



# CROATIAN NURSING JOURNAL



**Health Literacy of Patients with Regard to The Source of Information: A Cross-Sectional Study**

**Examination of Complications and Differentiating Factors (Method of Conception, Nutritional Status, Weight Gain) in Twin Pregnancies**

**Perception of the Quality of Nursing Work Life**

**Nurses' Attitudes Towards Dying and Death**

**Ethnicity and Education as Predicting Factors for the Acceptance of the COVID-19 Vaccine in Nigeria**

**Instruments Used in Assessment of Health-Related Quality of Life**

**Impact of Urinary Incontinence on Quality of Life - Literature Review**

CROATIAN  
NURSING  
JOURNAL

VOLUME: 6  
NUMBER: 2  
DECEMBER 2022  
<https://doi.org/10.24141/2/6/2>  
ISSN: 2584-5659

[www.cnj.hr](http://www.cnj.hr)

## **CROATIAN NURSING JOURNAL**

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Croatian Nursing Council

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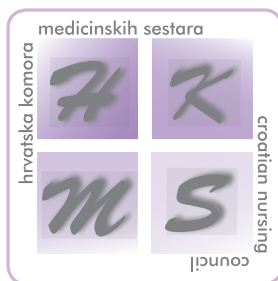
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Kerschoffset d.o.o.

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**University of Applied Health Sciences  
Croatian Nursing Council**

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# **CROATIAN NURSING JOURNAL**

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ISSN  
**2584-5659**

UDC  
**614.253.5**

YEAR OF PUBLICATION  
**2022**

VOLUME  
**6**

ISSUE  
**2**

NUMBER OF PAGES  
**99-172**

DOI  
**<https://doi.org/10.24141/2/6/2>**

PLACE OF PUBLICATION  
**Zagreb**

PUBLISHED BY  
**University of Applied Health Sciences**

CIRCULATION  
**The journal is published twice a year**

PUBLISHED BY  
UNIVERSITY OF APPLIED HEALTH SCIENCES  
Mlinarska cesta 38, 10 000 Zagreb, Croatia  
[www.zvu.hr](http://www.zvu.hr)

FOR THE PUBLISHER  
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GRAPHIC LAYOUT  
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# Health Literacy of Patients with Regard to The Source of Information: A Cross-Sectional Study

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**Article received:** 18.05.2022.

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**Article accepted:** 05.07.2022.

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<https://doi.org/10.24141/2/6/2/1>

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**Keywords:** patient, health information, health literacy, source of information

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## Abstract

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**Introduction.** It is the right of the patient to be informed by the medical staff about the treatment procedures so that the patient can be aware and responsible of the subject of treatment.

**Aim.** The aim of this study was to gain insight into the information provided to the patient by medical staff, understanding of the information obtained and the use of written educational materials and the Internet to gain information about diseases among patients of primary and secondary health care. The aim was to determine whether there are differences in the level of knowledge among patients with regard to the source of information.

**Methods.** A cross-sectional study with three groups of patients was conducted using a questionnaire created for this study.

**Results.** Out of a total of 300 patients, 49% (147) claim that the most common source of information is a specialist doctor, while 29% (87) claim that their sources of information are nurses. A total of 48% (144) of patients claim that the information is incomprehensible and 83% (249) have not received educational materials. 79% (237) want to receive educational materials.

**Conclusion.** According to the results of the study, it can be concluded that patients, regardless of the group they belonged to, are equally uninformed. Informing the patient is an integral part of the treatment and must be tailored to each patient individually.



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## Introduction

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Nowadays, health care and treatment of the patient is becoming more complex and therefore requires the patient to actively participate in their care. The newer approach to the doctor-patient relationship is based on patient-centered health care, in which decisions related to the patient's health are made by the doctor and the patient (1). This process emphasizes collaboration between the physician and patient and enables the patient to co-decide by being given all the information related to their illness, specific diagnostic and therapeutic procedures, as well as alternative treatment procedures (2,3).

Health literacy is the newest prevention strategy to live longer, healthier lives. Health literacy represents the degree to which individuals have the capacity to obtain, process and understand basic health information and services needed to make appropriate health decision. Nurses are among the most essential players in making health literacy an effective and lasting reality. Nurses need to start asking some crucial questions in order to take some proactive steps in the right direction, both for patients and themselves (4). A lack of health literacy may have effects at many levels, from the individual to the societal. Examples include incorrect use of medications/assistive aids, lack of knowledge about health decisions, misinterpretation of instructions or symptoms, absence from booked health care visits, unnecessary examinations or surgery, increased need for hospital treatment and security risks at home, at work or in society (5,6). A health professional's role is to translate complex scientific and medical information into words and concepts that patients and families can understand. This is a challenge especially when time is limited and information is complex, ambiguous, or conflicting. Health professionals must learn and perform health literacy techniques. Reports cannot simply be given to the patients with the belief that they will understand them. Patients are reluctant to ask questions because they do not want to show that they may not know the answers. Recent studies have shown that 85% of patients received complete, understandable information, presented in a considerate manner. Patients in surgical departments received a higher level of information than those in internal medicine departments. Patients were informed about health

risks of the proposed treatments (in 74% of cases) and procedures (76%), health consequences of refusing a medical intervention (69%), and other methods of treatment (46%). However, patients pointed out several problems in the physician-patient communication (7). Market research shows that today in Croatia the Internet is used by about two-thirds of the population over the age of 15, of which 22% use the Internet to seek information on health and nutrition (1).

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## Methods

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### Design

A cross-sectional study with three groups of patients was carried out at the Institution for Home Health Care "Domnius" in Zagreb, Croatia. The data were collected over a period of approximately 3 months (10 February 2021-15 May 2021).

### Participants

The study involved 300 participants (100 participants were patients discharged from inpatient surgical treatment newly admitted to home care, 100 participants were patients discharged from inpatient internal medicine newly admitted to home care, and 100 participants were Domnius Home Health Care patients in long-term care). All 300 respondents were users of the Domnius Home Health Care Institution.

The study was conducted in the city of Zagreb. The inclusion criterium was that patients be aged > 18. The patients gave informed consent for participation in the study. The questionnaire was anonymous, and participants were informed that they were free to stop participating in the study at any time. After a thorough written and oral explanation of the ethical principles, purpose, and course of the study, patients were asked to provide their informed consent. The nurses handed out a questionnaire in a sealed envelope to the patients and explained how to complete it, as well as the purpose of the study.



## Ethics

The study was approved by the Ethics Committee of the Domnius Home Health Care Institution in Zagreb, Croatia at its regular session held on February 8, 2021. The ethical Committee of the Domnius Home Health Care Institution operates in line with the International Conference on Harmonization (ICH GCP) principles and the Helsinki Declaration (8).

## Instrument

The research instrument was a questionnaire created for this study. The patients answered 13 closed questions. The first two questions were about the source of information about the disease (nurse, family doctor, specialist, or patient), then about the procedure, tests and therapy. The next three questions were about understanding the information obtained, two about using the Internet for information, two about the duration of the interview with the doctor, two on written educational materials and two on information about the medications they are taking.

## Statistics

According to the results, appropriate non-parametric statistical tests were used in the following analyses. Non-parametric methods are used primarily for data

expressed on nominal and ordinal scales. Differences in the categorical variables were analysed with the chi-square test. P values below 0.05 were considered significant. Statistical software IBM SPSS Statistics, version 25.0 was used in all statistical procedures. Descriptive statistics which deal with the organization of collected data and their summary description with the help of numerical and graphical representations were also used.

## Results

In the questionnaire created for this study, 13 questions were asked, and seven questions are singled out. These are core questions of the study, and the results (answers) of the participants are listed below.

Based on the obtained results, it can be concluded that the proportions of surgery, internal and home health care patients differ significantly with regard to the source of information about the disease. Specialist doctors are the most common source of information (around 67%).

Table 1. Differences in data between the three groups of participants

Who gave you the information about the disease? Observed frequencies						
	Family doctor	Specialist	Nurse	Self-education	Specialist and nurse	Total
Surgery	20	70	4	3	3	100
Internal medicine	12	80	4	3	1	100
Home health care	37	53	1	3	6	100
Total	69	203	9	9	10	300

$$\chi^2=25.5$$

$$df=8$$

$$p<0.001$$

**Table 2. Source of information about surgical procedures, tests and therapy**

Observed frequencies					
	Family doctor	Specialist	Nurse	Self-education	Total
Internal medicine	7	85	6	2	100
Surgery	4	82	13	1	100
Home health care	34	54	11	1	100
Total	45	221	30	4	300

$$\chi^2=47.4$$

$$df=6$$

$$p<0.000$$

Based on the obtained results of the chi-square test, it can be concluded that the proportions of surgery, internal and home health care patients differ significantly with regard to the source of information about surgery, tests or therapy. It can also be concluded that specialist doctors are the main source of information based on the frequency of answers/responses (74%).

**Table 3. Understanding information in primary and secondary health care patients**

Observed frequencies				
	Yes	No	Partially	Total
Secondary	104	12	84	200
Primary	52	8	40	100
Total	156	20	124	300

$$\chi^2=0.465$$

$$df=2$$

$$p=0.793$$

Based on the obtained results, it can be concluded that the shares of primary and secondary health care patients do not differ significantly in terms of understanding information.

**Table 4. Understanding information in patients in surgery, internal and home health care**

Observed frequencies				
	Yes	No	Partially	Total
Internal medicine	52	8	40	100
Surgery	52	4	44	100
Home health care	52	8	40	100
Total	156	20	124	300

$$\chi^2=1.86$$

$$df=4$$

$$p=0.762$$

On the basis of the obtained results, it can be concluded that the shares of surgery, internal care and home health care patients do not differ significantly with regard to the understanding of information.

**Table 5. Comparison of the level of information between hospital patients and home health care patients**

Observed frequencies			
	Yes	No	Total
Patients in hospital care (newly admitted to home care)	35	165	200
Patients in home health care	16	84	100
Total	51	249	300

$$\chi^2=\text{Yates chi-square } 0.03$$

$$df=1$$

$$p=0.8625$$

There is no statistically significant difference, and patients are equally uninformed regardless of the group to which they belong.

**Table 6. Distribution of written/educational materials among patients in surgery, internal and home care**

Observed frequencies			
	Yes	No	Total
Internal medicine	25	75	100
Surgery	10	90	100
Home health care	16	84	100
Total	51	249	300

$$\chi^2=8.08$$

$$df=2$$

$$p<0.018$$

Based on the obtained results of the chi square test, it can be concluded that the shares of patients in surgery, internal and home health care differ significantly in terms of receiving educational materials. 83% (249) have not received educational materials.

Also, based on the obtained results ( $\chi^2=9.10$ ;  $df=2$ ;  $p<0.011$ ), it can be concluded that the shares of patients differ significantly in terms of patients' interest in receiving educational materials, and that the vast majority of them want to receive educational materials. 79% (237) want to receive them.

When asked about their *understanding* of the information obtained, a total of 48% (144) participants answered that they did not fully understand the information obtained.

Regarding the use of the Internet for the purpose of finding information about the disease among the primary and secondary groups of patients, the results ( $\chi^2$ =Yates chi-square 0.48,  $df=1$ ,  $p<0.488$ ) show that there is no statistically significant difference in the use of the Internet for the purpose of finding information.

## Discussion

The study was conducted on a sample of 300 patients. Our study has shown that patients are poorly informed, but the most common source of information is a specialist doctor (Table 2). Braddock et al. (9) indicate that surgeons dedicated more time to informing their patients than general practitioners, and that general practitioners ought to be more involved in decision-making. The level of patient information in hospital care does not differ significantly in relation to nursing care patients, and patients are equally uninformed regardless of the group to which they belonged. Most patients who did not receive educational materials would like to receive them. There is no statistically significant difference in the use of the Internet for the purpose of finding information about the disease among the primary and secondary groups of patients. Slightly more than 50% of the participants understand the information received.

On the other hand, a survey conducted in Vermont in the United States obtained different results. The population examined in this study differs from many other studies on health literacy as it is more educated and less racially and ethnically diverse (10). But there is still a high prevalence of limited health literacy in hospitalized patients, where more patients with a low health literacy rate will be admitted to hospitals than those with adequate knowledge (11). In this group of hospitalized patients, the high prevalence of limited health literacy may be associated with reduced cognitive abilities, impaired vision and fatigue, and health literacy may improve after remission (12). Some authors suggest avoiding medical jargon, breaking down information or instructions into small concrete steps, limiting the focus of a visit to three key points or tasks, and assessing for comprehension by using the teach back cycle. Printed information should be written at or below sixth grade reading level. Visual aids can enhance patient understanding (13).

Research carried out in two Lithuanian counties by random sampling of eight hospitals showed that almost 68% of patients reported that nurses in the ward gave sufficient information about their disease. The survey highlights the positive example of the British National Health Service, with a strong focus

on disease prevention and patient information, involving nurses in the health care process (14). The most demanding patients with higher literacy rate reported that nurses did not provide them with enough information about their disease, procedures, or preparation for surgery. Many patients have low health literacy skills, and have difficulty with reading, writing, numeracy, communication, and, increasingly, the use of electronic technology, which impedes access to and understanding of health care information (13).

Research carried out in hospitals in Ontario was intended to measure the health literacy in hospitals by using a new questionnaire for organizational research and conducting psychometric testing of the survey. This measurement has achieved its goal of making hospital managers understand their impact and help focus their efforts in order to improve the quality of patient care and thus reduce readmission to the hospital. This leads to the possibility of improving patient care, reducing hospital costs and reducing the readmission rate (15).

Nowadays, great importance is given to health literacy in the medical and public health perspectives. However, a recent study showed that health literacy was not a priority in home health care. Instead, home care workers wanted training in many aspects of providing home-based care. Furthermore, a core health literacy curriculum checklist for homecare workers does not exist. In that study, the authors draft a training checklist for improving health literacy support which consists of eight key areas. The eight key areas on the checklist are consultation with home care workers, consultation with patients, outlining boundaries and scope of practice, listing key organizational contacts, listing relevant services and networks, including patient case studies and scenarios to illustrate various points, building in strategies to check understanding of the topic, and evaluating the effectiveness of the training. Incorporating these areas into any existing in-house home care workers' training is aimed directly at improving health literacy and subsequent health outcomes for a patient (16). The patient's right to be informed is an integral part of the treatment and strengthens the patient's role in the treatment process, which ceases to be an object of treatment and becomes conscious and accountable to the subject. According to the Institute of Medicine, half of the population of adult people are not able to comprehend basic health informa-

tion and services needed for making proper health decisions (17). Proper communication between professionals in health care and patients guarantees good patient-physician understanding, which affects patient satisfaction, agreement, medical outcomes, cost-containment and in general, health care quality (18,19). Health literacy involves personal, cognitive and social skills that determine the individual's ability to gain access, understand and use (medical) information to promote and maintain good health.

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## Conclusion

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The results of the study show that the health system has to be more engaged in promoting prevention and treatment options. Patients are equally uninformed regardless of the group which they belonged to. The health system is not adequately prepared for providing information. For better health literacy, a family doctor and nurse should be more involved. Informing the patient is an integral part of the treatment and must be adapted to each patient individually. One of the features of the duty to provide information to patients is that it is both moral and legal at the same time. Also, patients are not familiar which websites provide more detailed and correct information. The degree of health literacy is directly linked to communication, which greatly affects patient mobility, outcome of treatment, frequency of use of health care, costs and the overall quality of health care.

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## ZDRAVSTVENA PISMENOST BOLESNIKA S OBZIROM NA IZVOR INFORMIRANJA: PRESJEČNA STUDIJA

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### Sažetak

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**Uvod.** Pravo je bolesnika primiti informacije od medicinskog osoblja o postupcima liječenja kako bi bolesnik mogao biti svjestan i odgovoran subjekt liječenja.

**Cilj** ovog istraživanja bio je steći uvid u informiranost bolesnika na temelju podataka koje primi od medicinskog osoblja, razumijevanje dobivenih informacija te primjenu edukativnih pisanih materijala i interneta u svrhu informiranja o bolesti. Cilj je bio utvrditi postoje li razlike u razini informiranosti bolesnika s obzirom na izvor informiranja.

**Metode.** Ispitivanje poprečnog presjeka s tri skupine bolesnika provedeno je s pomoću upitnika kreiranog za ovu studiju.

**Rezultati.** Od ukupno 300 bolesnika, 49 % (147) tvrdi da je najčešći izvor informacija liječnik specijalist, dok je za 29 % (87) izvor informacija medicinska sestra. Sveukupno 48 % (144) bolesnika smatra da su informacije nerazumljive te 83 % (249) nije dobilo edukativne materijale, a želi ih primiti 79 % (237).

**Zaključak.** Prema dobivenim rezultatima istraživanja može se zaključiti da su bolesnici bez obzira na skupinu u kojoj se nalaze podjednako neinformirani. Informiranje bolesnika sastavni je dio liječenja i mora se prilagoditi svakom bolesniku individualno.

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**Ključne riječi:** bolesnik, zdravstvena informiranost, zdravstvena pismenost, izvor informiranja

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# Examination of Complications and Differentiating Factors (Method of Conception, Nutritional Status, Weight Gain) in Twin Pregnancies

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Article received: 06.04.2022

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Article accepted: 06.07.2022.

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<https://doi.org/10.24141/2/6/2/2>

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**Keywords:** twin pregnancies, nutritional status, complications

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## Abstract

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**Introduction.** The aim of our study was to examine the complications and differentiating factors (method of conception, nutritional status, rate of weight gain) of twin pregnancies.

**Methods.** In our quantitative, cross-sectional, retrospective study we examined medical data sheets of women pregnant with twins (N=89) in the western regions of Transdanubia, Hungary.

**Results.** Conditions occurring during pregnancy affected almost half of the mothers. Hypertension and preeclampsia are increased risk factors among the complications of twin pregnancies, independently of the method of conception ( $p>0.05$ ). Abnormal weight gain during pregnancy was observed in half of the mothers. Weight before pregnancy is a strong predictor of weight gain during pregnancy ( $p<0.05$ ).

**Conclusion.** Our research showed that abnormal weight gain and obesity during twin pregnancy has a negative effect on maternal health, and correlates with maternal complications (hypertension/preeclampsia, gestational diabetes). Effective and preventative strategies are necessary, already during pregnancy planning, to prevent obesity before pregnancy.



