way only about 3% of the heat is lost because the objects in the environment heat up fast. Evaporation is the process of losing heat through the evaporation of water from the surface of the body. This is a particularly important way of releasing heat at high environment temperature, when an organism does not lose heat by radiation and convection but receives it (when the environment temperature is higher than the body temperature, then the body begins to receive heat instead of losing it to the environment) (4).

Body temperature is measured for a number of reasons – to assess the patient's condition upon admission and to determine the important changes in the patient's condition in the shortest time possible. While taking the body temperature, we want to measure the core body temperature (5), and in patients in intensive care units this most often involves insertion of a catheter in the pulmonary artery (5). Other invasive methods of measuring the body temperature include measuring the temperature in the esophagus, urinary bladder, large intestine, while methods used more frequently are non-invasive methods such as measuring the temperature orally, in the axilla, on the tympanic membrane (5, 6) and with an infrared sensor thermometer on the patient's forehead.

Out of non-invasive methods used in practice in Croatia the most used in adult patients are measuring body temperature in the axilla, on the tympanic membrane and lately, using the infrared sensor thermometer on the temporal artery.

A lot of factors affect the measured body temperature values such as the position of the thermometer, sweaty forehead when measuring the temperature with infrared sensor thermometer, a lot of cerumen in the ear, lying on one's ear or the accuracy of the thermometer (dirty lens) (7). While interpreting the measured values it is important to indicate the place of measurement so that the values would not be considered as elevated.

Body temperature value is an important vital sign in pulmonary intensive care patients based on which a series of diagnostic and therapeutic procedures are determined, so the place of measurement and the measurement procedure is highly important.

The aim of this research was to determine if there are differences in body temperature values measured in the axilla, on the tympanic membrane and with the infrared sensor thermometer on the patient's forehead, and to determine if there are differences between the measured values with regard to the age, gender and diagnosis of the patient. The research was conducted because of frequent differences in the measured values with regard to the method of measurement in a large number of patients.

Methods

There were 100 subjects that participated in the research, 63 of them were male and 37 were female. During data analysis, with regard to the medical diagnosis, we statistically compared the subjects with medical diagnosis that occurred in more than 10 patients. There were 32 patients with COPD, 25 with pneumonia, and 11 patients with embolism. The rest of the diagnoses included: the condition after transplantation, pulmonary hypertension, hemoptoe, fibrosis, tracheal stenosis (32 patients). Subjects were divided into three groups with regard to the age of the patient. There were 20 patients up to 55 years of age, 45 patients from 56 – 70 years and 35 patients older than 71 years of age.

The research was conducted over a 6-month period, from January 2nd till July 2nd 2017 and it included all the patients in the Intensive Care Unit of the University Hospital Centre Zagreb, Clinic for lung diseases Jordanovac, regardless of their medical diagnosis, gender or age. The author of the research did measurements on all the subjects by herself during her shifts. The measurements were made on the tympanic membrane, in the axilla and on patients' forehead using the infrared sensor thermometer. The average time for temperature measurement was around 10 minutes. The author respected the standards for the measurement of body temperature with an infrared sensor thermometer on the patient's forehead, with an electronic thermometer in the ear (on the tympanic membrane), and in the axilla. The standards were created in the University Hospital Centre Zagreb and published in Alfresco. The obtained results were processed using descriptive statistics (measures of central tendency, arithmetic mean, median and mod) and measures of variability (standard deviation, minimum and maximum). One-way variance analysis (ANOVA) was also used for repeated measurements (One-way Repeated Measures ANOVA). In the obtained results p-value that is considered statistically important is $p<0.05$.

Results

There is a statistically significant difference in body temperature measurements in the total sample of patients ($p<0.01$).

There is a statistically significant difference in the measured body temperature values between different methods of measurement. Higher body temperature values were obtained while measuring body temperature using the infrared sensor thermometer on the patients' forehead (Table 1).

There is a statistically significant difference in body temperature measurements in male patients ($p<0.01$).

There is a statistically significant difference in the measured values in male patients, where there is a statistically significant difference between meas-

Table 1. **Difference in body temperature with regard to the method of measurement in the total sample of patients**

	M	SD	N
Tympanic membrane	36.677	0.6969	100
Axilla	36.688	0.5973	100
Infrared sensor thermometer	36.890	0.4951	100

F=12.078; df=2.198; p=0.000

Table 2. **Bonferroni post hoc test of differences in body temperature between different methods of measurement**

Method of measurement(I)	Method of measurement(J)	M(I-J)	P
Tympanic membrane	Axilla	-.011	1.000
	Infrared sensor thermometer	-.213	0.000
Axilla	Tympanic membrane	.011	1.000
	Infrared sensor thermometer	-.202	0.000
Infrared sensor thermometer	Tympanic membrane	.213	0.000
	Axilla	.202	0.000

Table 3. **Difference in body temperature in male patients with regard to the method of measurement**

	M	SD	N
Tympanic membrane	36.590	0.7602	63
Axilla	36.644	0.6380	63
Infrared sensor thermometer	36.875	0.5208	63
F=11.632; df=2.124; p=0.000			

Table 4. **Bonferroni post-hoc test of differences between individual methods of body temperature measurement in male patients**

Method of measurement(I)	Method of measurement(J)	M(I-J)	P
Tympanic membrane	Axilla	-.054	1.000
	Infrared sensor thermometer	-.284	0.000
Axilla	Tympanic membrane	.054	1.000
	Infrared sensor thermometer	-.230	0.000
Infrared sensor thermometer	Tympanic membrane	.284	1.000
	Axilla	.230	0.000

Table 5. **Difference in body temperature in female patients with regard to the method of measurement**

	M	SD	N
Tympanic membrane	36.824	0.5520	37
Axilla	36.762	0.5209	37
Infrared sensor thermometer	36.916	0.4537	37
F=2.039; df=2.72; p=0.138			

uring body temperature with the infrared sensor thermometer and measurements in the axilla or on the tympanic membrane. Higher body temperature values were obtained using the infrared sensor thermometer (Table 3).

There is no statistically significant difference in body temperature measurements in female patients ($p>0.05$).

There is a statistically significant difference in body temperature measurements in patients up to 55 years of age ($p<0.05$).

There is a statistically significant difference between methods of body temperature measurements in patients up to 55 years of age, between the measurements in the axilla and using the infrared sensor thermometer. Higher body temperature values were

Table 6. **Difference in body temperature in patients up to 55 years of age with regard to the method of measurement**

	M	SD	N
Tympanic membrane	36.865	0.5284	20
Axilla	36.615	0.5224	20
Infrared sensor thermometer	36.940	0.4882	20
F=5.116; df=2.38; p=0.011			

Table 7. **Bonferroni post-hoc test of differences between individual methods of body temperature measurement in patients up to 55 years of age**

Method of measurement(I)	Method of measurement(J)	M(I-J)	P
Tympanic membrane	Axilla Infrared sensor thermometer	.250 -.075	0.182 1.000
Axilla	Tympanic membrane Infrared sensor thermometer	-.250 -.325	0.182 0.007
Infrared sensor thermometer	Tympanic membrane Axilla	.075 .325	1.000 0.007

Table 8. **Difference in body temperature in patients from 56 – 70 years of age with regard to the method of measurement**

	M	SD	N
Tympanic membrane	36.662	0.7759	45
Axilla	36.691	0.6660	45
Infrared sensor thermometer	36.958	0.5639	45
F=12.024; df=2.88; p=0.000			

Table 9. **Bonferroni post-hoc test of differences between individual methods of body temperature measurement in patients from 56 – 70 years of age**

Method of measurement(I)	Method of measurement(J)	M(I-J)	P
Tympanic membrane	Axilla Infrared sensor thermometer	-.029 -.296	1.000 0.001
Axilla	Tympanic membrane Infrared sensor thermometer	.029 -.267	1.000 0.000
Infrared sensor thermometer	Tympanic membrane Axilla	.296 .267	0.001 0.000

obtained using the infrared sensor thermometer on the patients' forehead (Table 6).

There is a statistically significant difference in body temperature measurements in patients from 56 – 70 years of age ($p<0.01$).

There is a statistically significant difference between methods of body temperature measurements in patients from 56 – 70 years of age, where the measurement using an infrared sensor thermometer is different from the tympanic membrane and axilla measurements. Higher body temperature values were obtained using an infrared sensor thermometer on the patients' forehead (Table 8).

There is no statistically significant difference in body temperature measurements in patients older than 70 years of age ($p>0.05$).

Table 10. **Difference in body temperature in patients older than 70 years of age with regard to the method of measurement**

	M	SD	N
Tympanic membrane	36.589	0.6707	35
Axilla	36.726	0.5548	35
Infrared sensor thermometer	36.774	0.3845	35
F=2.397; df=2.68; p=0.099			

Table 11. **Difference in body temperature in patients with COPD with regard to the method of measurement**

	M	SD	N
Tympanic membrane	36.613	0.6394	32
Axilla	36.613	0.5253	32
Infrared sensor thermometer	36.894	0.4724	32
F=7.975; df=2.62; p=0.001			

Table 12. **Bonferroni post-hoc test of differences between the individual methods of body temperature measurements in patients with COPD**

Method of measurement(I)	Method of measurement(J)	M(I-J)	P
Tympanic membrane	Axilla Infrared sensor thermometer	.000 -.281	1.000 0.012
Axilla	Tympanic membrane Infrared sensor thermometer	.000 -.281	1.000 0.001
Infrared sensor thermometer	Tympanic membrane Axilla	.281 .281	0.012 0.001

Table 13. **Differences in body temperature in patients with pneumonia with regard to the method of measurement**

	M	SD	N
Tympanic membrane	36.864	0.7239	25
Axilla	36.860	0.6690	25
Infrared sensor thermometer	37.032	0.6517	25
F=2.490; df=2.48; p=0.094			

There is a statistically significant difference in body temperature measurements in patients with COPD ($p<0.01$).

There is a statistically significant difference in methods of body temperature measurement in patients with COPD, where the measurement using an infrared sensor thermometer is different from the tympanic membrane and axilla measurements. Higher body temperature values were obtained using the infrared sensor thermometer on patients' forehead (Table 11).

There is no statistically significant difference in body temperature measurements in patients with pneumonia ($p>0.05$).

There is no statistically significant difference in body temperature measurements in patients with embolism ($p>0.05$).

Table 14. **Differences in body temperature in patients with embolism with regard to the method of measurement**

	M	SD	N
Tympanic membrane	36.882	0.5076	11
Axilla	36.600	0.5292	11
Infrared sensor thermometer	36.909	0.3618	11

F=2.798; df=2.20; p=0.085

Discussion

The most common way of body temperature measurement in our clinical practice is in the axilla. However, in recent times body temperature is more often measured on the tympanic membrane and using the infrared sensor thermometer on patients' forehead. Since the value of body temperature is a very important information while caring for the patients in pulmonary intensive care unit, we wanted to determine if there are differences present between body temperature values measured in the axilla, on the tympanic membrane and using the infrared sensor thermometer on the patient's forehead.

