

# Case report of a patient suffering from Alzheimer's dementia - monitoring outcomes, health care and course of treatment

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**ZDRAVSTVENE VEDE in FIZIOTERAPIJA**

Zbornik recenziranih prispevkov

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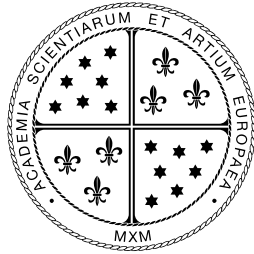
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PRESS

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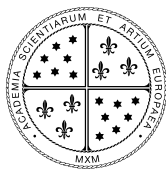
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**ZDRAVSTVENE VEDE**  
**HEALTH SCIENCE**

## UVODNIK

Zbornik predavanj je nastal v sodelovanju s številnimi strokovnjaki iz področja zdravstvene nege, fizioterapije in drugih področij dela. Vsak izmed prispevkov je doprinesel svoj kamenček k mozaiku znanja, izkušenj in raziskav.

Današnji hiter razvoj tehnologije in zdravstvenih ved prinaša nove poglede, spoznanja ter prispeva k izboljševanju pristopov na različnih področjih. Potrebno je nenehno izpopolnjevanje in uvajanje sprememb v težnji k napredku, zato je zbornik koristen pripomoček za pridobivanje novega znanja. Združuje teoretične in praktične vsebine, pomembne za strokovno in raziskovalno delo na različnih področjih ter jih med seboj povezuje. Avtorji člankov so priznani strokovnjaki v slovenskem prostoru, ki so bili pripravljeni svoje znanje in dognanja deliti z nami.

Zbornik nam postreže z raznoliko tematiko zato sem prepričan, da bo bralec dobil širok pogled na nova spoznanja različnih tematskih področij.

viš. pred. Edvard Jakšič, mag. zdr. nege

## EDITORIAL

The lectures' proceedings were created in cooperation with many experts in nursing, physiotherapy, and other fields of work. Each contribution contributed its own stone to the mosaic of knowledge, experience, and research.

Today's rapid development of technology and health sciences brings new perspectives and knowledge and contributes to improving approaches in various fields. Continuous improvement and introducing changes in the pursuit of progress are necessary, so the proceeding is a helpful tool for acquiring new knowledge. It combines theoretical and practical content, important for professional and research work in various fields, and connects them to each other. The authors of the articles are recognized experts in the Slovenian area who were ready to share their knowledge and findings with us.

The anthology covers various topics, so I am sure that the reader will get a broad view of new insights from multiple thematic areas.

Higher Lect. Edvard Jakšič, M.Sc.

# POSSIBILITIES OF USING ASSESSMENT INSTRUMENTS IN THE NURSING CARE OF THE ELDERLY PATIENTS WITH MENTAL HEALTH ISSUES

## MOŽNOSTI UPORABE INSTRUMENTOV ZA UGOTAVLJANJE POTREB PO ZDRAVSTVENI NEGI PRI STAREJŠIH PACIENTIH Z ODMIKI V DUŠEVNEM ZDRAVJU

Nataša Štandeker, PhD, Lecturer, Alma Mater Europaea University, Slovenia

### ABSTRACT

**Theoretical starting point:** the article deals with the problem of selecting and upgrading appropriate assessment instruments for assessing the state and needs of nursing care for older adults with mental disorders. The supervised treatment of older adults in the context of psychiatry is a relatively new field that began to develop intensively about two decades ago, along with the development of gerontopsychiatry. In the context of evidence-based nursing, the possibility of using standardized, validated, and clinically verified instruments is crucial for the early recognition of certain conditions (delirium) and the need for nursing care in older adults with mental disorders or a combination of several.

**Methods:** The article uses a general review of the literature. The set of resources in the form of scientific and professional contributions results from a search in the freely accessible databases Pub Med, Google Scholar, and Deep Dive Library. The keywords used in the search process were assessment instruments and older adults with mental disorders in English and German.

**Conclusion:** Using a general review of the literature, it is possible to identify some validated and well-tested clinical practice assessment instruments for assessing the condition and needs of nursing care, which cover the seven dimensions of the geropsychiatric analysis of the client's condition as self-ability, mobility and motoric, dementia and delirium, pain, sleep, emotions, and addictions.

**Keywords:** nursing, older adults with mental disorders, nursing care needs, assessment instruments

### POVZETEK

**Teoretično izhodišče:** v prispevku je obravnavan problem izbire in nadgradnje primernih instrumentov za oceno potreb po zdravstveni negi pri starejših odraslih osebah z odmiki v duševnem zdravju. Nadzorovana obravnava starejših odraslih oseb v kontesktu psihiatričnega zdravljenja je relativno novo raziskovalno področje, ki se je začelo intenzivno razvijati šele pred dvema desetletjema, skupaj z razvojem gerontopsihiatrije. V kontesktu evidence - based nursing je možnost izbire standardiziranih, validiranih in klinično verificiranih instrumentov za določanje potreb po zdravstveni negi ključnega pomena za zgodnje prepoznavanje nekaterih stanj, kot je npr. Delirij in potreb po zdravstveni negi pri starejših odraslih osebah z različnimi oblikami duševnih motenj.

**Metode:** V prispevku je uporabljen splošen pregled literature. Rezultati izhajajo iz pregleda virov, ki so prosto dostopni v bazah podatkov Pub Med, Google Scholar and Deep Dive Library, pri iskanju so bile uporabljene ključne besede instrumenti za oceno potreb po zdravstveni negi in starejše odrasle osebe z duševno motnjo v slovenskem in nemškem jeziku.

**Zaključek:** Z upoabo splošnega pregleda literature je bilo mogoče identificirati nekatere validirane in dobro preiskušene instrumente za ugotavljanje stanja bolnika in potreb po zdravstveni negi, ki pokrivajo sedem dimenzij gerontopsihiatrične analize stanja pacienta kot so samostojnost, mobilnost in motorika, demeca in delirij, bolečina, spanje, čustvovanje in odvisnosti.

**Ključne besede:** zdravstvena nega, starejša odrasla oseba z duševno motnjo, potrebe po zdravstveni negi, instrumenti za oceno potreb po zdravstveni negi

## 1 INTRODUCTION

Nursing care of elderly adults is becoming an increasingly visible and palpable field of research from a scientific perspective, mainly due to specific challenges that strongly affect the general state of society, families, and individuals. The specifically exposed causal factors of the current global situation, whole of challenges in the field of nursing in general and especially in the field of nursing of older adults, have become widely known facts and political and systemic problem areas and relate to global demographic changes, increased demands for the care of older adults, the lack of medical and nursing staff of all profiles, and the lack of evidence-based knowledge and standardized approaches to the treatment of older adults with age-specific medical conditions and associated personality and behavioral challenges.

Štandeker and odd. notes that, even though mental disorders were observed and tried to be treated already in ancient civilizations, the peculiarities of the biological, psychological, and social aging process in persons who fell ill and grew old due to severe forms of mental disorders are more often than not a modestly researched area (Štandeker, Jejič in Salkunič 2023). Mental disorders in gerontology are a very current topic of discussion in gerontopsychiatry.

In the accessible literature, it is thus possible to find a lot of professional and scientific literature that deals with mental changes in older adults. Nursing care of people with mental disorders is a unique area of nursing care for a very vulnerable and exposed population group, regardless of the age period in which individuals are treated at the time of exposure to nursing care.

It should be emphasized here that the problem of aging of persons with severe forms of mental disorders cannot be investigated in the same context as mental disorders in older adults in the general population, which has been defined in scientific circles since the mid-1950s. At that time, Roth already noted that the mental health problem in old age forms a particularly characteristic picture of modern medicine (Roth 1959).

Older adults in this context are therefore considered from three different developmental aspects, namely older adults with a mental disorder. These are individuals who have been diagnosed with various forms of mental disorders earlier in life. Solmi and his colleagues found that the first signs of mental disorders in one-third of individuals with severe forms of mental disorders appear before the age of fourteen, at the age of eighteen in almost half (48.4%), and before the age of twenty-five in 62.5 percent of sufferers. In an extensive study, the authors prove that the signs of mental disorders appear as a result of dramatic biological changes in the brain from childhood through adolescence to adulthood. Biological changes in the brain include gray matter density, cerebral metabolic processes, synaptic plasticity, white matter growth, and myelination (Solmi and others, 2021).

Another developmental aspect of older adults in psychiatric health care is mental disorders in older adults. These are individuals with degenerative deviations from mental health that require medical treatment either at the preventive, curative, or rehabilitative level of health care.

The third group of people in psychiatric nursing is older adults with developmental deviations from mental health and developmental mental deficits.

Nursing care for older adults with mental disorders is complex and full of challenges. A precise and structured nursing care plan is necessary for the quality and efficient implementation of nursing procedures. Determining nursing care needs is the first step in the nursing process. It is decisive for establishing appropriate nursing diagnoses and goals that we want to achieve in the nursing process. Instruments for determining nursing care needs are essential tools that enable the structured collection of information based on individual life activities by the selected theoretical model of nursing care.

The purpose of the paper is to present, with the help of the selected method, valid instruments for the assessment of the nursing care needs of older adults with mental disorders.

In the described circumstances, two key questions are highlighted, which are expected to be answered with a transparent analysis of professional and scientific literature, namely, which are the currently valid and validated instruments for determining the nursing needs of older adults with mental disorders and which nursing needs can be used in a defined group with the currently valid and validated instruments according to available scientific and professional resources.

## 2 OLDER ADULTS AND MENTAL HEALTH

The World Health Organization defines mental health as a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community. It is an integral component of health and well-being that underpins our individual and collective abilities to make decisions, build relationships, and shape our world. Mental health is a fundamental human right. Moreover, it is crucial to personal, community, and socio-economic development.

Mental health is more than the absence of mental disorders. It exists on a complex continuum, experienced differently from one person to the next, with varying degrees of difficulty and distress and potentially very different social and clinical outcomes. Mental health conditions include mental disorders and psychosocial disabilities as well as other mental states associated with significant distress, impairment in functioning, or risk of self-harm. People with mental health conditions are more likely to experience lower levels of mental well-being, but this is not always or necessarily the case (World Health Organisation 2022).

For persons aging with a mental disorder, we can assume, as noted by Štandeker et al., that persons with TDM (severe mental disorder) age faster and die younger. The reasons for the faster aging of people with TDM are well explained from a biological point of view. The psychological peculiarities of the aging process in people with TDM are less well described in the literature, and some research points out that people with TDM face the challenges of age at a younger age than their peers and, due to the nature of TDM, have fewer resources to deal with them. It is also possible to point out some peculiarities of the social aging of persons with TDM, which relate mainly to a difficult financial situation and social instability (Štandeker, Jejič in Salkunič 2023).

In connection with the mental health of older adults, Ratnakaran notes that more than 20% of adults over age 60 suffer from a mental or neurological disorder, contributing to 6.6% of all disabilities in this age group and that Chronic diseases—such as cardiovascular diseases, cancer, musculoskeletal diseases, and chronic obstructive pulmonary disease are prominent contributors to the disease burden of older adults. The burden of chronic disease can negatively affect the psychological well-being of older adults and contribute to the risk of depressed mood (Ratnakaran 2023).

According to Hesper, depressive symptoms of different severity are observed in 10–25% of people above 65 years old (Hesper et al. 2013), their incidence increasing after the age of 81 (Reynolds et al. 2015). In 5.6% of cases, depression is represented by a severe depressive episode. As pointed out by Petrova and Khvostikova, anxiety disorders predominate over depression, their prevalence being 11.4–12.3%, including 5.8% of phobic and 6.8–9.1% of mood disorders. Anxiety and depression are often comorbid, which hampers the diagnosis. Among older adults, 13% suffering from anxiety disorder also have depression, and 36% of depressive patients have a concomitant anxiety disorder. At least one criterion of personality disorder can be found in 14.5% of older adults with obsessive-compulsive disorder (6.5%) being preponderant (Petrova and Khvostikova 2021).

The WHO also reports that 236 older adults per 100,000 suffer from a psychiatric disorder, as opposed to 93 in the age group of 45–64 years (World Health Organisation 2022).

## 3 PECULIARITIES OF NURSING CARE FOR OLDER ADULTS WITH MENTAL DISORDERS

Medical care of older adults with mental disorders is related to gerontopsychiatry from a medical point of view. As defined by the American Psychiatric Association, geriatric psychiatry emphasizes the biological and psychological aspects of normal aging, the psychiatric effect of acute and chronic physical illness, and the biological and psychosocial aspects of the pathology of primary psychiatric disturbances of older age. Geriatric psychiatrists focus on the prevention, evaluation, diagnosis, and treatment of mental and emotional disorders in older adults and the improvement of psychiatric care for healthy and ill elderly patients (Geriatric Psychiatry, n.d.). Wan der Wolf and odd. point out that the geropsychiatric population consists of older people with both a chronic mental disorder (other than dementia) and one or more physical disorders. Within this population, long-term care is often needed and provided. On average, one in six to twelve long-term care residents is part of the gerontopsychiatric population, (Van Der Wolf et al. 2021).

Stephens and od. notes that geronto - psychiatric Nursing emerged in the 1970' s as a subspecialty blending psychiatric and gerontological nursing. Geropsychiatric nurse pioneer Dr. Mary Starke Harper recognized the need and advocated for building a cadre of prepared geropsychiatric nurses (Stephens et al. 2020).

The gerontopsychiatric nursing process is usually a time-varying process that can last for many years, often until the end of the client's life. Nursing care of an older adult with a mental disorder must be individual, structured, and continuous and must be based on the relationship between the client and the provider. Various theoretical models of nursing care, originating from the Anglo-American space, experienced their heyday in the German-speaking European area in the 1990s. For gerontopsychiatric people, nursing always means a relationship, which thus becomes part of the professional nursing (Perrar, Sirsch in Kutschke 2011, 64).

In the United States, as early as 1952, Hildegard Peplau developed a model of nursing, which she called the theory of interpersonal relations. As written by Peplau, one of the more critical components of interpersonal theory is its reliance on participant observation. Unlike spectator observation, in which only the patient is the object of the study, participant observation consists of three foci: the nurse, the patient, and the relations are noticed and studied. Relations refers to the connections, linkages, bonds, or patterns that develop and are identifiable within the relationship. Participant observation requires nurses' "unflinching" self-selectivity and total honesty in assessing their behavior in interactions with patients (Peplau 1997).

Perrar, Klaus, and Kutschke explain that speech, facial expressions, gestures, and touch are necessary to establish a relationship between care staff and clients. As a phenomenon, a relationship can result in an intense verbal exchange or a calm, soothing physical contact, e.g., when performing nursing care. As a psychodynamic process in Hildegard Peplau's interpersonal theory, relationship occurs in four stages: orientation, identification, use, and detachment (Perrar, Sirsch in Kutschke 2011, 61).

Hirsch warns that older adults with mental disorders need to be assured not only of a diagnosis but also of their participation in social life. The boundaries between the often-misunderstood care and autonomy, between the possibility of living at home, with assistance, or in an institution, must be considered (Hirsch 2016).

## **4 INSTRUMENTS FOR ASSESSING THE NURSING CARE NEEDS OF OLDER ADULTS WITH MENTAL DISORDERS**

As explained by Toney-Butler and Unison-Pace, the initial nursing assessment, the first step in the five steps of the nursing process, involves the systematic and continuous collection of data; sorting, analyzing, and organizing that data; and the documentation and communication of the data collected. Critical thinking skills applied during the nursing process provide a decision-making framework to develop and guide a patient care plan, incorporating evidence- based practice concepts. This concept of precision education to tailor care based on an individual's unique cultural, spiritual, and physical needs, rather than a trial-by-error, one-size- fits-all approach, results in a more favorable outcome (Toney-Butler and Unison-Pace 2024).

Because the nursing care of older adults with mental disorders relies on gerontopsychiatry, the instruments for assessing nursing needs are also derived from nursing older adults and psychiatric nursing. The term geriatric assessment refers to the assessment of physical health, as well as a geriatric patient's psychosocial abilities and functional capabilities. Ideally, geriatric assessment is a multidimensional and interdisciplinary process (Hircin in Walter 2021).

The assessment of older people differs from standard medical review in three ways: it focuses on older people with complex problems, it emphasizes the functional status and quality of life, and it takes advantage of an interdisciplinary team. Getting to know people, their strengths, and their needs is an essential first step in the effective care of older people [3], and this has been reflected in the APIE (assessment, planning, implementation, and evaluation) approach to nursing for more than 50 years (Hertz and Santy-Tomlinson 2018).

The most comprehensive assessment of the needs of an older adult is the overall geriatric assessment of the condition. Herz and Santy-Tomlinson emphasize that comprehensive geriatric assessment (CGA) is a multidimensional, interdisciplinary process designed to detect and assess frailty, to determine a frail older person's medical conditions, mental health, functional capacity, and social circumstances, and to identify their care and treatment needs. There is strong evidence that CGA can reduce mortality, increase the number of patients who can return home after hospitalization, and reduce the length of stay. The purpose is to plan and carry out a holistic plan for treatment, rehabilitation, support, and long-term follow-up (Hertz and Santy-Tomlinson 2018).

Šabovič explains to the CGA that the health condition of older adults is characterized by three factors: chronic diseases, gerontological syndromes (leakage of urine and feces, constipation, bedsores, depression, dementia, delirium, osteoporosis, poor nutrition, etc.) and reduced functional (physical) and mental) state that intertwine and influence each other. We also look for possible reasons for the "weak" link using a systematic approach. Causative factors are classified according to the degree of reversibility, and a list of measures is determined. It is often possible to strengthen the "weak" link with non-pharmacological or pharmacological measures and thus improve the health status of older adults and improve the outcome of possible acute diseases. Such a systematic approach enables the comprehensive geriatric examination (CGP), developed in the USA and proven effective in practice (Šabovič 2004).

Hardy and his colleagues also note that there is little evidence for the use of the CGA specifically in older adult psychiatric inpatients, despite mental health being an essential component of the assessment. It has been well documented that there is a significant increase in mortality in those with mental illness compared to those without, and evidence shows this mortality gap is mainly due to physical illness. Multimorbidity, polypharmacy, and concurrence of cognitive impairment contribute to the complexity of management and discharge planning for these patients, which is likely to impact the length of stay. This highlights the need for early recognition of patient-specific issues and intervention, suggesting that this cohort will likely benefit from a CGA approach, (Hardy, Mason, and Wilkins 2023). The basis of geriatric psychiatric treatment is the "geriatric psychiatric assessment." In addition to calendar age, biological (physical changes), psychological (mental and emotional changes), social (groups of equally affected people), and historical (modern history) aspects must also be taken into account. Additionally, existing resilience and resources should be included in the assessment of the mentally ill older person. Geriatric psychiatric assessment, therefore, goes beyond conventional medical and psychometric diagnostics and is process-oriented (Hirsch, 2022).

Hircin and Walter describe eight dimensions of instruments for assessing health status and nursing care needs: independence, mobility and motor skills, dementia and delirium, emotions, pain, dysphagia, sleep, and addictions (Hircin and Walter 2021).

## 5 METHODS

The chosen research method is a general review of the literature, which O'Brian and colleagues define as a method for presenting a comprehensive review of the available literature of various methodological approaches in a specific research field. The article uses relevant resources related to instruments for assessing the condition and needs of nursing care in older adults (geriatric patients) with mental disorders, which were available in the databases Pub Med Google Scholar and Deepdyve Library). When searching for sources, we used various phrases in English and German that contained keywords: assessment instrument, older adults with mental disorders, gerontological psychiatry, and geronto-psychiatric nursing. If, just theoretically, in the sense of geropsychiatric nursing care, we consider two different aspects of mental disorders in older adults, namely older adults with a mental disorder and mental disorders in older adults, from the point of view of instruments for assessing the condition and needs for nursing care, such a division would not be meaningful. It would likely reduce the number of instruments identified in a general literature review.