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## Introduction

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Nowadays, scientific advances have led to an increase in the use of ovulation inducement treatments to help infertile couples, as well as artificial reproductions like insemination and in vitro fertilization, which have led to a large increase in twin pregnancies, particularly dizygotic and polygynous pregnancies. The frequency of twin pregnancies worldwide is 1/85, while triplets and quadruplets are much rarer. Several studies show that the frequency of twin pregnancies changes yearly, changes according to geographical locations, and sometimes unknown or hidden factors influence the statistics (1). Considering the development and possible complications of twin pregnancies, it can be regarded as a special pregnancy-pathologic condition.

Obesity is becoming a worldwide issue with data from WHO 2013 showing that the rate of obesity doubled since 1980. Obesity is a global issue, and Hungary is affected, too; based on data from 2017, obesity in adults is among the highest in the EU. In 2017, one out of five adults were obese, and the rate has increased during the last decade (2). In addition, the number of overweight and obese women of reproductive age has increased in the last decade. In the US, approximately 60% of women of reproductive age are affected (3). This number corresponds to 18.5-38.3% of pregnant women in the US and is the most frequent cause of high-risk maternal complications (4). Prevalence of maternal obesity has risen from 11% to 21% in Canada, and is one of the most crucial challenges for the healthcare system, considering the cost implications of maternal and child morbidity (5). In a study by Lahti-Pulkkinen et al, the ratio of maternal obesity (n=118 021) increased from 3.1% (1950-1959) to 15.7% (2000-2011), and obese women were older, had higher parity, and higher socioeconomic status (6). In another study by Vernini et al, 22.7% of pregnant women were overweight and 27.6% were obese, which increased the risk of hypertension and gestational diabetes (7). Hypertension is a frequently occurring issue during pregnancy and may cause complications in 5-10% of pregnancies. In the study by Fitirani et al, 33% of obese, 50% of overweight, and 16.7% of pregnant women with normal BMI had hypertension (8). Both systolic and diastolic blood pressure values are elevated in over-

weight and obese women (9). Preeclampsia occurs in every second woman with maternal obesity (55.9%), while the number for women with normal nutritional status is 20.1%. Parantika and colleagues identified twin pregnancy and obesity as risk factors for preeclampsia. Certain maternal factors independently influence the outcome of twin pregnancies. Extra attention is necessary for women with twin pregnancy because the weight gain during pregnancy is more profound than in a singleton pregnancy. Obesity due to excessive weight gain is more likely in twin pregnancies and it may incur risk factors for both the mother and the fetus. These complications include gestational diabetes, hypertension, anemia, and preeclampsia (1,10,11). The incidence of preeclampsia is higher in twin pregnancies and the pathophysiological process differs from singleton pregnancies in atypical occurrence, faster progression, faster onset of symptoms, and exacerbations (12-14). The frequency of preeclampsia is 3.5 times higher in twin pregnancies than in singleton pregnancies. In addition, the chance to develop extreme hypertension is 3-4 times higher in twin pregnancies (15). The occurrence of gestational hypertension is proportional to the number of fetuses; 6.5% for singletons, 12.7% for twins, and 20% for triplets (14). Studies show that preeclampsia is more frequently occurring in twin pregnancies with assisted reproduction than in pregnancies with natural conception. Preeclampsia in twins conceived by assisted reproductive technology increases the risk of preterm birth, small for gestational age babies, and cesarean section (15). These findings might be explained by the higher rate and co-occurrence of risk factors (for example advanced maternal age) in women in need of in vitro fertilization (16). In twin pregnancies, the occurrence of preterm birth (31-36%), small for gestational age baby (mean=2300 g), and complications (6.8%) is higher than in singletons (17). Maternal complications of twin pregnancy include prolonged delivery due to weakness of childbirth pain, placental insufficiency, premature placental separation, and impaired contraction of the uterus after delivery. Fetal complications include polyhydramnios, and postural, lying, and implantation abnormalities.

## Aim

The aim of our study was to examine the complications and differentiating factors (method of conception, nutritional status, rate of weight gain) of twin

pregnancies. We wanted to see the types of diseases occurring before and during twin pregnancy, and we wanted to assess the body weight before and during pregnancy, weight change, and the possible complications of abnormal weight gain.

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## Methods

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Our cross-sectional, retrospective study was carried out in the western regions of Transdanubia, Hungary. Permission for the study was provided by the directors of the healthcare institutes. Data acquisition and processing as conducted according to the Declaration of Helsinki (18). Between 1995 and 2018, medical data sheets of women pregnant with twins ( $N=89$ ) and of their twin babies ( $N=183$ ) were analyzed. Parameters collected from the data sheet included the mother's biographical data (age, marital status, highest education, location), previous pregnancies, diseases before and during pregnancy, weight gain during pregnancy, nutritional status, diseases in the family, possible medical treatments, drug sensitivity, method of conception and course of pregnancy, way of giving birth. Parameters collected from the data sheets of the infants included biographical data of the twins (gender, year and place of birth), somatometric information at birth (weight, length, head and chest circumference), possible abnormalities, Apgar 1-min and 5-min values, gestational age at birth. For sampling, a single expert sampling method was used within the target population. The study group consisted of women who gave birth to twins in hospitals and also received prenatal care.

## Statistics

For the statistical analysis, we used SPSS 22.0 software package. Besides descriptive statistics, we used the Chi-square test, Student's t-test, and correlation analysis to analyze our data ( $p<0.05$ ). Presentation of frequency values included confidence intervals (19,20).

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## Results

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We collected and analyzed medical data sheets of women pregnant with twins and health data of their twins in nursing districts. We included medical data sheets of women pregnant with twins ( $n=89$ ) and of their twin babies ( $n=183$ ). Mothers to twins were most commonly married (76.4%), but some of them were single (5.62%), divorced (1.12%), or in a civil partnership (16.85%). Most mothers had university (41.57%), few had elementary school (4.49%), some had GCSE (31.46%), and vocational school (16.85%), while a few of them had more than secondary education but no degree (5.62%) as the highest level of education. Altogether, 83.15% of respondents were living in a city and 16.85% were living in a village. The mean age of pregnant mothers at childbirth was 30.8 years ( $SD=5.50$ ). The youngest was 18 and the oldest was 42 years old. According to the literature, advanced maternal age starts at age 35 (21). One-fourth of our sample (26.97%) belonged to advanced maternal age. A total of 85.39% of pregnancies were planned and 14.61% were unplanned. In terms of conception, 56.18% were spontaneous and 43.82% were assisted reproduction (6.74% insemination, 37.08% in vitro fertilization). The use of assisted reproduction techniques was statistically more common in mothers over the age of 35 (62.5%) than in those under 35 (36.9%) (Chi-square=4.658;  $p=0.031$ ). All pregnancies ( $N=89$ ) lead to childbirth. A total of 56.18% of childbirth was preterm. Twin pregnancies ended in spontaneous delivery (13.48%), cesarean section (85.39%), and vacuum extraction (1.12%). The time of birth did not correlate with the method of conception (Chi-square=1.77;  $p=0.183$ ), but the method of childbirth did (Chi-square=4.305;  $p=0.038$ ). A total of 94.87% of pregnancies by assisted reproduction ended with cesarean section, most of which (62.5%) were in women over 35 years. Twins were born on average at 35.45th gestational week. Most of the twin pairs were born between gestational weeks 31 and 36 (49.44%) or 37 and 40 (43.82%). The fewest births happened between weeks 26 and 30 (6.74%). The earliest childbirth happened on the 26th week, the latest happened on the 40th week of gestation. Triplets occurred in 6 cases (7.86%). Most of the twins were dichorionic (69.66%), which occurred in 75.38% in the age group 20-35, and 68.42% in

the age group 36-45; no statistically significant difference was present (Chi-square=0.36;  $p=0.54$ ). Almost all (90.91%) of the monochorionic twins were naturally conceived (Chi-square=15.665;  $p<0.001$ ). In terms of gender, 51.37% were boys and 48.63% were girls. Based on birth weight (mean=2314 g), the twins had small (<2500 g; 59.56%) and average (2500-4000 g; 40.44%) weight.

A key pillar of our research was to map out maternal risk factors. We were able to identify 17 familiarly occurring diseases in the medical data, and we categorized them into 8 groups. The medical history contained no familiarly occurring disease in 32 cases (36.36%). The most commonly occurring diseases in the families of pregnant women were hypertension (14.77%) and cancer (18.18%). Besides those, other diseases occurring in the families were diabetes (4.55%), obesity (6.82%), allergy/asthma (5.68%), thrombosis (3.41%), cardiovascular diseases, infarction, and stroke (10.23%). Other categories had single occurrences of GI disorder, renal and urinary disease, behavioral disorder, hearing disorder, schizophrenia, dislocated hip, hematologic disorder, autism, mental retardation, and developmental abnormality.

We also examined whether the mothers had any underlying diseases or surgical procedures before pregnancy. Possibly occurring underlying diseases included obesity, hypertension, diabetes mellitus,

endometriosis, polycystic ovarian syndrome, hypothyroidism, antiphospholipid syndrome, ectopic pregnancy, previous miscarriage, chickenpox, scarlet fever, asthma, allergy, depression, hernias (spinal, inguinal), scoliosis, kidney stone. Sorting these problems occurring before pregnancy, we can conclude that 21.35% of participants had gynaecological, 19.1% had other, and 59.55% had no diseases affecting their condition. Issues occurring before pregnancy showed no correlation to the method of conception (Chi-square=0.28;  $p=0.59$ ). Assessing the conditions that were also present during twin pregnancies was crucial for us. Our results showed no disease during pregnancy in 44 cases (49.44%). A total of 15 twin pregnant mothers had diabetes (16.85%), 8 had hypertension (8.99%), 4 had preeclampsia (4.49%), and 3 had hypertension, preeclampsia, and diabetes co-occurring (3.37%). The remaining 15 mothers (16.85%) had other diseases, for example, obesity, hyperemesis gravidarum, risk of miscarriage/preterm birth, dyspnea, premature placental separation, and varicosity in veins. Figure 1 shows that the method of conception for twin pregnancy wasn't associated with the occurrence of diseases during pregnancy (Chi-square=0.54;  $p=0.46$ ); changes were comparable, with almost similar frequency, in spontaneous conception and conception using assisted reproduction techniques.

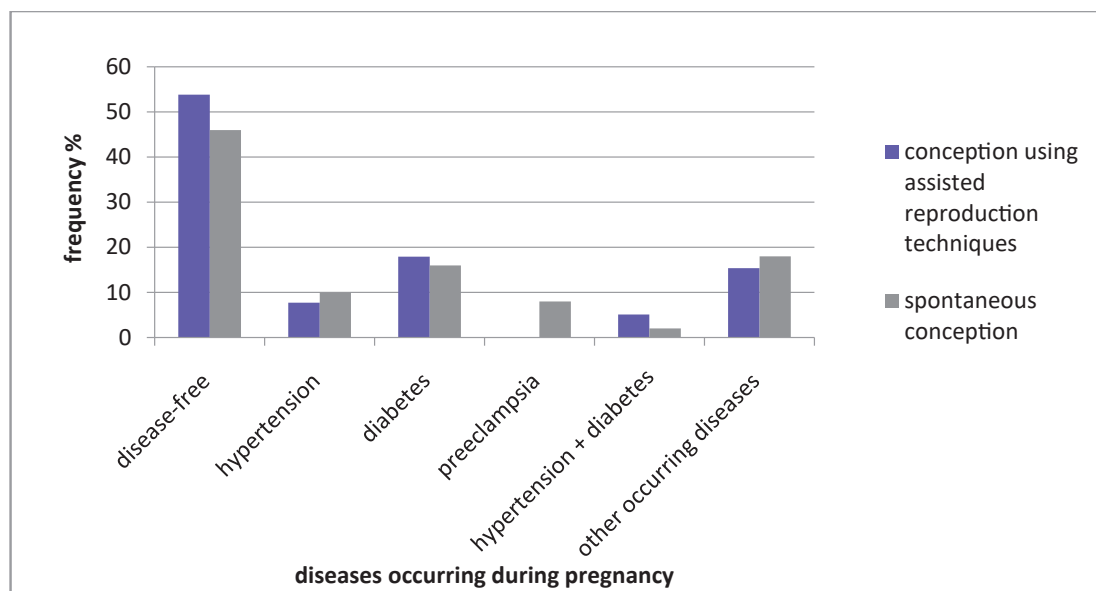


Figure 1. **Incidence of diseases occurring during pregnancy depending on the method of conception in our sample (N=89)**

Among the participants, the body weight measured at first admission was 68.84 kg (SD=17.17 kg; min=46 kg, max=130 kg). Based on their nutritional status (BMI), 8.99% of pregnant women belonged to underweight (<16-18.49 kg/m<sup>2</sup>), 53.93% belong to healthy (18.5-24.99 kg/m<sup>2</sup>), 21.35% belonged to overweight (25-29.99 kg/m<sup>2</sup>), and 15.73% belonged to obese (>30 kg/m<sup>2</sup>) category. We summarized the weight gain during pregnancy - the smallest gain was 5 kg, and the biggest gain was 37 kg (mean=15.08 kg, SD=7.87 kg). The age of mothers showed no association with either the baseline BMI at the beginning of pregnancy ( $r=0.051$ ;  $p=0.159$ ), or the rate of weight gain ( $r=0.102$ ;  $p=0.342$ ), but a higher baseline BMI correlated with greater weight gain. We further analyzed our data and grouped our subjects into 2 groups based on their weight gain; altogether, 51.69% showed normal and 48.31% showed abnormal weight gain. The rate of weight gain during preg-

nancy was determined relative to baseline BMI. For a baseline BMI of 19.8 or below, the recommended weight gain is 12-18 kg throughout pregnancy, for 19.9-25.9 BMI the recommendation is about 11.5-16 kg, for pre-pregnancy overweight women the recommended weight gain is 7-11.5 kg throughout pregnancy, and in case of obesity the maximum weight gain is 6 kg (22). The biggest weight gain was observed in those mothers who were overweight or obese before their twin pregnancy and belonged to the abnormal weight gain group (66.67%). In the normal weight gain group, a greater change was observed in pregnant women with normal BMI (66.67%). Weight gain during pregnancy showed a significant difference with baseline BMI at the beginning of pregnancy (Chi-square=10.97;  $p=0.0041$ ). More extensive, abnormal weight gain was more common in women who had a BMI over normal at the beginning of pregnancy (Figure 2).

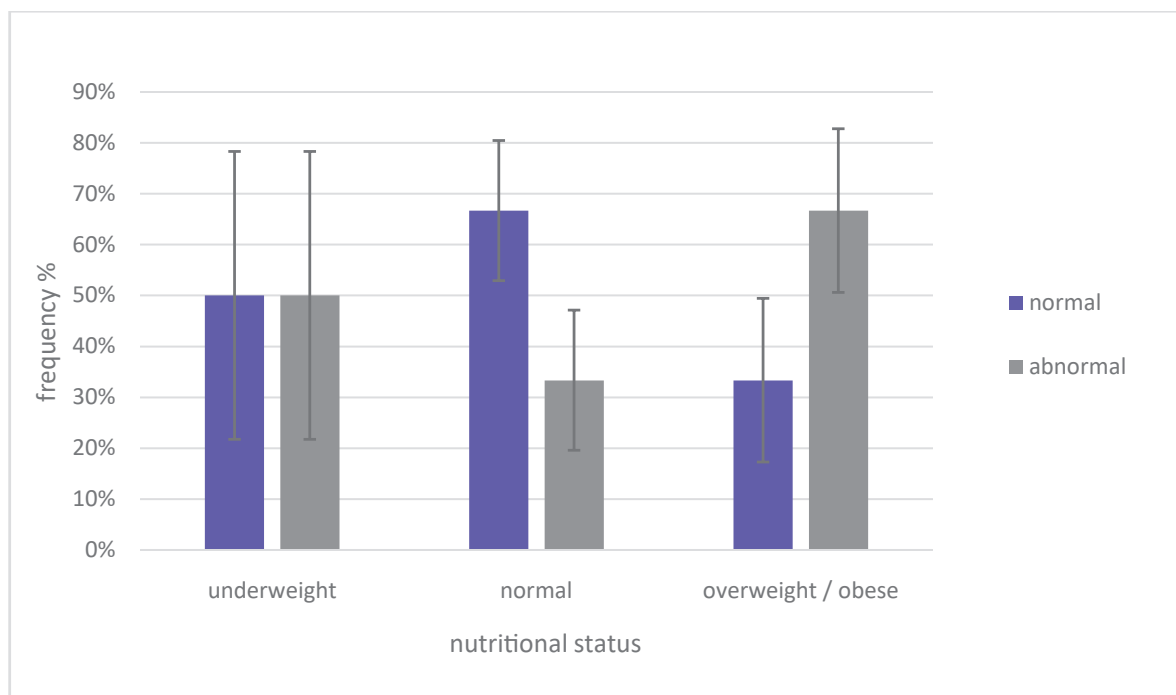


Figure 2. **Weight gain during pregnancy depending on nutritional status in our sample (N=89)**

We created 2 groups, one experienced complications during pregnancy, the other did not, and we analyzed these 2 groups in terms of nutritional status. Using a one-tail t-test we found a higher baseline BMI in the group that had complications ( $t(87)1.693$ ;  $p=0.05$ ) (BMI with complications:  $25.75 \text{ kg/m}^2$ ; BMI without complications:  $22.51 \text{ kg/m}^2$ ), but there was no significant difference in the mean weight gain ( $t(87)0.659$ ;  $p=0.512$ ) (mean BMI  $16.36 \text{ kg/m}^2$  /  $15.25 \text{ kg/m}^2$ ). Mean BMI was comparable according to the method of conception ( $t(87)0.868$ ;  $p=0.388$ ) (natural:  $25.1 \text{ kg/m}^2$ ; assisted reproduction:  $24.05 \text{ kg/m}^2$ ) but this difference is not significant.

We found evidence that health issues are more common during pregnancy in overweight/obese mothers. Figure 3 shows that the most common issues

in twin pregnancy were hypertension, preeclampsia, and diabetes. Pregnant women in the underweight/healthy BMI categories were more frequently disease-free (37.21%) than overweight/obese pregnant women (13.95%). Hypertension/preeclampsia was more common in overweight/obese (13.95%) than in underweight/healthy women (6.98%). In terms of diabetes and its occurrence, it was slightly more common among overweight/obese (9.3%) than in underweight/healthy pregnant women (8.14%). Additionally, we examined other occurring diseases that were more common in underweight/healthy (11.63%) than in overweight/obese pregnant women (5.81%). It is clear in Figure 3 how frequently health issues occurred regarding nutritional status in women with twin pregnancies.