There is a statistically significant difference in the measured body temperature values in the total patient sample. Higher values of body temperature were obtained using an infrared sensor thermometer than the ones measured in the axilla and on the tympanic membrane. Barringer and associates obtained the similar results in their study conducted on preoperative and postoperative patients. They have determined that there are higher body temperature differences in preoperative patients measured on the temporal artery than in the axilla, while the average postoperative body temperature values where the same whether they were measured in the axilla or on the temporal artery (8).

Antabak and associates compared the body temperature values measured in the axilla, using the infrared sensor thermometer on the tympanic membrane and in the frontal area in afebrile children. Their conclusion was that the axillary temperature had the least dispersion of measured values and that the least reliable were temperature values measured on the tympanic membrane (9).

Except for the differences in the total sample, in our research, there are statistically significant differences in body temperature values in male subjects and in patients up to 55 years and between 55– 70 years of age, while body temperature values measured with the infrared sensor thermometer were higher than the values measured in the axilla and on the tympanic membrane.

In this research we wanted to determine if there are any differences with regard to the patient diagnosis, and there is a statistically significant difference in body temperature values in patients with COPD, where body temperature values were higher when measured with the infrared sensor thermometer than when other two methods of body temperature measurement were used (in the axilla and on the tympanic membrane).

Lawson and associates compared oral, axillary, temporal artery and tympanic membrane temperature measurements with the body temperature values measured in the pulmonary artery. They have concluded that the body temperature values measured orally and on the temporal artery were most accurate and most precise. In their research body temperature values measured in the axilla where lower than body temperature values measured in the pulmonary artery, and they state that the most precise values were obtained while measuring temperature on the tympanic membrane (6).

While measuring body temperature it is necessary to give special attention to the procedure since measurement irregularities can affect the measured body temperature values (7). In order to reduce the possibility of differences in the measured values, in our research all measurements were performed by the same researcher keeping in mind the standardized measuring procedure.

The research that was conducted in the Pediatric unit of the Children's Hospital Boot Hall in Manchester had the goal to research the variability of body tempera-

ture measured on the tympanic membrane. Measurements were conducted in both ears on afebrile children with burns, and the differences in the results were around 0.6°C. With febrile children differences in the temperature measured in the left and right ear were around 0.4-0.8°C. In their conclusion they have stated the importance of measuring the temperature using the standardized procedure, and the need for repeated measurements in both ears (10).

A research that was conducted on 20 patients with the total of 102 measurements compared the body temperature values received by measurements using an artery catheter and on the tympanic membrane. Comparison of the measurements on the tympanic membrane, in both ears, showed high variability with the percentage of mistakes of 34.4%. Temperature measurements on the tympanic membrane showed high variability in relation to the other method of measurement, and authors recommend a combination of the two measurements in hemodynamic unstable patients (11).

Guliano and associates conducted a research in an intensive care unit on 72 patients. They have conducted body temperature measurements on the tympanic membrane and orally. The obtained results showed differences in the measurements on the tympanic membrane with regard to the thermometer manufacturer. The total number of variables was lower in oral thermometer measurements. As a conclusion, they recommend measuring the body temperature using the oral thermometer only if it is not possible to insert a pulmonary catheter in hemodynamic unstable patients (12).

Even though numerous research indicate the advantages of oral measurement of body temperature, it is not used in our clinical practice.

By observing the average values of body temperature measured at different places on the body (in the axilla, on the tympanic membrane and using the infrared sensor thermometer measuring on the patient's forehead) we can see that the differences are very small and though they are statistically significant they do not present a significant difference in the clinical practice. While evaluating the patient's condition using the measured body temperature it is important to evaluate the overall condition of the patient and observe any other possible signs of elevated body temperature, and to repeat the measurement procedure at the same place or alternative places using alternative procedures.

Conclusion

The research found a statistically significant difference between the body temperature values obtained using the infrared sensor thermometer on the patients' forehead and the values measured in the axilla and on the tympanic membrane in the total patient sample, male patients, patients younger than 71 years of age and in patients with COPD. The values obtained using the infrared sensor thermometer are higher compared to the ones measured using other methods of measurement.

It is important to choose an appropriate method of body temperature measurement taking in account the particularities and the patient's clinical condition, advantages and disadvantages of each measurement procedure. Very often it is necessary to combine or repeat measurements to be completely certain in the obtained values. With patients in pulmonary intensive care units we recommend temperature measurement in the axilla, although using a classic thermometer takes longer when compared to the temperature being measured on the tympanic membrane or with the infrared sensor thermometer on the patient's forehead.

In patients who sweat profusely, body temperature when measured with the infrared sensor thermometer on the forehead can be higher compared to other two methods of measurement.

While measuring the body temperature it is important to adhere to the standardized measuring procedures.

Although a statistically significant difference has been observed, it is not clinically meaningful because the measured values are not very high in range.

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RAZLIKA U TJELESNOJ TEMPERATURI MJERENOJ NA MEMBRANI TIMPANI, AKSILARNO I INFRACRVENIM TOPLOMJEROM U PULMOLOŠKIH INTENZIVNIH BOLESNIKA

Sažetak

Uvod. Mjerenje tjelesne temperature u bolesnika u jedinici intenzivne skrbi standardni je postupak koji daje brzi uvid u stanje bolesnika i u eventualne promjene stanja. Mjerenje se provodi na različitim mjestima i uz pomoć različitih toplomjera. Bolesnici u jedinicama intenzivne skrbi hemodinamički su nestabilni, podvrgnuti raznim invazivnim metodama te tjelesna temperatura pokazuje moguće promjene u stanju bolesnika.

Cilj. Cilj istraživanja bio je utvrditi postoje li razlike u izmjerenim vrijednostima tjelesne temperature ovisno o načinu mjerenja, i to u vrijednostima izmjerenima aksilarno, na membrani timpani i infracrvenim toplomjerom na čelu bolesnika ovisno o dobi, spolu i dijagnozi bolesnika.

Ispitanici i metode. Istraživanje je provedeno na odjelu intenzivne skrbi Klinike za plućne bolesti Jordanovac u razdoblju od 2. siječnja do 2. srpnja 2017. Autorica istraživanja samostalno je mjerila tjelesnu temperaturu svim ispitanicima u svojoj smjeni. U istraživanje je uključeno sto bolesnika. Primijenjena je deskriptivna statistika (mjere centralne tendencije (aritmetička sredina, medijan, mod) i mjere varijabiliteta (standardna devijacija, minimum i maksimum), a rađena je i jednosmjerna analiza varijance (ANOVA) na ponovljenim mjerenjima (One-way Repeated Measures ANOVA).

Rezultati. Utvrđena je statistički značajna razlika u izmjerenim vrijednostima tjelesne temperature između vrijednosti dobivenih infracrvenim toplomjerom na čelu bolesnika, koje su bile više u odnosu na izmjerene aksilarno i na membrani timpani kod bolesnika muškog spola, bolesnika mlađih od 71 godinu i kod bolesnika oboljelih od KOPB-a.

Zaključak. Važno je odabrati odgovarajući način mjerenja tjelesne temperature uzimajući u obzir osobitosti i kliničko stanje pacijenta te prednosti i nedostatke pojedinog postupka mjerenja. Često je potrebno kombinirati ili ponavljati postupke mjerenja kao bismo bili u potpunosti sigurni u dobivenu vrijednost. Kod bolesnika u pulmološkim jedinicama intenzivnog liječenja preporučili bismo aksilarno mjerenje tjelesne temperature.

Ključne riječi: tjelesna temperatura, *membrana tympani*, aksilarno, infracrveni toplomjer

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Choosing Nursing as a Profession

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Abstract

The aim of the research was to determine the reasons why students enroll in undergraduate nursing studies and in what way the students' age, type of studies and familiarity with the profession affect their selection.

In total, 156 first– and second-year nursing students between the ages of 18-30 participated in the study that was carried out at the University of Applied Health Sciences in Zagreb. The students had to answer multiple choice questions about their personal reasons for choosing nursing studies and were offered four different reasons as possible answers.

Most students chose idealism as the reason for choosing nursing studies (46.2%), regardless of whether they were full-time or part-time students. Students who had not attended a secondary nursing school mainly choose materialism as the reason (20.0%). Furthermore, the choice of idealism decreases with the students who had already attended a different university (34.8%), while for the first-time students the choice of the same reason increases (48.1%).

For almost half of the interviewed students, humanity, ethics, and the desire to help are the reasons why they chose nursing studies, while 30.8% of the interviewed students selected materialism as the main reason. It is interesting that regardless of the type of reason the students chose, 95.5% concluded that they still want to work in the nursing profession in the future. Only a handful of students opted not to

choose any of the given answers, but chose to describe their own reason themselves. It is pointed out that only one student responded to the question by saying, "Because I felt the calling."

The research was based on four reasons for choosing nursing as a profession: idealism, materialism, heritage, and choosing it as their second choice. In the fifth question they had to choose one of the following reasons: idealism, materialism, heritage, or second choice. They were given the definition of every option to make sure that they would choose the right one, based on their subjective understanding of nursing as a profession.

Introduction

"The mission of nursing in the society is to help individuals, families and groups in the surrounding they live in, identify and fulfill their physical, mental and social needs. Nurses are expected to develop and perform actions that promote and maintain health, as well as prevent the development of illness. Nursing also includes planning and providing care during an illness and the recovery process, and it also encompasses physical, mental, and social views of everyday life, corresponding to the degree in which they affect health, illnesses, disabilities and death" (1). From the past until today nursing has been considered as one of the helping professions. It is a service essential to the well-being of people. Helping others to achieve the highest level of well-being is the aim of nursing and one of the basic components of professional nursing (2).

Nursing students in Croatia have about 20 courses a year in which they learn about their profession and they also increase their knowledge in hospitals. They are taught how to be humane, ethical, skillful, resourceful, calm, professional, collegial and compassionate. But what made them choose nursing studies? How long do they think about it before they choose such a profession? Decisions about jobs and careers are made at an early age. By the time students enter middle and high school they already have rejected most jobs on the basis of perceptions. The majority of students don't reject nursing, they simply do not give nursing any consideration (Foskett & Hemsley-Brown, 1998; Hemsley-Brown & Foskett,1999). Over 33% of those who choose nursing as a career do so early in life (Fuchs & Ehrenfelf, 1994). They make the decision based on stereotyped and idealized images and without a thorough knowledge of the opportunities (3).