## 6 RESULTS

In the literature review, we came across very scattered sources; we do not yet know the developed classifications in this field. The method of classification by dimensions proved to be the most transparent way of classifying the instruments for assessing the health status and needs for nursing care into a transparent system. When arranging instruments by dimensions, we come across many such instruments, some of which are still in the development phase, and others need to be better verified from a scientific and professional point of view and are not in general use. Some of the most commonly used instruments for assessing the condition and health care needs of older adults with a mental disorder are presented in Table One.

**Table 1: The most used assessment in geriatric-psychiatric nursing**

DIMENSION as suggested by Hircin and Walter (Hircin in Walter 2021)	CHARACTERISTICS	INSTRUMENTS
Self - ability	Ocena samostojnosti pri izvajanju življenjskih aktivnosti	Barhel index ("Functional Independence Measure (FIM) – Strokengine," n.d.) (Cech in Tink Martin 2012) Functional independence Measure IADL - scale by Lawton and Brody (Graf 2008).1. 02. 24 21:56:00
Mobility and motoric	Ocena sposobnosti za varno gibanje in oceno motoričnih sposobnosti	Morton mobility index (Krupp et al. 2015). 20 - Cents - Test (Krupp et al. 2015)
Dementia and delirium	Instrumenti za določanje terapevstko relevantnih motenj	Mini Mental State Examination (MMSE) (Baek et al. 2016) Delirium observation screening scale (DOS)(Schuurmans, Shortridge-Baggett, and Duursma 2003)
Emotion	Instrumenti prirejeni za oceno depresije pri geriatričnih pacientih	Geriatric depression scale (Montorio and Izal 1996)
Pain	Instrumentiza oceno bolečine.	VAS – Visual Analogue Scale(Yeung and Wong 2019) BESD – Pain assesment by geriatric Patient with dementia (Brandstetter 2015).1. 02. 24 21:56:00
Sleep	Instrument za oceno dnevne zaspčnosti pri geriatričnih pacientih	Essener Fragebogen Alter und Schläfrigkeit (Frohnhofen et al., 2010).1. 02. 24 21:56:00
Addictions	Instrumenti za ugotavljanje odvisnosti	AUDIT: screening from alcoholismus(van Gils et al. 2021).

Source: Štandeker 2024.

Table 1 presents the most widely used instruments for assessing the condition and needs of nursing care, often proposed for use in gerontopsychiatric nursing.

## 7 DISCUSSION

A general review of the literature found several dimensions of information gathering relevant to health care. In assessing the client's condition in gerontopsychiatric treatment, we use general instruments (mobility, motor skills, risk of skin damage, level of independence, and pain - looking at the patient's cognitive impairment level) and spatial gerontopsychiatric instruments. When choosing an appropriate assessment instrument, the validation and verification of such an instrument should play a decisive role. For one globally most frequently used instrument for assessing the treatment needs of persons with cognitive impairment, the Mini-Mental Test, Folstein and McHugh explain that they devised a simplified, scored form of the cognitive mental status examination, the "Mini-Mental State" (MMS) which includes eleven questions, requires only 5-10 min to administer, and is therefore practical to use serially and routinely. It is "mini" because it concentrates only on the cognitive aspects of mental functions and excludes questions concerning mood, abnormal mental experiences, and the form of thinking. However, within the cognitive realm, it is thorough. We have documented the valid (Folstein, Folstein, and McHugh 1975). Several authors, among them (Baek et al. 2016) (Fountoulakis et al. 2000)(Lee, Lee, and Chiu 2022), in their research confirm the reliability of using the Mini- Mental State examination test.

Tombough and McIntyre point out that, in general, the MMSE fulfilled its original goal of providing a brief screening test that quantitatively assesses the severity of cognitive impairment and documents cognitive changes occurring over time. However, as the authors add, the MMSE should not

be used alone as a diagnostic tool to identify dementia (Tombaugh and McIntyre 1992). In general, the MMSE fulfilled its original goal of providing a brief screening test that quantitatively assesses the severity of cognitive impairment and documents cognitive changes occurring over time. The MMSE should not be used as a diagnostic tool to identify dementia (Gavinski, Carnahan, and Weckmann 2016). Nevertheless, as Carnero-Padro pointed out, the MMSE's significant shortcomings include a lack of standardization, its lack of suitability for illiterate subjects, the considerable effect of socio-educational variables on results, and its limited effectiveness for detecting cognitive impairment. Lastly, since the test is copyright-protected, using it is necessarily either costly or fraudulent. Newer available instruments that do not share these shortcomings have demonstrated greater diagnostic accuracy for detecting cognitive impairment and dementia and are more cost-effective than the MMSE (Carnero-Pardo 2014).

In clinical gerontopsychiatric practice, the Nursing delirium observing scale is a beneficial assessment instrument. The Delirium Observation Screening (DOS) scale, a 25-item scale, was developed to facilitate early recognition of delirium, according to the Diagnostic and Statistical Manual-IV criteria, based on nurses' observations during regular care (Schuurmans, Shortridge-Baggett, and Duursma 2003). Park and Odd. also note that the DOS is an effective screening tool for delirium screening, but its diagnostic test still needs to be thoroughly examined. The finding indicated a high diagnostic test accuracy for the DOS scale (Park, Jeong in Lee 2021).

Pain assessment instruments also belong to the well-tested assessment instruments. Begum and her colleagues write that the visual analog scale is valid and reliable. Also, it is an interval scale. So, in clinical practice, we can use this scale in case of pain measurement as an outcome measurement tool (Begum and Hossain 2019). Bird and od. They added that iPadVAS also provides a convenient, user-friendly, and efficient way of collecting participant data in measuring their pain levels. It has potential use in documentation management and may encourage participation in the healthcare field (Bird et al. 2016).

Lukas and od. notes that practical recommendations for pain screening could be based on the three most important conclusions: firstly, a well-selected toolkit of different self- and proxy report pain assessment tools enables a reliable selection of the instrument most appropriate for an individual geriatric patient. Prior knowledge of a patient's cognitive function may be helpful but does not seem to be necessary. Secondly, NRS or VRS should always be attempted first. Thirdly, pain assessments should always be performed at rest and during movement Field (Lukas et al., (Lukas et al. 2013).

In connection with the assessment of pain in a person with dementia, Kunz also explains that the final list of 15 observational items has demonstrated psychometric quality and clinical usefulness both in their former scales and in the present international evaluation; accordingly, they qualified twice to form a new internationally agreed-on meta-tool for Pain Assessment in Impaired Cognition, the PAIC-15 scale (Kunz et al. 2020). Neugebauer generally points out that nurses caring for patients with physical disabilities find assessments using standardized tools helpful and practical. Internal, non-standardized assessment tools (generally created based on patient needs) and standardized tools, such as the ADL and IADL, are commonly used to assess independence, and the Tinetti Scale, Conley Scale, and Morse Fall Scale are used to assess the risk of falls (Neugebauer, Tóthová, and Doležalová 2021).

## 8 CONCLUSION

Although generally recognized standard guidelines for validating and selecting specific assessment instruments are not in use in front-psychiatric nursing, we note that there are verified, tested, and well-tested assessment instruments available in clinical practice for assessing the most critical conditions in front-psychiatric nursing. With a general literature review, it is also possible to identify the most so. In clinical practice, the most used instruments for assessing the condition and needs for nursing care are independence, movement and motor skills, dementia and delirium, emotions, pain, daytime sleepiness, and dependence.

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## SHORT BIO:

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# CASE REPORT OF A PATIENT SUFFERING FROM ALZHEIMER'S DEMENTIA - MONITORING OUTCOMES, HEALTH CARE AND COURSE OF TREATMENT

## POROČILO O PRIMERU PACIENTA Z ALZHEIMERJEVO DEMENCO - SPREMLJANJE REZULTATOV, ZDRAVSTVENA OSKRBA IN POTEK ZDRAVLJENJA

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### ABSTRACT

*According to the World Health Organization, over 55 million people worldwide live with dementia, with Alzheimer's dementia being the most common form. Alzheimer's dementia is a neurodegenerative disorder and a progressive disease that affects the brain, characterized by personality changes, memory loss, and reasoning abilities. An early sign of Alzheimer's dementia is forgetfulness. The population equates forgetfulness with aging, which is the most common problem of late disease detection, thus we lose the opportunity to start the treatment process in time. Early diagnosis and treatment are essential for halting the progression of the disease. The main treatment of Alzheimer's dementia includes pharmacological and non-pharmacological treatment. The US Food and Drug Administration (FDA) has approved cholinesterase inhibitors (ChEIs) and the N-methyl-d-aspartate (NMDA) antagonist memantine as drugs for the symptomatic treatment of the disease (improving cognition and reducing loss of independence...). With non-pharmacological treatment, psychotherapies are organized, where it is discovered what was the trigger for the onset of the disease, and the adjustment of behavioral interventions in the environment, and nursing care is planned, which is carried out already at the patient's admission. The staff caring for the patient monitors non-verbal communication, tries to communicate in such a way that sentences and questions are short and clear, requiring a simple answer. In a combination of pharmacological and non-pharmacological treatment, the symptoms can be significantly alleviated and the progression of the disease can be reduced. In recent decades, we have witnessed the growth of diseases, which is why intensive efforts of researchers are needed to develop better clinical tools and therapy. The development of new types of drugs that target different neurotransmitter systems, aimed at treating cognitive deficits and behavioral disorders. The aim and purpose of this case report is to describe the manner of occurrence, causes and factors of the disease, treatment, planning and implementation of nursing interventions, and to describe the prevention of the occurrence of the disease and clarify the pathology and pathophysiology.*

**Keywords:** Alzheimer's disease, dementia, elderly, treatment

### POVZETEK

*Po podatkih Svetovne zdravstvene organizacije več kot 55 milijonov ljudi po vsem svetu živi z demenco, pri čemer je Alzheimerjeva demenca najpogostejša oblika. Alzheimerjeva demenca je*

neurodegenerativna motnja in progresivna bolezen, ki vpliva na možgane, pri čemer se kažejo spremembe v osebnosti, izguba spomina in zmanjšane sposobnosti razsojanja. Zgodnji znak Alzheimerjeve demence je pozabljivost. Prebivalstvo pogosto povezuje pozabljivost s staranjem, kar je najpogostejši razlog za pozno odkrivanje bolezni, zaradi česar zamudimo priložnost za pravočasno začetek zdravljenja. Rana diagnoza in zdravljenje sta ključna za zaustavitev napredovanja bolezni. Glavno zdravljenje Alzheimerjeve demence vključuje farmakološko in ne-farmakološko zdravljenje. Ameriška agencija za hrano in zdravila (FDA) je odobrila inhibitorje acetilholinesteraze (ChEIs) in antagonist N-metil-D-aspartata (NMDA) memantin kot zdravila za simptomatsko zdravljenje bolezni (izboljšanje kognicije in zmanjšanje izgube neodvisnosti...). Pri ne-farmakološkem zdravljenju so organizirane psihoterapije, kjer se ugotovi, kaj je bil sprožilec začetka bolezni, ter se prilagajajo vedenjske intervencije v okolju, načrtuje se tudi nega, ki se začne že ob sprejemu pacienta. Osebe, ki skrbijo za pacienta, spremlja neverbalno komunikacijo, poskuša komunicirati tako, da so stavki in vprašanja kratki in jasni, zahtevajo enostaven odgovor. S kombinacijo farmakološkega in ne-farmakološkega zdravljenja se simptomi lahko znatno ublažijo in napredovanje bolezni lahko upočasnimo. V zadnjih desetletjih smo pričali rasti bolezni, zato so potrebni intenzivni napor raziskovalcev za razvoj boljših kliničnih orodij in terapij. Razvijajo se novi tipi zdravil, ki ciljajo na različne sisteme nevrotansmitterjev, z namenom zdravljenja kognitivnih deficitov in vedenjskih motenj. Namen in cilj tega poročila o primeru je opisati način nastanka, vzroke in dejavnike bolezni, zdravljenje, načrtovanje in izvajanje intervencij v negi ter opisati preprečevanje nastanka bolezni in razjasniti patologijo in patofiziologijo.

**Ključne besede:** Alzheimerjeva bolezen, demenca, starejši, zdravljenje

## 1 INTRODUCTION

The World Health Organization published data that more than 55 million people in the world suffer from dementia, the most common of which is Alzheimer's dementia (Breijyeh and Karaman 2020, 5789). Alzheimer's disease is a progressive neurodegenerative disorder that impacts the brain, leading to changes in personality, memory loss, and diminished reasoning abilities. Forgetfulness is often the initial sign of Alzheimer's, though it doesn't definitively indicate the presence of the disease. Timely diagnosis and treatment is necessary to prevent the progression of the disease (Schachter and Davis 2000, 91-100). However, early diagnosis and treatment are crucial to impede its progression. The common misconception of associating forgetfulness with aging contributes to late disease detection, resulting in missed opportunities for initiating timely and milder therapies effective in the early stages. Typically affecting individuals over the age of 65, Alzheimer's symptoms manifest gradually over several years, displaying variations from person to person. Initial symptoms include difficulty recalling recent events and long-term memory lapses. Attributing these symptoms solely to aging is a significant error, as cognitive and psychological disturbances accompany forgetfulness. Diagnostic tests assess memory and the ability to solve simple tasks, revealing forgetfulness, confusion, and difficulty in decision-making during the early phases. Mental changes, such as lowered mood and decreased interest in once-enjoyable activities, are evident from the disease's onset. The development of new classes of drugs that act on different neurotransmitter systems, both for the treatment of cognitive deficits and for the treatment of behavioral disorders (Atri 2019, 227 -240). Alzheimer's progresses, socially inappropriate behaviors emerge, including aggressiveness, agitation, and irritability (Scheltens et al. 2021, 1577-1590). In 1906, psychiatrist Alois Alzheimer identified this progressive brain disease and gave it his name. The etiology of Alzheimer's disease is often sporadic, occurring primarily after the age of 65. Common risk factors include age, female gender, low education levels, head trauma, and vascular factors like hypertension, type II diabetes, and elevated cholesterol. Dementia in this context refers to the loss of acquired intellectual abilities. In chronic cases, significant impairments are observed in memory, learning new materials, problem-solving, abstract thinking, verbal abilities, and the assessment of complex visual relationships. „The likelihood of developing dementia is 4.8% in the population over 60 years old, doubling every five years after the age of 65. The brain of an Alzheimer's patient exhibits atrophy, with pathohistological findings indicating nephron loss in the frontal, parietal, and temporal lobes“ (Peng et. al. 2021, 296).

## 2 METHODS

To compile this manuscript, an extensive literature review was conducted on the designated topic. Electronic databases such as PubMed and Google Scholar were utilized for the literature search. The search focused on predefined keywords, including Alzheimer's disease, dementia, elderly, and treatment. The search criteria comprised full-text availability, peer-reviewed articles, and completed research. Exclusion criteria were applied to eliminate non-reviewed articles and incomplete research. Journal selection was based on an Impact Factor greater than 2.0. The literature search adhered to established guidelines, encompassing predefined search strategies, information sources, and inclusion criteria for papers. The information presented in this paper is derived from the data obtained through the aforementioned methods and professional literature search strategies. The literature review and preparation of the seminar paper were conducted in December 2023.

## 3 CASE PRESENTATION

Patient C.T., an 85-year-old retired civil servant, was brought to the Psychiatry department on September 21, 2021, accompanied by a nurse from the Bjelovar nursing home, where she resides. The patient, unable to provide information about herself, had details provided by the caring nurse. The nurse reported that C.T. tends to get lost, disturbs fellow residents without aggression, and experiences sleep disturbances, claiming that someone steals from her closet. The nursing home staff supervised her closely. Upon admission to the Psychiatry Department, the patient displayed agitation, constant motion, and significant disorientation. Her behavior was completely disorganized and psychotic, with severe organic-type cognitive impairment, rendering her uncooperative. The patient had difficulty walking, requiring assistance from a walker. Although she did not resist hospital treatment, there were occasional suspicions of potential harm from the medical staff. Throughout hospitalization, various tests including laboratory analyses, PCR, and measurements of SpO<sub>2</sub>, pulse, blood pressure (RR), and temperature were conducted, all yielding normal results (RR 137/64, TT 36.8, SpO<sub>2</sub> 98, pulse 83). Treatment progress was monitored, revealing the patient's complete dependence on external assistance for nutrition, personal hygiene, and medication management. Daily support was provided for basic human needs. Following the doctor's orders, the nurse administered prescribed medications, resulting in a positive response. The patient was confirmed to have a urinary tract infection, and antibiotic therapy was initiated on the third day of hospitalization. Post-antibiotic administration, the patient's blood results improved, and she reported reduced pain. An orderly course of treatment was followed, and the patient was discharged home on September 28, 2021, with the indication that assistance from another person is required. A recommendation was made for the patient to stay in an institution specialized in caring for individuals with dementia. Consequently, the patient was transferred to the home for the elderly and infirm in Bjelovar, where ongoing care and intervention continued. Efforts were focused on cognitive function training to facilitate activities such as oral hygiene and feeding. The patient consistently used a walker and actively participated in exercise and occupational therapy. Periodically, the patient experienced nocturnal dementia episodes, accusing herself of theft and deception, displaying disorientation and confusion about her location. There were instances of neglecting her feet and forgetting their location. Administering donepezil proved effective in calming the patient and aiding in the recall of misplaced items. Donepezil, chosen as the first-choice drug due to its once-daily administration and good tolerance, had an initial recommended dose of 5 mg once daily for 4 to 6 weeks, later increased to 10 mg once daily. The patient exhibited a positive recovery process, and therapeutic goals were regularly assessed through consistent therapy and patient interaction. While the patient achieved increased independence, complete autonomy was not attained. The opinions of both medical staff and family remained essential, leading to the patient's continued residence in the home for the elderly and infirm in Bjelovar.

## 4 DISCUSSION

Alzheimer's dementia stands out as the primary cause of dementia and is rapidly emerging as one of the costliest, deadliest, and most burdensome diseases of the 21st century. Significant strides have been made in understanding the underlying pathology, identifying multiple causative and protective genes, and recognizing new blood-based and imaging biomarkers. Additionally, there are in-



itial indications of positive effects from disease-modifying treatments and lifestyle interventions (Tiwari et. al. 2019, 5541-5554). The vast field of research aimed at comprehending the pathogenesis of Alzheimer's dementia is focused on designing effective therapies. Alzheimer's dementia is a highly complex and progressive neurodegenerative disease, ranking among the leading causes of dementia worldwide. In the United States alone, approximately 5.3 million individuals are affected by Alzheimer's dementia, with 5.1 million being 65 years or older and 200,000 experiencing the condition at a younger age. The reported histopathological characteristics of Alzheimer's dementia initially manifest in specific brain regions and progress through the hippocampus and basal ganglia in later stages. In critical cases, these characteristics extend to the lower part of the brainstem and the cerebellar cortex, considered crucial in the disease's progression. This review focuses on elucidating the causes, pathogenesis, and factors associated with the progression of Alzheimer's dementia (Cummins et. al. 2019, 779-794). Alzheimer's disease represents a complex and progressive neurodegenerative disorder, serving as the predominant cause of dementia. The prevalence of this disease is projected to more than double by the year 2050. Risk factors for Alzheimer's dementia encompass age, family history, genotype, diabetes, hypertension, obesity, hypercholesterolemia, traumatic brain injury, and a low level of education. Despite the increasing population of individuals with Alzheimer's dementia, only five treatment options are currently approved for addressing cognitive symptoms in the United States. The most recent approval, memantine, dates back more than ten years. Four of these standard treatments are also licensed in the European Union, consisting of three cholinesterase inhibitors and one antagonist. In 2014, a fifth treatment option, a fixed-dose combination of donepezil and memantine, gained approval for treating patients with moderate to severe Alzheimer's dementia who are on stable therapy. The past 15 years have witnessed numerous therapeutic agents in development, yet most have faced failure. Alzheimer's dementia remains one of the most underserved therapeutic areas for treatment. The majority of trials conducted thus far have involved comparing the active agent with a placebo, with or without the inclusion of a standard care agent. As awareness grows regarding the complexity and diverse pathology of Alzheimer's dementia, there is an acknowledgment of the dynamic interactive network of components that constitute the disease. Recognizing this complexity suggests that successful treatment may necessitate addressing multiple targets, potentially through combination therapy. Combination therapies, proven successful in other diseases like cancer and HIV, are being explored as a potential strategy for Alzheimer's dementia. This approach, targeting more than one mechanism simultaneously, may prove more effective than addressing individual mechanisms one at a time. Investigations into the future possibilities of pharmacodynamic combination therapy for the treatment of Alzheimer's dementia are currently underway.