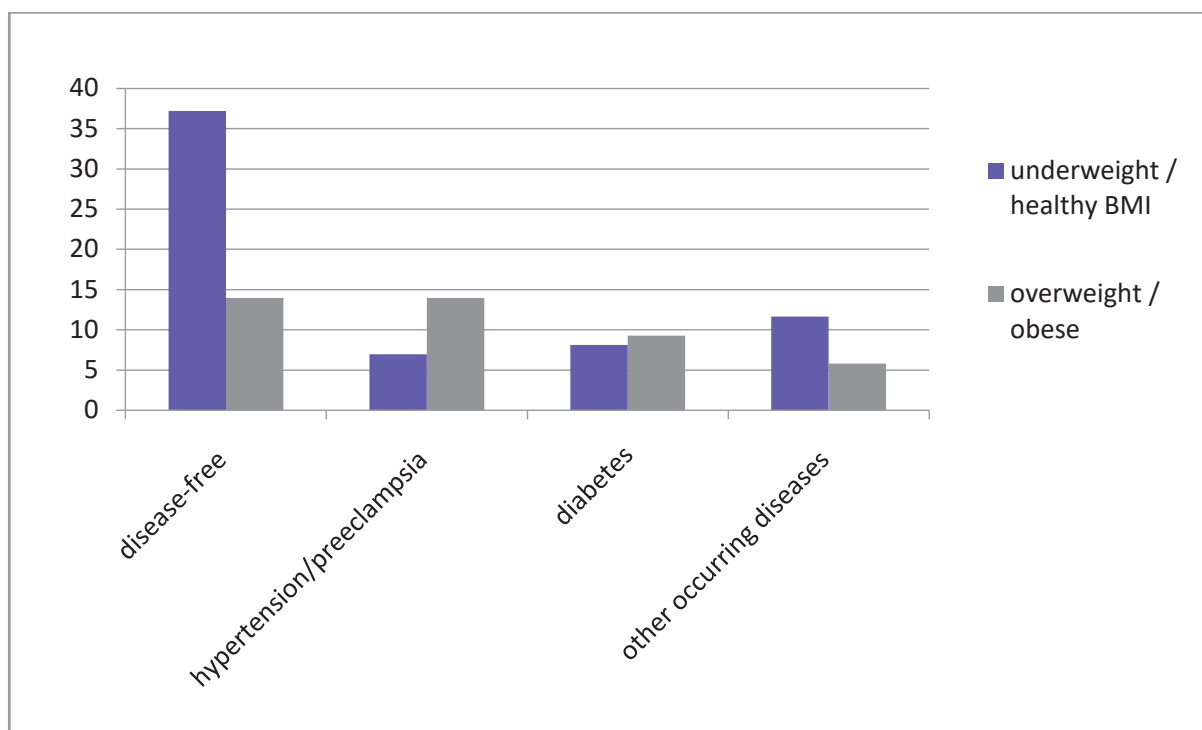


Figure 3. **Incidence of diseases occurring during pregnancy depending on nutritional status in our sample (N=89)**



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## Discussion

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In our document analysis, the participants (N=89) had an even distribution in terms of natural conception versus assisted reproduction techniques, and the latter had a higher frequency of cesarean section (85.39%;  $p<0.05$ ) that correlated with the advanced age of the mothers. Preterm birth was more common (56.18%) in our sample and the newborns (n=183) had a smaller birth weight (mean=2314 g) than observed in singleton pregnancies, but our results matched those of Santana et al (17). One-third of pregnancies were monochorionic, which was more likely in natural conceptions ( $p<0.05$ ). A total of 40% of pregnant women had some kind of underlying condition before pregnancy, half of which were gynaecological. Conditions occurring during pregnancy affected almost half of the mothers, and the most common were gestational diabetes, hypertension, and preeclampsia. These last 2 diseases had a 13.48% occurrence rate, which is similar to the research of Narang et al (12.7%) (14). In agreement with international research data (12-14), we also found that hypertension and preeclampsia are increased risk factors among the complications of twin pregnancies. Health conditions occurring during twin pregnancy were independent of the method of conception ( $p>0.05$ ) which contradicts the results of Want et al (15). Independently of the maternal age ( $p>0.05$ ), more than one-third of our participants were over the normal nutritional status, which corresponds to international research (5-7). Abnormal weight gain during pregnancy was observed in half of the participants, which was not influenced by maternal age ( $p>0.05$ ). A higher baseline BMI corresponded to a greater weight gain ( $p<0.05$ ) and abnormal weight gain ( $p<0.05$ ). In our study, matching the international research data, the abnormal maternal BMI, being overweight or obese increased the risk of hypertension/preeclampsia (7-11) and gestational diabetes (7,10,11). Our research showed that abnormal weight gain during twin pregnancy has a negative effect on maternal health, and obesity correlates with an increased risk of maternal complications. Our results point out that obese women with twin pregnancy have an extremely high risk in terms of gestational diabetes, gestational hypertension, and preeclampsia. Effective and preventative strategies are

necessary, already during pregnancy planning. The effort to prevent obesity before pregnancy should focus on children, adolescents, and young women; besides education, acquiring practical knowledge in identifying and maintaining the optimal weight, and, in case of weight gain, assessing the nutritional and lifestyle factors are essential. The aim of preconception care is to provide the best possible health conditions for the mother and the unborn baby and to prevent maternal and fetal complications of pregnancy and developmental abnormalities. Twin pregnancy should be treated as high-risk pregnancy to mitigate the risks. Treatment with a supporting multidisciplinary approach can optimize and improve the health of the mother and the offspring. As part of the team besides doctors, nurses, midwives, and advanced practice nurses can identify risk factors, make health plans, recognize acute conditions, coordinate future care for patients, and monitor the condition of pregnant women (23,24). In the process of care, from preconception to the postnatal period, it is important for the pregnancy care team to be continuously present, pay attention, provide professional support, educate people in care, and to support risk groups. Further observational research is necessary for this topic to map out background factors because many areas are assessed only from the standpoint of a singleton pregnancy.

The research was financed and supported by the Human Resource Development Operational Programme of the Ministry for Human Capacities within the HRDOP-3.6.1-16-2016-00004 Comprehensive Development for Implementing Smart Specialization Strategies at the University of Pécs. The project has been supported by the European Union and co-financed by the European Social Fund.

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## ISPITIVANJE KOMPLIKACIJA I DIFERENCIJACIJSKIH ČIMBENIKA (NAČIN ZAČEĆA, STANJE UHRANJENOSTI, POVEĆANJE TJELESNE TEŽINE) U BLIZANAČKIM TRUDNOĆAMA

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### SAŽETAK

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**Uvod.** U današnje vrijeme, zbog visoke razine znanstvenog napretka, tretmani indukcije ovulacije za pomoć neplodnim parovima postali su sve rašireniji, što je rezultiralo velikim porastom broja blizanačkih trudnoća. Cilj našeg istraživanja bio je procijeniti komplikacije blizanačke trudnoće i njezine diferencirajuće čimbenike (način začeća, nutritivni status, stupanj debljanja).

**Metode.** Naše kvantitativno, presječno, retrospektivno istraživanje provedeno je u Mađarskoj, Zapadnom Podunavlju, analizom sadržaja zdravstvene dokumentacije trudnica (N=89).

**Rezultati.** Gotovo polovica majki razvila je određene komplikacije tijekom trudnoće. Komplikacijama u blizanačkoj trudnoći mogu se smatrati povećani čimbenici rizika za hipertenziju/preeklampsiju, na koje nije utjecao način začeća ( $p > 0,05$ ). Na temelju naših rezultata, abnormalno povećanje tjelesne težine bilo je mjerljivo kod svake druge trudnice. Tjelesna težina prije začeća značajno je odredila stopu debljanja tijekom trudnoće ( $p < 0,05$ ). Naša studija potvrđuje da abnormalno povećanje tjelesne težine i pretilost tijekom blizanačkih trudnoća negativno utječu na zdravlje majki te su povezani s rizikom od komplikacija (hipertenzija/preeklampsija, gestacijski *diabetes melitus*).

**Zaključak.** Kako bi se spriječila pretilost prije trudnoće, već su tijekom planiranja trudnoće potrebne učinkovite i preventivne strategije.

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**Ključne riječi:** blizanačke trudnoće, nutritivni status, komplikacije

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# Perception of the Quality of Nursing Work Life

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**Article received:** 23.10.2022.

**Article accepted:** 21.11.2022.

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<https://doi.org/10.24141/2/6/2/3>

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**Keywords:** life quality, quality of work life, intensive care, nursing

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## Abstract

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**Introduction.** Quality of work life is a multidimensional construct consisting of several mutually linked factors, such as job satisfaction, commitment to work, motivation, work efficiency, work safety, improvement of abilities and work-life balance.

**Aim.** The aim of this paper was to determine the quality of work life in nurses employed in intensive care and anesthesiology units, as well as to determine whether there is a difference in the quality of work life regarding gender, education, years of service, workplace, and way of working.

**Methods and respondents.** A cross-sectional study was conducted in May 2021. The study was conducted by using a socio-demographic data questionnaire and the Brooks Quality of Nursing Work Life Survey which consists of 42 items divided into 4 subscales. 102 respondents employed in intensive care and anesthesiology units at the UHC Zagreb and UHC Sestre milosrdnice participated in the study.

**Results.** The questionnaire was filled in by 102 respondents, and the overall results show that nurses assess the quality of their work life as being moderate. Looking at every subscale separately, nurses assessed the quality of work life as being moderate in the work life/home life, work design and work world subscales. In the work context subscale, nurses have assessed their quality of work life as being high. No statistically significant difference was found concerning gender, education, years of service, workplace, and way of working.

**Conclusion.** The quality of nursing work life was moderate in all subscales, except in the work context subscale, where it was assessed as high. The results have shown that nurses are dissatisfied with their salaries, their work not being acknowledged and their excessive workload. Management should intervene in order to improve the quality of nursing work life.

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## Introduction

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Quality of work life as a topic is becoming ever more present in literature about human resources. The quality of work life construct began to be used in the 1970s and is linked to the theory of socio-technical systems. The basic settings of the theory refer to an organization that fully engages its employees in the work design, while at the same time achieving organizational goals (1). There is no single definition of quality of work life. One definition of quality of work life describes it as the expression of possibilities and talents and the ability to cope with situations that require initiative and decision-making (2).

Quality of work life is a multidimensional construct consisting of several mutually linked factors, such as job satisfaction, commitment to work, motivation, work efficiency, work safety, improvement of abilities, work-life balance (3). Therefore, in research, various tools are used or they are combined, thus leading to different interpretations of the results. Some authors use the qualitative approach, but more often the quantitative approach is used.

Quality of nursing work life (QNWL) developed from the quality of work life and is used in research related to nurses. It is defined as the degree to which nurses are capable of satisfying important personal needs through experiences in their work organization, while at the same time achieving the goals of their organization and contributing to this organization in a meaningful way (1). The quality of nursing work life questionnaire is divided into 4 dimensions: work life/home life, work design, work context and work world. The work life/home life dimension relates to the balance between work and home life. It is estimated that a nurse balances different roles in

his/her private life and harmonizes them with work life. The work design dimension relates to a nurse's real-life work environment, with an emphasis on workload and work autonomy. The work context dimension consists of nursing practices and influence on patients. This dimension includes staff supervision and lifelong learning. The work world dimension focuses on social effects and how they change nursing practices (1).

Using the above-mentioned questionnaire, Morsy intended to find a link between the quality of nursing work life and job satisfaction. On a sample of 148 nurses, he found a statistically significant link between the quality of work life and job satisfaction. Nurses with higher levels of quality of work life manifested a higher level of job satisfaction. However, as much as 66% of nurses stated that they are not satisfied with the quality of their work life. A statistically significant difference was established regarding age, marital status, level of education and quality of nurse work life (4).

Blumberg wanted to establish a link between the quality of work life and psychological wellbeing. He used a cross-sectional design on 56 nurses and established a positive correlation between the quality of work life and psychological wellbeing (3).

Kaddourak studied the quality of nursing work life and the intention to leave the profession. The study was conducted on 364 nurses in Saudi Arabia and could not establish a link. However, the study did establish that 94% of nurses intend to leave the hospital (5).

Ellis and Pompli studied the quality of nursing work life in Australia. Their aim was to determine the obstacles that influence the quality of work life. The data they obtained showed that the most common obstacles are nurses' workload, incompatibility between private life and work life, inability to make decisions, lack of acknowledgement, non-availability of education, and poor relationship with superiors (6).

Some authors state that a higher level of education affects the quality of nursing work life in such a way that nurses evaluate their quality of work life as lower because of their higher expectations (7). The authors who studied the nurses' attitudes about the quality of work life, state that with age the distrust towards managers increases, which leads to a lower level of quality of life (8).

## Aim

Determine the quality of work life in nurses employed in intensive care and anesthesiology units.

Determine whether there is a difference in the quality of work life between nurses regarding their gender, education, years of service, workplace and way of working.

## Methods

A cross-sectional study was conducted in May 2021. A socio-demographic data questionnaire and the Brooks' Quality of Nursing Work Life Survey (BQNLW (1) were used. The BQNLW consists of 42 items divided into 4 subscales: work life/home life, work context, work design and work world. The questionnaire offers 6 possible answers: from 1 - Strongly disagree, to 6 - Strongly agree.

The study was conducted in intensive care and anesthesiology units at the UHC Zagreb and UHC Se-

stre milosrdnice. The study was approved by Ethics Committees from both institutions. The questionnaire was filled in by 102 respondents, 75 of which were female, and 27 male. With regard to education, 33 respondents completed secondary education, 59 respondents had a Bachelor's degree and 8 respondents had a Master's degree.

Nurses filled in the questionnaire individually, on site, in a designated room; after finishing they put the questionnaire into a sealed envelope and gave it to the researcher.

## Results

The questionnaire was filled in by 102 respondents. Most respondents were women (74%). Most respondents have a Bachelor's degree (58%) and have been working between 3 and 15 years (43%). Given that the study was conducted on intensive care and anesthesia nurses, most respondents work in shifts (54%). The data is shown in Table 1.

Table 1. Respondents' demographic data

		Number	%
Gender	Male	27	26
	Female	75	74
Level of education	General nurse	35	34
	Bachelor of nursing	59	58
	Master of nursing/graduate nurse	8	8
Years of service	Up to 3 years	18	18
	3-15 years	44	43
	16-30 years	26	25
	More than 30 years	14	14
Workplace	Operating theater	43	42
	Intensive care unit	59	58
Job position	Rotation/shift work	55	54
	Shift leader	5	5
	Morning work	10	9
	On-call	33	32

Table 2. Overall score and work life quality subscales

Scales	Possible span	Theoretical average	Actual span	M	SD
42-item scale	42 - 252	147	139 - 218	172.2	1.18
7-item work life/home life subscale	7 - 42	24.5	17 - 37	28.1	1.23
10-item work design subscale	10 - 60	35	32 - 47	41.9	1.07
20-item work context subscale	20 - 120	70	56 - 92	83.5	1.19
5-item work world subscale	5 - 30	17.5	10 - 27	18.5	1.24

The BQNLW total score can range between 42 and 252, where a lower value indicates a lower level of quality of nursing work life. Our results show that nurses assessed their work life quality level as moderate. This becomes apparent when looking at our result average compared to the average of the BQNLW scale. Results are shown in Table 2.

Analyzing each subscale individually, we will first examine the dimension of work life/home life. Most nurses are moderately satisfied with the quality of their work life in this dimension. A significant number of nurses (more than 80%) stated that they need childcare services, including when children are sick. Approximately 50% of nurses stated that shift work negatively impacts their life. Table 3 shows the val-

ues of all items in this dimension.

In the work design dimension, nurses are moderately satisfied with the quality of their work life. As many as 98% of nurses stated that they provide quality health care, while 88% of them stated that they were satisfied with their work. About 80% of nurses stated that unlicensed personnel help them in their work, which is a good result because we can link this statement with the fact that 80% of nurses believe their workload is too heavy. As many as 75% of nurses feel that they perform a lot of non-nursing tasks. Around 54% of nurses feel that there is a shortage of nurses in their workplace. Table 4 shows the results of this dimension of the questionnaire.

Table 3. Results of the work life/home life subscale

Work life/home life		I disagree		I agree	
		Number	%	Number	%
1.	It is important for the hospital to provide daycare for employees' ill children.	15	15	87	85
2.	It is important that hospitals provide childcare.	17	17	85	83
3.	I am able to balance work life and home life.	20	20	82	80
4.	It is important for the hospital to provide daycare for employees' elderly parents.	30	29	72	71
5.	Shift work negatively affects my life.	50	49	52	51
6.	My organization's policy for family leave is adequate.	53	52	49	48
7.	I have enough energy left after work.	61	60	41	40

Table 4. Results of the work design subscale

Work design		I disagree		I agree	
		Number	%	Number	%
1.	I am able to provide good quality nursing care.	2	2	100	98
2.	I am satisfied with my job.	12	12	90	88
3.	I have the autonomy to make patient care decisions.	14	14	88	86
4.	My workload is too heavy.	22	22	80	78
5.	I receive quality assistance from unlicensed support personnel.	24	24	78	76
6.	I receive a sufficient amount of assistance from unlicensed support personnel.	24	24	78	76
7.	I perform many non-nursing tasks.	25	25	77	75
8.	I have enough time to do my job well.	35	34	67	66
9.	I experience many interruptions in my daily work routine.	35	34	67	66
10.	There are enough nurses in my work setting.	55	54	47	46

In the work world dimension, nurses are moderately satisfied with the quality of their work life. 87% of nurses feel that society does not have the correct image of nurses. An equal percentage of nurses believe their work impacts the lives of patients/families. 75% of nurses think they would be able to find a job in another organization with about the same salary and benefits. Interestingly, 44% of nurses think that

their salary is adequate given the current job market conditions. Table 5 shows the results of this dimension.