According to a research that was carried out in the USA, most associated degree students and master students made their decision in junior high and high school, and most bachelor students made their decisions in high school or the first two years of university education. The same research also shows that students chose one of the options as the reason for choosing nursing studies as their profession. The majority of the students (71.71%) said their reason was a past experience with a loved one or their own experience in a hospital. 65.6% of them had already worked in health care, 65.3% of them said they have a family member or a friend who is a nurse, 53.5% have a role model who is a nurse, and 21.6% of them chose nursing studies because of the good portrayal of the profession in the media (6).

According to a study among students at secondary schools of nursing and general grammar schools about their interest in continuing their education in the nursing profession, which was published in 2012 in the journal *Sestrinski glasnik* (*The Nursing Journal*), there is the so-called "critical mass" of students interested in nursing studies. The results of this study show that nursing studies are in the first place of desired universities among students at secondary schools of nursing (35.13%), while students who attend general grammar schools are more interested in philosophy, economics, law, medicine, and pedagogy (4).

Each year, different universities invite future students to choose their programs. They do that in an exciting and accessible way, and that is exactly how they do it at the Universities of Applied Health Sciences.

Nowadays there is a plethora of reasons why young people choose nursing studies after finishing secondary school. Nursing is for many a humane profession, through which they can show good character traits, hard-working qualities, and the wish to help others. Many also consider nursing to be a way of improving themselves to become people who can serve as examples to others. Some see nursing as a great opportunity to earn money, seeing that it stands for a really sought-after profession.

"Students' Perceptions of Ideal and Nursing Career Choices" is a study that deals with that topic. The participants of that study had to answer the question "What does nursing mean to you?" and the five most frequent responses were: caring, personal growth, illness focus, professionalism and job security (5).
On the other hand, many people have relatives who work in this profession. They consider them to be their role models and the reason why they want to do this exact job.

Williams Wertenberger and Gushuliak in their study of 626 Canadian students reported that job opportunity/security was the primary reason students choose nursing as a career followed by helping others and working with people. Several students considered nursing a calling, a ministry, or God's will for their lives, evidencing the religious theme (6). For others, nursing had been a childhood dream and something that had always been one of their interests (6). Other students valued the variety, flexibility, and opportunities offered by nursing, including graduate school and travel (6). One student in this study said: "Other graduates come out of university and it might take a while to find a job, but with nursing you are guaranteed a job straight away due to shortage of nurses in Ireland and you can travel as well," which also proves that students choose nursing because they consider it to be easy to find a job in this field.

It is striking that students prefer this profession for reasons such as having a nurse/nurses among their family members (more than half of the students) and the possibility of finding job. This finding could be the sign which shows that students choose this profession not because they are interested in it or have tendency towards it but because this profession is an ideal opportunity of employment and the students are under the influence of their families (2).

There are many reasons, but one wonders about the most popular reason for choosing nursing studies at Croatian universities. The answers to that question give a clear insight into the quantitative and qualitative state of the student education process as well as into the steps that future academics need to take in order to improve the education and the progress of nursing as a profession. Furthermore, the purpose of this study was to get the results that show to what extent is idealism present in the choice-making process, seeing that one tends to strive for idealism as a factor that influences the systematic quality and proper interest of students, which depends on the number of academics who actually continue working in their profession. Authors Ljubotina and Krznarić conducted a study which tells us that students mostly name the interest in the field they study (64.8%) as the reason why they chose their current studies. Other reasons are the success in secondary school subjects which are connected to that specific field (11.2%) and the prospects of finding a job in their profession (9.8%), while 11.5% of the participants claimed that they did not have a specific reason (7). Our study was conducted at the University of Applied Health Sciences in Zagreb, the oldest establishment for higher education of nurses in Croatia, with the biggest number of students in this profession.

The aim of the research was to determine the reasons why students enroll in undergraduate nursing studies and in what way the students' age, type of studies and familiarity with the profession affect their selection.

Methods

This study included an anonymous questionnaire designed by the authors. The questionnaire consisted of six multiple-choice questions or questions which required the participants to write their own answer. The sample consisted of 156 first– and second-year undergraduate students at the University of Applied Health Sciences in Zagreb, aged 18-30.

The questionnaire consists of two parts. The first part includes general information about the students. All students had to enter their age first. Then they had to state if they are a full-time or part-time nursing student, considering that there are both full-time and part-time nursing students at the University of Applied Health Sciences in Zagreb. Furthermore, nursing students come from different educational backgrounds. Some students went to secondary schools of nursing, while others went to different secondary schools, such as secondary schools of economics, general grammar schools, secondary veterinarian schools, etc. To see if secondary education would have an impact on the results of the study, the participants had to answer the third question: "Did you attend a secondary school of nursing?". The fourth

question was about whether students had studied something else before this, to see if this university was their first choice or if it was a replacement for another university which they did not finish.

In the second part of the questionnaire, the students had to choose between four reasons for choosing nursing studies. The study was based on four methods of choosing nursing as a profession: idealism, materialism, heritage, and choosing it as a second choice. In the fifth question they had to choose one of the following reasons: idealism, materialism, heritage, or second choice. They were given the definition of every option to make sure that they would choose the right one, based on their subjective understanding of nursing as a profession. These were the descriptions of the reasons:

- MATERIALISM – I chose nursing studies because it is in-demand. I am almost entirely sure that I will find a job after I finish my education.
- HERITAGE – Mothers, fathers, sisters or brothers are the ones who pointed me in this direction, because they also work in health care. My parents have a private practice, so I chose nursing studies in order to be able to work there.
- IDEALISM – I am a dreamer and an idealist when it comes to the nursing profession. I think nursing is a humane and ethical profession. I chose nursing because I have a strong desire to help others. The picture showing Florence Nightingale visiting wounded soldiers at night to make sure they are well shows me how a nurse should behave.
- SECOND CHOICE – *I was not able to get into the School of Medicine, so I chose nursing studies. *I first studied something that is not connected to health care, but then I transferred to nursing. *This is the only university I got into.

The final question dealt with the fact whether they wanted to pursue a job in this field in the future, to see how satisfied students are with the studies they have chosen.

Ethics

The procedures that were followed were in accordance with the ethical standards of the responsible institutional committee on human experimentation and with the Helsinki Declaration and Uniform Requirements for Manuscripts submitted to Biomedical journals.

Results

There were 68 (43.6%) first-year students and 88 (56.4%) second-year students. The sample consisted of 136 (87.2%) full-time and 20 (12.8%) part-time students. Based on all 156 participants choosing their reasons, we got the following results: 72 students (46.2%) chose idealism, 48 students (30.8%) chose materialism, nine students (8.8%) chose heritage, and for 27 students (17.2%) nursing was a second choice (Chart 1).

In order to interpret the results differently and see the differences based on the different criteria in the questionnaire, the results were separated according to the following criteria: age, type of studies (full-time and part-time students), previous (secondary) education, and education at a different university. For the analysis of differences based on the age of the participants, we divided them into groups younger and older than 21. Students younger than 21 chose the following answers: 39 students (48.2%) chose idealism, 23 (28.4%) chose materialism, four students (4.9%) chose heritage, and 15 students (18.5%) chose nursing studies as a second choice. There are a lot of similarities between those students and the group of students who are 21 or older. They provided the following answers: 33 students (44%) chose idealism, 25 of them (33.3%) chose materialism, five (6.7%) chose heritage and 12 students said (16%) that nursing was their second choice. There are small differences between the results for full-time and part-time students. Full-time students mostly chose idealism (66 of them, or 44.9%), 43 full-time students (31.6%) chose materialism, six of them (4.4%) chose heritage and 26 students (19.1%) chose nursing as their second option (Chart 2).

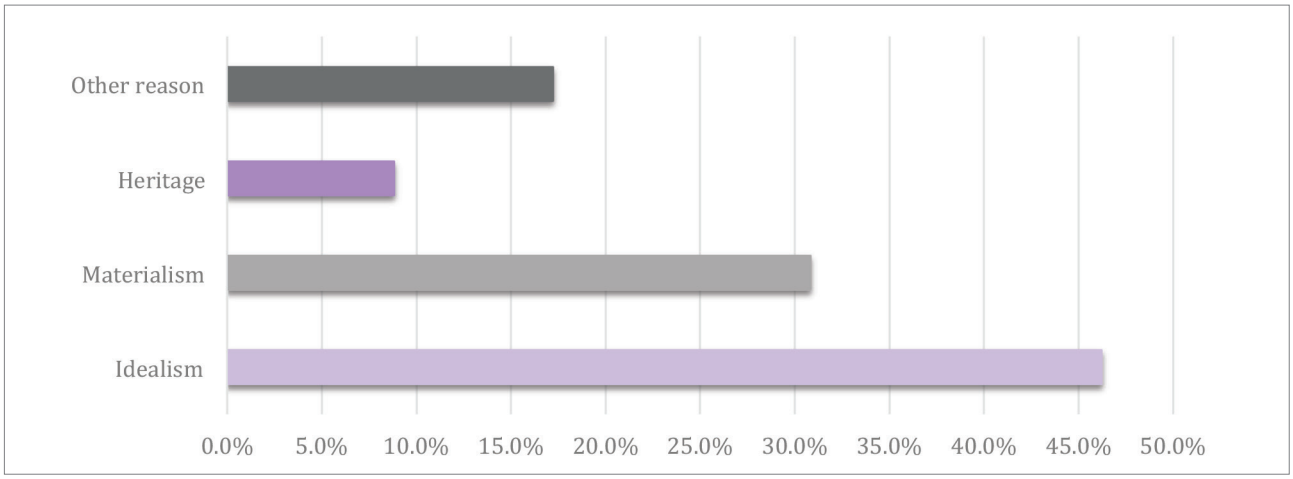

Chart 1. **Results with all participants included**

Eleven part-time students (55%) chose idealism as their reason, five students (25%) said it was materialism, three students (15%) chose heritage and one student (5%) chose nursing as the second option (Chart 3).

Out of all the participants, 71 of them (45.5%) attended a secondary school of nursing, while 85 of them (54.5%) went to a different type of secondary school. Students who went to a secondary school of nursing chose nursing studies mainly because of idealism (34 of them, or 47.9%). Materialism was the main reason for 26 students (36.6%), heritage for one student (1.4%), and there were ten students (14.1%) who had a different first choice. Students who did not go to a secondary school of nursing also mostly chose idealism – 38 of them (44.7%). 22 students (25.9%) chose materialism, eight of them (9.4%) chose heritage, and for 17 students (20%) who did not attend a secondary school of nursing, nursing studies were a second choice. There were 23 students (14.7%) among the participants who had previously attended a different university, while 133 students (84.3%) had not studied anything else before. Students who had previously studied something else opted for the following answers: eight of them chose idealism (34.8%), seven (30.4%) chose materialism, and heritage and second choice were each chosen by four students (17.4%) (Chart 4).