## 5 CONCLUSION

While Alzheimer's disease currently has no cure, early recognition is crucial to impede its progression and initiate treatment. Standardized drugs, particularly antidementia medications, play a pivotal role in addressing cognitive impairments and behavioral disorders, along with psychopharmaceuticals that slow down the natural course of the disease. Acetylcholinesterase inhibitors, commonly used, have demonstrated improvement in the clinical status of patients, with common side effects being gastrointestinal (nausea, vomiting, diarrhea), muscle cramps, and fatigue. Mood stabilizers are employed in non-psychotic patients exhibiting behavioral changes, necessitating regular ECG monitoring in the elderly. Antidepressants are tailored to individual patients, with selective serotonin reuptake inhibitors (SSRIs) often preferred due to better tolerability and fewer cardiac side effects. Antipsychotics are utilized for treating psychological changes in dementia, emphasizing cautious and gradual use in the lowest possible doses, with regular monitoring. Hypnotics and sedatives, the primary choice for managing anxiety, come with numerous side effects, including delirium, cognitive decline, and a heightened risk of falls. In addition to pharmacotherapy, socio-social interventions, occupational therapies, and other activities engaging patients in social games are implemented. These aim to prevent stigmatization and depression while fostering a sense of acceptance. Encouraging training that focuses on cognitive functions is vital to impede further damage. Furthermore, physical therapy coupled with rehabilitation contributes to improving the patient's condition, enhancing strength and mobility, and aiding in achieving personal goals and self-discovery.

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## SHORT BIO

Ivan Pokec, a Master of Nursing with extensive experience in the field of healthcare. He graduated from the University North in Varaždin, where he completed the graduate program in Nursing – Management in Nursing. His work has been published in renowned Croatian health journals, including *Sestrinski glasnik*, *Hrana u zdravlju i bolesti*, and *Paviljon*. He actively participates in professional conferences as a guest and lecturer, aiming to improve the quality of healthcare. His areas of interest include healthcare and social gerontology. Currently, he is a lecturer at the Polytechnic in Bjelovar, teaching undergraduate and graduate nursing programs.

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1.08 Objavljeni znanstveni prispevek na konferenci  
Published scientific article at the conference

# THE SIGNIFICANCE OF ESTABLISHING POSITIVE TEACHER-STUDENT RELATIONSHIPS

## POMEN VZPOSTAVITVE POZITIVNEGA ODNOSA UČITELJ-UČENEC

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### ABSTRACT

*Establishing and nurturing positive relationships between teachers and students is fundamental for fostering an environment conducive to learning and holistic development. This paper explores the multifaceted importance of cultivating such relationships and the profound impact they have on both students and teachers. Special emphasis is put on special needs students. In this research the method of a semi-structured interview was used. The interviews were carried out with primary school teachers teaching at the Institute for the Deaf and Hard of Hearing in Ljubljana.*

*Trust and comfort are foundational elements fostered by positive teacher-student relationships. These relationships create safe spaces where students feel valued, respected, and empowered to engage actively in learning. This leads to improved retention, understanding, and learning motivation among students.*

*Moreover, these relationships contribute significantly to students' social and emotional growth, nurturing vital skills like empathy, communication, and conflict resolution. Behavioural improvements often accompany positive relationships, as students tend to exhibit more positive conduct and respect for peers and rules. Furthermore, the mental well-being of students is positively influenced, with reduced stress and anxiety levels. Besides, positive influences on mental well-being are also experienced by teachers.*

*The enduring impact of positive teacher-student relationships extends beyond the classroom, shaping students' attitudes not only towards learning but also towards themselves and thus impacting their lifelong paths. This paper underscores the pivotal role these relationships play in shaping students' holistic development and emphasizes their significance in educational practices.*

**Keywords:** teacher-student relationships, educational environment, special needs students, holistic development, teachers' mental health

### POVZETEK

*Vzpostavljanje in negovanje pozitivnih odnosov med učitelji in učenci je bistvenega pomena za spodbujanje okolja, ki je naklonjeno učenju in celostnemu razvoju. Ta članek raziskuje večplastni pomen negovanja takih odnosov in velik vpliv, ki ga imajo odnosi, tako na učence, kot na učitelje. Poseben poudarek je namenjen študentom s posebnimi potrebami. V tej raziskavi je bila uporabljena metoda polstrukturiranega intervjuja. Intervjuje smo izvedli z učitelji osnovnih šol, ki poučujejo na Zavodu za gluhe in naglušne Ljubljana.*

*Zaupanje in udobje sta temeljna elementa, ki ju spodbujajo pozitivni odnosi med učiteljem in učencem. Ti odnosi ustvarjajo varne prostore, kjer se učenci počutijo cenjene, spoštovane in opolnomočene za dejavno sodelovanje pri učenju. To vodi do boljšega zadrževanja, razumevanja in učne motivacije med učenci.*

*Poleg tega, ti odnosi pomembno prispevajo k socialni in čustveni rasti učencev ter negujejo vitalne veščine, kot so empatija, komunikacija in reševanje konfliktov. Vedenjske izboljšave pogosto spremljajo pozitivne odnose, saj učenci običajno izkazujejo bolj pozitivno vedenje in spoštovanje*

vrstnikov in pravil. Poleg tega pozitivno vpliva na duševno počutje študentov z zmanjšano stopnjo stresa in anksioznosti. Pozitivne vplive na duševno počutje doživljajo tudi učitelji.

Trajni vpliv pozitivnih odnosov med učiteljem in učencem sega izven razreda, oblikuje odnos učencev ne samo do učenja, ampak tudi do samih sebe in tako vpliva na njihovo vseživljenjsko pot. Ta članek poudarja ključno vlogo, ki jo imajo ti odnosi pri oblikovanju celostnega razvoja učencev, in poudarja njihov pomen v izobraževalnih praksah.

**Ključne besede:** odnosi med učiteljem in učencem, izobraževalno okolje, učenci s posebnimi potrebami, celostni razvoj, duševno zdravje učiteljev

## 1 INTRODUCTION

According to the data from the publication *Mental Health of Children and Adolescents in Slovenia (Duševno zdravje otrok in mladostnikov v Sloveniji)* (Jeriček Klanšček et al. 2018), the number of children and adolescents in Slovenia facing mental health issues is alarming, having increased by two-thirds in the last decade.

The school environment significantly influences the mental health of children and adolescents. According to the research on health-related behaviors during the school period among adolescents in Slovenia (Jeriček Klanšček et al. 2015), in 2014, 53 % of girls and 40,2 % of boys aged 11, 13, and 15 reported stress related to school. The study revealed that Slovenian children, compared to their peers abroad, more frequently reported school-related stress.

Quality communication with peers, parents, and teachers, as well as their support, along with satisfaction and a sense of success in school, are crucial protective factors for adolescent health. Hence, this research focuses on the importance of establishing a positive relationship between a teacher and students.

The research not only explores the impact of a positive relationship on students but also on teachers and their mental health. In recent years, a significant shortage of teachers has been observed. Puklek Levpušček (2023) estimates that the Slovenian school system lacks approximately 10 % of teachers, especially in mathematics, physics, computer science, vocational subjects, practical teaching and grade-level teachers. The dissatisfaction among teachers is attributed to increasingly demanding parents, a growing number of children with special needs, resulting behaviour problems, lack of professional respect and low salaries. Puklek Levpušček (2023) suggests that it is the responsibility of policymakers to create conditions for studying and later working that would attract young people to pursue a teaching career. Moreover, creating favourable working conditions is essential to retain practicing teachers. Personally, I believe that teachers themselves can significantly influence the attractiveness and perception of their profession. The thesis of this research is that this can be achieved through the very establishment and maintenance of positive relationships with students.

## 2 PURPOSE AND GOALS

In our research, two hypotheses were formulated:

Hypothesis 1: The relationship between teachers and students is crucial in the process of education.

Hypothesis 2: Establishing and maintaining a positive relationship has a positive impact on both students and teachers.

The following research questions were set:

1. What is the impact of establishing positive relationships between teachers and students on individual students and the class as a whole? What does it influence, and how do positive relationships manifest?
2. Is it especially important for teachers to create and maintain a positive relationship with students with special needs?
3. Is there a group of students with special needs for whom creating a positive teacher-student relationship is particularly important?

4. Does establishing and maintaining positive relationships between teachers and students affect students' self-perception and, consequently, their life path?
5. What influences the creation of a positive relationship between a teacher and students? How do teachers who believe they have a positive relationship with students establish it? What characteristics/qualities of a teacher are crucial?
6. Do teachers at the subject level find it more challenging to establish and maintain a positive relationship with students?
7. How do positive relationships between teachers and students affect teachers? How do teachers experience the impact of positive relationships on their well-being, health, satisfaction, sense of success, self-perception, and job satisfaction?

### 3 METHODS

For the purposes of this research, a semi-structured interview method was used. The target population consisted of teachers who believed they had established a positive relationship with their students. Eight teachers from the Institute for the Deaf and Hard of Hearing in Ljubljana participated in the study. Six teachers have been employed in education for fifteen to twenty years, one for three years, and one for seven years. Five participants are subject teachers, and three are grade-level teachers. Five teachers have experience teaching in regular schools, while three have experience only in schools for children with special needs.

The interviews were conducted in December 2023 and January 2024. Participation in the research was voluntary, and participating teachers were guaranteed anonymity. Teachers were interviewed in person based on pre-prepared questions, and participants' responses were recorded using an audio recorder.

### 4 RESULTS

#### 4.1 The impact of establishing positive relationships between a teacher and students on individual students and on the class as a whole

According to the experiences of teachers involved in the study, positive relationships between teachers and students manifest in various ways:

- Students are more likely to follow teachers' instructions, school rules, and agreements. Some teachers believe that establishing a good relationship with students contributes to improved discipline and better behaviour even with teachers with whom they do not have such a strong connection.
- Students show greater respect for the teacher. This is important especially during adolescence when they resist authority. This results in better order in the classroom, as students are more inclined to do things for a teacher with whom they have a positive relationship.
- The teacher can become a trusted, significant person for students. This is expressed when students approach the teacher after class to share something or seek advice. Consequently, the teacher, as a trustworthy figure, can have a calming effect on students.
- Students are more motivated and participate better in class.
- Students feel a greater sense of security and openness and are not afraid to admit when they do not understand something, seeking additional help more easily.
- Students become more confident, receiving affirmation through the positive relationship.
- Students trust the teacher more and may confide in them about their mischievous activities. The teacher can use this as a teaching moment, understanding their actions and guiding them to make better decisions in the future.
- Students feel accepted, and consequently, they feel well at school. Teachers who see students not just as problems but respect and accept them as they are contributing to this perception.
- The cohesion of the class and the class climate improve. The entire class functions better because everyone feels safer, discipline is better, and lessons proceed more calmly. Moreover, students,

influenced by the teacher's example, become more accepting of classmates they might find challenging or different. Students become more tolerant.

- Students are more receptive to learning, they understand the material more easily, which results in better academic success.
- Students are more willing to attend school, leading to better academic performance.
- Students' communication and social skills, as well as emotional growth, improve. They become more empathetic, communicate better, and solve problems more effectively.
- Teachers with positive relationships are seen as constant role models, guiding students on how to communicate and resolve conflicts.
- Due to positive relationships, students are more willing to make better decisions (e.g., attending class regularly).
- Adjusting to individual students' needs, current energy levels, and learning styles becomes more prominent, leading to greater focus on each student and increased flexibility and individualization of teaching.
- Communication with parents improves. Satisfied children lead to trusting parents, who turn to the teacher for help more often and are more willing to accept less pleasant information.
- All together influences the better mental health of students.

#### **4.2 The importance of establishing and maintaining a positive relationship between a teacher and students with special needs**

All teachers participating in the study agree that creating and maintaining positive relationships is important for all students. For optimal development, they all need a relaxed, encouraging, respectful, and safe learning environment. Every student should feel accepted and valued and have their voices heard. Positive relationships are crucial because childhood lays the foundation for life, as mentioned by one teacher.

Six teachers believe that for students with special needs, especially those with emotional and behavioural disorders, it is particularly important for the teacher to establish and maintain a positive relationship. The reason for this is that these students are more vulnerable, sensitive, and less trusting compared to others. They often have more negative life experiences and labels that mark them as different and unacceptable. Consequently, it is especially important for teachers to provide these students with a greater sense of security. As one teacher mentioned, these students need an empathetic person beside them to help them acquire new knowledge and life skills.

One teacher thinks that the importance of establishing and maintaining positive relationships is the same for all students, but the results are more apparent in children with emotional and behavioural disorders.

Five teachers, when asked if there is a specific group of students with special needs for which establishing a positive relationship is particularly important, answered that it is crucial for children with emotional and behavioural disorders. Two teachers did not want to highlight any specific group of students with special needs. One teacher believes that while positive relationships are important for all students, it is particularly crucial to establish a relationship with students who have emotional and behavioural disorders, as it becomes impossible to work in the classroom otherwise. This teacher invests more time in building relationships with these students, paying constant attention to their needs. The successful functioning of the entire class is possible only when the teacher gains the support of students with emotional and behavioural issues.

#### **4.3 The impact of positive relationships between teachers and students on students' self-perception and their life paths**

Teachers agree that a teacher with a positive attitude, encouragement of strengths, and belief in the student's capabilities, influences students' self-perception, confidence, and self-trust. This, in turn, affects their choice of high school and consequently, their career. As expressed by one of the teachers, everything invested in students becomes a life endowment (self-trust, confidence, functioning in various social relationships, emotional regulation, accepting defeats, etc.). If a

teacher establishes a beautiful, warm relationship with students, they are willing to respect and trust you, your words, and your judgment. A teacher can influence students' attitudes towards values and the world through a positive relationship. All of this is later carried into life and future relationships they create.

Several teachers have stated that a teacher can replace some significant figure in a student's life (e.g., a father or mother), thereby increasing the teacher's impact on the student's life path. As mentioned by four of the interviewed teachers, a teacher with a positive relationship can prevent deviant behaviour in a student.

According to the majority of interviewed teachers, the importance of positive relationships is evident in the fact that many students eagerly return to visit and proudly share their life experiences after completing primary school. It is crucial for them to find a teacher with whom they have a positive relationship and receive praise. They take pride in seeing their former teacher happy for them.

A teacher can remain a trusted person or a kind of mentor even later when they are no longer teaching a particular student. As one of the teachers expressed, later, it is no longer a teacher-student relationship but a kind of family-friendship relationship. Of course, how personally one goes into a relationship with a student depends on each individual.

#### 4.4 Factors in establishing and maintaining a positive relationship between a teacher and students

In an effort to compile as many ideas as possible on how teachers can establish and maintain positive relationships with students, we decided to document the entire range of experiences of teachers involved in the study:

- As one of the teachers stated, teachers must first realize that they are in school for the students and not the other way around.
- Teachers must have the ability to empathize.
- One of the most important things is mutual respect. Regardless of what students do, who they are, or what grades they have, the teacher must show them respect. A teacher cannot expect students to respect them just because they are a teacher; the teacher must also show respect to the students.
- Teachers build positive relationships through their approachability.
- All teachers highlighted humour as one of the key factors for establishing a positive relationship. Humour is perhaps the teacher's most important and effective magic wand, working very relieving and relaxing.
- Teachers must show students that they care about them at any opportunity. This can be done, for example, with a simple greeting and a brief conversation in the hallway. Over time, students begin to mirror the teacher's communication patterns. Additionally, it is crucial for students if the teacher remembers things about their lives (e.g., birthdays, pets, significant events) and asks about them later.
- All teachers emphasized the importance of being open to conversation. For instance, giving students the chance to share what happened to them over the weekend or the previous day. Even dedicating just five minutes of the entire school lesson to this is invaluable for building and maintaining interpersonal relationships. Individual conversations are also extremely important.
- It is beneficial if the teacher spends as much time as possible with the students. For example, two subject teachers mentioned that they go to their students' classrooms during breaks just to be present, talk to students, and observe what is happening among them.
- Teacher fairness is crucial for creating positive relationships. This means treating all students as equals.
- Teachers must also be consistent. While flexibility is important, rules must apply to everyone.
- The teacher should not be resentful or vengeful. Students always need to be given a new opportunity.
- The teacher must be able to admit a mistake and apologize for it.
- The teacher should not be condescending, bossy, or authoritarian. Students respond well when they feel a sense of equality. However, students should still know that the teacher is in charge of the classroom. The teacher must be able to show students where the boundaries are.

- The teacher's love for their subject and teaching is also crucial.
- Creating a safe space is essential. A teacher who establishes a positive relationship with students knows them and knows how to react in case of disruptions.
- Invaluable are the teacher's praise and constructive criticism presented in an appropriate manner.
- The teacher must adhere to agreements and expect the same from students.
- The teacher must be understanding, and, as one teacher stated, should not be an overly harsh judge.
- For establishing and maintaining positive relationships, extracurricular activities (e.g., interest groups, camps, outdoor schools, student councils, various competitions, etc.) and relaxing activities during class are invaluable. If, for example, a teacher sees that students are tired or not fully awake, activities can be adjusted to their abilities at that moment, showing understanding of their situation.
- The teacher's presentation and good regulation of their own emotions and well-being are important. If a teacher is having a bad day, they should not transfer it to everyone around them, especially not to the students. However, the teacher can tell students that they don't feel well and show them, by example, how to cope with a bad mood in a socially acceptable way.
- Especially in the case of students with emotional and behavioural disorders, it is crucial that the teacher is not afraid of the students.
- The teacher must be authentic. As one of the interviewed teachers said, these students give back everything that they are. Indeed, the teacher's qualities are most reflected in teacher-student relationships.
- If students allow it, the power of touch is also very important for the teacher.
- The teacher can help students regulate their emotions. The teacher can have a calming and soothing effect on students. Even more stressful situations, such as knowledge assessments, can be made more pleasant. As the most important characteristics or qualities of a teacher, the teachers who participated in the study also mentioned warmth, creativity, consistency, professionalism, accessibility, flexibility, fairness, patience, kindness, tolerance, and sincerity. The teacher must love children, be accepting, and not be judgmental. It is also good if the teacher has a pleasant facial expression.