The work context dimension is the only dimension where nurses showed a high level of satisfaction with their work life. Nurses assessed questions that related to staff management with a high percentage of satisfaction. Nurses showed a significantly lower

Table 5. Results of the work world subscale

Work world		I disagree		I agree	
		Number	%	Number	%
1.	My work impacts the lives of patients/families.	14	14	88	86
2.	I feel my job is secure.	22	22	80	78
3.	I would be able to find a job in another organization with about the same salary and benefits.	25	25	77	75
4.	My salary is adequate given the current job market.	57	56	45	44
5.	Society has a correct image of nurses.	89	87	13	13



Table 6. Results of the work context subscale

	Work context	I disagree		I agree	
		Number	%	Number	%
1.	It is important to secure a separate break area for nurses.	4	4	98	96
2.	My nurse manager provides adequate supervision.	9	9	93	91
3.	I have good quality communication with physicians in my work environment.	9	9	93	91
4.	It's important for me that my hospital provides degree completion programs for nurses.	10	10	92	90
5.	I have a feeling of belonging at my workplace.	12	12	90	88
6.	I feel respected by physicians in my work environment.	13	13	89	87
7.	There is teamwork in my work setting.	14	14	88	86
8.	I communicate well with my nurse manager.	15	15	87	85
9.	Friendships with my co-workers are important to me.	20	20	81	80
10.	I have adequate patient care supplies and equipment.	21	21	81	79
11.	I communicate/cooperate with physical therapists.	24	24	78	76
12.	I receive feedback on my performance from my nurse manager.	27	26	75	74
13.	I receive support to attend in-service and continuing education programs.	41	40	61	60
14.	I am recognized for my accomplishments by my nurse manager.	42	41	60	59
15.	My work setting provides career advancement opportunities.	45	44	57	56
16.	At work I feel safe from personal harm (physical, emotional, or verbal).	45	44	57	56
17.	Nursing policies and procedures facilitate my work.	51	50	51	50
18.	My organization's upper-level management respects nurses.	51	50	51	50
19.	I participate in decisions made by my nurse manager.	53	52	49	48
20.	The security department at the hospital creates a safe environment.	54	53	48	47

level of satisfaction regarding career development (56% were satisfied); also, only 50% felt that management has respect for nurses. It is especially important to stress that 44% of nurses do not feel safe in their workplace, while 53% of nurses feel that the

security department does not provide a secure environment. Results are shown in Table 6.

No statistically significant differences were found when comparing the quality of work life in relation to demographics, as shown in Table 7.

Table 7. Results of the quality of work life compared to demographic variables

		Quality of work life (total result)			
Variable		Low	Moderate	High	$p^*$
Gender	Male	0 (0.0)	20 (74.1)	7 (25.9)	0.643
	Female	0 (0.0)	52 (69.3)	23 (30.7)	
Level of education	General nurse	0 (0.0)	22 (62.9)	13 (37.1)	0.337
	Bachelor of nursing	0 (0.0)	45 (76.3)	14 (23.7)	
	Master of nursing/ Graduate nurse	0 (0.0)	5 (62.5)	3 (37.5)	
Years of service	Up to 3 years	0 (0.0)	13 (72.2)	5 (27.8)	0.702
	3-15 years	0 (0.0)	32 (72.7)	12 (27.3)	
	16-30 years	0 (0.0)	19 (73.1)	7 (26.9)	
	More than 30 years	0 (0.0)	8 (57.7)	6 (42.9)	
Workplace	Operating theater	0 (0.0)	33 (76.7)	10 (23.3)	0.244
	Intensive care unit	0 (0.0)	39 (66.1)	20 (33.9)	
Way of work	Rotation work	0 (0.0)	36 (67.9)	17 (32.1)	0.132
	Shift leader	0 (0.0)	2 (40.0)	3 (60.0)	
	Morning work	0 (0.0)	9 (90.0)	1 (10.0)	
	On-call	0 (0.0)	25 (75.8)	8 (24.2)	
	Other	0 (0.0)	0 (0.0)	1 (100.0)	

\* $p < 0.05$  is considered significant, the chi-squared test was used

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## Discussion

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Quality of work life is an important concept in the description of the work environment, and deviations in it can affect the quality of the nursing care provided and also endanger the safety of patients and their families. Numerous studies have shown deviations in the quality of work life among nurses employed in different hospital wards, as well as in primary health care (9).

The results of this study show that the quality of nursing work life level is moderate, and this result is supported by numerous other studies. Suleiman et al conducted a study on emergency service nurses in Jordan, proving that their quality of work life is also moderate (9). The same results were obtained in a study conducted in Iran, and in addition to the above, a correlation between the quality of work life and burnout syndrome was also proven (10). Nayeri et al conducted a study on the relationship between the quality of work life and productivity in 360 nurses, where 61.4% rated their quality of work life as moderate (11).

Most respondents in this study are moderately satisfied with the quality of their work life in the work life/home life subscale. 60% of respondents claim that after work they do not have enough energy, whereas 50% feel that shift work negatively impacts their life. A study conducted among primary healthcare nurses in Saudi Arabia showed similar results (12). The consequence of the above is the impossibility of balancing private and work life, so when work requirements cannot be combined with the obligations of private life, this leads to leaving the workplace or profession (13).

The work design subscale also shows moderate quality of nursing work life. Approximately 75% of respondents feel that their workload is too heavy and that they perform many non-nursing tasks. These results are supported by the study conducted by Vanaki in Iran that included 250 nurses, where a too heavy workload was the main reason for dissatisfaction at work and low quality of work life (14). In our study, more than half of the respondents believe that there are not enough nurses at their workplace, while in the study by Aiken et al, it was determined that each additional patient per nurse increases the probability

of burnout syndrome by 23% (15). Despite that, 88% of respondents stated that they were satisfied with their job, while as much as 98% felt that they were able to provide good quality nursing care.

In the work world dimension, respondents also showed a moderate quality of work life. 87% of respondents felt that society does not have a correct image of nurses, because this image is based on misconceptions and stereotypes stemming from distorted images presented by the media. An example of a stereotype is the image of nurses as "angels" and doctors' helpers, creating the public image of the nurses as feminine and caring, but not as independent patient care providers. Nurses are generally held in high regard because of their virtues – not because of their knowledge and skills (16). Salary is an important factor contributing to dissatisfaction among nurses, and 56% of them believe that they are not adequately paid for their work considering the conditions in the labor market. In accordance with the above, several studies have proven that salary and financial benefits are important items for nurses and that their insufficiency affects the satisfaction, dedication, and performance of employees (12).

The work context dimension is the only one in this study in which nurses stated a high quality of working life. Results like these were also obtained by Morsy and Sabra in their study conducted in 2015 in Egypt on 148 nurses (4). On the other hand, in the Shazly and Fakery study, it was precisely this dimension that showed the poorest quality of working life (17).

About 90% of respondents stated that their nurse manager provides adequate supervision of their work and that they have good quality communication with physicians and feel respected by physicians. Suleiman and Almalki obtained different results: in their study only half of the nurses agreed with the above statements (9,12). With regards to career advancement opportunities, only 56% of respondents stated that they have this opportunity. The potential for advancement was identified as an important motivator in achieving excellence in nursing practice, and strategies for improving their professional status and personal advancement should help in improving satisfaction with the quality of nursing work life (18).

It must be stressed that just around half of the respondents say they feel safe in their workplace and that the security department provides a secure envi-

ronment. Similar results were obtained by the study conducted on 585 nurses in Saudi Arabia, where 60% stated that the security department does not provide a safe environment, and 45% did not feel safe in the workplace (12).

El-Gilany et al conducted a study with the aim of determining the incidence of violence in the workplace among 1091 nurses. Results showed that 28% were exposed to a violent incident during the previous year, with emotional violence comprising 92,1%, and physical 7,9% of all violent events (19). It must be stressed that the feeling of safety in the workplace is necessary for nurses to be able to adequately perform their job. In our study, 96% of nurses agreed that it is important to have a separate break area and that 88% have a feeling of belonging to the workplace, which is an important factor that improves the quality of work life.

Only 50% of respondents feel that management respects nurses and only 59% feel that their nurse manager recognizes their accomplishments. According to Bodek, employees want to feel respected for the work they provide and appreciated for their skills, knowledge, and performance (20). According to AbuAIRub and Al-Zar, recognition of nurses' work directly impacts their intention to stay in their workplace, because a difficult day without recognition can increase the wish to leave the workplace (21).

The study results showed no statistically significant difference concerning gender, education, years of service, workplace, and way of working, just like in the study by Suleiman et al. In contrast, the study by Lebna et al proved that women rather than men, as well as highly educated nurses and those with more than 15 years of experience, have a higher quality of working life (22). As an explanation, we can cite the fact that more experienced nurses have a developed ability to better adapt to the work environment compared to less experienced colleagues. Also, older and more experienced nurses are more recognized and appreciated by managers, which certainly contributes to greater satisfaction (23).

In addition, research by Hadley and Roques proved that nurses who work morning and afternoon shifts have a higher quality of work life compared to nurses

who work night shifts (24). Although in our study we did not examine the link between marital status and quality of work life, many studies prove a statistically significant difference, where married respondents had a higher quality of work life (12,25), the reason for this possibly being that married respondents have better emotional support from their partners, which leads to a reduction in stress and consequently a higher quality of work life (26).

This study has certain limitations. The study was conducted on a small sample of nurses in just two health institutions, which might affect the obtained results. Also, the study is cross-sectional, which limits the observation of changes over time and indicates the need to conduct longitudinal studies that would enable a deeper understanding of the determinants and changes in the quality of nurses' work life.

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## Conclusion

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Based on the results of this study, we can claim that nurses employed in intensive care and anesthesiology departments are moderately satisfied with their quality of work life in all dimensions, except for the work context dimension where they showed a high level of quality of work life. Also, with this study, we pointed out those segments that should be modified in order to increase the level of quality in other dimensions as well. The workload per nurse should be reduced and nurses should also be relieved of tasks that are not in their job description.

Nurses should be paid adequate wages for their work and receive recognition for their accomplishments and education. Hospital management should pay attention to the quality of nursing work life and secure a safe work environment. Many studies have shown a correlation between the quality of work life and the intention to leave the workplace; therefore, management and managers should take effective interventions to prevent nurses from leaving the workplace and/or the profession.

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## PERCEPCIJA KVALITETE RADNOG ŽIVOTA MEDICINSKIH SESTARA/TEHNIČARA

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### Sažetak

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**Uvod.** Kvaliteta radnog života višedimenzionalni je konstrukt koji se sastoji od nekoliko međusobno povezanih čimbenika kao što su zadovoljstvo poslom, predanost poslu, motivacija, radna učinkovitost, sigurnost na poslu, unaprjeđenje sposobnosti, ravnoteža privatnog života i rada.

**Cilj.** Cilj ovog rada bio je utvrditi razinu kvalitete radnog života medicinskih sestara zaposlenih na odjelima intenzivne skrbi i anesteziologije te postoji li razlika u razini kvalitete radnog života medicinskih sestara/tehničara s obzirom na spol, obrazovanje, radni staž, mjesto zaposlenja i način rada.

**Metode.** Provedena je presječna studija tijekom svibnja 2021. Korišten je Upitnik sociodemografskih podataka te *Brooks Quality Nursing Work Life Survey* koji sadrži 42 čestice podijeljene u četiri podljestvice. U istraživanju su sudjelovala 102 ispitanika zaposlena na odjelima intenzivne skrbi i anesteziologije u KBC-u Zagreb i KBC-u Sestre milosrdnice.

**Rezultati.** Upitnik su ispunila 102 ispitanika, a ukupni rezultati pokazuju da medicinske sestre i medicinski tehničari kvalitetu radnog života procjenjuju umjerenom. Gledajući svaku podljestvicu zasebno, medicinske sestre i medicinski tehničari procijenili su kvalitetu radnog života umjerenom u podljestvicama poslovni život / privatni život, dizajn rada i svijet posla. U podljestvici kontekst posla medicinske sestre i medicinski tehničari iskazali kvalitetu radnog života visokom. Nije pronađena statistički značajna razlika s obzirom na spol, obrazovanje, radni staž, mjesto zaposlenja i način rada.

**Zaključak.** Kvaliteta radnog života medicinskih sestara/tehničara umjerena je na svim podljestvicama osim u podljestvici kontekst posla, gdje se pokazala visokom. Rezultati su pokazali da su medicinske sestre i medicinski tehničari nezadovoljni plaćom, nepriznavanjem svojeg rada te prevelikom količinom radnih zadataka. Rukovoditelji bi trebali poduzeti intervencije koje će poboljšati kvalitetu radnog života medicinskih sestara/tehničara.

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**Cljučne riječi:** kvaliteta života, kvaliteta radnog života, intenzivna skrb, sestrinstvo

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# Nurses' Attitudes Towards Dying and Death

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**Article received:** 14.11.2022.

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**Article accepted:** 16.12.2022.

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<https://doi.org/10.24141/2/6/2/4>

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**Keywords:** death, nurses, attitude

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## Abstract

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**Introduction.** Death means the irreversible termination of the organism's vital activities. Dying presents an irreversible state of an incurable disease from which death is expected in due time. The experience of meaning in life is defined as the degree to which an individual understands and sees significance in his life, how and to what extent he feels purpose in life.

**Aim.** The aim of this research was to determine the role of demographic characteristics (gender, age,

level of education, religiosity), their relationship with the experience of meaning in the life of nurses, and the relationship between the attitudes of nurses towards death and dying with the experience of meaning in life.

**Methods.** The research was conducted in the period from May to June 2022. The survey was composed of three parts, and was posted on the Facebook social network in the group named *Nurses together*. A total of 240 participants took part in the research, of which 185 were female nurses and 55 were male nurses, with an average age of 33.05 years (SD=10.10). The instruments that were used in the research were the Purpose in Life Test and Death Attitude Profile - Revised.

**Results.** The obtained results do not indicate that women perceive their life as more meaningful compared to men. Also, healthcare professionals with a higher level of education perceive their life to be significantly more meaningful compared to healthcare professionals with secondary education. Regarding the relationship between the experience of meaning in life and some concepts of acceptance of death, it has been proven that a greater experience of meaning in life can be found in respondents who consider death as a natural process of the journey towards the afterlife. The degree of religiosity was not significantly related to the perception of the meaning of life.

**Conclusion.** Further research is needed to investigate the determinants of mortality in order to more scientifically determine the perception of the experience of meaning in life and attitudes towards death and dying among nurses. The importance of such research is reflected in the effort to raise awareness of the usefulness of the experience of meaning in life in the complete functioning of the individual and the quality of life.

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## Introduction

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### Death and dying

Death (Lat. *mors*) means the irreversible termination of vitally important activities of the organism (1). According to the Medical Encyclopedia, death is the state of the organism that occurs after the end of vital functions, especially the cardiovascular, respiratory and central nervous systems (2). Dying is an irreversible state of an incurable disease from which death is expected in due time (3). The concept of coping according to Lazarus's theory is a process that requires knowledge and skills, as well as personal assessment in a coping situation (4). Psychiatrist Elisabeth Kübler-Ross published a model consisting of five phases of dealing with death. The first phase is the phase of denial and loneliness, then the phase of anger, bargaining, depression and the last phase is the phase of acceptance (5).

In 2020, author Asatsa conducted research that showed that negative attitudes toward death decrease with higher age, while positive attitudes towards death increase with higher age of an individual (6). Other authors stated that years of working experience can have a more negative effect on attitudes towards dying and death, explaining that people then lose patience for others (7). In 2018, a study was conducted in Turkey with the aim to determine the nurses' attitudes towards acceptance of death and dying with the explanation that death will happen to everyone and the belief that after death there is an afterlife (8).

### The experience of meaning in life concept

Through experience, an individual can assess the meaning in life and set different goals. It has been proven that people who perceive death less as an escape from a painful existence find greater meaning in life, and in general those people who are less afraid of death (9). The experience of meaning in life is the degree to which an individual understands and sees the meaning in his life, how and to what extent he feels that he has a purpose in life. According to Wong, the experience of meaning in life consists of several components that an individual must realize

during his/her lifetime. Those components are purpose, understanding, responsibility and enjoyment (10). Research by Wong et al., which was conducted in Hong Kong in 2018, proved that a person's social relationships can affect the psychological domain of meaning in life (11).

In a research conducted in Nigeria, it was proven that nurses have a negative attitude towards the meaning in life concept (12). In a research conducted in China, it was proven that the meaning of life and self-efficacy are important predictors of the meaning in life concept among nurses (13).

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## Aim

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The aim of the present research was to determine the experience of meaning in life among nurses and their attitudes towards death and dying, and the relationship between these two constructs. The specific aim was to determine whether the experience of meaning in life among nurses differs with respect to age, gender and level of education.

## Hypotheses

Hypothesis 1: There is a statistically significant difference in the experience of meaning in life with regard to age, gender and level of education.

Hypothesis 2: Nurses who are less afraid of death and nurses who perceive death as an escape to a lesser extent more often perceive their lives as meaningful.

Hypothesis 3: A high degree of religiosity of the participants is associated with a greater degree of experience of meaning in life among nurses.

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## Methods

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The research was conducted using the online version of the survey in the period from May to June 2022.

The survey was composed of three parts and was posted on the Facebook social network in the group called *Nurses together*. The survey was exclusively completed by nurses.

## Participants

The survey could be completed by all the nurses, regardless of gender, age, level of education, years of work experience and level of religiosity. During the entire research, the anonymity of the participants was ensured.

## Study instruments

### *Purpose in Life Test*

The Croatian-adapted version of the questionnaire by authors Vulić-Prtorić and Bubalo was used in the research. The Purpose in Life Test was designed by the authors Crumbaugh and Maholick in 1964. Through 23 statements, the cognitive aspect of the experience of meaning in life and the emotional aspect of the experience of meaning in life were examined. While filling out the survey, respondents could choose the level at which the statement applies to them on a 5-point scale (1 - does not apply to me at all, 5 - applies to me completely). The total score was calculated as the sum of all item scores, whereby 10 items must be scored in reverse. A higher score also indicated a higher experience of the meaning of life, while lower scores indicated that people experience life as less meaningful (14).