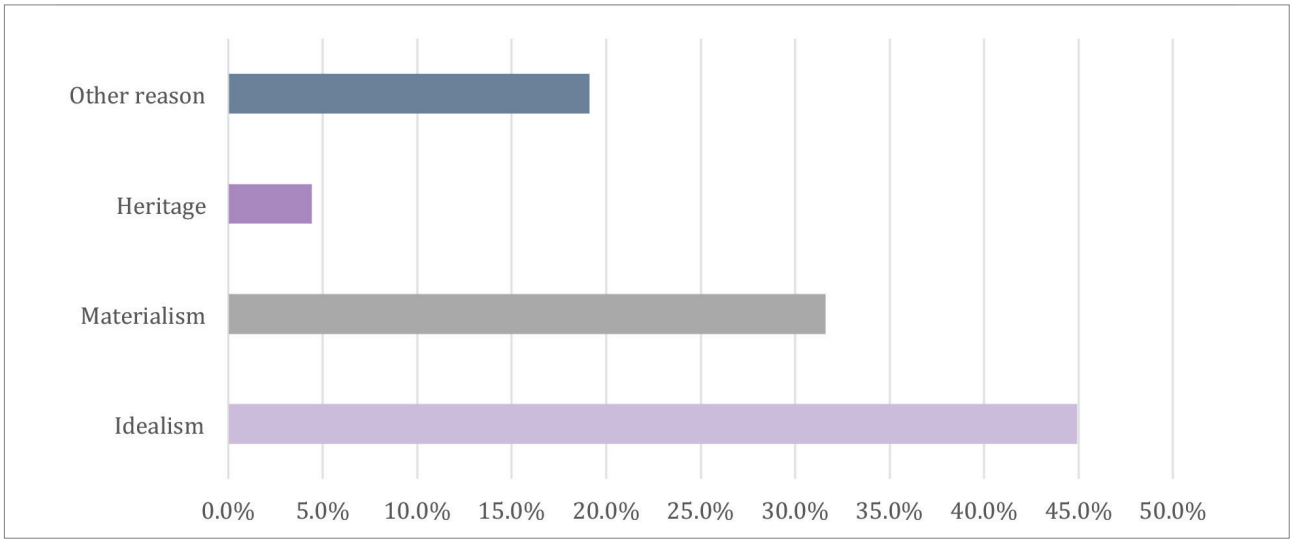

Chart 2. **Results based on the type of studies – full-time students**

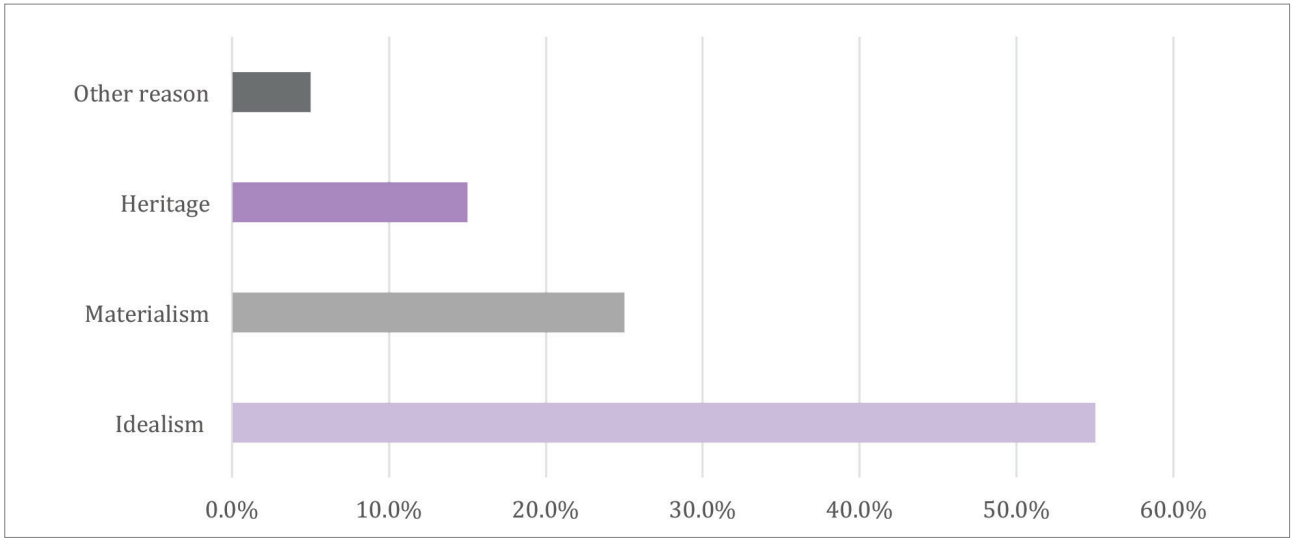

Chart 3. **Results based on the type of studies – part-time students**

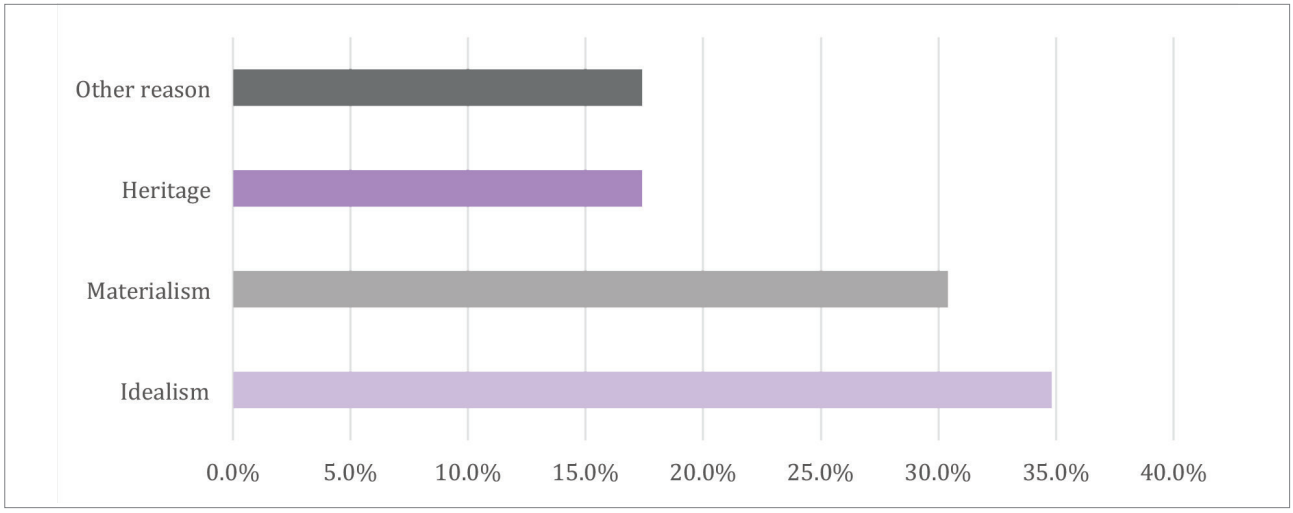

Chart 4. **Results based on choosing nursing studies as the second option**

Students who did not study anything before nursing mostly chose idealism (64 of them, or 48.1%). Materialism was chosen by 41 students (30.8%) and heritage by five of them (3.8%) (Chart 5).

There were 23 participants (17.3%) who chose nursing studies because they failed to get into their first choice university. Finally, the answers to the question if students want to pursue a job in this field show satisfying results. As many as 149 out of 156 students want a job in health care in the future, which is 95.5% of them, while seven students (4.5%) want to enter a different profession after their studies.

The data was analyzed using a chi-squared test and there are no statistical differences in the reasons for choosing nursing with students who went to a secondary school of nursing and students who had a different secondary education (Table 1.).

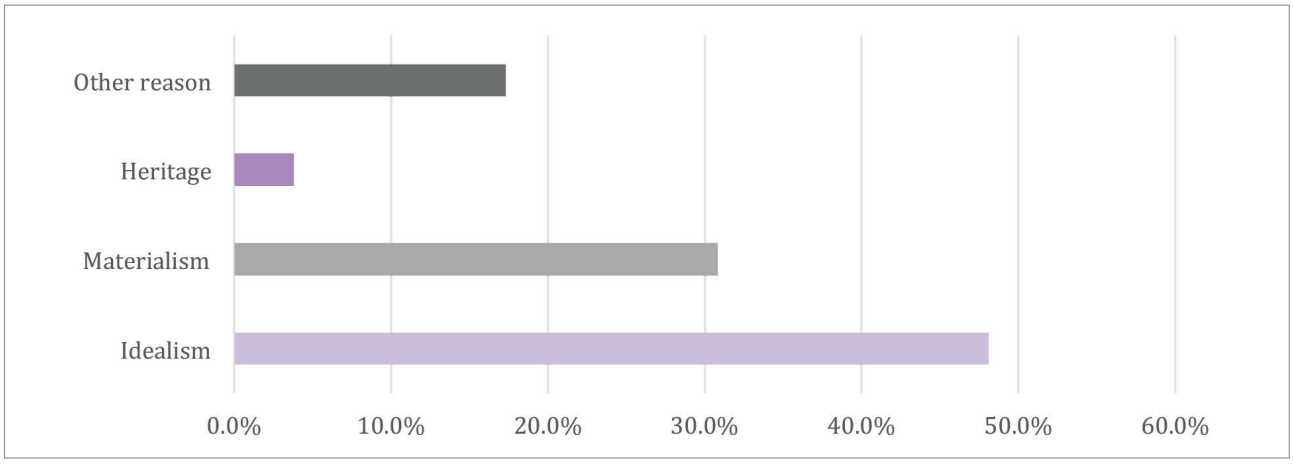

Chart 5. **Results based on choosing nursing studies as the first option**

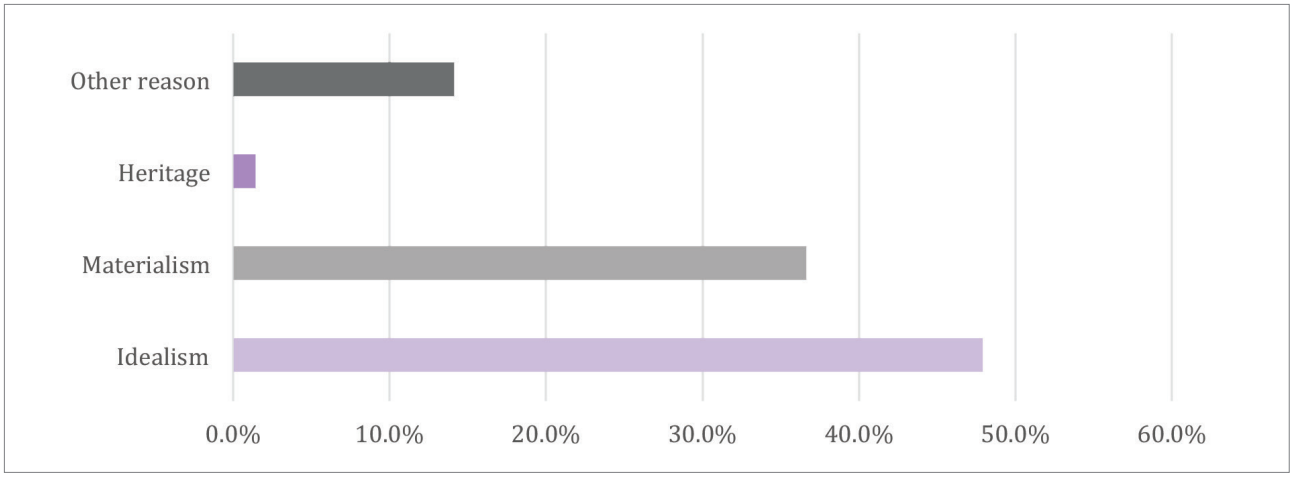

Chart 6. **Results based on previous education – a completed secondary school of nursing**