#### 4.4.1 Establishing and maintaining a positive relationship with students at the primary and secondary levels

One teacher included in the research who teaches at the secondary level thinks that it is not more challenging for subject teachers to establish and maintain a positive relationship with students. In his opinion, one can do very good work in half an hour or, conversely, do a lot of harm in four hours. He also believes that it might be even more challenging to maintain a positive relationship at the primary level. Two teachers, one of them teaching at the primary level, think that establishing and maintaining a positive relationship is more challenging at the secondary level because students there are already in the adolescence period, making them more critical and rebellious. Besides, a teacher at the secondary level spends less time with students. Five teachers could not make a definitive statement on this. One teacher thinks it is neither more difficult nor easier, but certainly different. The challenges of establishing and maintaining relationships exist both at the secondary and primary levels. Most teachers believe that it probably takes longer to establish a relationship with students at the secondary level, but the time spent with students is not necessarily the most important factor. Positive relationships can be built outside the classroom. A greater challenge is also the larger number of students with whom a secondary-level teacher enters into a relationship. On the other hand, it may be more challenging for a primary-level teacher as the daily exposure to the same students can be more exhausting, and students may be a bit tired of the teacher.

During the interviews, the thought emerged that some subject teachers, due to the limited number of hours they spend with students, may not even have an interest in establishing a relationship with them.



#### 4.5 The impact of positive relationships between teachers and students on teachers

All teachers involved in the study confirmed that their relationship with students strongly influences their well-being. Among other things, they mentioned that they can be more relaxed, trust students more, and feel a greater sense of acceptance, belonging, and security. They feel more satisfied and successful. One teacher mentioned that due to good relationships and, consequently, better order in the classroom, they have more time for more enjoyable activities than just teaching. Teachers also stated that they are more motivated to teach, look forward to working with students, and prefer coming to work. One teacher mentioned that the greatest reward for a teacher is knowing that a student has not gone astray, that their development is heading in the right direction, and that they willingly return to school.

### 5. DISCUSSION

Based on the results of our research, we can confirm both hypotheses we set. The relationship between teachers and students is indeed of crucial importance in the process of education, and establishing and maintaining a positive relationship has a positive impact on both students and teachers. This is emphasized also in the results of Žavbi's research (2023).

As indicated by the results of our research, establishing and maintaining positive relationships between teachers and students has numerous positive impacts on individual students as well as the class as a whole. It affects, for example, the creation of a sense of safety and acceptance, thus contributing to better mental health for students, collaboration, motivation for learning, improvement in behaviour, social and emotional growth, better class relationships, and more.

It is important to mention that positive class relationships also influence parents, affecting their trust in the teacher and the school. Parents respond better to teachers' suggestions and find it easier to accept difficult decisions.

The results of our research have shown that establishing and maintaining positive relationships between teachers and students is particularly important for students with special needs, as they are especially vulnerable, sensitive, and less trusting. They often have more negative life experiences and labels that they are different and not accepted. Therefore, the sense of security and acceptance provided by a positive relationship with the teacher is particularly crucial for them, especially for students with emotional and behavioural disorders. Establishing a positive relationship with these students is a prerequisite for successful classroom work. Given the increasing number of children with special needs, all teachers should make an effort to establish a respectful, warm relationship with all students.

However, as our research has shown, students in general, regardless of their individual differences, respond positively to positive relationships. The findings of our research correspond to the findings of other researchers who emphasize the importance of positive teacher-student relationships (Hamre and Pianta 2001; Decker, Dona and Cristenson 2007). However, our research adds new knowledge on this issue, as it presents the experiences and opinions of teachers in the Slovenian context, focusing on the specific factors and actions that teachers consider important for establishing and maintaining positive relationships with students.

Various personality traits of the teacher, communication style, and other factors influence the establishment and maintenance of positive relationships between teachers and students. Notably, the teacher's empathy, warmth, relaxation, accessibility, patience, tolerance, flexibility, consistency, authenticity, creativity, dedication, fairness, and professionalism play a crucial role. The teacher must also be able to set boundaries. It is of paramount importance that the teacher is respectful to students and does not expect respect solely from them. This aligns with existing literature emphasizing the role of teacher qualities in fostering positive relationships (Roorda et al. 2011; Bosman et al. 2018). Žavbi (2023) also emphasizes the importance of personal relationships in the results of her research, highlighting the significance of accepting an individual and their problems comprehensively. Similar to our findings, she notes that working with young people requires the ability to adapt to situations, stresses, and the needs of fellow human beings. She emphasizes that this does not mean permissive action but understanding within set boundaries and, above all, in accordance with mutual respect.

At every opportunity, the teacher must show students that they and their well-being are important. Conversation is of paramount importance, as noted by Žavbi (2023), who highlights the significant impact of conversation on children's mental health. Therefore, employees in educational institutions should be made aware of the importance of conversation and its impact on children's mental health. If students allow, the power of friendly touch is also crucial. A truly magical wand in the teacher's hands is the use of humour.

Based on our interviews, we cannot conclude that teachers at the secondary level find it more challenging to establish and maintain relationships with students. As one of the interviewed teachers stated, sometimes all it takes for a positive relationship is just one minute. To maintain the relationship, it is necessary to do it continuously and be simultaneously creative and flexible. Additionally, sometimes it may take a year or two to establish a positive relationship with a particular student. No student should be given up. However, it depends on each individual teacher how much effort they are willing to invest in the relationship.

The results of our research have shown that establishing a positive relationship with students is also beneficial for the teacher. When relationships in the classroom are positive, teachers feel more relaxed, secure, and accepted. Teacher motivation for teaching is higher, and they prefer coming to work. However, the thought arises that some teachers may not need or desire a positive relationship with students due to their personality structure and values. I believe that in the future, it would be good to conduct research on the internal satisfaction of teachers for whom establishing positive relationships with students is not a priority.

A limitation of our research is that it included only eight teachers, all teaching at a school for children with special needs. However, I believe that similar results would be obtained even with a larger sample and by including teachers teaching at regular schools. The results would likely be different if the research also included teachers who do not have an established or have a poor relationship with students. In the future, it would be good to conduct research among teachers in secondary schools and universities.

## 6. CONCLUSION

In my personal experience, there is too much emphasis in schools on achieving knowledge standards and far too little on caring for the mental health of both children, adolescents, and teachers. I believe that much more attention should be given to the creation of positive relationships between teachers and students. I agree with the words of one teacher that the relationship is primary and is the most important bond between the teacher and the student.

Establishing and maintaining positive relationships between teachers and students can be a significant challenge. It requires a certain amount of energy, time, attention, and additional effort, and it can also be emotionally burdensome. As noted by Slokar Čevdek (2010), how a person behaves in a relationship depends on how they perceive themselves and how they perceive the other person. Their self-perception influences the perception of the other person, reflecting in their behaviour towards the other person. Therefore, it is crucial that teachers regularly take care of their mental and physical health. However, the results of what a teacher invests in students and in their relationship with them are invaluable. The teacher can teach more easily, the class is more relaxed, and both students and teachers are more satisfied with themselves and each other. One of the teachers included in the study even says that the relationship he establishes with students gives meaning to his job. We can conclude that establishing and maintaining positive relationships between teachers and students is mutually beneficial.

However, it requires a heartfelt and dedicated teacher. As one of the teachers stated, teachers without a heartfelt and genuine relationship cannot consider themselves real teachers. I agree with the words of this teacher that the subject matter is important, but at the same time, it is of secondary importance. Kovačič (in Slokar Čevdek 2010, 15) also emphasizes the importance of the relationship, as he believes that ignorance can be quickly patched up, but changing the relationship is more challenging and this process is more prolonged. Establishing and maintaining a positive relationship between the teacher and the students requires a teacher who is aware that his profession is truly a mission that influences not only the life of the individual but society as a whole.

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# ASSESSMENT OF NURSING CARE PROVIDERS ON THE QUALITY OF NUTRITION OF OLDER ADULTS IN A HOSPITAL ENVIRONMENT

## OCENA IZVAJALCEV ZDRAVSTVENE NEGE O KAKOVOSTI PREHRANE STAREJŠIH ODRASLIH V BOLNIŠNIČNEM OKOLJU

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### ABSTRACT

**Introduction:** A balanced diet is one of the factors that significantly impacts the health of older adults. Therefore, it's important for healthcare providers to have knowledge about a balanced diet. The purpose of this research was to determine the assessment of nursing care providers about the quality of nutrition for older adults in a hospital environment.

**Methods:** We used a quantitative, descriptive research method. Our study included a non-random, convenience sample of 40 nursing care providers working in the field of nursing for older adults and palliative care. We conducted the research using a survey questionnaire as a measuring instrument, which we developed based on a literature review. The data were analysed in the IBM SPSS 25 program.

**Results:** The research showed that the working time of nursing care providers affects their assessment of the quality of nutrition offered to older adults in a hospital environment ( $p=0.001$ ). Also, the age of nursing care providers affects their assessment of nutrition offered to older adults in a hospital environment ( $p=0.001$ ). Most of nursing care providers surveyed (80 %) believe that they do not have sufficient knowledge about the nutritional problems faced by older adults. 70 % of the surveyed nursing care providers believe that nutritional support for older adults in the clinical environment is inadequate.

**Discussion:** In clinical practice, insufficient attention is paid to a balanced diet. We found that healthcare providers lack the knowledge to provide nutritional care support for older adults. Nursing practitioners cite the need to improve hospital nutrition to provide balanced nutrition for older adults.

**Keywords:** nutrition, older adults, palliative care, nurse

### POVZETEK

**Uvod:** Uravnoteženo prehranjevanje je eden od dejavnikov, ki pomembno vpliva na zdravje starejših odraslih, zato je pomembno poznavanje uravnotežene prehrane s strani izvajalcev zdravstvene nege. Namen raziskave je bil ugotoviti oceno izvajalcev zdravstvene nege o kakovosti prehrane starejših odraslih v bolnišničnem okolju.

**Metode:** Uporabljena je bila kvantitativna, deskriptivna metoda raziskovanja. V neslučajnostni, priložnostni vzorec smo vključili 40 izvajalcev zdravstvene nege, ki delajo na področju zdravstvene nege starejših odraslih in paliativne oskrbe. Pri izvedbi raziskave smo uporabili merski instrument v obliki anketnega vprašalnika, ki smo ga razvili na osnovi pregleda literature. Podatki so bili analizirani v programu IBM SPSS 25.

**Rezultati:** Raziskava je pokazala, da delovna doba izvajalcev zdravstvene nege vpliva na njihovo oceno o kakovosti prehrane, ki je ponujena starejšim odraslim v bolnišničnem okolju. ( $p=0,001$ ). Prav tako starost izvajalcev zdravstvene nege vpliva na njihovo oceno prehrane, ki je ponujena starejšim odraslim v bolnišničnem okolju ( $p=0,001$ ). Večina anketiranih izvajalcev zdravstvene nege (80 %) meni, da nimajo zadostnega znanja o prehranskih težavah, s katerimi se soočajo starejši odrasli. 70 % anketiranih izvajalcev zdravstvene nege meni, da prehranska podpora starejših odraslih v kliničnem okolju ni ustrezna.

**Diskusija:** O uravnoteženi prehrani se namenja premalo pozornosti v klinični praksi. Ugotavljamo, da imajo izvajalci zdravstvene nege premalo znanja za nudenje prehranske podpore starejšim odraslim. Izvajalci zdravstvene nege navajajo potrebo po izboljšanju bolnišnične hrane, ki bo zagotavljala uravnoteženo prehranjevanje starejšim odraslim.

**Ključne besede:** prehrana, starejši odrasli, paliativna oskrba, medicinska sestra.

## 1 THEORETICAL BACKGROUND

The aging process involves numerous changes in the body that generally have a negative effect on an elderly individual's well-being and lifestyle. Nutrition plays a crucial role in maintaining a high-quality lifestyle for older adults, including their physical, mental, and social well-being (Kaur et al. 2019). Healthy nutritional habits are an important factor influencing the health of older adults (Štrukelj 2014). Preventing 'nutritional frailty' is a significant social and healthcare intervention strategy that contributes to healthier and higher quality aging, which helps keep the age-associated healthcare costs low (Rotovnik Kozjek 2021a).

Since older adults usually have other comorbid chronic illnesses, it is necessary to adjust the intake of energy and certain nutritional supplements to the metabolic changes. These are connected to specific disease states (such as chronic kidney disease, cancer, etc.), and to possible nutrition intake routes. Therefore, the nutrition of older adults is a complex professional field of clinical nutrition (Cederholm 2018). Nutritional disorders, such as malnutrition, various forms of obesity, specific nutritional deficiencies, as well as adjacent disorders such as frailty and sarcopenia, pose an additional challenge when it comes to treatment. According to Rotovnik Kozjek (2022) nutritional disorders reduce the physiological reserves and regeneration processes of the body, thus inhibiting the recovery time of an older adult after an illness or injury. Therefore, they pose an additional risk factor for the development of geriatric syndromes. Geriatric syndromes are usually associated with limited mobility and social life, further lowering the efficiency of nutritional therapy. Hence, it is important to keep in mind the lowered physiological reserves of several organs and organ systems in the body of older adults when it comes to the nutrition of older adults and nutritional therapy of nutritional disorders. Cederholm (2018) also describes common nutritional disorders such as sarcopenia, malnutrition, and obesity. Different nutritional disorders can also combine with one another; it is not uncommon to see an older adult who is overweight and malnourished at the same time. Sarcopenic obesity, a poorly researched condition, leads to clinical complications associated with both obesity and sarcopenia. Cruz Jentoft and colleagues (2019) elaborate further that dehydration is also commonly present in older adults.

Various factors contribute to the development of nutrition problems in older adults. Gabrijelčič Blenkuš and Jerković Stanojević (2010) present the following factors:

- Physiological factors: In advanced age, motor skills begin to weaken, leading to ever-weakening hand-to-mouth coordination, thus presenting difficulties with nutrient preparation. The development of walking difficulties makes it hard to buy groceries and prepare them. Aging also weakens the senses of smell and taste, both of which considerably lower appetite and thirst. The gastrointestinal system is weakened as well, causing problems with chewing and swallowing food, decreased saliva production, and slowed peristalsis of the intestine, which inevitably leads to constipation. Usually, older adults, due to the aforementioned issues, prepare nutrients in such a way that they lose their nutritional value (overcooking vegetables). The most common cause of physiological problems in older adults is malnutrition.
- Pathophysiological factors: In older age, there is a high likelihood of developing different kinds of chronic conditions that influence a person's appetite. Side effects of medication, such as ano-

rexia, nausea, and an altered sense of taste, can all discourage older adults from eating, causing malnutrition, which occurs in 30-40 % of the older population.

- Social and psychological factors: The biggest issues in this aspect are loneliness and depression. Social isolation and feelings of social deprivation can lead to lower food cravings. Low financial income and poverty often pose a problem for older adults, thus preventing them from acquiring sufficiently nutritious daily nutrition intake.

Interventions for older adults who are either suffering from malnutrition or are at risk of becoming so include:

- All older adults at risk of malnutrition need to have their nutrition intake checked. Solid and liquid interventions for older adults at risk for malnutrition should be individualized and adapted to their day-to-day circumstances. It is recommended that a clinical dietitian carries out individual counseling on their nutrition intake. It is also recommended that older adults at risk of developing malnutrition have assistance when it comes to meals, referring to those served in institutions or at home. Older adults at risk are encouraged to eat in company because it facilitates nutrition intake.
- Potential causes of malnutrition and dehydration concerning older adults should be identified and treated accordingly.
- Whenever the nutrition intake is inadequate, the use of enriched common foods (oil, whipped cream, butter, eggs) or specific medical food (oral supplements) and extra snacks is recommended. Older adults suffering from oropharyngeal dysphagia and/or problems with chewing need to be offered enriched foods with an appropriate texture to reach a satisfactory level of their daily nutrient intake.
- Medical and nursing care providers taking care of older adult patients are expected to have some basic knowledge of malnutrition problems of older adults so that they can optimize their dietary care. It is also crucial to educate such patients, through a conversation tailored to their mental comprehension abilities, and through different reading materials, about the effect an optimal nutritional intake has on their health and the quality of their life. Thus, empowering them to better face their malnutrition problems (Volkert et al. 2019).

Leskovic (2022) suggests that the tenure of nursing care providers can influence their self-evaluation scores regarding the quality of nursing care they provide, including the quality of nutrients they are supplying their patients with. Nursing care providers' age can also influence their self-evaluation scores about the nutrition quality.

Mercadante (2015) proposes that good communication between older adult patients, nursing care providers, and the medical team is key to answering questions that arise.

The purpose of the study was to gauge the self-evaluation scores of nursing care providers regarding the nutritional quality they provide to older adults in a hospital environment. We proposed two research questions:

- Does the age of nursing care providers influence their evaluation of the nutritional quality they provide to older adults in a hospital environment?

Does the tenure of nursing care providers impact their evaluation score of the nutritional quality they provide to older adults in a hospital environment?

After researching the current body of literature and formulating research questions based on the examined theory, we developed the following hypotheses:

- $H_1$ : The tenure of nursing care providers influences their evaluation scoring of the quality of nutrition provided to older adults in a hospital environment.
- $H_2$ : The age of nursing care providers influences their evaluation scoring of the quality of nutrition provided to older adults in a hospital environment.

## 2 METHODOLOGY

### 2.1 Research methods

For this paper, we used quantitative and descriptive methods to carry out our research.

## 2.2 Materials

For the purposes of our research, we used a survey questionnaire that we created based on literary theory (Lipar 2013; Philips 2014; Cruz Jentoft et al. 2019; Crawford et al. 2021). We also included variables that we gathered from our personal experiences working with older adults. The first part of the questionnaire contained demographic information about nursing care providers who participated. The other half focused on a balanced diet for older adults and the significance of diet for this age group. The survey contained 18 closed-ended questions. Participants were required to answer all the questions.

## 2.3 Participants

We used a non-random convenience sample. Participants were nursing care providers employed at one of the departments of a particular hospital, selected at random. Participation was voluntary. We sent out 40 surveys, all of which (100 %) were returned to us fully filled out. A total of 40 nursing care providers participated; half of them (n=20; 50 %) were men and the other half (n=20; 50 %) were women. Most of the participants were older than 30 years of age (n=28; 70 %) (Table 1).

**Table 1: Sample description**

		N=40	%
<b>Gender</b>	Male	20	50
	Female	20	50
<b>Age</b>	Up to 30 years	12	30
	Above 30 years	28	70
<b>Education</b>	Secondary	18	45
		<b>N=40</b>	<b>%</b>
	Tertiary	22	55
<b>Title</b>	Graduated nurse/graduated health professional	22	55
	Secondary nurse/secondary health professional	6	15
	Healthcare technician /healthcare nursing technician	12	30
<b>Tenure</b>	Up to 10 years	12	30
	Above 10 years	28	70

More than half of the nursing care provider participants have a tertiary level education (55 %), while 45 % have secondary level education. A majority of nursing care providers have more than 10 years of tenure (70 %) (Table 1). A little over half of the participants hold the title of graduated nurse or graduated health professional (55 %) – they have tertiary level education. This is followed by healthcare technicians or healthcare nursing technicians (30 %). The smallest percentage of nursing care providers hold the title of secondary nurse or secondary nurse technician (15 %), both of which require secondary education.

## 2.4 Procedure and data analysis

Data collection took place between April 18, 2023, and April 28, 2023. Participants were informed of the purpose of our research and were assured that their data would remain anonymous. They were also informed that they could opt out of participating in the study at any time. The surveys were distributed electronically and were accessible via a computer, tablet, or mobile device. It took participants approximately 5 minutes to complete the survey. Invitations to participate were sent via email.