### *Death Attitude Profile - Revised*

The Croatian version of the questionnaire by Štambuk was used in the research. Death Attitude Profile - Revised was designed by Wong, Reker and Gesser in 1994. The scale consists of 23 statements that are divided into 5 subscales (fear of death, death avoidance, death acceptance, escape acceptance, neutral acceptance). Respondents had to choose how much they agree or disagree with a statement on a 7-point scale (1 - do not agree at all, 7 - completely agree). The total result of the individual subscales was calculated and formed as the average value of the assessment of the associated statements. The first subscale, the fear of death scale, assesses the presence of negative feelings, and thoughts about death and dying. The death avoidance subscale assesses

ways and attempts to avoid the topic of death, while the death acceptance subscale assesses how many people see death as a part of life. The fourth subscale, i.e. the escape acceptance scale, assesses the ways in which a person perceives death as an escape possibility. The neutral acceptance subscale assesses how much a person accepts death as a reality (15).

Religiosity was tested using one item with a given answer from 1 to 5, with which the participants could choose to what extent religiosity is important to them in their lives, with a lower number indicating a lower degree of religiosity.

Permission to use the questionnaires was obtained from the authors of the questionnaires.

## Statistics

Before testing the hypotheses, the normality of the distribution of the Kolmogorov-Smirnov test was checked, and it was determined that none of the distributions of the results deviates significantly from normal, and for this reason, parametric statistical procedures were used. Descriptive statistics included the arithmetic mean, standard deviation, minimum and maximum score, while the inferential processing of the results included the t-test and analysis of variance.

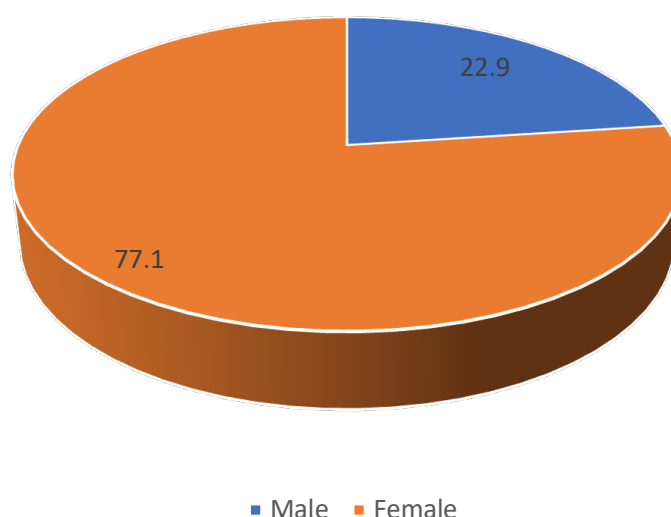
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## Results

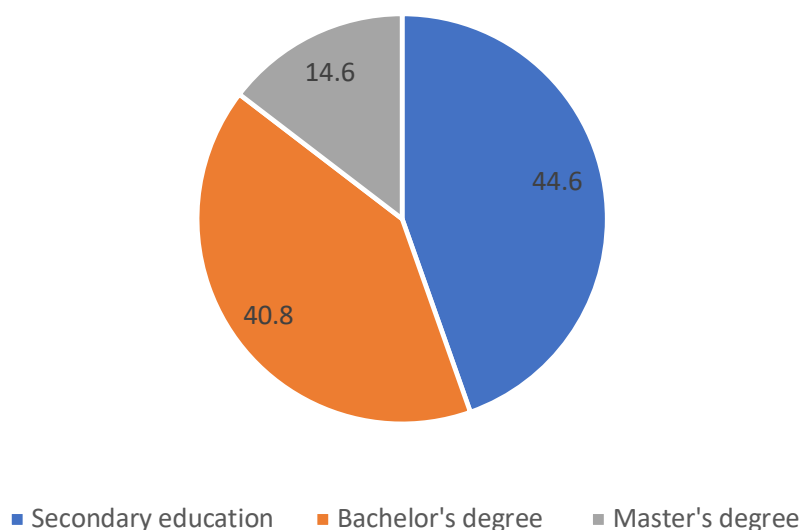
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### Descriptive indicators

A total of 240 respondents participated in this research, of which 185 were women (77.1%) and 55 were men (22.9%), with an average age of 33.05 years (SD=10.10). According to the level of education, most respondents completed secondary education, 107 (44.6%), 98 (40.8%) respondents had a Bachelor's degree and 35 (14.6%) respondents had a Master's degree. Nurses with work experience in the range of 0 to 42 years participated in the research.



Graph 1. **Distribution of respondents by gender (%)**



Graph 2. **Distribution of respondents according to the level of education (%)**

Table 1. **Data on respondent's age, years of work experience and degree of religiosity**

	N	Min	Max	M	SD
How old are you?	240	19	61	33.05	10.10
How many years of work experience do you have?	235	0	42	12.08	10.40
To what extent do you consider yourself a religious person?	240	1	5	3.47	1.16

The following table shows the average results on the experience of meaning in life and in the different

subscales of the experience of death, obtained for the entire sample.

**Table 2. The attitudes towards death and dying and the experience of the meaning in life among nurses**

	N	Min	Max	M	SD
<b>The experience of meaning in life</b>	230	2.22	5.00	4.09	0.56
<b>Fear of death</b>	236	1.86	7.00	3.83	1.09
<b>Death avoidance</b>	236	1.80	7.00	3.96	1.40
<b>Neutral acceptance</b>	235	1.00	7.00	5.46	1.44
<b>Death acceptance</b>	233	2.30	7.00	4.50	1.46
<b>Escape acceptance</b>	236	1.60	7.00	3.95	1.30

Table 2 shows that nurses perceive their lives as meaningful to a high degree ( $M=4.09$ ;  $SD=0.56$ ). Regarding various aspects of the experience of death, the participants achieved the highest average score on the subscale "neutral acceptance" ( $M=5.46$ ;  $SD=1.44$ ). Such a result indicates that of all the aspects of the experience of death, nurses accept death as a reality to the highest degree.

Differences in the experience of meaning in life and certain factors in the perception of death

In order to compare the experience of meaning in life and certain demographic factors, the differences between the average values were calculated.

The results show that there is a statistically significant difference between men and women in only one

**Table 3. Comparison of different subscales of the experience of meaning in life and the experience of death with regard to gender**

	GENDER	N	M	SD	t	p
<b>The experience of meaning in life</b>	M	50	4.14	0.55	0.67	0.50
	Ž	180	4.08	0.56		
<b>Fear of death</b>	M	53	3.87	1.16	0.24	0.81
	Ž	183	3.8	1.08		
<b>Death avoidance</b>	M	51	3.93	1.50	-0.19	0.85
	Ž	185	3.97	1.38		
<b>Neutral acceptance</b>	M	54	5.07	2.09	2.28	0.02*
	Ž	181	5.57	1.16		
<b>Death acceptance</b>	M	52	4.68	1.57	1.06	0.29
	Ž	181	4.44	1.43		
<b>Escape acceptance</b>	M	53	3.86	1.35	-0.61	0.54
	Ž	183	3.98	1.29		

\* $p<0.005$ ; \*\* $p<0.01$

Table 4. Differences in the experience of meaning in life with regard to the level of education

Education level	Total	M	SD	F	p
Secondary education	102	3.98	0.55		
Bachelor's degree	96	4.11	0.55	6.19	0.00**
Master's degree	32	4.36	0.50		

\*p&lt;0.005; \*\*p&lt;0.01

aspect of the experience of death, i.e. neutral acceptance of the concept of death (Table 3). This would mean that women accept the fact that death is an inevitable part of life to a statistically significantly greater extent than men. In other aspects of the experience of death, there was no significant difference. Analysis of variance was calculated to determine the difference in the perception of the experi-

ence of meaning in life with regard to the level of education of the respondents.

The results showed that there is a statistically significant difference ( $F=6.19$ ;  $p=0.00$ ) in the perception of the experience of meaning in life. A post hoc analysis was performed to determine the difference between levels of education. The Bonferonni test showed that respondents with a Master's degree

Table 5. Correlation between the perception of the experience of meaning in life with different concepts of the experience of death and degree of religiosity

		Religiosity	Meaning in life	Fear of death	Death avoidance	Neutral acceptance	Death acceptance	Escape acceptance
The experience of meaning in life	r	0.05						
	p	0.45						
	N	230						
Fear of death	r	0.2	-0.09					
	p	0.81	0.16					
	N	236	227					
Death avoidance	r	0.17	-0.08	0.56				
	p	0.01**	0.21	0.00**				
	N	236	227	233				
Neutral acceptance	r	0.09	0.29	0.07	0.03			
	p	0.18	0.00**	0.27	0.69			
	N	235	226	232	232			
Death acceptance	r	0.65	0.16	0.12	0.15*	0.27		
	p	0.00**	0.02*	0.08	0.03	0.00**		
	N	233	226	230	231	229		
Escape acceptance	r	0.20	0.05	0.18	0.07	0.34	0.59	
	p	0.00**	0.49	0.01*	0.27	0.00**	0.00**	
	N	236	227	233	233	232	230	
Age	r	0.09	0.02	-0.6	0.02	0.20	-0.5	0.03
	p	0.17	0.73	0.37	0.73	0.00**	0.41	0.70
	N	240	230	236	236	235	233	236

\*p&lt;0.005; \*\*p&lt;0.01

perceived their life to be significantly more meaningful than respondents with secondary education. Differences among other levels of education were not statistically significant.

According to the results of the correlation analysis, the perception of the experience of meaning in life has a statistically significant relationship with some aspects of acceptance of death. A significant positive correlation was shown between the experience of meaning in life and neutral acceptance ( $r=0.29$ ;  $p=0.00$ ) (Table 5). People who perceive life as meaningful to a greater extent also reconcile to a greater extent with death as an inevitable part of life. We find the same result in the aspect of death acceptance, where the correlation, although significant, is very low ( $r=0.16$ ;  $p=0.00$ ). People who believe that the concept of death is connected with a happy life after death, experience their life as more meaningful. As for the relationship between the death experience subscales, the results show that people who are more afraid of death also have a higher degree of avoidance of thinking about their mortality ( $r=0.56$ ;  $p=0.00$ ). People who have come to terms with death as inevitable also accept the concept of life after death to a greater extent and see death as an escape ( $r=0.37$ ;  $p=0.00$ ). Also, people who perceive death as an escape from bad things in this life, will to a greater extent consider death inevitable, and will to a greater extent believe that a happier life comes after death ( $r=0.59$ ;  $p=0.00$ ). As expected, there is a highly significant correlation between religiosity and the subscale of death acceptance ( $r=0.65$ ;  $p=0.00$ ).

People who are more religious are significantly more willing to accept death as the beginning of a happier life. Regarding age, the perception of the experience of meaning in life and most aspects of the experience of death were not significantly related. Only neutral acceptance showed a statistically significant association with age, but this association was very low, so it cannot be considered that age and neutral acceptance of death are related.

## Discussion

The aim of this research was to determine the relationship between gender, age, level of education, religiosity, and the experience of meaning in the life of nurses, and the relationship between the attitudes of nurses towards death and dying and the experience of meaning in life. The obtained results indicate

the presence of a statistically significant difference between men and women in one aspect of the experience of death. Neutral acceptance of the concept of death is an aspect of the experience of death that is statistically significant. This would imply that women accept the fact that death is an inevitable part of life to a significant extent compared to men. In a study by Bijelić conducted in 2018, it was shown that there is no statistically significant difference in the experience of meaning in life with regard to gender (9). With regard to age and years of work experience, in this research we did not obtain significant associations with the experience of meaning in life, but this can also be connected with a smaller age range with regard to the sample. According to the research conducted by Dittmann-Kohli in 2000, older people have a stronger sense of the experience of meaning in life because at that age life is more consolidated. The research points to different influences on the experience of meaning in life (16). Grounden and Jose pointed out that younger participants also state personal growth as a construct compared to older respondents, women state religiosity more than men, while men state self-actualization more than women (17). Oishi and Diener proved a lower level of the experience of meaning in life in people with a higher level of education (18,19). Also, Vujasin, in the research conducted in 2020, proved that respondents with a higher level of education think minimally about death (20). The association between religion and the experience of meaning in life was also examined, which did not prove to be statistically significant. Such a result is not in accordance with the result of research conducted by author Szentmartoni where it was proven that religion helps a person in dealing with difficulties that appear in a person's life (21). Alvarado et al. emphasize that religious people have more positive attitudes towards death and with a positive attitude, religious people are less afraid of death which is also associated with the belief in the existence of an afterlife (22). According to the results of the present research, the perception of the experience of meaning in life is associated with a higher degree of neutral acceptance of death and acceptance of the concept of death as such. Wong (10) believes that a person cannot truly live without being aware of the inevitability of death. A person is more capable of facing the fear of death if he lives a meaningful life. If a person does not find meaning in life and does not achieve integrity during his lifetime, it is assumed that he will live in fear of death (10).



According to Muller (23): *"Instead of losing myself in the fear of death, of allowing it to disable me, I focus on the fact that because of death, I now see even more clearly the life I was given. Because I don't suppress the fear of death, it helps me get a clear picture of the importance of life and time."*

It should be noted that there is a disproportion between male and female participants and there was no possibility of checking who answered the questions.

## Conclusion

The present research partially confirmed the hypotheses. It has not been proven that women perceive their life as more meaningful than men. Also, healthcare professionals with a higher level of education perceive their life to be significantly more meaningful compared to healthcare professionals with completed secondary education. As for the relationship between the experience of meaning in life and some concepts of acceptance of death, the research showed that a greater experience of meaning in life can be found in respondents who consider death a natural process of the journey towards the afterlife. The degree of religiosity was not significantly related to the perception of the experience of meaning in life.

Further research investigating the determinants of mortality is needed to empirically determine the perception of the experience of meaning in life and the experience of the concept of death among nurses. The importance of such research is reflected in the effort to raise awareness of the usefulness of the experience of meaning in life in the complete functioning of the individual and the quality of life.

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## STAVOVI MEDICINSKIH SESTARA/TEHNIČARA PREMA UMIRANJU I SMRTI

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### Sažetak

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**Uvod.** Smrt označava nepovratno prekidanje životnih aktivnosti organizma. Umiranje predstavlja nepovratno stanje neizlječive bolesti od koje se u dogledno vrijeme očekuje smrt. Doživljaj smisla života definira se kao stupanj do kojeg pojedinac shvaća i vidi značaj u svojem životu, kako i u kojoj mjeri osjeća svrhu u životu.

**Cilj.** Cilj ovog istraživanja bio je utvrditi ulogu demografskih karakteristika (spol, dob, obrazovanje, religioznost), njihovu povezanost s doživljajem smisla života medicinskih sestara/tehničara i povezanost stavova medicinskih sestara/tehničara prema smrti i umiranju s doživljajem smisla života.

**Metode.** Istraživanje je provedeno u razdoblju od svibnja do lipnja 2022. Anketa je bila sastavljena u tri dijela te je bila postavljena na društvenoj mreži Facebook u grupi „Medicinske sestre/tehničari zajedno“. U istraživanju je sudjelovalo 240 sudionika, od čega 185 medicinskih sestara i 55 medicinskih tehničara, prosječne dobi 33,05 godina ( $SD=10,10$ ). Primijenjeni su instrumenti Skala smisla života i Upitnik o stavovima prema umiranju i smrti.

**Rezultati.** Dobiveni rezultati ne ukazuju da žene doživljavaju svoj život smislenijim od muškaraca. Također, zdravstveni djelatnici s višim stupnjem obrazovanja doživljavaju svoj život znatno smislenijim od onih sa srednjom stručnom spremom. Kad je riječ o povezanosti smisla života i nekih koncepata prihvaćanja smrti, dokazano je kako se veći smisao života može pronaći kod ispitanika koji smrt smatraju prirodnim procesom putovanja prema zagrobnom

životu. Stupanj religioznosti nije se pokazao značajno povezanim s percepcijom smisla života.

**Zaključak.** Potrebna su daljnja istraživanja koja istražuju determinante smrtnosti kako bi se znatveno kvalitetnije utvrdilo o doživljaju života i stavova prema smrti i umiranju koje posjeduju medicinske sestre / medicinski tehničari. Važnost ovakvih istraživanja reflektira se u nastojanju da se osvijesti korisnost doživljaja smisla života u potpunom funkcioniranju pojedinca i kvaliteti života.

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**Ključne riječi:** smrt, medicinske sestre, stavovi

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# Ethnicity and Education as Predicting Factors for the Acceptance of the COVID-19 Vaccine in Nigeria

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**Article received:** 27.07.2022.

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**Article accepted:** 16.11.2022.

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<https://doi.org/10.24141/2/6/1/5>

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**Keywords:** determinant, COVID-19, pandemic, predicting factors, vaccination, ethnicity

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## Abstract

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**Aim.** The aim of this study was to examine ethnicity and educational level as predicting factors for the acceptance of COVID-19 vaccines in Nigeria. Two (2) hypotheses were posed for this study.

**Methods.** This study employed the concurrent explanatory design method. The sample was comprised of 32,224 respondents, all Nigerian citizens. A multi-stage sampling technique was employed for the survey involving quantitative data. A questionnaire was used as the instrument for data collection.

**Results.** The findings of this study revealed that there is a significant difference in COVID-19 vaccine acceptance based on tribe/ethnicity. The Tiv tribe and respondents who had tertiary education had the highest acceptance rate of COVID-19 vaccine.

**Conclusion.** The findings of this study show that there is a significant relationship between ethnicity, educational level and acceptance of COVID-19 vaccines in Nigeria. To improve the community-based COVID-19 immunization drive, it is crucial to develop creative, theory-based interventions to involve important stakeholders like village chiefs, religious leaders, and others. Additionally, a successful health message campaign must be implemented to fight the widespread falsehoods and misinformation that have contributed to the non-acceptance of COVID-19 vaccination.

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## Introduction

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The SARS-CoV-2 event, also known as COVID-19, spread quickly across the globe and was subsequently classified as a worldwide epidemic by the WHO. More than 628 million confirmed cases of COVID-19 have been documented globally as of November 2022, and there have been more than 6 million related deaths. This has caused enormous psychological, social, and economic unrest all over the world (1). On February 27, 2020, Lagos, Nigeria received the first report of it (2). In Nigeria, more than 266,000 cases and more than 3,000 fatalities have been documented (3). The coronavirus pandemic is currently humanity's biggest challenge. Normalcy as it was prior to the pandemic is unlikely to return unless a safe and effective vaccination is put into place.