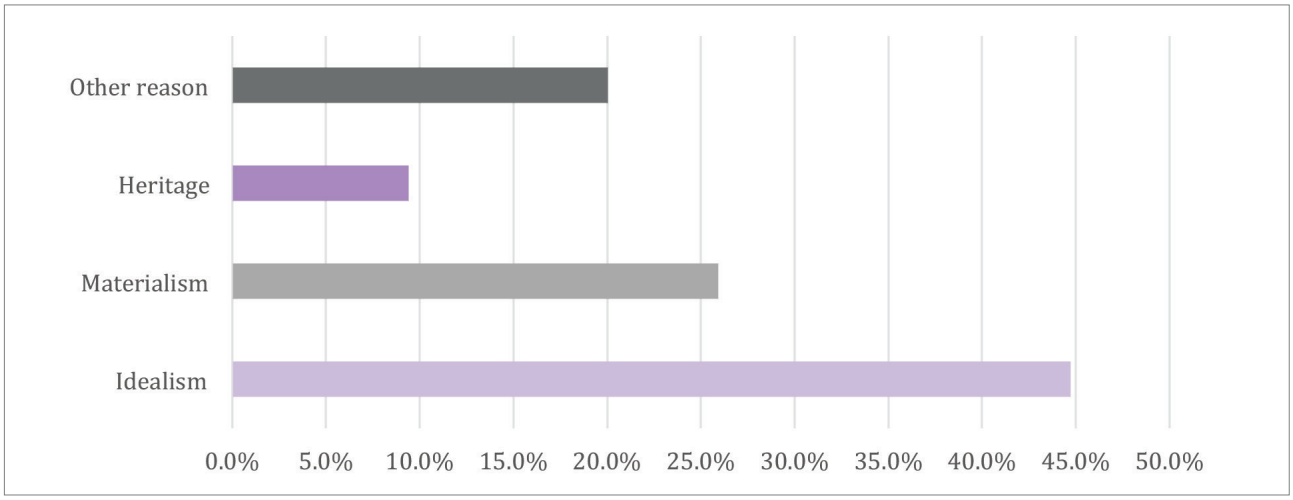

Chart 7. **Results based on previous education – a different secondary education (not a school of nursing)**

Table 1. **The chi-squared test of differences in the reasons for choosing the university based on secondary education**

		The reason for choosing the university				
		Idealism	Materialism	Heritage	Second choice	Total
A completed secondary school of nursing	Yes	34	26	1	10	71
	No	38	22	8	17	85
Total		72	48	9	27	156

X^2=0.93, df=3, p>0.05

Discussion

The analysis of the results has shown that 72 out of 156 participants in this study chose idealism as their reason for choosing nursing studies. That means that 46.2% of them consider this profession to be a calling that includes humanity and taking care of the sick. According to literature, the tendency towards altruism lies behind the students' application for nursing studies and it is stated that people who have a high amount of tendency towards altruism choose the profession of nursing because they want to help people with deep affection.

The collected data also raises the question about the influence of materialism in the modern society and the influence of the financial portrayal of professions in the media on future students. There were as many as 48 students in this study who chose nursing as a profession due to financial security. They think that with a career in health care they will have a secure job and financial stability.

The problem of the education system at schools of nursing is accepting students who have not had any experience in hospitals as institutions in which they get acquainted with the

role of a health care worker, where they encounter the reality of life and death, and learn how to take care of others and interpret ethical and moral dilemmas.

Nursing is not seen as a high-status career focused on scientific knowledge and problem-solving skills but as a customary job that is characterized by powerlessness, passivity, weakness, lack of knowledge and independence, lack of a clearly defined career pathway, and inadequate long-term compensation (8).

Showing the younger generation that nurses are empowered to address global problems through modern technology, research, and informatics will be one way to let them see nursing is a career worthy of their consideration. Contracted images are those seen for oneself. Delegated images are those images passed on from parents and friends. Derived images are those from the media (8).

The study has shown that 48 students (30.8%) chose nursing for financial reasons, financial stability and high chances of finding a job, both in Croatia and abroad.

In a research about the motivating factors in students' choice of nursing as a career, participants were asked what nursing means to them. Caring comments included responses such as helping, giving care and comfort, nurturance, serving, supporting, and sharing. Despite recent research indicating that students are more materialistic than in the past, results show that an overwhelming number continues to identify nursing as caring (9).

Our study encourages future students to apply a systematic and thorough process of choosing professions in health care, especially the nursing profession, where they will have to defend the patients' dignity, who will need their expertise and professionality. "Through education, students develop a professional identity, and their answers show the influence of education, especially when they are asked to describe a nurse's job or to name some stereotypes about the job. Some students show an idealistic way of thinking and there are no significant differences between students who went to a secondary school of nursing and those who went to other secondary schools" (10).

One of the disadvantages of this study is the fact that only 150 students participated, which is why it can-

not show a real and all-encompassing state of all nursing students in the Republic of Croatia. Furthermore, the questionnaire used in this study gave the participants the option to choose only the most important reason for choosing nursing studies. It would have definitely yielded more detailed results if the participants had the option to choose more answers, which then would have been ranked by their popularity.

Conclusion

A study of the reasons for choosing nursing as a profession showed that the majority of the students choose it because of idealism. The analysis of the results showed that 72 out of 156 participants in this study chose idealism as their reason for choosing nursing studies. That means that a 46.2% of them consider this profession to be a calling that includes humanity and taking care of the sick. As opposed to idealism, materialism is present among a smaller number of students The study has shown that 48 students (30.8%) chose nursing for financial reasons, financial stability and high chances of finding a job, both in Croatia and abroad. 17.2% students chose nursing studies because they failed to get into their first choice university and 8.8% students chose heritage. Based on the data that was gathered, we can conclude that students who study at the University of Applied Health Sciences in Zagreb consider the nursing profession to be a humane calling and a job that gives them a chance to help other people every day. However, materialism was the second most popular reason for choosing nursing as a profession, which shows that money is also one of the criteria students consider when they choose their future profession.

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ODABIR SESTRINSTVA KAO PROFESIJE

Sažetak

Cilj istraživanja bio je utvrditi koji su razlozi upisa studenata na sestrinske studije te koliko godine, vrsta studija i upoznatost sa strukom utječu na odabir.

Istraživanje je bilo provedeno na Zdravstvenom veleučilištu u Zagrebu na 156 studenata prve i druge godine studija u dobnoj skupini od 18 do 30 godina. Studenti su kroz anketu morali napisati osobni razlog odabira studija, a kako bi im olakšali odabir, autori su ponudili četiri razloga koji su opisivali mogućnosti odabira studija sestrinstva.

Najveći broj studenata odabralo je kao razlog idealizam (46,2 %), neovisno o tome jesu li studenti redovni ili izvanredni. Isto tako, studenti koji nisu pohađali srednju medicinsku školu većim postotkom odabrali su kao razlog drugi izbor (20,0 %). Za studente koji su prije studija sestrinstva već pohađali fakultet postotak odabira idealizma znatno se smanjuje (38,0 %), dok se kod studenata koji prvi put pohađaju fakultet odabir istog razloga povećava (48,1 %).

Gotovo polovica studenata odabire humanost, etičnost i želju za pomaganjem kao razlog odabira studija sestrinstva. Također, 30,8 % ispitanika odabire materijalizam kao razlog upisa. Zanimljivo je kako, neovisno o razlogu koji su studenti odabrali, 95,5 % ih je zaključilo kako se i dalje želi baviti sestrinskom profesijom u budućnosti. Nekolicina studenata nije odabrala jedan od ponuđenih razloga, već su sami objasnili razlog odabira studija. Istaknuto je kako je samo jedna studentica odgovorila na anketu rečenicom „Jer sam osjetila poziv."

Istraživanje se temeljilo na četiri razloga za odabir sestrinstva kao profesije: idealizam, materijalizam, nasljeđe i drugi izbor. U petom pitanju morali su odabrati jedan od ponuđenih razloga. Ponuđen im je opis za svaki pojedini razlog kako bi mogli odabrati na temelju svojeg subjektivnog mišljenja zašto bi sestrinstvo bila profesija za njih.

Ključne riječi: sestrinstvo, profesija, razlozi odabira studija, zadovoljstvo studijem

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Alcoholism: Success of Long-Term Treatment – a Systematic Review

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Keywords: alcoholism, treatment success, long term abstinence

Abstract

Introduction. Alcohol consumption represents a public health problem whose treatment is complex, multidimensional and long-term with possible recurrence. Treatment is aimed at achieving long-term abstinence.

Aim. The purpose of this paper is to use a systematic review in order to determine which of the methods of alcoholism treatment has long-term effects on permanent and complete abstinence of an individual. The aim of the systematic review is an analysis of published data and achievements in this area.

Methods. A systematic review of literature that evaluates the success of long-term treatment of alcoholism was conducted using the Medline databases. The keywords used as search terms were: alcoholism, treatment success, long-term abstinence.

Results. Six studies in total were taken into consideration due to the availability of a full text article and years of publication between 2000 and 2017. Treatment of alcoholism includes some of the following interventions: complete abstinence from alcohol, pharmacotherapy, cognitive-behavioral therapy, self-help group attendance, family therapy, individual interventions, combined behavioral interventions and telephone-based interventions. Results have shown that the following interventions had an impact on the increment of abstinence rates: aftercare telephone monitoring, regular medical checkups, participation in self-help groups, pharmacotherapy, attendance of the Outpatient Long-term Intensive Therapy for Al-

coholics (OLITA) (OLITA program includes psychiatric care, cognitive-behavioral therapy, patient-centered psychotherapy and classical addiction therapy). The research shows that people who abstain for 3 to 6 months are more likely to achieve and maintain long-term abstinence.