We collected the participants' data from the filled-out online surveys via Google Forms and later transferred them to Microsoft Office Excel. Finally, we exported the data into the IBM program SPSS Statistics 25, where we ran a statistical analysis. To analyse, edit, and showcase the results, we used various statistical analyses, including the minimum and maximum value, the mean value, the standard deviation, and frequency distribution. To test our hypotheses, we used the T-test for two independent samples.

## 2.5 Ethical considerations of the research

Every person that participated in the research study was informed that they can refuse participation if they so desire. We followed the Slovenian Code of Ethics of Healthcare and Nursing (Uradni list RS št. 71), as well as the Oviedo Conference and the Helsinki Declaration. We also took into consideration the Right to no-harm, the right to explanation, the right to self-determination and lastly the right to anonymity, privacy, and confidentiality.

## 2.6 Results

The results of the study are displayed below.

**Figure 1: Opinions of nursing care providers about the quality of nutrition provided to older adults in a hospital environment**

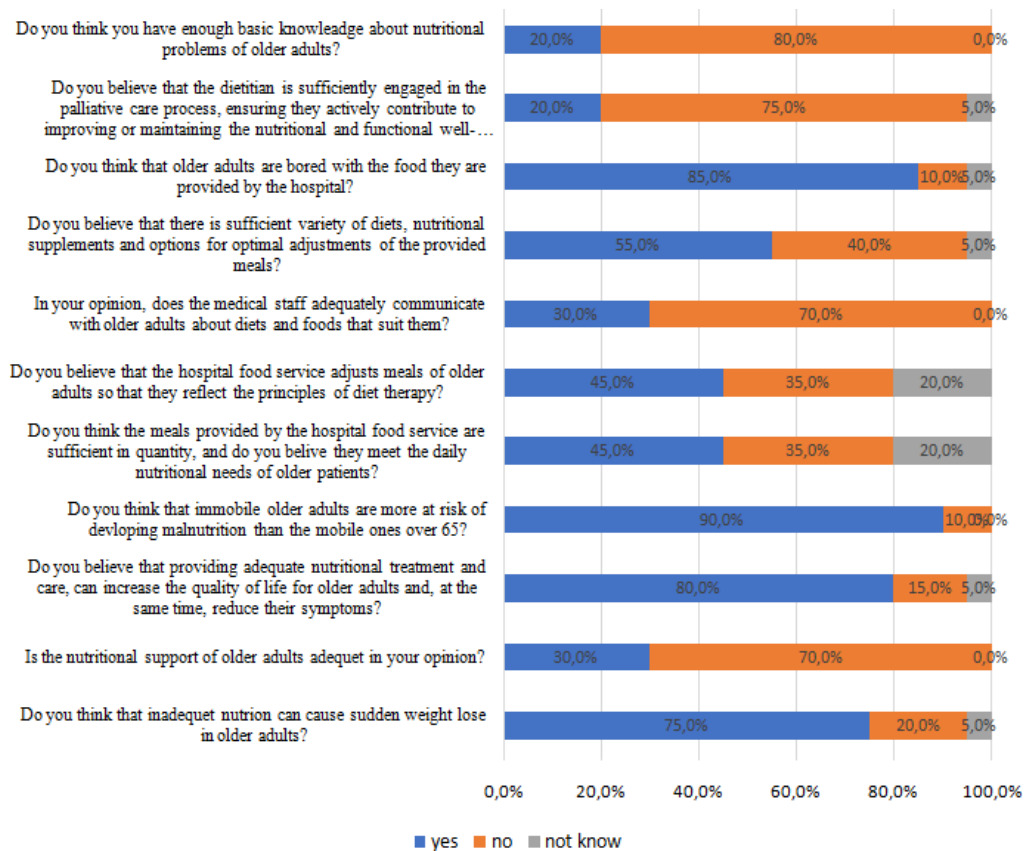


Figure 1 displays the answers of nursing care providers relating to the nutrition of older adults in the hospital. 90 % of the participants believe that immobile older adults older than 65 years, are more at risk of malnutrition than their mobile counterparts. 80 % believe that it is possible to improve the quality of life of older adults and reduce illness symptoms, with appropriate nutritional treatment and care. 75 % participants share the opinion that inadequate nutrition in relation to older adults shows up as a sudden weight loss. A little over half of them think (55 %) that there are enough different diets, nutrition supplements and options for adjusting the provided meals. 45 % of nursing care providers, concerned with nutrition selection and preparation, believe that the meals prepared by the hospital food service sufficiently cover the daily needs of the older adult, while 35 % disagree with this notion. 45% of them think that the hospital food service adjusts the meals according to the principles of diet therapy for the older adults, 35 % do not think the same. The majority of nursing



care providers (70 %) believe that the nutritional support of older adults is inadequate. The same percentage (70 %) also think that the medical staff does not talk enough with the older adults about the latter's dietary needs. 75 % think that the dietitian does not engage enough with older adults, with the goal of improving or maintaining nutritional and functional well-being of older adults within the process of palliative care. Even more so (80 %) have an opinion that the dietitians do not have a satisfactory level of knowledge about the nutrition problems of older adults.

The participants graded the provided nutrition by the hospitals on a Likert like scale, which ranged from 1 "very bad" to 5 "very good". The average mean score of the nutrition provided by the hospital was 2.55, which suggests that the nutrition is neither good, neither bad (Table 2).

**Table 2: Descriptive statistics of prepared nutrition by the hospital for older adults**

N	Mean	Standard deviation	Minimum	Maksimum
40	2,55	,815	1	4

We were also interested whether there are any differences when it comes to the grading of the nutrition provided to older adults and the years of tenure of nursing care providers. The participants were put into two separate groups in this case: those that have up to 10 years of tenure (n = 12), and those who have more than 10 years of tenure (n = 28).

**Table 3: Scores of provided hospital nutrition to the older adults, according to tenure of nursing care providers (T-test for two independent samples)**

Variable	Tenure (Combined)	n	M	SD	F	p (Levene)	t	df	P
Score of nutrition provided to older adults	Up to 10 years	12	3,00	0,000	38,317	0,000	2,425	38	0,001
	More than 10 years	28	2,36	0,911					

Legend: n – numerus, M – average score, SD– standard deviation F = Leven's test, t = T-test for two independent samples df – degrees of freedom, p – statistical significance (p-value)

Hypothesis 1 was tested using the T-test for two independent samples (for the nutrition provided to older adults), which they graded on a 5 level Likert like scale, where 1 was "very bad" and 5 "very good". We can confirm the first hypothesis. The tenure of nursing care providers influences their score of the nutrition quality provided to older adults in a hospital environment.

We were also interested whether there exist statistically significant differences regarding the scoring of the nutrition provided to older adults, among nursing care providers in relation to their age. We grouped the participants into two groups: those aged up to 30 years of age (n = 12) and those above 30 years (n = 28) (Table 4).

**Table 4: Score of the nutrition provided to older adults in relation to the age of nursing care providers (T-test for two independent samples)**

Variable	Age (combined)	n	M	SD	F	p (Levene)	t	df	P
The score of provided nutrition to older adults	Up to 30 years	12	3,00	0,000	38,317	0,000	2,425	38	0,001
	Above 30 years	28	2,36	0,911					

Legend: n – numerus, M – average score, SD– standard deviation F = Leven's test, t = T-test for two independent samples df – degrees of freedom, p – statistical significance (p-value)

As we can see in the above table (Table 4), the T-test value confirms that there are statistically significant differences in the mean scores of the provided nutrition. According to the mean values, we can say that nursing care providers younger than 30 years gave the provided nutrition to older adults a higher score (M = 3,00; SD = 0,000) then those older than 30 years (M = 2,36; SD = 0,911).

We tested our second hypothesis with the T-test for two independent samples (for the nutrition provided to older adults), which they were able to grade by using a Likert like scale with the score range of 1-5; 1 meaning "very bad" and 5 meaning "very good". Analysis was able to confirm our second hypothesis. Age of nursing care providers influences their scores of the nutrition provided to older adults in a hospital environment.

We were interested in finding differing statistically significant scores of the provided nutrition in relation to the acquired education of nursing care providers. We put our participants into two groups: Secondary education (n = 18; 45 %) and tertiary education (n = 22; 55 %).

**Table 5: Scores of the provided nutrition to older adults regarding acquired education of nursing care providers (T-test for two independent sample)**

Variable	Education (combined)	n	M	Sd	F	p (Levene)	T	df	p
Score of provided nutrition to older adults	Secondary	18	2,44	0,705	0,434	0,514	-0,737	38	0,466
	Tertiary	22	2,64	0,902					

Legend: n – numerus, M – average score, SD– standard deviation F = Leven’s test, t = T-test for two independent samples df – degrees of freedom, p – statistical significance (p-value)

According to the table above (Table 5), we can see that with the use of the T-test we do not confirm statistically significant differences in mean scores of the provided nutrition. Hence both nursing care providers with secondary and tertiary education, have the same score relating to provided nutrition to older adults.

### 3 DISCUSSION

The score of older adults’ health is crucial. It is very important that we can gage their nutritional state and to detect early symptoms of frailty. A European study showed a relatively low level of malnutrition in older adults living at home, however the percentage of older adults in general was 30 to 60 percent. High numbers were confirmed in later studies, which lead to a public appeal to take better care of older adult’s nutrition in institutions (Rotovnik Kozjek 2021b).

With our research we wanted to find out how well do nursing care providers understand, or rather, grade the provided nutrition to older adults in hospitals. Due to rapid decline in health caused by advanced age, older adults are faced with problems not well understood by younger people. This prevents them from effectively taking care of the older adults’ nutritional needs. Poor nutrition is associated with weaker health. It is known that with age, the ever-higher dependence on medication increases the risk of adverse health effects in relation to certain nutrients. Social, economic; metabolic changes that occur due to aging, and higher risks of diseases all have a significant effect on the persons nutritional status in many ways. Most of these age-related conditions can be prevented by using appropriate nutritional interventions and eating foods enriched with nutrients and anti-oxidants. Prevention and treatment of these conditions is possible through different procedures, healthy eating habits, nutrition supplements and adequate nutrition intake. All in all, everything that is necessary for good health (Kaur et al. 2019).

By conducting our research, we found out that both tenure and age of nursing care providers influences their scores of the nutrition quality that they provide older adults in a hospital environment.

We were also interested in the possible differences in the scoring of the provided nutrition to older adults in connection to the education level of nursing care providers. This research question was inspired by a research article by Bjerrum, Tewes, and Pedersen (2012) where they concluded that the level of education does not have a significant effect on the understanding of nutrition and its evaluation. We placed participants in two groups: those with only secondary level education and those with a tertiary one. The T-test we carried out did not show statistically significant differences between the groups.

There are certain rules and guidelines regarding healthy eating habits in the third age of life. Older adults’ diet has its own specifics due to the vulnerability of older adults and the presence of certain illnesses. That is way it is very important that nursing care providers have all the necessary information (Okorn 2013). The results of the study indicate that more than half of nursing care providers believes that they do not have enough basic knowledge on nutritional problems of older adults.

The dietary support of older adults needs to be sufficient. After doing a review of existing literature, we discovered that there are only a few research studies out there on the topic of adequate nutritional support. Changes in health and physiology come with age, which impact the nutritional

needs of the older population. The diet of older adults does not provide them adequate nutrients necessary for optimal health and cause malnutrition, which leads to the development of degenerative diseases (Mocchegiani et al. 2013).

With our research we discovered that there are numerous opinions on the nutrition plan in the palliative care community. Nursing care providers do not have enough knowledge about nutrition, because they are understaffed and short on time, both complaints are preventing them from studying the topic of nutrition more thoroughly. However, for more conclusive results, research with a bigger sample size is necessary.

### 3.1 Limitations

Our research is limited by the selected method, sample, and questionnaire survey.

## 4 CONCLUSION

We discovered that there are differing opinions about nutrition of older adults. Nutrition has an important effect on the quality of life of older adults, from a physical, psychological, and societal point-of-view. Nursing care providers tailor the consumptions of solids and liquids to older adults' wishes and capabilities. It is also important that they assure a high-quality and nutritiously balanced diet. Nursing care providers do not have sufficient knowledge about nutrition due to being understaffed and out of time, which inhibits them from taking time to study the topic of nutrition further. We observed a need for educating nursing care providers, as well as health education workers.

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# THE APPLICATION OF BIOELECTRICAL IMPEDANCE IN THE ANALYSIS OF BODY COMPOSITION IN OBESE ADOLESCENTS

## UPORABA BIOELEKTRIČNE IMPEDANCE PRI ANALIZI TELESNE SESTAVE PRI DEBELIH MLADOSTNIKI

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### ABSTRACT

Childhood obesity is one of the most significant public health issues in the 21st century, contributing to the development of various metabolic complications. The World Health Organization has initiated a series of preventive programs aimed at reducing the rate of childhood obesity. One possible method of analyzing body composition in obese children is the use of bioelectrical impedance analysis (BIA). This is a fast and simple way of determining body composition. Unlike body mass index, BIA can estimate both body fat (BF) and muscle mass, as well as the number of fluids in the body, differentiating between intracellular and extracellular water using regression equations and parameters of resistance (R), reactance (Xc), and phase angle (PA). The BIA method is based on passing electrical currents through the body and differences in electrical conductivity between the fatty and watery components of the body. It is clinically important to select the most accurate equation for an individual to ensure that clinical interpretations and recommendations reflect the actual body composition. This paper will provide an overview of research results that have used bioelectrical impedance analysis in obese adolescents. For this study, a literature review was conducted (PubMed, Scopus, Cochrane Library), including published studies up to December 2023.

**Keywords:** bioelectrical impedance, body composition, obese, adolescents

### POVZETEK

Debelost pri otrocih je eden najpomembnejših javnozdravstvenih problemov v 21. stoletju, ki prispeva k razvoju različnih presnovnih zapletov. Svetovna zdravstvena organizacija je sprožila vrsto preventivnih programov za zmanjšanje stopnje debelosti pri otrocih. Ena od možnih metod analize telesne sestave pri debelih otrocih je uporaba bioelektrične impedančne analize (BIA). To je hiter in preprost način določanja telesne sestave. Za razliko od indeksa telesne mase lahko BIA oceni telesno maščobo (BF) in mišično maso ter število tekočin v telesu, pri čemer razlikuje med znotrajcelično in zunajcelično vodo z uporabo regresijskih enačb in parametrov upora (R), reaktanca (Xc) in faznega kota (PA). Metoda BIA temelji na prehajanju električnega toka skozi telo in razlikah v električni prevodnosti med maščobno in vodno komponento telesa. Klinično je pomembno izbrati najbolj natančno enačbo za posameznika, da zagotovimo, da klinične interpretacije in priporočila odražajo dejansko sestavo telesa. Ta prispevek bo podal pregled rezultatov raziskav, ki so uporabile analizo bioelektrične impedance pri debelih mladostnikih. Za to študijo je bil opravljen pregled literature (PubMed, Scopus, Cochrane Library), vključno z objavljenimi študijami do decembra 2023.

**Ključne besede:** bioelektrična impedanca, telesna sestava, debeli, mladostniki

## 1 INTRODUCTION

According to the World Health Organization, more than 1 billion people worldwide are obese, with as many as 340 million being obese adolescents, and this number is constantly rising. The World Health Organization believes that this number will increase by 167 million globally by 2025. (WHO, 2022). Obesity is the leading global public health problem that has erupted during the COVID-19 pandemic, especially evident in children and adolescents. Excessive weight and obesity in children and adolescents are defined using age- and sex-specific body mass index (BMI) criteria, where children and adolescents with a BMI equal to or greater than the 95th percentile are considered obese, while those between the 85th and 95th percentiles are considered to have increased body weight (Raj and Kumar, 2010).

There is no single cause of obesity; rather, it is the result of complex interactions between genetic, biological, developmental, behavioral, social, and environmental factors (Qasim et al. 2018). Energy imbalance between calorie intake and expenditure is the basic physiological mechanism behind the development of obesity. This type of imbalance develops due to increased consumption of high-sugar and high-fat foods and physical inactivity resulting from a sedentary lifestyle, increasing urbanization, and transportation development (WHO 2021).

Adolescence is a unique period of life characterized by significant changes on physical, psychological, and social levels. During this stage of life, young people encounter various life challenges and temptations. Overcoming the obstacles of adolescence is neither simple nor the same for everyone. The pressures and demands of the environment often have a negative impact on adolescents, leading them to avoid or redirect their resolution, causing them significant stress. One common way of coping with stress during this period is through excessive food consumption. Indeed, there is a strong interaction between stress and the organic systems of the human body that affect metabolism and a range of behavioral, immune, endocrine, and cardiovascular functions, which can result in chronic stress. Chronic stress during adolescence often leads to increased body weight and obesity (Tajik et al. 2014). Obese adolescents are prone to developing many chronic conditions and diseases from an early age, and as they age, these conditions become a limitation to their quality of life and contribute to the development of disabilities. The most common comorbidities involve the cardiovascular system, such as high blood pressure and early onset of atherosclerosis. Endocrine disorders, such as the development of diabetes mellitus, are frequent occurrences, and in girls, menstrual problems and a high incidence of polycystic ovary syndrome are common. Obese adolescents are at an increased risk of developing asthma, obstructive sleep apnea, and bronchial hyperactivity. On the psychosocial aspect, obese adolescents often experience depression, low self-esteem, obsessive concerns about body image, and progressive withdrawal. Due to the association of obesity with physical inactivity, changes in the musculoskeletal system, such as the development of osteoarthritis, fractures, chronic back pain, and impaired mobility, are common (Lim and Boster 2023).

Timely detection of obesity in adolescence and comprehensive body composition analysis enable experts to develop guidelines to reduce the obesity rate in this age group. The most well-known tool for diagnosing overweight is the Body Mass Index (BMI), whose value is determined based on anthropometric components (height and weight). BMI estimates how much an individual's body weight deviates from normal values relative to their height, but it does not reflect the ratio of fat to, for example, muscle tissue. For instance, individuals who are taller and more muscular may have a higher BMI, even though their proportion of body fat is extremely low. For this reason, in assessing the risk of developing obesity, it is necessary to use methods that indicate the distribution of body fat. One such method is bioelectrical impedance analysis.

Bioelectrical impedance analysis (BIA) is a method of assessing body composition based on the speed at which electrical current travels through the body. Body fat, or adipose tissue, causes greater resistance (impedance) than fat-free mass, thus slowing down the speed at which the current travels through the body. Using various formulas, this method calculates the percentage of fat and non-fat components (body water content, skeletal and smooth muscle mass, and bone mass) in the human body (Borga et al. 2018).

## 2 PURPOSE AND GOALS

The purpose of this study was to review available literature to assess the advantages and disadvantages of using bioelectrical impedance in detecting obesity in adolescents compared to similar methods of body composition assessment.

## 3 METHODS

In this systematic review, literature search was conducted using the MEDLINE database in January 2024. The following terms were used as keywords in the database search: bioelectrical impedance or BIA, obese adolescents or youth obesity. The PICO strategy was defined as follows: "P" (patients) corresponds to participants aged between 10 and 19 years of any gender or ethnic background, "I" (intervention) denotes the application of bioelectrical impedance, "C" (comparison) indicates the application of other methods of body composition assessment, "O" (outcome) corresponds to the effectiveness and applicability of the mentioned method.

Inclusion criteria were: a) studies involving obese adolescents with or without comparison to another method of body composition assessment; b) papers published from 2020 to 2023; c) full papers published in peer-reviewed journals or relevant conference proceedings; d) studies using the BIA method of body composition assessment; e) studies written in English. No sample size restrictions were applied.

Exclusion criteria were: a) participants younger than 10 years old or older than 19 years old; b) articles without full-text availability.