Vaccines strengthen the immune system by enhancing the body's inherent defense systems to raise resistance to specific disease pathogens (4). Memory cells are produced by vaccinations, which instruct the immune system to rapidly manufacture antibodies when an infection naturally occurs (5). Numerous COVID-19 vaccinations that are both reliable and safe were widely distributed not long after the pandemic's inception. To promote the production of antibodies and give protection against pathogens like bacteria and viruses, a live or attenuated antigen is used in a vaccine. Vaccination is one of the best preventative methods against infectious diseases (6), but for a vaccine program to be successful, acceptance and coverage are key factors (6). There has been a widespread outbreak of misinformation regarding the approved COVID-19 vaccines as a result of the licensing and distribution of some effective and safe vaccinations against severe acute respiratory syndrome coronavirus 2 (SARS-Cov-2). This false information does not only apply to Nigeria. According to a number of media reports, mistrust of the US and EU has grown to be a significant barrier to broader vaccination coverage (7). Only 67% of Americans surveyed by Malik et al. at Yale University indicated a willingness to get the COVID-19 vaccination prior to the approval of any vaccine. However, since that time, this proportion has increased (6). Worldwide, over 12 billion vaccine doses have been administered (1). According to GeoPoll surveys undertaken in a few African nations, vaccine hesitancy declines when more vaccines are made

available (8). As of October 30, 2022, over 87 million vaccine doses have been administered in Nigeria (1). As of November 4, 2022, 40 out of 100 people in Nigeria have received their first dose of the COVID-19 vaccination (16), while just 3,369,628 persons have received the second dose, and more than 200 million people, or 97.15 percent of the population, were still unvaccinated (9). Despite the acute reluctance to receive the COVID-19 vaccination and the urgent necessity for it, there is still ample COVID-19 vaccine indifference. As a result, vaccination rates are still low everywhere, particularly in Africa and Nigeria.

Nigeria will probably fall short of its COVID-19 vaccine goals if things continue as they are. Nigeria's chances of reaching its goal of immunizing more than 15% of the population are slim. There are conflicting opinions regarding the safety and effectiveness of the vaccine as well as the facts regarding the pandemic's evolution (6-10). Despite such responses, a Nigerian online survey performed before the first vaccination was approved found that 58.2% of respondents would get the vaccine once it was available, while 19.2% and 22.6 percent, respectively, were unwilling or unsure (10). Over the years, it has been discovered that ethnic minorities have lower vaccination rates. This is frequently tied to concerns regarding trust in the government or the healthcare system, but sometimes it is also connected to convenience and a lack of health insurance. People from ethnic minorities were more likely to get the H1N1 vaccine in the UK, US, and Australia, according to a systematic analysis of vaccination intentions and behavior (11). This was explained by the higher likelihood of hospitalization in the UK for people from the Asian ethnic minority in particular (12).

In addition, Bangladeshi and Pakistani children's H1N1 mortality rates were higher than those of British children, raising awareness in those populations (13). The findings of several studies (7-14) showed a significant association between vaccine acceptance and race/ethnicity, with being Black/African American and American Indian as independent predictors. Another significant element that could have an impact on vaccination rates is the level of education; studies conducted in the past have demonstrated a relationship between level of education and vaccination rates. Two studies (14,15) have demonstrated a substantial relationship between the level of education and vaccination uptake among the general population, which is also consistent with studies on

vaccine reluctance for polio. Nigeria is not an exception to the refusal of some West African populations to embrace COVID-19 immunization, despite the benefits of vaccines and their usefulness in preventing specific diseases being widely known around the world. This study is intended to determine the factors that influence how well the COVID-19 vaccine is received in Nigeria.

## Research question

Is there a significant relationship between the level of education, ethnicity of Nigerians and the acceptance of a COVID-19 vaccine?

## Hypothesis

H1: There is no significant difference between the acceptance of the COVID-19 vaccine and ethnicity.

H2: There is no significant difference between the acceptance of the COVID-19 vaccine and the level of education.

## Methods

In addition to using concurrent explanatory ways of quantitative approaches, this study used a descriptive method design. Nigerian nationals who live in the country made up the study's population. The sample size for this study was determined using a list of states from various geopolitical zones that were chosen based on their ethnic composition. 32,224 people participated in the sample. A multi-stage sampling procedure was used for the survey containing quantitative data. The states were categorized in the first stage according to the main ethnic groups in Nigeria. The second stage involved selecting respondents from each ethnic group according to their population percentage in the nation using simple random sampling. They are Hausa (29%), Fulani (26%), Yoruba (21%), Igbo (18%), Ijaw (10%), Kanuri (4%), Ibibio (3.5%) and Tiv (2.5%). Of the total population, from which 0.2 percent of the population was chosen, 10,851 respondents were Hausa, 8,062 were Fulani, 7,281 were Yoruba, 3,087 were Igbo, 1,045 were Ijaw, 928 were Kanuri, 592

were Ibibio, and 378 were Tiv. The instrument was given to the chosen study participants in the third stage using the purposive sampling method. The instrument was a closed-ended questionnaire adapted from Adeleke et al (16). The instrument consisted of two parts: the first part covered the respondents' background data while the second part consisted of a 10-question item to answer why they would accept COVID-19 vaccination. The instrument was validated by experts and transcribed into 8 different languages to suit the needs of the respondents. Both descriptive and inferential statistics were used to analyze the data that were gathered for this investigation. Inferential statistics for the t-test and ANOVA were used to analyze quantitative data obtained from the questionnaire.

## Results

Table 1. Demographic characteristics of the respondents

Variables	Frequency	Percentage
<b>Ethnicity</b>		
<b>Hausa</b>	10851	33.7
<b>Yoruba</b>	7281	22.6
<b>Fulani</b>	8062	25
<b>Igbo</b>	3087	9.6
<b>Ijaw</b>	592	1.8
<b>Kanuri</b>	928	2.9
<b>Ibibio</b>	378	1.2
<b>Tiv</b>	1045	3.2
<b>Level of education</b>		
<b>No formal education</b>	14946	46.4
<b>Primary school</b>	3399	10.5
<b>Secondary school</b>	4154	12.9
<b>Tertiary institution</b>	9725	30.2
<b>Total</b>	<b>32224</b>	<b>100</b>

Table 2. **ANOVA summary showing the difference between COVID-19 vaccine acceptance and ethnicity**

COVID-19 vaccine acceptance									
Tribe	N	Mean	Std. deviation		Sum of squares	df	Mean square	F	Sig.
Hausa		2.9530	0.83541						
Yoruba	7281	3.7803	0.92698						
Fulani	8062	3.3772	0.86345	Between groups	10267.189	7	1466.741	1798.303	0.00
Igbo	3087	4.2513	1.01029	Within groups	26276.185	32216	0.816		
Ijaw	592	4.3589	1.04507	Total	36543.374	32223			
Kanuri	928	4.6039	1.05758		-				
Ibibio	378	4.8870	1.04559						
Tiv	1045	4.9913	1.06946						
Total	32224	3.5326	1.06493						

Table 2 revealed that there is a significant difference in COVID-19 vaccine acceptance based on tribe/ethnicity;  $F(7,32216)=1798.303$ ,  $p<0.05$ ,  $\eta^2=0.281$ . Thus, the null hypothesis is rejected. The Tiv tribe

had a higher acceptance rate of the COVID-19 vaccine while the Hausa people showed low acceptance of the COVID-19 vaccine.

Table 3. **Post hoc test showing the difference between COVID-19 vaccine acceptance and ethnicity**

Multiple comparisons						
Dependent variable: Covid-19 vaccine acceptance						
Bonferroni						
(I) TRIBE	(J) TRIBE	Mean difference (I-J)	Std. Error	Sig.	95% Confidence interval	
					Lower bound	Upper bound
Hausa	Yoruba	-0.82722*	0.01368	0.000	-0.8700	-0.7845
	fulani	-0.42412*	0.01328	0.000	-0.4656	-0.3826
	Igbo	-1.29830*	0.01842	0.000	-1.3559	-1.2408
	Ijaw	-1.40588*	0.03812	0.000	-1.5250	-1.2868
	Kanuri	-1.65090*	0.03089	0.000	-1.7474	-1.5544
	Ibibio	-1.93391*	0.04725	0.000	-2.0815	-1.7863
	Tiv	-2.03829*	0.02925	0.000	-2.1297	-1.9469
Yoruba	Hausa	0.82722*	0.01368	0.000	0.7845	0.8700
	Fulani	0.40311*	0.01460	0.000	0.3575	0.4487
	igbo	-0.47108*	0.01940	0.000	-0.5317	-0.4105
	ijaw	-0.57865*	0.03860	0.000	-0.6992	-0.4581
	kanuri	-0.82368*	0.03148	0.000	-0.9220	-0.7253
	ibibio	-1.10669*	0.04764	0.000	-1.2555	-0.9579
	tiv	-1.21106*	0.02988	0.000	-1.3044	-1.1177



fulani	hausa	0.42412*	0.01328	0.000	0.3826	0.4656
	yoruba	-0.40311*	0.01460	0.000	-0.4487	-0.3575
	igbo	-0.87418*	0.01911	0.000	-0.9339	-0.8145
	ijaw	-0.098176*	0.03846	0.000	-1.1019	-0.8616
	kanuri	-1.22678*	0.03131	0.000	-1.3246	-1.1290
	ibibio	-1.50980*	0.04753	0.000	-1.6583	-1.3613
	tiv	-1.61417*	0.02969	0.000	-1.7069	-1.5214
igbo	hausa	1.29830*	0.01842	0.000	1.2408	1.3559
	yoruba	0.47108*	0.01940	0.000	0.4105	0.5317
	fulani	0.87418*	0.01911	0.000	0.8145	0.9339
	ijaw	-0.10757	0.04052	0.222	-0.2342	0.0190
	kanuri	-0.35260*	0.03381	0.000	-0.4582	-0.2470
	ibibio	-0.63561*	0.04921	0.000	-0.7894	-0.4819
	tiv	-0.73999*	0.03232	0.000	-0.8410	-0.6390
ijaw	hausa	1.40588*	0.03812	0.000	1.2868	1.5250
	yoruba	0.57865*	0.03860	0.000	0.4581	0.6992
	fulani	0.98176*	0.03846	0.000	0.8616	1.1019
	igbo	0.10757	0.04052	0.222	-0.0190	0.2342
	kanuri	-.24503*	0.04750	0.000	-0.3934	-0.0966
	ibibio	-0.52804*	0.05946	0.000	-0.7138	-0.3423
	tiv	-0.63241*	0.04646	0.000	-0.7775	-0.4873
kanuri	hausa	1.65090*	0.03089	0.000	1.5544	1.7474
	yoruba	0.82368*	0.03148	0.000	0.7253	0.9220
	fulani	1.22678*	0.03131	0.000	1.1290	1.3246
	igbo	0.35260*	0.03381	0.000	0.2470	0.4582
	ijaw	0.24503*	0.04750	0.000	0.0966	0.3934
	ibibio	-.028301*	0.05511	0.000	-0.4552	-0.1109
	tiv	-0.38739*	0.04074	0.000	-0.5146	-0.2601
ibibio	hausa	1.93391*	0.04725	0.000	1.7863	2.0815
	yoruba	1.10669*	0.04764	0.000	0.9579	1.2555
	fulani	1.50980*	0.04753	0.000	1.3613	1.6583
	igbo	0.63561*	0.04921	0.000	0.4819	0.7894
	ijaw	0.52804*	0.05946	0.000	0.3423	0.7138
	kanuri	0.28301*	0.05511	0.000	0.1109	0.4552
	tiv	-0.10437	0.05421	1.000	-0.2737	0.0650
Tiv	hausa	2.03829*	0.02925	0.000	1.9469	2.1297
	yoruba	1.21106*	0.02988	0.000	1.1177	1.3044
	fulani	1.61417*	0.02969	0.000	1.5214	1.7069
	igbo	0.73999*	0.03232	0.000	0.6390	0.8410
	ijaw	0.63241*	0.04646	0.000	0.4873	0.7775
	kanuri	0.38739*	0.04074	0.000	0.2601	0.5146
	ibibio	0.10437	0.05421	1.000	-0.0650	0.2737

\* The mean difference is significant at the 0.05 level.

Table 3 further corroborates the results of table 2. The Bonferroni post hoc analysis for multiple comparisons conducted showed that the mean value of COVID-19 vaccine acceptance was significantly different between Hausa, Fulani, Yoruba, Igbo, Ijaw, Kanuri, Ibibio and Tiv. The acceptability of COVID-19 vaccines tends to be significantly higher among the Tiv tribe (2.03829,  $p < 0.00$ ) followed by the Fulanis (1.21106,  $p < 0.00$ ) and the Yorubas (1.21106,  $p < 0.01$ ). These results show that the Tiv tribe has

the highest level of COVID-19 vaccine acceptability.

Table 4 revealed that there is a significant difference in COVID-19 vaccine acceptance based on the level of education of the respondents;  $F(3.32220) = 1833.981$ ,  $p < 0.05$ ,  $\eta^2 = 0.146$ . Thus, the null hypothesis is rejected. Respondents who had no formal education showed a low acceptance rate for COVID-19 vaccines while respondents who graduated from tertiary institutions had a high acceptance rate for COVID-19 vaccines.

**Table 4. ANOVA summary showing the difference between COVID-19 vaccine acceptance and level of education**

COVID-19 vaccine acceptance									
Education	N	Mean	Std. deviation		Sum of squares	df	Mean square	F	Sig.
No formal education	14946	3.111	0.9163						
Primary school	3399	3.619	1.082						
Secondary school	4154	3.868	1.098	Between groups	5330.04	3	1776.68	1833.98	0.00
Tertiary institution	9725	4.006	0.997	Within groups	31213.33	32220	0.969		
Total	32224	3.532	1.064	Total	36543.37	32223			

**Table 5. Post hoc test showing the difference between COVID-19 vaccine acceptance and level of education**

Multiple comparisons						
Dependent variable: Covid-19 vaccine acceptance						
Bonferroni						
(I) EDUCATIONAL LEVEL	(J) EDUCATIONAL LEVEL	Mean difference (I-J)	Std. error	Sig.	95% Confidence interval	
					Lower bound	Upper bound
no formal education	primary school	-0.50835*	0.01870	0.000	-0.5577	-0.4590
	secondary school	-0.75690*	0.01726	0.000	-0.8025	-0.7114
	tertiary institution	-0.89515*	0.01282	0.000	-0.9290	-0.8613
primary school	no formal education	0.50835*	0.01870	0.000	0.4590	0.5577
	secondary school	-0.24856*	0.02276	0.000	-0.3086	-0.1885
	tertiary institution	-0.38681*	0.01961	0.000	-0.4385	-0.3351
secondary school	no formal education	0.75690*	0.01726	0.000	0.7114	0.8025
	primary school	0.24856*	0.02276	0.000	0.1885	0.3086
	tertiary institution	-0.13825*	0.01824	0.000	-0.1864	-0.0901
tertiary institution	no formal education	0.89515*	0.01282	0.000	0.8613	0.9290
	primary school	0.38681*	0.01961	0.000	0.3351	0.4385
	secondary school	0.13825*	0.01824	0.000	0.0901	0.1864

\*. The mean difference is significant at the 0.05 level.

Table 5 further corroborates the result of table 4. The Bonferroni post hoc analysis for multiple comparisons conducted showed that the mean value of COVID-19 vaccine acceptance was significantly different between the respondents according to their educational background. The acceptability of COVID-19 vaccines tends to be significantly higher among those who had tertiary education and those with no formal education (0.89515,  $p < 0.00$ ), followed by those who are secondary school leavers (0.75690,  $p < 0.00$ ) and those with no formal education, followed by primary school leavers (0.50835,  $p < 0.00$ ).

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## Discussion

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The results of Table 2 showed that the Tiv ethnic group had the highest likelihood to take the COVID-19 vaccination (mean=4.9913), followed by the Ibibios (mean=4.887), and that the Hausas had the lowest probability of doing so, followed by the Fulanis (mean=3.3772). Over time, it has been discovered that ethnic minorities have lower vaccination rates. This is frequently tied to concerns with trust in the government or the healthcare system, but sometimes it is also a result of convenience and a lack of health insurance. People from ethnic minorities were more likely to get the H1N1 vaccine in the UK, US and Australia, according to a systematic analysis of vaccination intentions and behavior (11). This further corroborated the findings (7-14), which showed a substantial relationship between race/ethnicity and vaccine acceptability, with American Indian and Black/African American status serving as independent predictors. Vaccination hesitancy remains a potential obstacle against the prompt distribution and administration among citizens. In addition, one study (22) showed that being a member of the Hausa and living in the northern part of the country are factors that have a significant positive association with COVID-19 vaccine uptake. Table 4 shows that people who are graduates of tertiary institutions displayed the highest tendency of accepting COVID-19 vaccines (mean=4.0064), followed by the senior secondary school leavers (mean=3.8682), while those who had no formal education (mean=3.1113) had the lowest tendency of accepting the COVID-19 vac-

cine followed by the primary school leavers (mean = 3.6169). The study was in accordance with existing studies (14-15) that have shown that there is a substantial link between level of education and vaccination uptake. These findings also support research on vaccine hesitancy for polio. Moreover, existing studies (20,21) support the present study by showing that individuals with higher levels of education were more likely to accept the COVID-19 vaccine. The reasons for these differences could be religious and cultural backgrounds. Moreover, the investigation carried out by CDC on COVID-19 vaccine hesitancy in Nigeria between July 2021 and April 2022 showed that the majority of the study respondents lacked confidence in the vaccine, was afraid of possible side effects from the vaccine, had mistrust of the government and did not believe that COVID-19 existed (18). A monitoring study conducted during this period engaged Nigeria's mass vaccination campaigns at the sub-national level, which increased the coverage of use (18). A review (19) has demonstrated significant variations in the COVID-19 vaccine acceptance rates across different population subgroups. However, certain time-trend patterns were observed based on when the population groups were compared. Among healthcare workers, the acceptance rate was 55.5% in October 2020, 32.5% in January 2021, and 45.6% in March 2021. Among adults, the acceptance rate was 20.0% in May 2020, 58.2% in July 2020, 50.2% in August 2020, 51.1% in February 2021, and 45.6% in March 2021. It seems that the COVID-19 vaccine acceptance rates first declined, and then began to increase over time. It is, however, clear that population differences exist in addition to time trends. This picture may be regulated by the study participants' levels of awareness and knowledge of the COVID-19 vaccine at the time of the study. Based on the findings, we recommend that in order to improve a community-based COVID-19 immunization drive, it is crucial to develop creative, theory-based interventions to involve important stakeholders like village chiefs, religious leaders, and others. Additionally, a successful health message campaign must be implemented to fight the widespread falsehoods and misinformation that have contributed to the non-acceptance of COVID-19 vaccination. Moreover, policymakers, healthcare professionals, and other stakeholders in the areas of information dissemination and health promotion should help to dispel myths about COVID-19 vaccination.