Conclusion. More long-term research is required in order to estimate the treatment success in the long term. The treatment success depends on the individual and his motivation to accept treatment, on the long-term and comprehensive treatment and self-help group attendance.

Introduction

Problems related to the abuse of alcohol vary widely around the world. Alcohol is an easily accessible, available and cheap substance that causes addiction. Alcoholism is a chronic, recurring condition involving multiple cycles of treatment, abstinence, and relapse (1). It represents a large health, social and economic burden (2). Abuse of alcohol is a risk factor for morbidity, disability and mortality (3). Alcohol abuse disorders include alcohol abuse (drinking problem) and alcohol dependence (alcoholism) (4). Consumption of alcohol and problems related to alcohol represent a public health problem whose treatment is complex and long-term with a possible recurrence causing cost on society. The main importance to public health is the development of successful approaches in treatment and their intense analysis (5). It is necessary to investigate which measures can be implemented in order to protect individuals from the attempt of alcohol use and how to help individuals who were addicted to alcohol to permanently abstain from alcohol use. The protection of the health of populations by preventing and reducing the harmful use of alcohol is a public health priority. One of the objectives of the World Health Organization is to reduce social burden caused by the harmful use of alcohol (3). Often alcohol consumption is a part of the normative culture in certain countries. The significant problem occurs in young people starting with alcohol consumption at an earlier and earlier age. Most of them encounter alcohol for the first time in their family home.

The causes of alcoholism can be numerous. Most often they are associated with disturbances in the biological, social and psychological functioning. Factors that contribute to alcoholism may be age, gender, immediate and wider community, the easy availability of alcohol, economic status, media advertising of drinking alcohol, society's liberal attitude towards drinking alcohol, lack of social support from family and community. The Global Report of the World Health Organization 2014 on the status of alcohol and health states that Europe is the region with the highest consumption of alcohol per capita and that some of its countries have a very high consumption rate (2). The WHO Regional Committee for Europe had adopted The European Action Plan to reduce the harmful use of alcohol 2012-2020. The action plan reflects new evidence concerning public health policies related to alcohol and includes a number of options to reduce the harmful use of alcohol (6).

Treatment of alcohol dependence remains one of the biggest challenges, since only about half of all patients achieve long-term abstinence by the currently available therapies (7). There are many options for the treatment of alcohol use disorders. The treatment is a complex process and it requires a holistic treatment approach. It partly depends on the severity of the patient's drunkenness (4). The individual's task is to make their own decision to stop drinking and to enter the treatment program. With long term treatment and support, some individuals are able to stop drinking and rebuild their lives (8).

Treatment programmes are conducted in hospitals and later rehabilitation through outpatient treatment. Treatment can be divided into three general categories: brief intervention; specialised treatment programmes, and mutual help groups (9). Brief interventions are intended to provide prophylactic treatment before or soon after the onset of alcohol related problems. They are designed to motivate high-risk drinkers to moderate their alcohol consumption, rather than promote total abstinence. They are often simple enough to be delivered by primary care practitioners (9). Four medications are approved for the treatment of alcohol dependence in Europe, that is Naltrexone, Acamprosate, Disulfiram and the most recent Nalmefene (10). Disulfiram which is in common use, interferes with the metabolism of alcohol by inhibiting aldehyde dehydrogenase. It produces flushing, nausea, palpitations, and other severe reactions if drinking occurs (11). In the last years Nalmefene has been pre-

sented as a new medical means to reduce the desire for alcohol but for now there is not enough experience of what will be its lasting effect (12).

Motivational interviewing helps to increase the patient's motivation and commitment to the treatment and the willingness to change behavior. This method of treatment is often used with patients with serious problems orwith patients with less serious alcohol problems (13).

Outpatient Long-term Intensive Therapy for Alcoholics (OLITA) is a long-term biopsychosocial outpatient therapeutic approach that is conducted in four steps. It is intended for patients who are heavily dependent on alcohol. The aim of OLITA is to stimulate immediate social reintegration of patients. This approach to treatment includes basic elements of psychiatric care, cognitive-behavioral care, patient-centered psychotherapy and classical addiction therapy (5).

Alcoholics Anonymous is a large and effective organization that deals with the treatment of alcoholics. They have done a lot for the world of alcoholics (14).

The goal in the treatment of alcoholism is to achieve a permanent and total abstinence which can be complex and depends on the individual and his motivation to accept treatment and support from family and community (5).

The purpose of this paper is to use a systematic review in order to determine which of the methods of alcoholism treatment has long-term effects on permanent and complete abstinence of an individual. The aim of the systematic review is an analysis of published data and achievements in this area.

Methods

A systematic review of literature that evaluates the success of long-term treatment of alcoholism was conducted using Medline databases. The keywords used as search terms were: alcoholism, treatment success and long-term abstinence.

Inclusion and exclusion criteria

We included the articles written in the English language, articles with full texts available online, focusing on the years of publication between 2000 and 2017.

The studies with a date of publication before 2000 were excluded.

Papers included in the final analysis

Upon the entry of the keywords into the database, the titles of potential articles were obtained. After analyzing the title of the paper, the second step was the analysis of the abstracts. Only full text articles were taken into account for further analysis. After applying the inclusion and exclusion criteria six papers were included in the study.

In total, six studies were included in this systemtic review. Overview of the studies finally included is displayed in Table 1.

Results

The search process yielded 16 articles in total. After applying the inclusion and exclusion criteria, 6 articles relating to long-term alcoholism treatment success were considered eligible for further analysis (as shown in Fig. 1). Overview of the studies finally included is presented as a Prisma 2009 Flow Diagram (15).

Authors Rus-Makovec, Cebasek-Travnik (16) in 2008 tried to determine the factors that affect long-term abstinence. They studied the influence of the following on the abstinence of patients: intensive treatment (the treatment included the detoxification process, psychodynamically oriented group therapy combined with a behavioral-cognitive approach, the principles of motivational enhancement therapy and family therapy, individual interventions) and aftercare telephone monitoring, the week of follow-up. The respondents were divided into two groups; the telephone contact group and no contact group. Respondents were checked after the intensive treatment by the aftercare telephone monitoring. The patients were asked questions about abstinence/

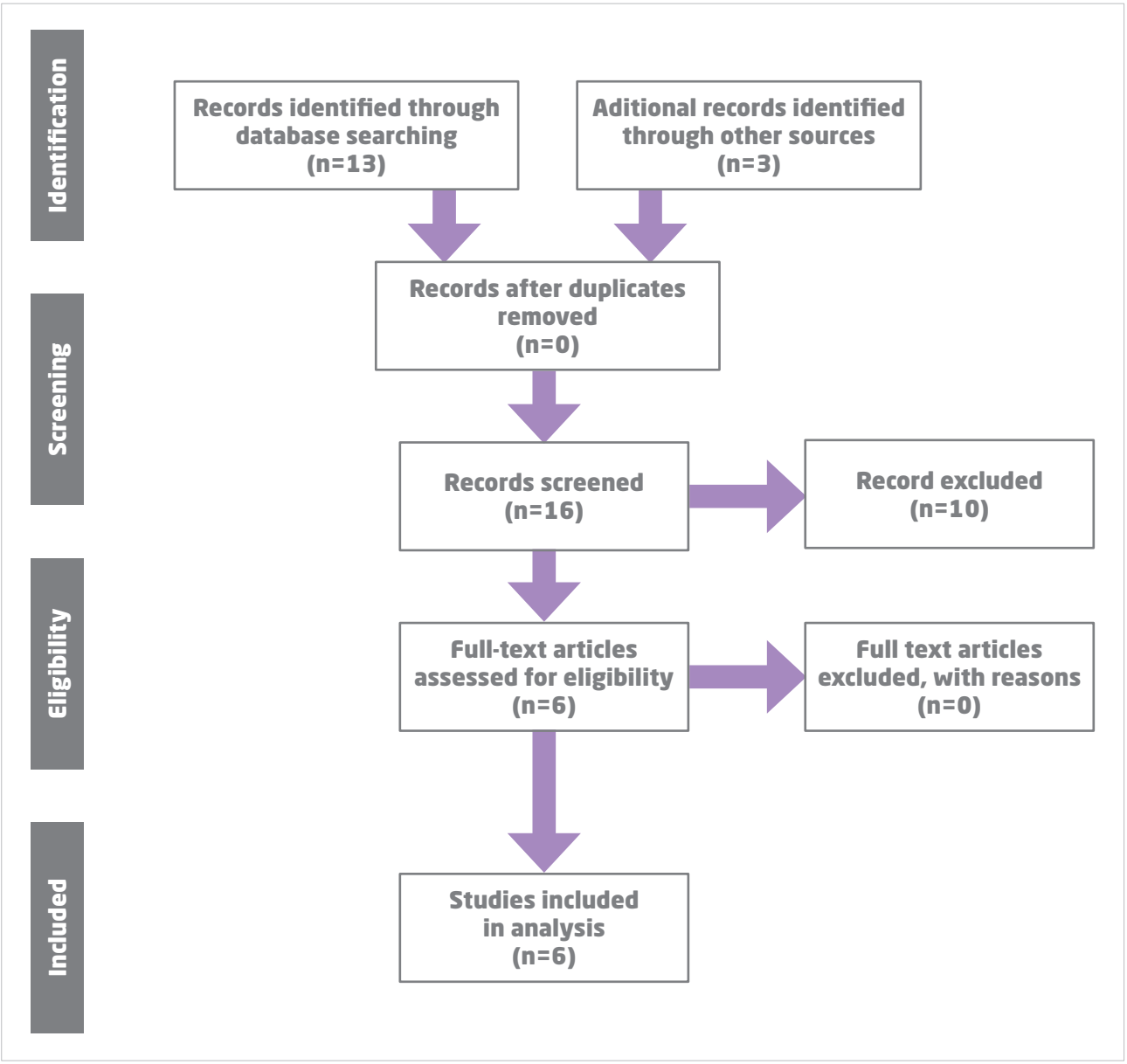

Figure 1. **Flow of information through the different phases of a systematic review**

relapse, participation in after-care recovery, participation of significant others in after-care settings, quantity and quality of relapse, the type of help they received in coping with relapse, changes in marital status/partnership, employment status. The telephone contact group was checked three, six, twelve and twenty-four months after the intensive treatment. The no contact group was checked only at 24 months after the treatment. Results showed that the abstinence rate for telephone contact group was 27.7%, and for no contact group 24.4% (16).