## 4 RESULTS

By searching the MEDLINE database, 8 studies met the inclusion criteria and were included in the analysis of this research.

## 5 DISCUSSION

Bioelectrical impedance analysis is a widely used method for body composition analysis. It is widely used in obesity prevention and also in analyzing the body composition of already obese individuals. It is very practical, non-invasive, fast, and relatively inexpensive method of body composition analysis (Eickemberg et al. 2011). BIA assesses various elements of body composition such as body fat, muscle mass, intracellular and extracellular fluid volume in the body, bone mass, and basal metabolic rate, all depending on the type of device. A more sophisticated version of the BIA device is the vector analysis of bioelectrical impedance (BIVA), which was created to complement and minimize the shortcomings of BIA devices. Parameters of bioimpedance such as resistance, reactance, and phase angle are used during analysis.

Appropriate measurements of body fat can help assess obesity even in childhood. A study conducted in China on 1426 children and adolescents aged 7 to 17 investigated the association between body fat and blood pressure levels and the risk of high blood pressure. Additionally, they further examined the validity of body composition analysis using BIA compared to the DEXA method. BIA devices correlated well with the assessment of body fat percentage obtained from DEXA. Appropriate measurements of body fat can help assess obesity in childhood and potential risks of hypertension (Chen et al. 2021). In the study by de Oliveira et al. (2020) the hydration level between obese and eutrophic adolescents was evaluated. The study involved 489 students aged 14 to 18 years, of which 78 adolescents were classified as obese and 411 as eutrophic. A BIA device with 4 electrodes positioned on the hands and feet of the subjects was used in the study, with variables of resistance, reactance, and phase angle being utilized. These variables were used to investigate hydration and soft tissue cell mass, closely related to intracellular and extracellular spaces (Norman et al. 2012). The results of this study showed significantly low values of resistance, reactance, and percentage of fat-free mass in obese adolescents, while the phase angle and percentage of body fat were higher compared to eutrophic adolescents. Additionally, the confidence ellipses demonstrated that obese adolescents were hyperhydrated compared to eu-



trophic ones, based on the fact that there was a reverse relationship between body mass index and resistance and a direct relationship with phase angle.

Gutierrez Marin et al. also investigated the validity of applying BIA compared to other methods of body composition assessment in obese adolescents. Their study involved 315 participants, aiming to test a new predictive equation for body composition using BIA. The goal of testing the equation was to demonstrate the validity and reliability of using BIA devices in children and obese adolescents. Methods such as dual-energy X-ray absorptiometry (DXA), air displacement plethysmography (ADP), and dilution hydrometry with deuterium oxide (D2O) were used to contribute to the creation of the equation. Fat mass was used as the dependent variable in the predictive model to create a new equation using body volume from air displacement plethysmography and fat-free mass density to avoid bias that could be caused by changes in hydration and fat-free mass density in obese adolescents. The results obtained from the calculated body composition using the proposed equation showed good agreement with the 4-component model (4C), which divides the human body into fat, protein, minerals, and water. The new predictive equation enhances the accuracy of body composition assessment using bioelectrical impedance in children and adolescents with obesity without the need for expensive equipment or training. Despite this, further testing of the predictive equation is needed in the eutrophic population (Gutierrez - Marin et al. 2021).

Khan et al. also examined the accuracy of using BIA devices to assess body composition in adolescents with severe obesity. The study involved 78 adolescents with severe obesity, whose body composition was analyzed using a manual single-frequency tetrapolar BIA device (Omron), a stationary multifrequency octopolar BIA device (InBody 370), and DXA. The single-frequency tetrapolar BIA underestimated the percentage of body fat, while the multifrequency octopolar BIA device accurately assessed the percentage of body fat and appendicular lean mass compared to DXA (Khan et al. 2020). The accuracy and precision of the BIA method compared to DXA in obese children and adolescents were demonstrated in the study by Green et al. (Green et al. 2021).

Lopez-Gonzales, Wells, and Clark conducted a cross-check of three bioelectrical impedance devices compared to DXA at the whole-body and regional levels in children and adolescents in Mexico. They first generated prediction equations based on the 4C model as the reference method for assessing fat and fat-free mass and on DXA estimates for appendicular lean mass (ALM) and trunk fat mass (tFM). Furthermore, they conducted a cross-check on an independent sample of Mexican children and adolescents with different BMI categories (healthy weight, overweight, and obesity), stratified by gender and different stages of sexual maturation. Based on the processed data, the researchers concluded that the main benefit of BIA devices, regardless of BMI category, was in assessing regional body composition such as appendicular lean mass and trunk fat tissue (Lopez-Gonzalez et al. 2022).

The accuracy of BIA devices compared to dual-energy X-ray absorptiometry (DEXA), which represents the gold standard in assessing total body fat, was investigated in 197 subjects at the Clinic for Pediatric Diabetes and Endocrinology in Luxembourg. The subjects visited the clinic for the treatment of overweight or obesity. An automated BIA device was used in the study. The percentage of total body fat estimated with the BIA device was significantly correlated with the percentage of total body fat measured with DEXA in both boys (Pearson's  $r = 0.617$ ) and girls (Pearson's  $r = 0.648$ ) ( $p < 10^{-4}$ ). However, the residual mean difference between the estimated percentage of total body fat (TBF) using BIA and DEXA [TBF BIA (%) - TBF DEXA (%)] was extremely high (mean  $\pm$  standard deviation =  $10.52 \% \pm 5.22 \%$  in boys and  $9.96 \% \pm 4.40 \%$  in girls). The conclusion of the study is that the automated BIA device Tanita® BC-532 is not accurate for assessing total body fat in young people with overweight or obesity, and there is a need for calibration of BIA devices before their use in populations where they have not been previously validated (Samouda and Langlet 2022).

Bioelectrical impedance analysis is used as a method to assess changes in body composition due to weight change. The University Clinical Center in Gdansk, with the aim of reducing the obesity rate in childhood, conducted a 12-month reeducation program, which included individual pediatric care, dietary and physical activity counseling, and psychological support. Every 3 months within 12 months, participants underwent body composition analysis using BIA devices and the DEXA method. The participants were divided into two groups that differed only in the application of vitamin D: the

experimental group received it, while the control group took a placebo. Both BIA and DXA methods proved equally useful for measuring body composition. Since BIA and DXA were equally suitable for monitoring body composition, BIA seems to be a better method in clinical practice due to its greater accessibility and less weight (Dettlaff-Dunowska et al. 2022).

## 6 CONCLUSION

BIA method of body composition analysis has proven to be a very reliable method for assessing body composition. In addition to being inexpensive and easily performed, it has no harmful effects on health. Therefore, besides being able to serve in detecting obesity at an early age, it can also serve as a method for assessing the effectiveness of various weight loss programs.

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# VIRTUAL STANDARDS OF BEAUTY: HOW SOCIAL MEDIA AND TELEVISION SHAPE DECISIONS ABOUT AESTHETIC PROCEDURES

## VIRTUALNI ŠTANDARDI LEPOTE: KAKO DRUŽBENI MEDIJI IN TELEVIZIJA OBLIKUJEJO ODLOČITVE O ESTETSKIH POSEGIH

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### ABSTRACT

*Social media, television, and a growing awareness of aesthetics are shaping how people see themselves, encouraging consideration of aesthetic treatments. On social networks like Instagram, Facebook and Twitter, idealized looks influence the perception of beauty. Television sets standards of beauty through shows, commercials, and movies. This combination of factors creates a complex environment that affects the perception of appearance. Pressure from the media can cause insecurity, while the availability of information can educate about options to improve one's outlook. This dynamic makes aesthetic procedures more attractive, encouraging informed decisions according to personal needs. The goal of the research is to determine how social media and television shape decisions about aesthetic procedures. One general and two auxiliary hypotheses were set: H<sub>0</sub>: Social media and television are key factors that encourage decisions about aesthetic procedures; H<sub>1</sub>: There are statistically significant differences in the assessment of the role of social media and television in shaping decisions about aesthetic procedures in relation to the gender of the respondents; H<sub>2</sub>: There are statistically significant differences in the assessment of the role of social media and television in shaping decisions about aesthetic procedures in relation to the age of the respondents. The research conducted in Pula and Rovinj included 120 patients who underwent aesthetic procedures. The scaling technique was used in the research part of the work. The instrument that was constructed for the purposes of this research is the Scale for assessing the influence of media factors on decision-making about aesthetic procedures. Based on the research results, we can conclude that all three hypotheses have been confirmed. The obtained results indicate the importance of media factors in making decisions about aesthetic procedures and provide a deeper understanding of the influence of social media and television on the perception and decision-making of individuals regarding aesthetic procedures.*

**Keywords:** aesthetic procedures, beauty, social media, standards, television

### POVZETEK

*Družbeni mediji, televizija in vse večja ozaveščenost o estetiki oblikujejo, kako ljudje vidijo sebe, in spodbujajo razmišljanje o estetskih posegih. Na družbenih omrežjih, kot so Instagram, Facebook in Twitter, idealiziran videz vpliva na dožemanje lepote. Televizija postavlja standarde lepote skozi oddaje, reklame in filme. Ta kombinacija dejavnikov ustvarja kompleksno okolje, ki vpliva na dožemanje videza. Pritisk medijev lahko povzroči negotovost, medtem ko lahko dostopnost informacij izobrazo o možnostih za izboljšanje pogleda. Ta dinamika naredi estetske posege privlačnejše in spodbuja premišljene odločitve glede na osebne potrebe. Cilj raziskave je ugotoviti, kako družbeni mediji in televizija oblikujejo odločitve o estetskih posegih. Postavili smo eno splošno in dve*

*pomožni hipotezi: H0: Družbeni mediji in televizija so ključni dejavniki, ki spodbujajo odločitve o estetskih posegih; H1: Obstajajo statistično pomembne razlike v oceni vloge družbenih medijev in televizije pri oblikovanju odločitev o estetskih posegih glede na spol anketiranih; H2: Obstajajo statistično pomembne razlike v oceni vloge družbenih medijev in televizije pri oblikovanju odločitev o estetskih posegih glede na starost anketirancev. Raziskava v Pulju in Rovinju je zajela 120 pacientov, ki so bili podvrženi estetskim posegom. V raziskovalnem delu dela je bila uporabljena tehnika skaliranja. Instrument, ki je bil izdelan za namene te raziskave, je Lestvica za ocenjevanje vpliva medijskih dejavnikov na odločanje o estetskih posegih. Na podlagi rezultatov raziskave lahko sklepamo, da so vse tri hipoteze potrjene. Dobljeni rezultati kažejo na pomen medijskih dejavnikov pri odločanju o estetskih posegih in omogočajo globlje razumevanje vpliva družbenih medijev in televizije na dojemanje in odločanje posameznikov o estetskih posegih.*

**Ključne besede:** estetski posegi, lepota, družbeni mediji, standardi, televizija

## 1. INTRODUCTION

Social media, television and increased awareness of aesthetics have a pronounced influence on the formation of people's attitudes towards their own appearance and consideration of the possibility of aesthetic treatments (Harris-Moore 2016). Social media has become a key factor in shaping attitudes towards appearance (Alsop and Lennon 2018, 15). In recent years, cosmetic surgery has become a common topic in the media space, with the surgery frequently featured in commercials and reality TV shows. This phenomenon has caused concern among plastic surgery associations, such as the American and British Association, especially because of the possible impact on adolescents (ASPS, 2004; BAAPS, 2004 in Ashikali et al. 2014, 141). Below are the results of research conducted on the topic of the influence of social media and television on thinking and decision-making about aesthetic procedures.

Ashikali et al. (2014, 141) conducted the first study that investigated the influence of a TV show about cosmetic surgery on the reactions of adolescents through an experimental approach. Girls aged 15 to 18, students at schools in southeast England, were randomly assigned to one of three conditions: a cosmetic surgery show with an emphasis on the risks of the surgery, a show that did not touch on the risks, or a control condition with a makeover show. Although exposure to a cosmetic surgery show resulted in greater dissatisfaction with body weight and appearance, there were no significant changes in attitudes toward cosmetic surgery. Variations in girls' reactions emphasize the need for additional research into the factors that shape adolescents' perception of this type of media content (Ashikali et al. 2014, 141). Research conducted by Arab et al. (2019) in Riyadh (Saudi Arabia) investigated the influence of social media on participants' preference for cosmetic procedures. The findings indicate that participants who consume aesthetically related content on social networks, spend more time on these platforms and have a negative impression of themselves while consuming social media, think about aesthetic procedures more often. The authors encourage further research with validated questionnaires to better understand the likelihood of social media influence on cosmetic treatment decisions (Arab et al. 2019, 6). Research conducted by Seetan et al. (2023, 507) in Jordan focused on identifying factors that shape the general population in making decisions about undergoing aesthetic procedures. The obtained results show that 87.2 % of the participants recognize the significant influence of social media on their awareness of aesthetic procedures, and the patient's knowledge directly correlates with their attitudes towards such procedures. Comparatively, television and the opinion of doctors play a smaller role on patients' ideas about undergoing aesthetic procedures (Seetan et al. 2023, 507). Research conducted by Sindi et al. (2023, 9) in Makkah (Saudi Arabia) indicates the absence of a significant relationship between the time spent on social networks, such as Snapchat, and the desire for cosmetic procedures among users, despite the fact that almost half of the respondents use the platform for more than three hours a day. In their sample, rhinoplasty stands out as the most preferred aesthetic procedure (43 %). This phenomenon may stem from the conservative nature of Meccan society, where social media does not leave a strong impact, even despite the ubiquitous influence of influencers and celebrities on these platforms. The conclusion of the study suggests that social media platforms do not play a key role in the decisions of the general population in Mecca, Saudi

Arabia, when it comes to cosmetic procedures (Sindi et al. 2023, 9). The results of the research conducted by Sonmez and Esiyok (2022, 3101) indicate that there is a significant connection between the desire for attractiveness and the perception of the media as an important factor in the decision about cosmetic surgery. Also, a high correlation was noted between the desire to look similar to media role models. Photographs in magazines more often influence older age groups, while news on the Internet has a greater influence on young participants (Sonmez and Esiyok 2022, 3101). The results of the research conducted by Hermans et al. (2022, 441) in the Netherlands indicate a positive and significant connection between the frequency of using visually emphasized social media and the intention to undergo a cosmetic procedure. At the same time, no significant connection with the use of other social media was established. It is significant to note that following influencers on open social media platforms who share their own experiences with cosmetic procedures is positively associated with increased intention and normalization of such aesthetic procedures (Hermans et al. 2022, 441).

## 2. PURPOSE AND GOALS

In the context of the growing influence of social media, television and the ubiquitous awareness of aesthetics, it is important to investigate how these media shape the perception of individuals about their own appearance and encourage thinking about aesthetic treatments. On platforms like Instagram, Facebook and Twitter, idealized images of bodies and faces constantly bombard users, becoming a key factor in the formation of attitudes about beauty. In parallel, television has a significant influence by setting standards of beauty through various media formats, including shows, commercials and films that promote certain aesthetic ideals.

The combination of the influence of social media and television creates a complex environment that actively shapes the perception of individuals about their own appearance. Media pressure can cause insecurity among individuals, while providing access to information that can empower education about options to improve one's appearance. This dynamic relationship makes aesthetic treatments increasingly attractive and understandable, encouraging individuals to make informed decisions in accordance with their own needs.

The goal of our research is to carefully study how social media and television together influence decision-making about aesthetic procedures. Through the analysis of these influences, we want to understand how they shape the perception of beauty and how that perception affects individual decisions and attitudes towards aesthetic treatments. Considering the complexity of this phenomenon, we will try to identify the key factors that contribute to the formation of individuals' attitudes towards aesthetics, with the hope that the research results will contribute to a better understanding of this important social issue.

One general and two auxiliary hypotheses were made: H0 – Social media and television are key factors that encourage decisions about aesthetic procedures; H1 – There are statistically significant differences in the assessment of the role of social media and television in shaping decisions about aesthetic procedures in relation to the gender of the respondents; H2 – There are statistically significant differences in the assessment of the role of social media and television in shaping decisions about aesthetic procedures in relation to the age of the respondents.

## 3. METHODS

The research sample consisted of 120 patients who underwent aesthetic procedures. The research was conducted in Pula and Rovinj (Croatia). The instrument that was constructed for the purposes of this research is the Scale for assessing the influence of media factors on decision-making about aesthetic procedures. The assessment scale is composed of ten statements that cover different aspects, such as the influence of social media, television, advertisements, information from social networks, media representations and interaction on networks, providing a broad view of possible factors that shape attitudes towards aesthetic procedures. The scale reflects the key elements of the research and enables the collection of relevant data on the influence of media factors on decision-making about aesthetic procedures. The research participants were informed that the results obtained by

the assessment scale would be anonymous, and that they would be used for research purposes. After data collection, the results were analyzed using SPSS23 statistical software. The following parameters were used in the data analysis: sample size, descriptive statistics (frequencies, arithmetic mean, standard deviation, minimum value, maximum value), Kolmogorov-Smirnov test to assess data distribution, Mann-Whitney U test to identify statistically significant differences in responses respondents according to the first independent variable (gender of the respondents), and the Kruskal-Wallis test to determine statistically significant differences in the answers of the respondents in relation to the second independent variable (age of the respondents). This analysis enabled a deeper understanding of the patients' perception regarding the influence of media factors on deciding on aesthetic procedures, identifying potential differences according to the gender and age of the respondents.

## 4. RESULTS

### 4.1. Descriptive statistics results

The results from Table 1 indicate that social networks play a key role in shaping preferences for aesthetic procedures (M = 4.5167). Also, they often influence the wishes and expectations of users (M = 4.4417) and are considered an important factor in the decision-making process (M = 4.4000). These results show a significant influence of the media on the perception and decisions about aesthetic interventions.

**Table 1: Descriptive statistics of statements about the influence of media factors on decision-making about aesthetic procedures**

Statement	f(1)	f(2)	f(3)	f(4)	f(5)	N	M	Sd	Min	Max
Social media plays a key role in shaping my preferences for cosmetic procedures.	0	1	12	31	76	120	4.5167	.70987	2	5
Television significantly influences my thinking about possible aesthetic interventions.	0	1	19	42	58	120	4.3083	.76472	2	5
The information I receive through social networks often influences my attitude towards aesthetic procedures.	0	1	14	44	61	120	4.3750	.72254	2	5
I follow media content that promotes aesthetic procedures.	0	1	21	45	53	120	4.2500	.76970	2	5
Advertisements on social media significantly influence my impression of aesthetic procedures.	0	1	21	48	50	120	4.2250	.76105	2	5
Television programs shape my understanding and acceptance of aesthetic procedures.	0	0	7	54	59	120	4.3333	.60437	3	5
Social media often influences my desires and expectations regarding aesthetic changes.	0	1	11	42	66	120	4.4417	.69567	2	5
I believe that media representations of aesthetic procedures are important for my decision-making.	0	1	14	41	64	120	4.4000	.72645	2	5
Conversations on social media often change my opinion about aesthetic procedures.	0	1	21	36	62	120	4.3250	.79030	2	5
I follow the latest media trends in order to be informed about the possibilities of aesthetic solutions.	0	2	25	41	52	120	4.1917	.82295	2	5

Source: Own research 2023.

## 4.2. Kolmogorov-Smirnov test results

All dimensions that are included in the assessment of the influence of television and social media on decision-making about aesthetic procedures were subjected to the Kolmogorov- Smirnov test. The results presented in Table 2 indicate that none of the variables has a normal distribution, confirmed by the statistically significant results of all Kolmogorov-Smirnov tests at the significance level of  $p < 0.05$ . Therefore, in further research, non-parametric tests will be used to examine statistically significant subsamples, since they do not require the assumption of a normal distribution of the variables in the analysis (Pallant 2017, 205).