## Conclusion

The findings of this study show that there was a significant relationship between ethnicity, level of education and the determinant of acceptance of the COVID-19 vaccine in Nigeria. This study shows that COVID-19 vaccination acceptance in areas with low population will also affect the acceptance rate. It also showed that population differences exist based on religion and level of awareness and knowledge of the COVID-19 vaccine at the time of the study.

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## ETNIČKA PRIPADNOST I OBRAZOVANJE KAO ČIMBENICI PREDVIĐANJA ZA PRIHVAĆANJE CJEPIVA PROTIV BOLESTI COVID-19 U NIGERIJU

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### Sažetak

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**Cilj** ove studije bio je ispitati etničku pripadnost i razinu obrazovanja kao faktore predviđanja prihvatanja cjepiva protiv bolesti COVID-19 u Nigeriji. Za ovu studiju postavljene su dvije hipoteze.

**Metode.** U ovoj studiji primijenjena je metoda paralelnog objašnjenja. Uzorak se sastojao od 32 224 ispitanika, od kojih su svi građani Nigerije. Za istraživanje koje uključuje kvantitativne podatke primijenjena je metoda višefaznog uzorkovanja. Kao instrument prikupljanja podataka primijenjen je upitnik.

**Rezultati.** Nalazi ove studije otkrili su da postoji značajna razlika u prihvatanju cjepiva protiv bolesti COVID-19 na temelju plemena / etničke pripadnosti. Pleme Tiv i ispitanici koji su imali tercijarno obrazovanje imali su najveću stopu prihvatanja cjepiva protiv bolesti COVID-19.

**Zaključak.** Nalazi ove studije pokazuju da postoji značajan odnos između etničke pripadnosti, razine obrazovanja i prihvatanja cjepiva protiv bolesti COVID-19 u Nigeriji. Kako bi se poboljšala akcija cijepljenja protiv bolesti COVID-19 u zajednici, ključno je razviti kreativne, teorijski utemeljene intervencije za uključivanje važnih dionika poput seoskih poglavara, vjerskih vođa i drugih. Osim toga, mora se provesti uspješna kampanja zdravstvenih poruka u borbi protiv raširenih laži i dezinformacija koje su pridonijele neprihvatanju cijepljenja protiv bolesti COVID-19.

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**Ključne riječi:** determinanta, COVID-19, pandemija, čimbenici predviđanja, cijepljenje, etnička pripadnost

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# Instruments Used in Assessment of Health-Related Quality of Life

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**Article received:** 28.10.2022.

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**Article accepted:** 14.12.2022.

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<https://doi.org/10.24141/2/6/2/6>

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**Keywords:** instruments, health-related quality of life,  
characteristics of the instrument

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## Abstract

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**Introduction.** Health-related quality of life (HRQoL) and well-being are used in clinical practice to measure the effects of chronic illness, treatments, and short- and long-term disabilities on the quality of life. Currently, more than 1000 instruments are designed specifically for measuring the quality of life. While some are designed for assessing any disease, others are created for specific conditions.

**Aim.** To establish characteristics of instruments for assessing health-related quality of life.

**Methods.** A review of scientific papers was made to establish characteristics of most commonly used tools for assessing health-related quality of life.

**Results.** Questionnaires shown in this review paper have strong reliability; they use the Likert scale; they consist of approximately 30 items and most of them are holistic; and they evaluate the physical, psychological, social, and environmental domains through numerous questions. The criteria for selecting tools and judging the appropriateness of measures include the following: appropriateness, reliability, validity, responsiveness, precision, interpretability, acceptability, and feasibility.

**Conclusion.** Even though many different instruments for measuring HRQoL are available, none is perfect as they are only tools best suited to a particular condition. The choice of instrument depends on the reason for measurement, the primary concepts of interest and the purpose of the study.



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## Introduction

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Health-related quality of life (HRQoL) is concerned specifically with health aspects while also accounting for general QoL components. Defining HRQoL has also been problematic and according to Karimi et al. (1), at least four definitions of HRQoL exist. Firstly, HRQoL can be defined as how well a person functions in their life, as well as his or her perceived well-being in physical, mental, and social domains of health. Secondly, if quality of life is an all-inclusive concept incorporating all factors that impact upon a person's life, health-related quality of life includes only those factors concerning health. Thirdly, HRQoL can be defined as those aspects of self-perceived well-being that are related to or affected by the presence of disease or treatment. And fourthly, HRQoL can be defined as values assigned to different health states. HRQoL has been understood in several different ways and so has been measured using a variety of instruments. While authors McDowell and Newell have suggested that there is little difference between general health and the quality of life and that the two can be measured in similar ways, Mathers and Douglas draw the distinction between observable objective measures of health status, such as clinical profile and an individual's perception about the quality of life (2).

Health-related quality of life is a multi-dimensional concept that includes domains related to physical, mental, emotional, and social functioning. It goes beyond direct measures of population health, life expectancy, and causes of death, and focuses on the impact health status has on the quality of life. A related concept of HRQoL is well-being, which assesses the positive aspects of a person's life, such as positive emotions and life satisfaction (3). HRQoL and well-being are used in clinical practice to measure the effects of chronic illness, treatments, and short- and long-term disabilities on the quality of life. While there are several existing measures of HRQoL and well-being, methodological development in this area is still ongoing. Quality of life can differ between individuals with identical resources, and across socio-economic groups and generations. HRQoL is important for measuring the impact of chronic diseases, treatment, and short- and long-term disabilities on the quality of life. Physiologic measures provide im-

portant information to clinicians but are of limited interest to patients. This type of information often correlates poorly with functional capacity and well-being, the areas in which patients are most interested and about which they are well-informed. HRQoL is the commonly observed phenomenon whereby two patients with the same clinical criteria often have dramatically different responses (4).

There are many reasons to measure health-related quality of life, and some of them are:

- HRQoL measures provide useful information to care providers as they can be used to screen and monitor patients for psychosocial problems or when auditing healthcare practice
- HRQoL measures can be used in population surveys of perceived health problems or other aspects of health-services or evaluation research
- Regulators can use HRQoL measures to help their assessment of new technologies
- Patients and healthcare providers as well as payers are interested in the added value technology has to offer. HRQoL can serve as a common measure of gains from any technology (5).

Health-related quality of life (HRQoL) is especially concerned with health aspects while also accounting for general QoL components. In the last decade various instruments have been developed to measure quality of life. An important fact is that quality of life might be experienced differently and encompass different values within and across different cultural groups and country populations; in addition, there are often discrepancies between quality-of-life evaluations in people with a form of somatic or psychiatric illness and the general public.

The aim of this study is to establish the characteristics of instruments for assessing health-related quality of life.

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## Methods

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A review of scientific papers was made to establish the characteristics of the most commonly used tools for assessing health-related quality of life. Medline

and PubMed were searched using the following key words: tools, health-related quality of life, and characteristics of instruments. Only papers written in English whose entire text was available were taken into account. The search was limited to the period between January 2002 and October 2022. The period is long because of the time when the instruments were created.

### Instruments used in assessing health-related quality of life

At the time of writing, there are more than 1,000 instruments designed specifically for measuring quality of life. While some are designed for assessing any

disease, others are created for specific conditions. Some of the questionnaires used in existing literature are 36 items Short Form Health Survey (SF-36) (6,7), The World Health Organisation Quality of Life (WHOQOL) (8); The European Quality of Life (EURO-QOL) and the Euro-QoL 5 Dimensions (EQ-5D) (9). For assessing HRQoL in oncological patients, the Functional Assessment of Cancer Therapy: General (FACT-G) (10) and the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30) (11) are widely used. The basic characteristics of EORTC QLQ-C30, FACT-G, SF-36, and WHOQOL are presented in Table 1. A review of existing literature has shown that the presented questionnaires are most often used.

Table 1. The characteristics of HRQoL questionnaires

	EORTC QLQ-C30	FACT-G	SF-36	WHOQOL
Number of Items	30	27	36	100
Domains	5 functional scales: <ul style="list-style-type: none"> <li>• physical,</li> <li>• role,</li> <li>• social,</li> <li>• emotional,</li> <li>• cognitive.</li> </ul> Symptoms: <ul style="list-style-type: none"> <li>• pain,</li> <li>• fatigue,</li> <li>• nausea/vomiting,</li> <li>• dyspnea,</li> <li>• insomnia,</li> <li>• appetite loss,</li> <li>• constipation,</li> <li>• diarrhea.</li> </ul> Financial impact: <ul style="list-style-type: none"> <li>• Global QOL/general health.</li> </ul>	Physical well-being, Emotional well-being, Functional well-being, Social and family well-being.	Physical health: Physical functioning (physical), Bodily pain, General health, Mental health: Role limitation (emotional), Vitality, Mental health, Social functioning.	Physical domain, Psychological domain, Social domain, Environmental domain
Reliability	Cronbach's alpha of 0.70-0.90 for all scales	Cronbach's alpha of 0.70-0.90 for all scales	Cronbach's alpha of 0.70-0.90 for all scales	Cronbach's alpha of 0.70-0.90 for all scales

The criteria for selecting and judging the appropriateness of measures include the following:

- Appropriateness - match of a measure to the specific purpose and questions of research
- Reliability
- Validity
- Responsiveness - sensitivity to changes in important aspects
- Precision - the number and accuracy of the distinction made by the measure
- Interpretability - the meaning of scores
- Acceptability - how acceptable is the completion of a measure for respondents
- Feasibility - the extension of effort, burden and disruption to staff arising from using a measure.

All subjective responses are assessed by the use of a rating scale, which consists of a number of response alternatives, and the subjects are asked to make a judgment of the same on a scale. The most common techniques use either a Likert type scale or a bipolar scale in which the score is located on a single dimension. On the Likert scale the possible answers may be 1=very satisfied, 2=satisfied, 3=most satisfied, 4=dissatisfied, 5=very dissatisfied or 1=not at all, 2=a little, 3=quite a bit, and 4=very much. On the bipolar scale the answers are delighted - terrible. The individuals who participate in the research are asked to evaluate each item and then rate the response (12-16). Most researchers think that questions should be combined into discrete domains which help to define different areas of life. This kind of construction helps to ease conceptualization and measure (17,18). There is an increasing need for a standardized system to describe patients during and after therapy; for assessing the efficacy, effectiveness, and efficiency of new therapeutic interventions; and for obtaining data about reference groups from general population surveys (18).

### Short Form Health Survey (SF-36)

The SF-36 is a 36-item multipurpose health survey, with a high score representing better HRQoL (6,7). It provides an eight-level profile of functional health and well-being: physical functioning, physical role, physical pain, general health, vitality, social functioning, emotional role, and mental health (range for all 0-100). Psychometrically-based summary measures

of physical and mental health are also created: a mental component summary and a physical component summary. The mental component summary consists of the vitality, social functioning, emotional role, and mental health subscales, while the physical component summary consists of the physical functioning, physical role, physical pain, and general health subscales. The SF-36 has been useful in surveys of general and specific populations, in comparing the relative burden of disease, and in distinguishing the health benefits of a variety of different treatments (6,7). According to observed criteria, this instrument's characteristics are as follows: psychometric analyses of the translated versions provide evidence that the SF-36 is a reliable and valid measure in multiple populations; its reliability is shown in the table; it is appropriate for the general population and in patients with the burden of disease, which also make it responsive; it is a precise tool in assessing the quality of life; scores can be easily interpreted and are precise in the display of results; it is acceptable for the general population because it is not too long; and it is not a burden for researchers, i.e. data is easily collected.

### European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30)

EORTC QLQ -The C30 questionnaire contains 30 questions. It is a proprietary instrument that has been translated and validated in over 110 languages and used in more than 3,000 studies worldwide (11). Currently, QLQ-C30 version 3.0 is the most current version and should be used for all new studies. For the response alternatives, the following ranges are offered: 1=not at all, 2=a little, 3=quite, and 4=very. For the last two questions, the scale ranges from 1 to 7, with 1 representing "very poor" and 7 representing "excellent." The EORTC QLQ -C30 questionnaire version 3 consists of a general health/quality of life scale and five functioning scales: physical functioning, role functioning, cognitive functioning, emotional functioning, and social functioning, and 13 symptom items. The functioning scale includes cognitive, emotional, physical, role, and social functioning. The symptom scale includes fatigue, nausea or vomiting, and pain, as well as individual items such as loss of appetite, constipation, diarrhea, and dyspnea, financial impact, and sleep disturbance.

For the general quality of life and functional scale, a higher range means better quality of life while a higher range for the symptom scale and single items means lower quality of life because there are more symptoms present (11). According to the observed criteria, this instrument's characteristics are as follows: it is a reliable and valid measure in patients with cancer; its reliability is shown in the table; it is appropriate for patients with the burden of cancer, so a specific condition demands use of a variation of the same questionnaire; it is a precise tool in assessing the health-related quality of life; scores can be easily interpreted and are precise in the display of results; it is acceptable for patients because it is not too long; and it is not a burden for researchers, i.e. data is easily collected.

### **Functional Assessment of Cancer Therapy: General (FACT-G)**

The Functional Assessment of Cancer Therapy - General (FACT-G) is a 27-item questionnaire designed to measure four domains of HRQOL in cancer patients: physical, social, emotional, and functional well-being (10). It is intended for people over the age of 18 with cancer. The response scale is of the 5 Likert-type, with values as follows: 0=not at all, 1=a little bit, 2=somewhat, 3=quite a bit, and 4=very much. It takes 5-10 minutes for completion. Available translations of the FACT-G can be obtained by registering for permission. This instrument shows sensitivity to discriminate patients on the basis of stage of disease, performance status rating (PSR), and hospitalization status. It has also demonstrated sensitivity to change over time (10). According to the observed criteria, this instrument's characteristics are as follows: it is a reliable and valid measure in patients with cancer; its reliability is shown in the table; it is appropriate for patients with the burden of cancer, so a specific condition demands use of a different questionnaire; it is a precise tool in assessing health-related quality of life; scores can be easily interpreted and are precise in the display of results; it is acceptable for patients because it is not too long; and it is not a burden for researchers, i.e. data is easily collected.

### **The World Health Organisation Quality of Life (WHOQOL)**

The WHOQOL is a quality of life assessment developed by the WHOQOL Group with fifteen interna-

tional field centers, simultaneously, in an attempt to develop a quality of life assessment that would be applicable cross-culturally (8). The WHOQOL-100 assesses individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns. The WHOQOL-100 and WHOQOL-BREF have many uses, including use in medical practice, research, audit, policy making and in assessing the effectiveness and relative merits of different treatments. They can also be used to assess variation in quality of life across different cultures, to compare subgroups within the same culture and to measure change across time in response to changes in life circumstances. The WHOQOL-100 contains 100 questions. This is based on four questions per facet, for 24 facets of quality of life. In addition, four questions address overall quality of life and general health. Around 30 language versions of the WHOQOL-100 have been developed. Patient focus groups should be made up of a sample of individuals who are representative of the population of patients in the field centre. It uses five-point Likert scales for all items in the instrument. The domains are: physical capacity, psychological, level of independence, social relationships, environment, spirituality/religion/personal beliefs, and overall quality of life and general health perceptions (8). According to observed criteria, this instrument's characteristics are as follows: it is a reliable and valid measure in multiple populations; its reliability is shown in the table; it is appropriate for the general population and in patients with the burden of disease, which also make it responsive; it is a precise tool in assessing the quality of life; scores can be easily interpreted and are precise in the display of results; it is less acceptable for the general population because it is too long; and it can be a burden for researchers since the length of the questionnaire can lead to possible difficulties with data collection.

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### **Conclusion**

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Even though many different instruments for measuring HRQoL are available, none is perfect as they are only tools best suited to a particular condition.

The choice of instrument depends on the reason for measurement, the primary concepts of interest, and the purpose of the study.

All instruments that are shown have strong reliability and are valid instruments that are appropriate for the general population and patients with the burden of disease. Most of them have around 30 items to evaluate and require little time for data collection, their scores can be easily interpreted, and they are precise in the display of results. However, the final choice of instrument depends on the researcher and the aim of the study.

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## INSTRUMENTI KOJI SE PRIMJENJUJU U PROCJENI KVALITETE ŽIVOTA POVEZANE SA ZDRAVLJEM

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### Sažetak

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**Uvod.** Kvaliteta života povezana sa zdravljem i dobrobit primjenjuju se u kliničkoj praksi za mjerenje učinka kroničnih bolesti, liječenja te kratkoročnih i dugotrajnih invaliditeta na kvalitetu života. Trenutačno postoji više od 1000 instrumenata dizajniranih posebno za mjerenje kvalitete života. Dok su neki dizajnirani za procjenu bilo koje bolesti, drugi su dizajnirani za određene medicinske dijagnoze.

**Cilj.** Utvrditi karakteristike instrumenata koji se primjenjuju za procjenu kvalitete života povezane sa zdravljem.

**Metode.** Učinjen je pregled znanstvenih radova kako bi se utvrdile karakteristike najčešće korištenih alata za procjenu kvalitete života povezane sa zdravljem.

**Rezultati.** Upitnici prikazani u preglednom radu imaju veliku pouzdanost, upotrebljavaju skalu za odgovore Likertova tipa, sastoje se od otprilike 30 čestica i većina holistički pristupa ciljanoj skupini procjenjujući fizičku domenu, psihološku domenu, društvenu domenu i okolišnu domenu kroz brojna pitanja. Kriteriji za odabir alata i prosuđivanje prikladnosti mjera uključuju sljedeće: prikladnost, pouzdanost, valjanost, prilagodljivost, preciznost, mogućnost interpretacije, prihvatljivost te izvedivost.

**Zaključak.** Iako je dostupno mnogo različitih instrumenata za procjenu kvalitete života povezane sa zdravljem, nijedan od njih nije savršen jer su to samo alati koji najbolje odgovaraju određenom stanju. Izbor instrumenta ovisi o razlogu mjerenja, primarnom interesu i svrsi istraživanja.