Greenfield, Burgdorf, Chen, Porowski, Roberts, Herrell (17) in 2004 examined the abstinence rate of women involved in residential substance abuse treatment. The results showed that the abstinence rate was 76%–78% for three months and achieved their treatment goals in three to five months abstinence. The abstinence rate for patients who did not complete the treatment was 51%–52% (17).

Authors Weisner, Ray, Mertens, Satre, Moore (18) in 2003 aimed to determine the connection between a six-month treatment outcomes to abstinence 5

Table 1. **Overview of the studies finally included**

DOCUMENT	AIM	STUDY DESIGN	RESULTS
Rus-Makovec M, Cebasek-Travnik Z (16). Slovenia	Determine the influence of intensive treatment and aftercare telephone contact on abstinence of patients.	Prospective observational study conducted from April 2001 to June 2002. The number of the respondents; telephone contact group (n = 249) no contact group (n = 170)	The telephone contact group were checked three, six, twelve and twenty-four months after the intensive treatment. The no contact group was checked only at 24 months after the treatment. Abstinence rate for aftercare telephone monitoring patients; telephone contact group = 27.7%, and the abstinence rate for no contact group = 24.4%.
Greenfield L, Burgdorf K, Chen X, Porowski A, Roberts T, Herrell J (17) USA	Determine the abstinence rate of women involved in residential substance abuse treatment	Data from the following studies: CSAT's National Treatment Improvement Evaluation Study (NTIES) National Institute on Drug Abuse's Drug Study Drug Abuse's Drug Abuse Treatment Outcomes Study (DATOS).	76%–78% was abstinence rate for clients who remained in treatment for at least three months. Abstinence rate (51%–52% abstinent) compared to those who who did not complete treatment
Weisner C, Ray GT, Mertens JR, Satre DD, Moore C (18). USA	Determine the relationship of 6-month treatment outcomes to abstinence 5 years post-treatment, and determine the predictors of abstinence at 5 years	The number of the respondents: 784. Respondents were interviewed at baseline, 6 months, and 5 years	Abstinence at 6 months was an important predictor of abstinence at 5 years
Gueorguieva R, Wu R, Fucito LM, O'Malley SS (19). USA	Determine the abstinence rate of alcoholics involved in COMBINE Study (Combined Pharmacotherapies and Behavioral Interventions for Alcohol Dependence Study)	The number of the respondents: 1383 abstinent alcohol-dependent patients	End-of-treatment outcomes were the strongest predictors of long-term outcome in all analyses
Cho T, Negoro H, Saka Y, Morikawa M, Kishimoto T (20). Japan	Determine the abstinence rate of alcoholics two years after discharge from treatment	Prospective study conducted between November 2007 and August 2008 The number of the respondents: 98	The abstinence rates for patients who utilized 3CGS program were significantly higher than those for patients who did not.
Krampe H, Stawicki S, Hoehe MR, Ehrenreich H. (5) Germany	Determine the abstinence rate of patients with alcohol dependence using Outpatient Long-term Intensive Therapy for Alcoholics (OLITA)	The OLITA pilot study conducted from 1993 till 2003 The number of the respondents: 180	The abstinence rate was over 50%

years post-treatment. Their resaults showed that an important predictor of abstinence rate at 5 years was the abstinence rate at 6 months. Authors stated that these results strongly support the importance of recovery-oriented social networks for those with good short-term outcomes (18).

Authors Gueorguieva, Wu, Fucito, O'Malley (19) in 2015 showed the results from the Combined Pharmacotherapies and Behavioral Interventions for Alcohol Dependence (COMBINE) Study. The authors aimed to determine which are the predictors of good patient outcome. According to their results the end of treatment outcomes were the strongest predictors of long-term outcome. Authors stated that the results from the study emphasize the importance of optimizing outcomes during treatment and identify potential subgroups of patients who require additional or alternative interventions to achieve good long-term outcome (19).

Authors Cho, Negoro, Saka, Morikawa, Kishimoto in their study 2013 tried to determine the abstinence rate of alcoholics two years after discharge from the treatment. Authors presented the guidelines (3CGS) which are being carried out in Japan. The guidelines (3CGS) imply regular medical checkups, participation in self-help groups, pharmacotherapy with antidipsotropics for patients with alcohol problems. The abstinence rates for patients who followed the guidelines were significantly higher in comparison with patients who did not follow the guidelines (20).

Authors Krampe, Stawicki, Hoehe, Ehrenreich (5) presented the OLITA outpatient therapy program which includes frequent contact with patients, therapist rotation, support of social reintegration and aggressive aftercare, application of alcohol deterrents and supervised intake of alcohol. The treatment procedure consists of a detoxification period followed by the outpatient period that is conducted in four phases. The estimated abstinence rate was over 50% (5).

Discussion

This research shows that people who abstain for 3 to 6 months are more likely to establish and maintain long-term abstinence. According to Muncie, Yasinian, Oge' (2013) long-term success depends on facilitating the patient's entry into ongoing treatment (21). Authors Benyamina, Reynaud (2016) state that long-term medical surveillance is required in the treatment of alcohol dependence. The success of therapy depends on patient follow-up (phase of initiation with several consultations during 2-4 weeks) and psychosocial and motivational interventions. Patients need to be included in proactive disease management planning and ensure adherence to treatment, change in behavior and new way of life (22).

By analyzing the studies on the success of long-term treatment, the main predictors of treatment success that can be singled out are older age, participation at Alcoholics Anonymous meetings, the severity of addiction, motivation and socioeconomic status (23). This can be linked to greater emotional maturity and existential situation, which can be a significant motive for the success of abstinence.

The environment in which the individual lives, the availability of alcohol, stress to which the individual is exposed, influence the enhanced risk of developing alcoholism. The individual addicted to alcohol has a hard time deciding to start the treatment. Alcoholics cannot be forced into treatment, except in the case of violent behavior. Unfortunately, often only the consequences of alcohol abuse (violence, accidents and opportunistic diseases) force alcoholics into treatment, and by then they had already developed damage to the body and the success of treatment is significantly reduced. Involving the family of the alcoholics in the treatment is not always easy. The family often cannot understand that they need help as well. The circumstance that hinders successful treatment is the stigmatization of the society. This makes long-term treatment and at the same time the return to society more difficult. The final prospect of rehabilitation of individuals is associated with their positive attitude towards life, their history and the future towards which they look with realism but also with hope, which until recently did not even exist. The availability of hospital and outpatient treatment is very important but not sufficient to reduce the rate of alcohol dependence. The treatment includes complete abstinence from alcohol, management of acute medical and psychiatric conditions, attending self-help group programs. Alcoholics Anonymous is a widely used intervention for alcohol use disorders. Many patients find the social support provided by

12-step self-help groups useful in maintenance of abstinence, especially if they have no other social support. Most Western experts for helping alcohol addicts agree that the best chance of recovery and healing are alcoholics who have attended Alcoholics Anonymous meetings long enough and frequently enough as well. From just under 60% of alcoholics who after the completion of treatment continued to attend Alcoholics Anonymous meetings, 41% of them continued stable abstaining (14).

Abuse of alcohol remains a serious public health concern. It takes long-term public health actions directed at the individual, their family and the entire community in order to act on reducing alcohol dependence and prevent possible recurrence. The aim is to prevent damage caused by alcohol, to reduce the risk of problems associated with alcohol, which can occur at various places such as home, workplace or at the premises where alcohol is consumed, and to provide affordable help to people who are at risk of alcoholism.

The goal of public health efforts is to support introduction of effective strategies such as tax increases on alcoholic beverages, controlled access to alcoholic beverages and increasing the age for purchasing them. It is necessary to emphasize the role of primary care physicians in the early assessment of high-risk individuals. For this reason, additional education of health professionals is needed, especially physicians and nurses in primary health care. More long-term research needs to be implented in order to evaluate the effects of different types of treatment. Literature review revealed that there are not many papers that compare the performance of a treatment between men and women and papers on women and alcoholism in general. Alcoholism in women has recently become a growing problem. The reason for this is that women often due to condemnation from their environment enter treatment later than men, more often drink alone and hide their addiction. The reason for this may be a predisposition to the process of personal change and the possibility of identifying and removing the "cause" where a woman manages to outgrow the illness. In addition to behavioral changes, long-term abstinence demands personality changes as well. Maximum facilitated availability of therapies is extremely important in all phases of the treatment. The broad range of approaches confronts alcoholics with various institutional and professional components. With great motivation any intervention must be culturally acceptable for an individual, which means that it must respond in part to their expectations and be emotionally and cognitively acceptable. Organizations and institutions that deal with issues of alcoholism have to work together.

Conclusion

More long-term research is required in order to estimate the treatment success in the long-term. The treatment requires a multidisciplinary approach. It depends on the individual and their motivation to accept treatment, long term supervision, social support, long-term and comprehensive treatment and self-help group participation. Family support is very important in all phases of treatment and abstinence process. With long-term treatment and support of family and community many individuals can achieve long term abstinence.

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ALKOHOLIZAM: USPJEŠNOST DUGOROČNOG LIJEČENJA

Sažetak

Uvod. Konzumacija alkohola predstavlja javnozdravstveni problem čije je liječenje je kompleksno, multidimenzionalno i dugotrajno, s mogućim recidivima. Liječenje ima za cilj postići dugoročnu apstinenciju.

Svrha rada. Sistematičnim pregledom literature utvrditi koja od metoda liječenja alkoholizma ima dugoročne učinke na trajnu i potpunu apstinenciju pojedinca. Cilj je sistematičnog pregleda literature analiza objavljenih podataka i postignuća na tom području.

Metode. Sistematičan pregled literature koja procjenjuje uspješnost dugotrajnog liječenja alkoholizma proveden je s pomoću baze podataka Medline. Pojmovi koji su se upotrebljavali za pretraživanje bili su: alkoholizam, uspješnost liječenja, dugoročna apstinencija.

Rezultati. Ukupno je šest studija uključeno u istraživanje s obzirom na dostupnost cjelovitog teksta i godine objavljivanja između 2000. i 2017. Liječenje alkoholizma obuhvaća neke od sljedećih intervencija: potpunu apstinenciju od alkohola, farmakoterapiju, kognitivno-bihevioralnu terapiju, sudjelovanje u programu grupa samopomoći, obiteljsku terapija, pojedinačne intervencije, kombinirane bihevioralne intervencije, telefonske intervencije. Rezultati su pokazali da sljedeće intervencije imaju utjecaj na povećanje stope apstinencije: kontinuirani nadzor pacijenata putem telefona; redoviti liječnički pregledi, sudjelovanje u programu grupa samopomoći, farmakoterapija te uključenost u program OLITA (program uključuje psihijatrijsku skrb, kognitivno bihevioralnu skrb, psihoterapiju usmjerenu na pacijenta i klasičnu terapiju). Istraživanja pokazuju da je veća vjerojatnost postizanja dugoročne apstinencije kod osoba koje apstiniraju tri do šest mjeseci.