**Table 2: Results of the Kolmogorov-Smirnov test of statements about the influence of media factors on decision-making about aesthetic procedures**

Statement	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	p	Statistic	df	p
Social media plays a key role in shaping my preferences for cosmetic procedures.	.385	120	.000	.686	120	.000
Television significantly influences my thinking about possible aesthetic interventions.	.300	120	.000	.778	120	.000
The information I receive through social networks often influences my attitude towards aesthetic procedures.	.315	120	.000	.761	120	.000
I follow media content that promotes aesthetic procedures.	.277	120	.000	.795	120	.000
Advertisements on social media significantly influence my impression of aesthetic procedures.	.262	120	.000	.802	120	.000
Television programs shape my understanding and acceptance of aesthetic procedures.	.317	120	.000	.733	120	.000
Social media often influences my desires and expectations regarding aesthetic changes.	.339	120	.000	.736	120	.000
I believe that media representations of aesthetic procedures are important for my decision-making.	.329	120	.000	.750	120	.000
Conversations on social media often change my opinion about aesthetic procedures.	.320	120	.000	.762	120	.000
I follow the latest media trends in order to be informed about the possibilities of aesthetic solutions.	.270	120	.000	.805	120	.000

Source: Own research 2023.

## 4.3. Mann-Whitney U test results

Based on the results of the Man-Whitney U test, shown in table 3, it was determined that there are statistically significant differences in the attitudes of respondents regarding the influence of television and social media on deciding on aesthetic procedures in relation to gender ( $p < 0.05$ ).

**Table 3. Mann-Whitney U test – The difference in attitudes of respondents in relation to gender regarding statements about the influence of media factors on decision-making about aesthetic procedures**

Statement	Mann-Whitney U	Wilcoxon W	Z	p
Social media plays a key role in shaping my preferences for cosmetic procedures.	595.500	1261.000	-6.156	.000
Television significantly influences my thinking about possible aesthetic interventions.	449.500	1115.500	-6.638	.000
The information I receive through social networks often influences my attitude towards aesthetic procedures.	404.500	1070.500	-7.013	.000
I follow media content that promotes aesthetic procedures.	343.000	1009.000	-7.237	.000
Advertisements on social media significantly influence my impression of aesthetic procedures.	376.000	1042.000	-7.022	.000
Television programs shape my understanding and acceptance of aesthetic procedures.	849.500	1515.500	-4.269	.000



Social media often influences my desires and expectations regarding aesthetic changes.	512.500	1178.500	-6.440	.000
I believe that media representations of aesthetic procedures are important for my decision-making.	370.000	1036.000	-7.281	.000
Conversations on social media often change my opinion about aesthetic procedures.	423.000	1089.000	-6.846	.000
I follow the latest media trends in order to be informed about the possibilities of aesthetic solutions.	355.500	1021.500	-7.102	.000

Source: Own research 2023.

#### 4.4. Kruskal-Wallis test results

Based on the analysis of the Kruskal-Wallis test, which is shown in table 4, significant statistical variations were determined in the respondents' attitudes related to age in the context of claims about the influence of television and social media on decisions about aesthetic procedures ( $p < 0.05$ ).

**Table 4: Kruskal-Wallis test – The difference in attitudes of respondents in relation to age regarding statements about the influence of media factors on decision-making about aesthetic procedures**

Statement	Chi-square	df	p
Social media plays a key role in shaping my preferences for cosmetic procedures.	46.803	3	.000
Television significantly influences my thinking about possible aesthetic interventions.	60.787	3	.000
The information I receive through social networks often influences my attitude towards aesthetic procedures.	59.630	3	.000
I follow media content that promotes aesthetic procedures.	70.497	3	.000
Advertisements on social media significantly influence my impression of aesthetic procedures.	71.551	3	.000
Television programs shape my understanding and acceptance of aesthetic procedures.	32.837	3	.000
Social media often influences my desires and expectations regarding aesthetic changes.	57.781	3	.000
I believe that media representations of aesthetic procedures are important for my decision-making.	59.913	3	.000
Conversations on social media often change my opinion about aesthetic procedures.	71.006	3	.000
I follow the latest media trends in order to be informed about the possibilities of aesthetic solutions.	73.812	3	.000

Source: Own research 2023.

## 5. DISCUSSION

In the discussion of the research results, it is important to emphasize that all three hypotheses were confirmed. By studying the attitudes of patients who underwent aesthetic procedures, it is evident that social media and television significantly influence their decisions and attitudes towards aesthetic procedures.

The first hypothesis, which claims that social media and television are key factors in encouraging decisions about aesthetic procedures, was confirmed by a high percentage of respondents' agreement. As many as 89.2 % of the respondents expressed that they agree or completely agree with the statement that social media play a key role in shaping their preferences for aesthetic procedures, while 83.3 % of the respondents stated that for the statement television significantly influences my thinking about possible aesthetic interventions.

The second hypothesis, which refers to statistically significant differences in the assessment of the role of social media and television in deciding on aesthetic procedures in relation to the sex of the respondents, was also confirmed by the results of the Mann-Whitney U test. Differences in attitudes between the sexes indicate that male and female respondents perceive differently the influence of the media on their decisions about aesthetic procedures.

The third hypothesis, which refers to statistically significant differences in the assessment of the role of social media and television in deciding on aesthetic procedures in relation to the age of the respondents, was also confirmed by the results of the Kruskal-Wallis test. Different age groups show diverse attitudes towards the influence of the media on their decisions about aesthetic procedures.

In our research, the findings indicate a significant influence of social media and television on the decisions and attitudes of patients towards aesthetic procedures, which is in accordance with the statements made in his book by Hariss-Morore (2016) and the results of studies conducted by Arab et al. (2019), Seetan et al. (2023) and Sonmez and Esiyok (2022). All these works confirm that the consumption of aesthetically related content on social networks leads to increased awareness and thinking about aesthetic procedures. Despite the similarities, our results differ from the study by Sindi et al. (2023) conducted in Makkah, Saudi Arabia, concluding that social media platforms do not play a key role in the general population's decisions about cosmetic procedures. This difference may arise from the specificity of the conservative social context of Mecca, where, despite the high use of social media, they do not leave a strong impact on the desire for aesthetic procedures. Also, our results share similarities with research by Hermans et al. (2022) conducted in the Netherlands, where a connection was established between the frequency of using visually emphasized social media and the intention to undergo cosmetic procedures. On the other hand, the difference is that our research emphasizes the influence of television along with social media, while the mentioned study focused only on social media. These variations in results emphasize the importance of cultural context when understanding the influence of media on the perception of aesthetic procedures. Cultural factors, such as the conservatism of society or the specificity of media consumption, can significantly shape how individuals react to media content related to aesthetics.

The research has certain limitations that can affect the wider application of the obtained results. First, the specific sample of 120 patients from Pula and Rovinj represents a limiting factor in the generalization of the results to the general population. This geographically limited research may limit the generality of the findings and not provide sufficiently diverse perspectives that could be present in other parts of Croatia or other countries. Second, possible biases within the sample should be taken into account when interpreting the results. Participants who have already undergone aesthetic procedures could have specific attitudes and experiences that are not represented in this research. This bias can result in an incomplete representation of the wider population's attitude towards the media's influence on decisions about aesthetic procedures.

Given the aforementioned limitations, future research should direct efforts toward overcoming these challenges. Primarily, it is recommended to expand the sample by including a larger and more diverse number of patients from different regions in order to achieve greater representativeness of the results. In addition, conducting a more in-depth analysis of additional factors such as socioeconomic status and prior media experience will help better understand variations in patient attitudes. Also, it is recommended to conduct longitudinal research in order to monitor the changes in the respondents' attitudes over time. This will enable a better understanding of the dynamics of the influence of the media on decision-making about aesthetic procedures. Finally, the inclusion of participants from different countries in international research will enable a comparison of the perceptions and influence of the media on a global level, contributing to a more comprehensive understanding of this complex phenomenon.

Future research has the potential to expand the findings from this research through the analysis of additional factors. Primarily, research should capture respondents' socioeconomic status and take into account their prior experience with the media in order to more thoroughly understand variations in attitudes toward aesthetic treatments. This approach makes it possible to see a broader picture of the impact of the media on diverse social contexts. In addition, future research can focus on longitudinal studies that track changes in respondents' attitudes over time. This approach enables a deeper understanding of the dynamics of media influence on decision-making about aesthetic procedures. Monitoring the evolution of attitudes enables better observation of trends and identification of key points of change that may be of importance for the development of targeted communication strategies. Additionally, international research represents an important step towards a

more comprehensive understanding of the phenomenon of media influence. The inclusion of participants from different countries provides an opportunity to compare the perceptions and influence of the media on a global level, thereby contributing to the broader context of the phenomenon of the influence of the media on decisions about aesthetic procedures.

## 6. CONCLUSION

The results of research on the influence of social media and television on decisions about aesthetic procedures reveal a significant influence of these media on the attitudes and preferences of patients. The research clearly shows that the respondents express variations in their attitudes towards the influence of the media, and these differences are especially visible when the gender and age of the respondents are taken into account. Developing targeted aesthetic communication and education becomes critical given these variations, providing the opportunity to tailor messages to more effectively respond to different patient populations. Personalized communication strategies can significantly improve understanding and acceptance of information about aesthetic procedures among patients. On the other hand, the limitations of the study emphasize the necessity of expanding the sample to a larger and more diverse number of patients from different regions. The inclusion of patients from different parts of the world in international research also represents a step towards more representative results and a global understanding of the influence of the media on decisions about aesthetic procedures. This practice not only helps to better understand the complexity of the phenomenon of media influence, but also provides a basis for wider implementation of strategies aimed at improving the perception of aesthetic treatments across different cultural contexts.

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## SHORT BIO

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# NURSES' ROLE IN PROVIDING QUALITATIVE AND EFFECTIVE HEALTH CARE SERVICES. AN EVALUATION OF HOSPITAL NURSING SERVICES.

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## ABSTRACT

**Introduction:** Nursing has existed for centuries and has considerably evolved. Referring to the WHO structured education, clinical standards and nurse professional associations emerged in the 1800s, progressively raising the quality, competencies, and working conditions of the nursing profession. The nursing workforce faces different challenges, including adequate numbers, equitable distribution and retention, quality education, effective regulation, quality, and efficiency within universal health coverage.

**Methods:** The aim of this study is to present an evaluation of the nursing health services delivery based on approved criteria for quality and safety hospital standards. The research was based on the quantitative, descriptive research method. Data collection and analysis of the nurse health service criteria were based on the external evaluation of 6 hospitals in Albania.

**Results:** After analysing the evaluations of 18 criteria that are previously set for the quality of nurses' health services, it resulted for regional hospitals (RH) the fulfilment of these criteria with 91% for RH No 1, 88% for RH No 2, and 100% for RH No 3, and for the municipality hospitals (MH) it resulted in 89% for MH No 1, 74% for MH No 2, and 98% for MH No 3.

**Discussions:** Based on the assessments of the quality and safety standards for accreditation of hospitals by external evaluators, nursing services in 6 selected hospitals resulted to be met above 74% of standards for nurse services in hospital. These results are representative and show the high quality of service provision by nurses, but practically it's necessary to empower the nurses and respect them for their everyday work in the health care settings. The nursing role is very important for the quality and safety of health care services.

**Keywords:** nursing, health services, quality and safety standards

## 1. INTRODUCTION

Nursing is the largest medical profession in the world (Budden et al. 2016). Nurses have the potential to profoundly influence policy and politics on a global scale (Pamela et al. 2014), to improve healthcare delivery, as they are ultimately advocating for their patients (Buchan et al. 2015). But unfortunately, they have historically had little involvement in policy that affects healthcare delivery (Pamela et al. 2014; Budden et al. 2016; Butler 2019).

To increase nurses' participation and engagement in policymaking are required strategies (Plant et al. 2019). However, no studies explored the perspective of nurse leaders in policy-making roles and how to improve nurses' involvement in policy-making (Inayat et al., 2023)

Self and professional role empowerment through education, increasing awareness, and improving the social image of nursing can boost nurses' involvement in policymaking (Inayat et al. 2023) and can ensure health care services with higher quality.

Additionally, studies show that nurses are not given sufficient support to generate the evidence needed to influence healthcare policy (Pamela et al. 2014; Budden et al. 2016; Butler 2019).

Nurses consist of the biggest occupation of health workers in the world and play a central role in achieving Sustainable Development Goals (Butler 2019), (Assaye et al. 2021), (Troncoso and Breads 2021).

## 2. PURPOSE AND GOALS

The main goal of this study is to emphasise the nurses' role in providing qualitative and effective health care services. We undertake this study to present an evaluation of the nursing health services delivery according to approved criteria for quality and safety hospital standards, based on the external evaluation of some hospitals in Albania.

Albania is a country located in Southeast Europe; more specifically, it is located in the western part of the Balkan, with a population of about 2.76 million in 2023 (INSTAT 2022). The population density is 101 inhabitants per square kilometre. The life expectancy at birth is 78 years. Albania is divided into 4 big regions and 12 counties. These counties include 36 districts and 373 municipalities (INSTAT 2022).

Referring to the data «Public Health Indicators, 2022» reflected by INSTAT, in 2022, the total number of visits to the primary hospital service was 8,434,996, averaging 3 contacts per person in one year. The number of visits marks an increase of 3.6% compared to the number of visits in the previous year (INSTAT 2022). The average number of days a patient stays in hospital was 4.6 days during 2022. In public hospital service institutions, 63,862 surgeries were performed, 12.8% more compared to the previous year. In the table below are reflected the data for the activity of institutions with beds (public hospitals) from 2018 to 2022.

**Table 1: Activity of institution with beds**

Activity indicators	2018	2019	2020	2021	2022
Number of hospital institutions	42	42	42	43	43
<b>Hospitalised persons</b>	8,496	8,586	8,745	8,926	8,703
<b>Hospitalised persons</b>	279,018	282,962	201,449	244,784	280,730
<b>Persons recovered</b>	277,245	281,546	207,462	243,774	278,380
less than 1 year	20,283	21,361	11,583	9,250	6,016
60 years old	66,642	75,129	59,179	76,089	46,873
<b>Days in bed realised</b>	1,528,499	1,491,930	1,032,922	1,248,197	1,272,322
<b>Bed occupancy in days</b>	186.7	182.2	123.9	146.8	158.2
in percentage.	51.2	49.9	34.0	40.2	43.3
<b>Average duration of hospitalisation period</b>	5.5	5.3	5.0	5.1	4.6
<b>Bed turn</b>	33.9	34.4	24.9	28.7	34.6
<b>Number of persons operated on</b>	64,929	63,669	46,369	56,622	63,862

## METHODS

The research was based on the quantitative, descriptive research method. This study is focused on comparative data analyses. There is a Data collection and analyse of the nurse health service criteria based on the external evaluation. 6 hospitals in Albania are subject of this study, three of the hospitals are regional hospitals and 3 are municipalities hospitals with a territorial extension from the North, to Central and to the South of Albania. For this study we used the quality and safety hospital standards for accreditation. This set of standards are national standards approved by Ministry of Health and Social Protection with Order No. 35. date 22.01.2021. This set of standards consists of 24 chapters, and the last chapter is Chapter 24 - Nursing Services (NS). In this paper we are bringing an evaluation and a comparison based on the results of the 15 standards of nurse service that are divided into 15 criteria and 3 sub criteria fulfilment of the Chapter 24 - Nursing Services (NS). The assessment of the quality and safety standards for hospitals is done by external experts that are trained for external evaluation of hospitals as an important phase of the health institutions accreditation process in Albania. The results of

the final external evaluation reports for each hospital are used for this study. After collecting, processing and analysing the data, we have done a comparison between hospitals regarding the nursing health care service.

The accreditation process in Albania is regulated by Health Care Law and by Decision of Minister Councils No. 865, dt. 24.12.2020. The process is very important, and it is a continuous improvement quality process for every health care institution, public and non-public (primary healthcare centres and hospitals). The hospitals in Albania are categorised into three groups: municipalities' hospitals for small cities, regional hospitals for bigger cities, and university hospitals located only in Tirana, the capital of Albania. The accreditation standards for hospitals (municipality and regional hospitals) are compounded by 24 chapters as: Chapter 1: Hospital Infrastructure General Standards, Special Infrastructure Standards, Standard 2: Management of the Care Environment, Chapter 2: Human Resource Management, Chapter 3: General Management, Chapter 4: Information Management, Chapter 5: Patient Rights, Chapter 6: Patient Care, Chapter 7: Patient Assessment, Chapter 8: Continuity of Care, Chapter 9: Surgical Care, Chapter 10: Care during anesthesia, Chapter 11: Use of Medicines, Chapter 12: Pain Management and Hospice Care, Chapter 13: Transfusion and Blood Bank Services, Chapter 14: Emergency Service, Chapter 15: Laboratory Service, Chapter 16: Radiology Standards, Chapter 17: Quality Improvement, Chapter 18: Hospital Infection Control, Chapter 19: Sterilisation, Chapter 20: Health of Employees, Chapter 21: Nutrition and nutritional therapy, Chapter 22: Laundry and linen service, Chapter 23: Medical Staff, Chapter 24: Nursing Services (NS). The assessments for the standards are mainly done through: a) interviews with managers; b) interviews with staff; c) document`s observation. And NS scoring was: 5p: complete relevant documentation is found; 3p: partial documentation is found; 1p: No documentation is found.

Chapter 24: Nursing Services (NS) has 18 criteria that are 15 standards and 3 substandards as:

- The head nurse of the hospital is a registered nurse at AON and qualified by educational and managerial experience, as required by the job description. (NS 1)
- The head nurse is a member of the hospital's steering committee (NS 2).
- The head nurse participates in the meetings of the Hospital Steering Committee (NS 2.1).
- The head nurse follows and implements nursing standards in practice (NS 3).
- In collaboration with the leaders of the medical staff, the head nurse follows the nursing assessment (NS 4).
- There is a written description of the nurse's field of assessment that may vary by type of unit (service) or patient (NS 4.1).
- Nurses document directly on the patient's nursing card (NS 4.2).
- The head nurse participates in the meetings of the management board for the continuous development, review, and implementation of all relevant hospital plans, programs, and policies (NS 5).
- The head nurse identifies staffing needs and participates in recruitment plans (NS 6).
- The head nurse ensures that work schedules are completed for staff members according to the overall workload (NS 7).
- Nurses participate in hospital committees as follows: quality improvement, hospital infection control, use of medications, medical records, safety (NS 8).
- The Nursing Department develops and implements written policies and procedures that guide nursing care and specify the type of care they are permitted to provide. These policies and procedures (NS 9)
- There is a planned and documented orientation program for new nurses (NS 10).
- There is a continuing education program for nursing in all areas of practice (NS 11).
- A continuous training program for nurses in all areas of practical nursing is made known to the nursing staff (NS 12).
- Nursing care is an essential part of the overall patient care process (NS 13).
- The collaboration of nurses with doctors and other staff for patient care is planned and documented (NS 14).
- Nurses participate in patient education, including the rehabilitation and discharge process (NS 15).