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**Ključne riječi:** instrumenti, kvaliteta života povezana sa zdravljem, karakteristika instrumenta

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# Impact of Urinary Incontinence on Quality of Life - Literature Review

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**Article received:** 07.11.2022.

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**Article accepted:** 12.12.2022.

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<https://doi.org/10.24141/2/6/2/7>

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**Keywords:** nurse, patient, quality of life, urinary incontinence

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## Abstract

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**Introduction.** Urinary incontinence is the uncontrolled outflow of urine at the age of a person's life when it should be under voluntary control. It occurs in both sexes but is more common in women. Incontinence is a major social, medical and hygienic problem. Quality of life is seriously threatened when incontinence occurs and limits the individual's daily functioning.

**Aim.** To identify the impact of urinary incontinence on the quality of life by reviewing research papers and professional literature.

**Methods.** The study was focused on the analysis of data on the quality of life of patients diagnosed with urinary incontinence. Articles published between 2017 and 2022 that were recognized as relevant for the investigation were used. Seven articles were selected for investigation.

**Results.** The results are shown in two steps. The first step consisted of finding suitable, high-quality research papers. The second step was the analysis of the relevant papers.

**Conclusion.** Urinary incontinence is proven to have a great effect on the quality of life and brings with it a number of mental problems such as loss of self-esteem, feelings of discomfort, insecurity, withdrawal and depression. It is important to recognize urinary incontinence on time and implement appropriate treatment methods in order to maintain a level of quality of life that is acceptable for the individual.

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## Introduction

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We define uncontrolled or involuntary urination as urinary incontinence (UI) (1). Incontinence occurs in people of both sexes, but it is more common in women. It mostly manifests itself in old age, but this is not necessary. When we talk about risk factors, we include “bad lifestyle habits” such as the consumption of strong drinks, tobacco products, caffeinated drinks and insufficient exercise (2). The most important cause of UI in the elderly is urinary tract infection, certain associated diseases, increased body weight, cognitive state and drugs (non-steroidal anti-inflammatory drugs and tricyclic antidepressants, alpha blockers, diuretics, anticholinergics, calcium channel blockers, etc.) , and they are also among the main risk factors for urinary incontinence (2,3). UI can be divided into acute, which is most often caused by infections, and chronic, which is caused by persistent complaints. Depending on the cause, it can be reversible or irreversible. Reversible incontinence is a transient type of incontinence (for example incontinence in pregnancy). Irreversible or permanent incontinence is a type of incontinence in which there is no possibility of recovery, and the intent is to prevent infections and focus on quality of life (4). Research has shown that UI affects millions of adults around the world (3). A study conducted in Taiyuan aimed to determine whether certain factors influence the development of stress incontinence in women. 4004 valid questionnaires were collected as part of the study. The prevalence of SUI in adult women in Taiyuan was 33.5%. Univariate analysis and multivariate logistic regression analysis proved that place of residence, smoking, body mass index, diet, number of births, mode of birth, dystocia, menopause, oral contraceptives, urinary tract infection, faster emptying of the bladder, suppression and retention of urine are risk factors for stress incontinence in adult women in Taiyuan (5). Studies in Japan show a prevalence of UI in the male population of 3 to 10%, which increases with age. In the male population, urge incontinence is more common in 40 to 80% of cases, followed by the mixed type of incontinence in a percentage of 10 to 30%, and stress incontinence in a percentage of less than 10% (6). Quality of life is defined as an individual's perception of personal position in life, in the context of the culture and value system in which the person lives, and in relation to goals, expectations, standards and concerns (7). Previous studies have shown that women with UI have a lower estimated

quality of life than women without UI, and quality of life decreases with UI severity. Reasons for not seeking help include relatively low expectations of treatment efficacy and embarrassment due to the social stigma associated with UI. In addition, many women believe that UI is inevitable with age and that nothing can be done to improve the symptoms of the disease. Therefore, new and easily available treatment methods are needed, as well as timely education (8). Health-related quality of life is an important aspect in evaluating the results of urinary incontinence treatment. The questionnaires that are applied should be relevant and validated and are expected to provide reliable information from clinical practice and be easily applicable. Questionnaires used to assess health-related quality of life related to urinary incontinence are King's Health Questionnaire (KHQ) and the International Incontinence Questionnaire - Short Form (ICIQ-SF) (9). Taking into account the relevance and complexity of UI, the study asked how UI affects the quality of life. The goal was to answer the question by reviewing articles and professional literature to assess how UI affects the quality of life.

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## Methods

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The search was focused on research articles which are connected with the quality of life of patients diagnosed with urinary incontinence. Data collection took place in the period from August 2017 to September 2022 through the portal SAGE Journals, BMC Women's Health, SciELO Brasil, Aging Clinical and Experimental Research and Revista Enfermagem UERJ. We used keywords such as quality of life and UI. These terms were searched in databases using the Boolean logical operator and cross-examined as title words and abstract. For the precision of the study and in order to define the sample, the following relevant criteria were included: complete articles published on the portals SAGE Journals, BMC Women's Health, SciELO Brasil, Aging Clinical and Experimental Research and Revista Enfermagem UERJ between 2017 and 2022; articles related to the subject of the study; articles that answered the study question; and articles entirely available in English. Articles that were not relevant, not within the scope of our study or were duplicated during the search were excluded.

Table 1. **Tabular presentation of the relevant papers**

1. FINDING ARTICLES	SAGE Journals n=10	n=70
	BMC Women`s Health n=20	
	SciELO Brasil n=15	
	Aging Clinical and Experimental Research n=10	
	Revista Enfermagem UERJ n=15	
2. ANALYSIS OF ARTICLES	Articles selected due to their titles and abstracts n=30	
	Articles selected for full reading n=15	
3. CONCLUSION	Articles selected for review n=7	

## Results

During the search, we initially recorded a total of 70 articles, 10 in SAGE Journals, 20 in BMC Women`s Health, 15 in SciELO Brasil, 10 in Aging Clinical and Experimental Research and 15 in Revista Enfermagem UERJ. After additional evaluation and taking into account our goal, 30 articles were selected. 15 articles were selected for analysis and reading, and relevant articles were analyzed in detail according to the year of publication, title, method and results. Seven articles answered the study question.

The results of scientific research conducted in France, Germany, Great Britain and the USA show that UI directly affects the quality of life, which then negatively affects mental health, especially in women aged 45-60 (8-11,14). Further research is necessary for a better understanding of pharmacological and non-pharmacological interventions that can improve the

patient's quality of life (10).

Considering the environmental factors and the strong influence of UI on the quality of life, studies suggest that it is necessary to analyze the quality of life through special questionnaires. Questionnaires must be validated, sensitive and provide real insight into the quality of life (13).

## Types of urinary incontinence and their impact on quality of life

There was 556 women who participated in the research conducted in a urogynecology clinic in Brazil. Mixed UI was identified as the most common type (n=348/62.6%), followed by stress incontinence (n=173/31.1%) and urgent incontinence (n=35/6.3%) (12). Women with mixed incontinence had a greater impact on general (SF-36) and specific (KHQ and ICIQ-SF) quality of life compared to others ( $p < 0.05$ ). In the assessment of sexual function (PISQ-12) there was no difference between the groups ( $p = 0.28$ ) (12).

Table 2. Description of selected articles

Title/Year	Journal	Method	Main Results
1. The Impact of Urinary Incontinence on Quality of Life in Those Receiving Home Care Services, 2018. (3)	SAGE Journals	Cross-sectional study	It was determined that UI evaluated with the ICIQ-SF scale in those receiving home care negatively affected their quality of life.
2. Quality of life in women with urinary incontinence seeking care using e-health, 2021. (8)	BMC Women's Health	Data analysis	QoL was affected more by UUI/MUI than by SUI, it was affected most by the severity of leakage in this population.
3. Profile and quality of life of women in pelvic floor rehabilitation, 2018. (9)	SCIELO Brazil	Observational, analytical, and cross-sectional study	The type of UI and changes in sexual activity affect the HRQoL.
4. Urinary incontinence and quality of life: a systematic review and metaanalysis, 2021. (10)	Aging Clinical and Experimental Research	Data analysis	UI is associated with a poor QoL, with a strong level of certainty.
5. Female urinary incontinence and sexuality, 2017. (11)	SciELO Brasil	Data analysis	The presence of urinary incontinence is associated to stigma, fear, embarrassment and shame related to clinical condition, with repercussion on self-esteem and disturbance of personal, social and sexual life.
6. Impact of urinary incontinence types on women's quality of life, 2017. (12)	SciELO Brasil	Cross-sectional study	All types of urinary incontinence interfere with the general and specific quality of life, but women with mixed urinary incontinence are the most affected.
7. Urinary incontinence and quality of life, 2020. (13)	Revista Enfermagem UERJ	Data analysis	The negative impact of UI on women's quality of life has been proven, due to physical, sexual, professional and social limitations and feelings such as shame, lack of control, weakness, insecurity, suffering and guilt.

A study conducted in Japan shows that stress incontinence and urgent incontinence are associated with general impairment of female sexual function in a mild degree. Only urgent incontinence is associated with sexual difficulties in specific domains including vaginal wetting and pain during intercourse. Questionnaires were distributed to 2,159 female employees of two hospitals in Japan, of whom 883 were sexually active (15). Stress incontinence is the most common type of incontinence in women. Weakening of the pelvic muscles and urinary sphincter muscles can occur due to multiple vaginal births or pelvic surgery. Only 25-30% of women decide to seek medical help (2). Stress incontinence in the male population occurs after surgical procedures, for example, if a part of the bladder or the upper part of the urethra is injured during prostate surgery. During daily activities such as coughing, running, jumping, etc., signs such as involuntary leakage of urine appear. In 5% of operated patients, stress incontinence is temporary, while in a smaller percentage (less than 5%) it is unfortunately permanent (2). Patients with UI use absorbent pads or pull-up pants and other aids, but in certain conditions, dermatitis may appear, which is also associated with reduced quality of life.

### **Impact of urinary incontinence on the quality of life**

Urinary incontinence can be associated with a number of risk factors. Specific risk factors are related to gender, age, presence of dementia and mobility. Furthermore, food intake, mobility and treatment with diuretics can also affect diuresis and therefore the occurrence of urinary incontinence. All of the above factors are associated with a poor quality of life in patients (10). UI has an impact on all aspects of an individual's life. It leads to a very unpleasant and stressful experience. Women feel impure and state that they feel that something is wrong with them, for which they sometimes feel guilty. These feelings often result in social isolation, depression, low self-esteem, anxiety, and failure to fulfil daily obligations (11). UI affects the individual in several dimensions: the physical, emotional, psychological, social and sexual spheres of life are affected. The severity of the symptoms depends on the type of incontinence

and the amount of urine that comes out. The environment also has a significant impact on the quality of life of an individual with UI (13). Although it is assumed that there is a high probability of an influence of UI on sex life, the studies present very different results due to the great variability of research methods. UI is associated with sexual problems in women. Fear of unpleasant odor and leakage of urine during coitus are associated with a change in self-image and self-esteem, and are responsible for the low frequency of sexual activity among incontinent women. In the elderly population, the appearance of UI has a negative impact on sexuality. Several papers have studied the relationship between different types of urinary incontinence and sexuality (11). Furthermore, as far as daily tasks are concerned, most problems are associated with those activities that require physical effort and lifting loads due to urine leakage. Such activities are thereby avoided. Furthermore, frequent trips to the toilet limit the individual in a professional sense due to the frequent need to interrupt work. Additional research has looked at the link between depression and UI. UI and depression disproportionately affect women and are associated with social stigma. Comorbid depression can increase a woman's feeling of discomfort due to incontinence and lead to shame and social isolation (16).

### **The role of the nurse in UI**

The role of the nurse in the treatment of UI is significant. The nurse makes a nursing diagnosis, assesses the patient's condition, then plans health care, implements interventions and evaluates the patient's condition. Studies have shown that a nurse with higher and higher education can provide clinical care for people with UI and provide behavioral therapy. Due to the potential complexity of the problem, especially in the case of elderly patients, medical cooperation and an interdisciplinary approach enable a comprehensive treatment. The findings of this study confirm the significant role of the nurse in the recognition and therapy of UI (17). In addition to providing care for patients with UI, they also conduct research with the aim of better understanding the condition and improving the quality of life for newly diagnosed patients.

## Conclusion

It has been proven that UI greatly affects the quality of life of both women and men. Urinary incontinence can be associated with several factors, some of which are gender, age, presence of dementia and mobility status. Furthermore, food intake and diuretic therapy can also affect diuresis and therefore the occurrence of UI. Incontinence is a major social, medical and hygienic problem, and in patients it causes a reduced quality of life, which manifests itself as a loss of self-esteem, feelings of discomfort, insecurity, withdrawal and depression.

A literature search was conducted and only articles that were available entirely in English were included. The conclusion is that UI undoubtedly affects the quality of life of women and men, and early diagnosis and a holistic approach to the patient are needed. It is important to work to preserve and improve the quality of an individual's life. It is recommended to carry out a qualitative study on understanding the impact of urinary incontinence on the quality of life of women and men, and it should be extended to the general population.

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## UTJECAJ URINARNE INKONTINENCIJE NA KVALITETU ŽIVOTA

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### Sažetak

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**Uvod.** Inkontinencija urina je nekontrolirano otjecanje urina u dobi čovjekova života kada bi trebalo biti pod voljnom kontrolom, pojavljuje se kod oba spola, no češća je kod žena. Inkontinencija je veliki socijalni, medicinski i higijenski problem. Kvaliteta života ozbiljno je ugrožena pri pojavi inkontinencije te ograničava pojedinca u svakodnevnom funkcioniranju.

**Cilj.** Identificirati utjecaj urinarne inkontinencije na kvalitetu života pregledom istraživačkih radova te stručne literature.

**Metode.** Istraživanje je bilo usmjereno na analizu podataka o kvaliteti života pacijenata s dijagnozom urinarne inkontinencije. Korišteni su članci objavljeni od 2017. do 2022. koji su bili prepoznati kao relevantni članci za rad. Za analizu je izabrano sedam članaka.

**Rezultati.** Rezultati su provedeni u dva koraka. Prvi se korak sastojao od pronalaska odgovarajućih, kvalitetnih istraživačkih radova. Drugi je korak bio analiza relevantnih radova.

**Zaključak.** Urinarna inkontinencija dokazano uvelike utječe na kvalitetu života te sa sobom nosi niz mentalnih problema poput gubitka samopoštovanja, osjećaja nelagode, nesigurnosti, povlačenja i depresije. Važno je na vrijeme prepoznati urinarnu inkontinenciju te provesti odgovarajuće metode liječenja kako bi se zadržala razina kvalitete života koja je prihvatljiva za pojedinca.

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**Ključne riječi:** medicinska sestra, pacijent, kvaliteta života, urinarna inkontinencija

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# Author Guidelines

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## AIM AND SCOPE

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**Croatian Nursing Journal** is a peer-reviewed nursing journal that publishes original articles that advance and improve nursing science and practice and that serve the purpose of transfer of original and valuable information to journal readers. Croatian Nursing Journal is published biannually in the English language. Authors are invited to submit original papers in the form of research findings, systematic and methodological review and literature review related to nursing.

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## SUBMITTING A MANUSCRIPT

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All manuscripts must be written in English and in accordance with the ICMJE Recommendations (Recommendations by the International Committee of Medical Journal Editors, formerly the Uniform Requirements for Manuscripts), available at: <http://www.icmje.org>.

The manuscripts must be submitted through an online submission system available at <http://www.cnj.hr>. The submission system guides you stepwise through the process of entering your details and uploading your files. Manuscripts should be uploaded in Step 2 (*Upload Submission*) and cover letter, title page, ta-

bles, figures and/or other documents in Step 4 (*Upload Supplementary Files*).

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Manuscripts must be accompanied by a cover letter signed by all authors including a statement that the manuscript has not been published or submitted for publishing elsewhere, a statement that the manuscript has been read and approved by all the authors, and a statement about any financial or other conflict of interest. A statement of copyright transfer to the journal must accompany the manuscript.

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## PREPARATION OF MANUSCRIPT

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The manuscript must be prepared using Microsoft Office Word, in a 12-point font, double spacing, in either Times New Roman, Arial or Calibri.

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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The title page should include:

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  - If authors belong to several different institutions, superscript digits should be used to relate authors' names to respective institution. Identical number(s) should follow

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- the name and mailing address of the author responsible for correspondence including his/her e-mail address
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### Abstract and Key Words

The first page should contain the title and the abstract (summary) both in English and Croatian, of no more than 200 -250 words each.

The abstract should state the purposes of the study or investigation, basic procedures, main findings, and principal conclusions. It should emphasize new and important aspects of the study or observations. Below the abstract, the authors should provide 3 to 8 key words or short phrases that will assist in cross-indexing the article and may be published with the abstract. Terms from the Medical Subject Headings (MeSH) list of Index Medicus should be used for key words.

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State the purpose of the article and summarize the rationale for the study or investigation. Give a critical review of relevant literature.

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Describe statistical methods with enough detail to enable a knowledgeable reader with access to the original data to verify the reported results. Whenever possible, quantify findings and present them with appropriate indicators of measurement error or uncertainty. Specify the statistical software package(s) and versions used.

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Present your results in logical sequence in the text, tables, and illustrations. Do not repeat in the text all the data in the tables or illustrations; emphasize or summarize main findings. Provide exact *P-values* with three decimal places or as  $P < 0.001$ .

## Discussion

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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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

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Figures and illustrations should be professionally drawn and photographed. Make sure that letters, numbers, and symbols should be legible even when reduced in size for publication. Figures should be numbered consecutively according to the order in which they have been first cited in the text.

The preferred formats are JPEG and TIFF, although any format in general use that is not application-specific is acceptable. Make sure that minimum resolution should be 300 DPI.

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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 should be numbered consecutively in the order in which they are first mentioned in the text. Identify references in the text, tables, and legends by Arabic numerals in brackets.

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](http://www.nlm.nih.gov/bsd/uniform_requirements.html)

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List of references should include only those references that are important to the text. Long list of references is not desirable because they consume too much space. We kindly ask that authors limit their references to 50 in total. All citations in the text must be listed in the references, and all references should be cited in the text. References should be the most current available on the topic.

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ISSN: 2584-6531