Zaključak. Potrebno je provesti veći broj istraživanja kako bi se procijenila uspješnost dugoročnog liječenja. Uspješnost liječenja ovisi o pojedincu i njegovoj motivaciji da prihvati liječenje, dugoročnom i sveobuhvatnom liječenju i sudjelovanju u grupama samopomoći.

Ključne riječi: alkoholizam, uspješnost liječenja, dugoročna apstinencija

BRISBANE DECLARATION

CULTURALLY SENSITIVE CRITICAL CARE NURSING

10 OCTOBER 2016

WORKING GROUP

The Brisbane Declaration was prepared by a WFCCN Working Group:

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OBJECTIVE

The objective of the WFCCN working group was to develop an international position statement that included recommendations to ensure the provision of culturally sensitive critical care nursing worldwide.

PREAMBLE

Culturally sensitive care is an area of nursing that falls under the moral principles stated within the Universal Declaration of Human Rights (United Nations, 1948). In particular, Article 1 declares the baseline position:

> All people are born free and equal in dignity and rights.

Further clarification is provided under Article 2, which states:

> Everyone is entitled to all the rights and freedoms… without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin…

Furthermore, the World Federation of Critical Care Nurses (2007a) has endorsed the International Council of Nurses (ICN) position statement on Nurses and Human Rights (2011), which clarifies that:

> …health care is a right of all individuals, which is available, affordable and culturally acceptable, regardless of financial, political, geographic, racial or religious considerations.

The statement also posits:

> Nurses are accountable for their own actions and inactions in safeguarding human rights, while national nurses associations have a responsibility to participate in the development of health and social legislation related to patient rights.

It was against this background of human rights that the WFCCN developed this declaration on culturally sensitive critical care nursing.

INTRODUCTION

Worldwide immigration has increased significantly in the last decade and as many as one in every 33 persons in the world is a migrant (International Organization for Migration, 2015). These global changes are subsequently changing the role of culture in healthcare (Garneau & Pepin, 2015). Hence, there is a need for health care organisations and clinicians to respond to the increasing cultural diversity of the populations they serve (Renzaho et al., 2013).

Critical care nursing is a sphere of practice that covers a variety of specialist areas in which critically ill patients are cared for (Elliott et al., 2012). The aim of critical care nursing is to establish a therapeutic relationship with the patient and their family and to empower the person's physical, psychological, sociological, cultural and spiritual capabilities by preventive, curative and rehabilitative interventions and where the focus is on the care and treatment of the critically ill patient and their family (WFCCN, 2007b).

Cultural sensitivity is the ability to care for patients with diverse values, beliefs and behaviours, including tailoring health care to meet patients' social, cultural and linguistic needs (Esposito, 2013). The ability to provide culturally sensitive care is contingent on the clinician achieving cultural competence. Cultural competence is about developing an awareness of one's own beliefs, thoughts and sensations; demonstrating knowledge and understanding of a person's culture; accepting and respecting cultural differences and adapting care accordingly (Kanchana & Sangamesh, 2016). Cultural competence may be defined further as a set of congruent behaviours, attitudes, and policies that come together in a system (Esposito, 2013).

For critical care nurses, cultural competence and hence cultural sensitivity is essential to the delivery of person-centred care, an approach to health care that is grounded in mutually beneficial partnerships amongst health care providers, patients and families (Institute for Patient- and Family-Centred Care, 2015).

Culture can be viewed in terms of cognitive and static aspects such as values, beliefs and traditions; and also from a broader perspective that acknowledges that culture often also encompasses an individual's social position as a way of further explaining health status (Williamson & Harrison, 2010). Consequently, critical care nurses must seek to meet the diverse needs of patients and their families (Douglas et al., 2011). The care provided can be influenced by a number of factors such as the model of care delivery provided in the critical care unit and each nurse's personal philosophy of caring for the patient and their family (Bloomer & Al-Mutair, 2013). When a generic approach to culturally sensitive care is taken however, stereotyping and a failure to identify the needs of the individual can result (Williamson & Harrison, 2010). Whilst critical care nurses have been found to specifically seek further information regarding situations of cultural difference (Northam et al., 2015), there is a lack of guidance for critical care nurses on how to ensure culturally sensitive care is provided.

In response, in 2015, the WFCCN Board of Directors called for members of the Council of National Representatives to establish an international working group to prepare a Position Statement on behalf of the Federation, on culturally sensitive care in critical care.

METHODS

Following establishment of the working group, a literature review was undertaken, which informed the development of the Position Statement, to be known as the Brisbane Declaration. Several drafts were reviewed and revised, culminating in international discussions about the purpose and proposed content of the draft Declaration, held over two days, during the WFCCN/Australian College of Critical Care Nurses World Congress in Brisbane, Australia during April 2016. A final draft, comprised of central principles and recommendations was presented at the Congress closing ceremony. All present declared their support. The final text of the Declaration was prepared by the working group during April-September 2016, and was approved for publication by the WFCCN Board of Directors in October 2016.

BRISBANE DECLARATION: CULTURALLY SENSITIVE CRITICAL CARE NURSING

The Brisbane Declaration presents guidelines that are based on universally accepted principles; it is designed to be used by critical care nurses to provide care that is culturally competent. The Declaration may be adapted to meet the health care policy and education requirements of all critical care nurses, in any critical care unit, within any healthcare facility, regardless of geographical, political or social jurisdiction.

Central Principles

1. Critically ill patients and their families, from culturally diverse backgrounds, have the right to receive culturally sensitive care.
2. Critical care nurses should possess appropriate knowledge, skills and attributes to respect, advocate for, and effectively respond to the cultural needs of critically ill patients and their families.
3. Critical care nurses should ensure that culturally sensitive care is planned and implemented in collaboration with the multidisciplinary team, which is inclusive of the patient and family and their chosen cultural advisors.
4. Critical care nurses have a right to have their individual cultural differences acknowledged and respected.
5. Critical care nursing education providers should ensure that cultural competence and cultural sensitivity is embedded within curricula framework. The critical care nurse has a duty to seek out such information, educate themselves and apply this knowledge with respect and compassion.

Recommendations

The WFCCN believes that critically ill patients from diverse backgrounds have particular needs and must be cared for by nurses with specialist skills, knowledge and attitudes. The following recommendations have been adopted to represent universal principles to help guide health services, educational facilities and critical care nursing organisations in the development of informative materials and programs for nurses who are required to care for the critically ill patient and their family and their individual cultural needs.

1. Self-assessment

An examination of one's own cultural positioning is the first step in ensuring culturally sensitive care. This may involve considering the nurse considering their own culture, values, beliefs and any resultant biases or possible prejudices that may impact the provision of care; and working to set these aside and ensure equitable care for all.

2. Establish trust

Acknowledging that each person is entitled to all rights and freedoms, respecting the patient and family's immediate vulnerability and need for culturally sensitive care is essential to the establishment of trust.

3. Identify the preferred language for communication

Determine the patient and family's preferred language for verbal communication, making use of trained interpreters or qualified translators where necessary. Consideration on non-verbal communication is also necessary. Communication aids should be used where available to support verbal communication.

4. Identify culture

Identify the patient and family's culture, which can include their values, beliefs, traditions and worldviews. Consideration must also be given to how culture impacts upon communication and decision-making.

5. Identify health beliefs and understanding

Once a person's culture is identified, consideration should be given to the patient and family's beliefs about health and illness and their perception/understanding of the current and any proposed treatments. Beliefs about health and illness may impact significantly on how the patient and their family wish to be cared for, and what care/treatment is acceptable in the critical care environment.

6. Ensure comprehension

When communicating, the nurse should seek to ensure that the patient and/or their family understand what is being communicated. It is important to recognise that various aspects of a person's culture can influence one's comprehension and interpretation of information.

7. The use of physical touch

Time should be taken to explain the necessity of physical touch in the delivery of care. The nurse should seek advice from the patient and/or family about ways in which physical care could be provided in the most culturally appropriate and sensitive manner.

8. The need for modesty and the maintenance of dignity

Preserving dignity and maintaining modesty for the critically ill patient and their family can demonstrate respect and acknowledgment of a person's culture, beliefs and values. Where possible and practicable in the context of interventional care, a patient's modesty and dignity should be protected by covering the person's body and providing visual privacy.

9. Consideration for the impact of gender

Gender differences between patient and clinician may be a concern for the patient and their family. Where possible, consideration should be given to the gender of the clinician providing care, to ensure the culture of the patient and their family is respected.

10. Consider dietary needs

Food is intrinsically linked to culture. Values, beliefs, religion and traditions can impact on the meaning of food and food choices. Where suitable, foods should be chosen that not only meet the patient's metabolic needs, but also their cultural considerations.

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Double spacing should be used throughout, including the title page, abstract, text, acknowledgments, references, individual tables, and legends. Pages should be numbered consecutively, beginning with the title page. The page number is to be written in the lower right-hand corner of each page. Manuscript must not exceed 20 pages (7500 words) including the abstract, text, references, tables and figures. The text should be accompanied by the title page as a separate page.

The text of the manuscript should be divided into sections: Abstract and Key words, Introduction/Background, Methods, Results, Discussion, Acknowledgment, References, Tables, Legends and Figures.

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Emphasize the new and important aspects of the study and the conclusions that follow from them. Do not repeat in detail data or other material given in the Introduction or the Results section. Include in the Discussion section the implications of the findings and their limitations, including implications for future research, but avoid unqualified statements and conclusions not completely supported by the data. Relate the observations from your study to other relevant studies. State new hypotheses when warranted, but clearly label them as such.

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Emphasize the new and important aspects of the study and the conclusions that follow from them. Do not repeat in detail data or other material given in the Introduction or the Results section. Identify recommendations for practice/research/education or management as appropriate, and consistent with the limitations.

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Each table with double spacing should be put on a separate page. Do not submit tables as photographs. Number tables consecutively in the order of their first citation in the text and supply a brief title for each. Give each column a short heading. Each table should be self-explanatory. Legend or key should be placed in footnotes below the table.

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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

List all contributors who do not meet the criteria for authorship, such as a person who provided purely technical help, writing assistance, or a department chair who provided only general support. Financial and material support should also be acknowledged.

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References style should follow the NLM standards summarized in the International Committee of Medical Journal Editors (ICMJE) Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals: Sample References, available at http://www.nlm.nih.gov/bsd/uniform_requirements.html

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