### 3. RESULTS AND DISCUSSIONS

In this study, each of the six hospitals is codified with their respective codes, as presented in the table below:

**Table 2: Codes of the health care institutions subject of this study**

No	Code	Name of the health care institutions
1	RH 1	Regional Hospital of Kukës
2	RH 2	Regional Hospital of Elbasan
3	RH 3	Regional Hospital of Vlora
4	MH 1	Municipality Hospital of Tropoja
5	MH 2	Municipality Hospital of Kurbin
6	MH 3	Municipality Hospital of Saranda

After data collection and analysing the evaluations of 18 criteria that are previously set for the quality of nurses' health services, Chapter 24: Nursing Services (NS), a comparison is presented for every criterion for each hospital, presented by figures as follows:

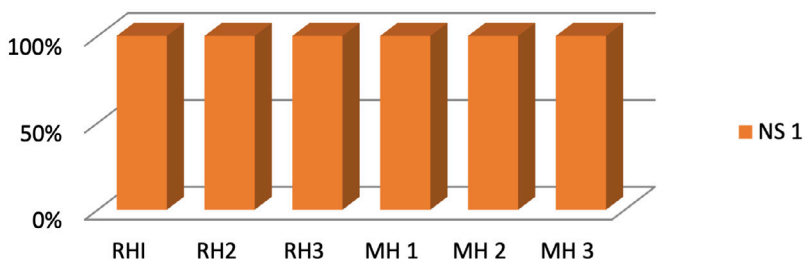
**Table 3: Standards and substandards for Chapter 24: Nursing Services (NS)**

NS	RH1	RH2	RH3	MH1	MH2	MH3
NS 1	100%	100%	100%	100%	100%	100%
NS 2	100%	20%	100%	100%	50%	100%
NS 2.1	100%	20%	100%	100%	100%	100%
NS 3	100%	100%	100%	100%	60%	100%
NS 4	100%	100%	100%	100%	60%	100%
NS 4.1	100%	100%	100%	100%	60%	100%
NS 4.2	100%	100%	100%	100%	20%	100%
NS 5	100%	100%	100%	100%	100%	100%
NS 6	60%	100%	100%	100%	60%	100%
NS 7	100%	100%	100%	100%	100%	100%
NS 8	100%	100%	100%	100%	60%	100%
NS 9	100%	100%	100%	100%	100%	60%
NS 10	100%	100%	100%	100%	100%	20%
NS 11	100%	60%	100%	100%	60%	100%
NS 12	100%	100%	100%	100%	60%	100%
NS 13	100%	100%	100%	100%	100%	100%
NS 14	60%	20%	100%	100%	60%	100%
NS 15	20%	100%	100%	100%	60%	100%
NS	91%	88%	100%	100%	74%	93%

At the above table are presented the percentage of meeting the standards and substandards for the Nurses Services Chapter 24 of the set of quality, safety, and accreditation hospital standards approved by the Albanian Ministry of Health and Social Protection.



**Figure 1: The head nurse of the hospital is a registered nurse at Albanian Nurse Order (ANO) and qualified by educational and managerial experience, as required by the job description (NS 1).**



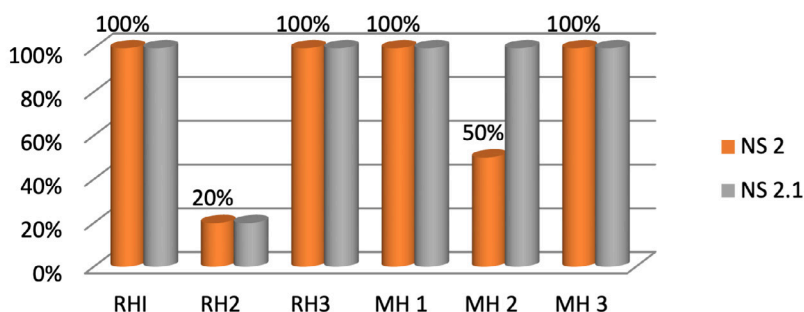
The assessment of the first standard, NS 1 of Chapter 24: Nursing Services (NS), is done through: a) interviews with managers and b) document observation.

The NS1 Scoring: 5p: Complete relevant documentation is found; 3p: Partial documentation is found; 1p: No documentation is found.

As it's presented in Figure 1, this standard resulted in being fulfilled 100% for 6 selected hospitals (3 regional hospitals and 3 municipality hospitals). And it's normal. First of all, every nurse must be registered at the Nurse Order (ANO) before beginning the job, and at the recruitment process of the head nurse of the hospital are described the necessary criteria, so the head nurse must be qualified by educational and managerial experience, as required by the job description.

Referring to Dwyer D. (2011), providing a career structure and choice in the industry for the nurse to become a clinical leader or a manager of health services will improve recruitment and retention. Organisations must change their perception and value of RNs as clinical leaders in care teams. In the structured literature review "Leadership and registered nurses (RNs) working after-hours in Residential Aged Care Facilities (RACFs)" published on Journal of clinical nursing, Nhongo, D., et al, (2018), concluded that nursing leadership has been linked to the quality of care and clinical outcomes in the aged care setting.

**Figure 2: The head nurse is a member of the hospital's steering committee (NS 2); the head nurse participates in the meetings of the steering committee (NS 3).**



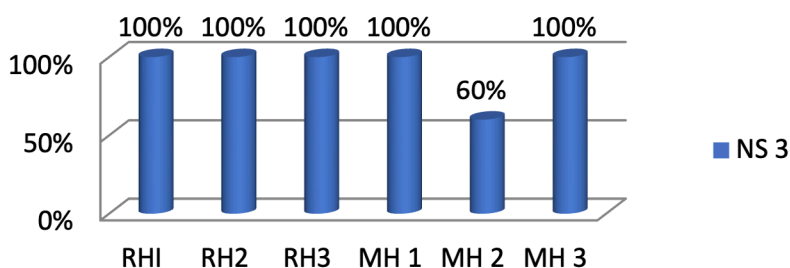
The assessments for the NS 2 standard and substandard NS 2.1 of Chapter 24: Nursing Services (NS) are done through: a) Interview with managers and b) Document observation

The NS2 and NS 2.1 scoring is presented with two alternatives: NS 2 Scoring: 5 points: The head nurse is a member of the hospital's steering committee; 1 point: The head nurse is not a member of the hospital's steering committee.

NS 2.1 Scoring: 5p: The head nurse participates in the meetings of the hospital steering committee; 1p: The head nurse does not participate in the meetings of the hospital steering committee.

As it's presented in Figure 2, the NS 2 standard and NS 2.1 substandard resulted to be fulfilled: 100% for 4 selected hospitals (RH 1 & RH 3, & MH 1 & MH 3) that means the head nurses of 4 hospitals are members of the hospital's steering committee and participate in the meetings of the steering committee; 50% fulfilment of NS 2 and 100% fulfilment of NS 2.1 for MH2 that means are members of the hospital's steering committee and participate in the meetings of the steering committee; 50% fulfilment of NS 2 and 100% fulfilment of NS 2.1 for MH2 that means is a member of the hospital's steering committee, but sometimes the head nurse is part of the meetings and sometimes not; and 20% fulfilment of NS 2 and NS 2.1 for RH2 that means the head nurse isn't a member of the hospital's steering committee and doesn't participate at the meetings of the hospital steering committee. The hospitals that go through accreditation process are informed about the accreditation standards and work to met these standards. So many hospitals have the document that verifies; the head nurse is a member of the hospital's steering committee, but sometimes they don't have the document that verifies: the head nurse participates in the meetings of the steering committee (NS 3). However, limited research investigating the association between nursing leadership and clinical outcomes was found (Nhongo, D., et al, 2018).

**Figure 3: The head nurse follows and implements nursing standards in practice (NS 3).**



The head nurse follows and implements nursing standards in practice. These standards include at least the following: A documented nursing assessment; A diagnosis documented in the medical record; A documented nursing care plan; Documentation of nursing training and reassessments; Evaluation of the effectiveness of nursing training.

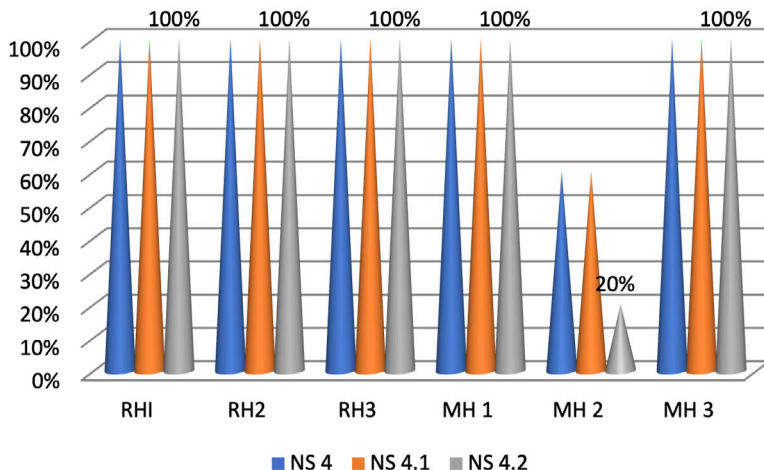
The assessments for the NS 3 standard of Chapter 24: Nursing Services (NS) are done through: a) Interview with managers; b) Interview with staff; c) Document`s observation

NS 3 Scoring: 5p: There is complete relevant documentation; 3p: There is partial documentation; 1p: No documentation found.

As it's presented at figure 3, the NS 3 standard resulted to be fulfilled: 100% for 5 of the selected hospitals (RH 1, RH 2, RH3, & MH 1 and MH 3) and 50% fulfilment of NS 3 for MH 2. That means the head nurse follows and implements nursing standards in practice, but there is partial documentation of the required documents needed for this standard.

Nursing standards are authoritative statements that outline the legal and professional basis for nursing practice. Safe and effective practice requires knowledge, skills, judgment, and attitudes outlined in all standards of practice (Pouresmail, Z., et al, 2023). The Joint Commission (TJC) delineated nursing standards for patient education as early as 1993. As mandates, these standards describe positive outcomes of patient care. They must be met through teaching activities by nurses in the hospital that must be patient and family-oriented (Pouresmail, Z., et al, 2023). TJC has established nursing standards for patient education in ambulatory care, home care, and primary care centers. These standards define the performance expectations, structures, or functions that must be in place for an organization to be accredited by TJC (Pouresmail, Z., et al, 2023).

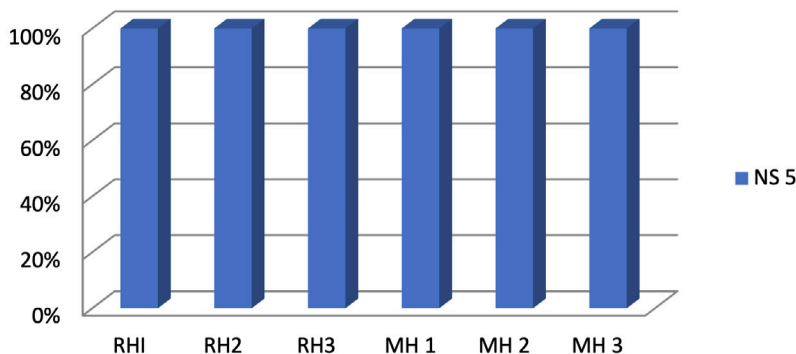
**Figure 4:** In collaboration with the leaders of the medical staff, the head nurse follows the nursing assessment (NS 4). There is a written description of the nurse’s field of assessment that may vary by type of unit (service) or patient (NS 4.1); nurses document directly on the patient’s nursing card (NS 4.2).



The assessment and scoring for NS 4 and NS 4.1 are the same as described above for NS 3: The assessments for the NS 4.2 standard of Chapter 24: Nursing Services (NS) are done through: a) interviews with managers; b) interviews with staff; c) documents` s observation. NS 4.2 Scoring: 5p = 100% of the patient’s cards observed; 3p = 50–70% of the cards observed; 1p = less than 50% of the cards observed.

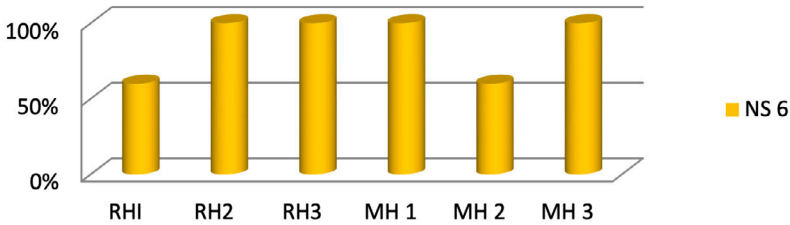
As it’s presented in Figure 4, the NS 4 standard and the NS 4.1 and NS 4.2 substandards resulted in being fulfilled: 100% for 5 of the selected hospitals (RH 1, RH 2, RH3, & MH 1 & MH 3) and 50% fulfilment of NS 4, NS 4.1, and 20% NS 4.2 for MH 2, that means for Municipality Hospital No 2, In collaboration with the leaders of the medical staff, the head nurse may follow the nursing assessment partially (NS 4 = 50%); there is a written description of the nurse’s field of assessment that may vary by type of unit (service) or patient (NS 4.1 = 50%); Nurses document directly on the patient’s nursing card (NS 4.2 = 20%), because less than 50% of cards observed were completed by nurses.

**Figure 5:** The head nurse participates in the meetings of the management board for the continuous development, review, and implementation of all relevant hospital plans, programs, and policies.



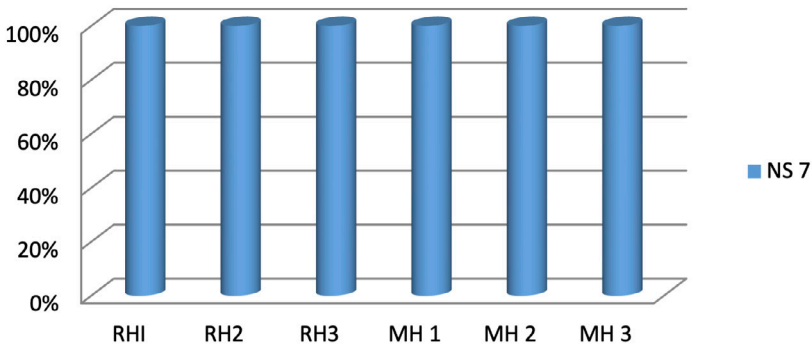
The assessment and scoring for NS 5.1 are the same as described above for NS 3. As it’s presented at figure 5, the NS 5 standard resulted to be fulfilled: 100% for 6 of the selected hospitals (RH 1, RH 2, RH3, & MH 1, MH 2, MH 3).

**Figure 6: The head nurse identifies staffing needs and participates in recruitment plans.**



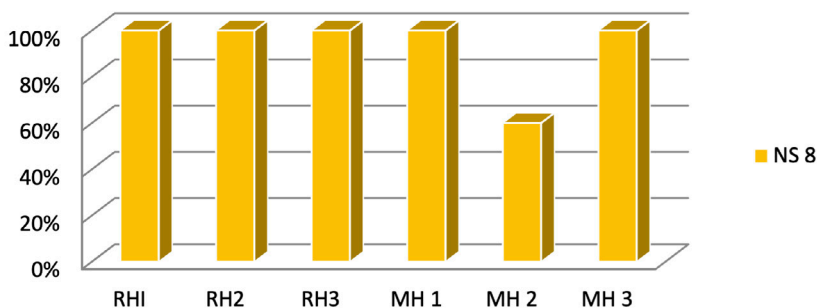
As it's presented at figure 6, the NS 6 standard resulted to be fulfilled: 100% for 4 of the selected hospitals (RH 2, RH 3, & MH 1, MH 3), which means the head nurse identifies staffing needs and participates in recruitment plans, and 60% fulfilment of NS 6 for RH 1 & MH 2, which means the head nurse identifies staffing needs and sometimes participates in recruitment plans.

**Figure 7: The head nurse ensures that work schedules are completed for staff members according to the overall workload.**



The assessment and scoring for NS 7 are the same as described above for NS 3. As it's presented at figure 7, the NS 7 standard resulted to be fulfilled: 100% for 6 of the selected hospitals (RH 1, RH 2, RH3, & MH 1, MH 2, MH 3). That means the head nurse ensures that work schedules are completed for staff members according to the overall workload, and this happens practically and is also documented.

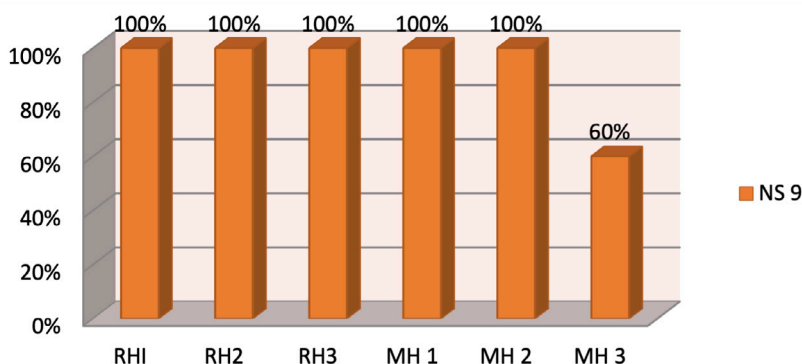
**Figure 8: Nurses participate in hospital committees**



The assessment and scoring for NS 8 are the same as described above for NS 3. As it's presented in Figure 8, the NS 8 standard resulted to be fulfilled: 100% for 5 of the selected hospitals (RH 1, RH 2, RH 3, & MH 1, MH 3), which means the head nurse participates in hospital committees for quality improvement, hospital infection control, use of medications, medical records, and safety issues, and it's totally documented. NS 8 standard resulted to be fulfilled: 60% for MH 2,

which means they don't have a hospital committee for each issue and also have a lack of documentation for this standard.

**Figure 9: The Nursing Department develops and implements written policies and procedures that guide nursing care and specify the type of care they are permitted to provide.**

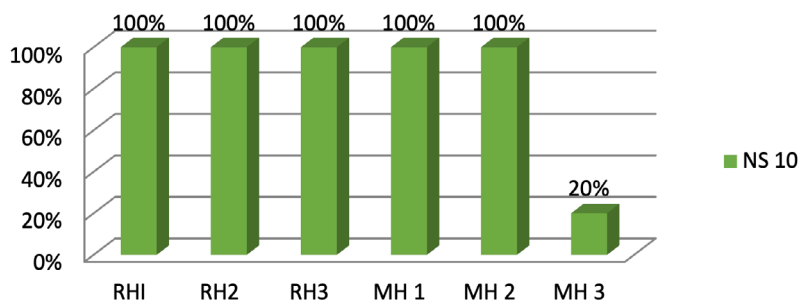


The assessment and scoring for NS 9 are the same as described above for NS 3. As it's presented in Figure 9, the NS 9 standard resulted to be fulfilled: 100% for 5 of the selected hospitals (RH 1, RH 2, RH 3, & MH 1, MH 2). That means the nursing department develops and implements written policies and procedures that guide nursing care and specify the type of care they are permitted to provide, including nursing assessment, infection control, basic hygiene, administration of medications, parental therapy, skin care and prevention of decubitus, and administration of blood and its products. NS 9 standard resulted to be fulfilled: 60% for MH 3, which means they have a lack of documentation for this standard.

It is important for organizations employing new graduates to pay attention to nurses who show early signs of burnout, and provide a resourceful work environment with a suitable workload, sufficient introduction, management support, satisfactory collaboration with colleagues, and role clarity (Rudman, A., et al, 2014). After all, a well-developed character is of special importance when working with patients. Hence, both education at universities and development at work need to be person-centered to reduce stress levels and promote positive self-regulation strategies (Mihailovic, M., et al, 2021).

According to the study findings, most novice nurses experienced turbulence in their working life, unpleasant interactions, and a lack of knowledge that affected their self-confidence. Therefore, educational and support programs are suggested to improve novice nurses' professional confidence (Najafi, B., & Nasiri, A. 2023).

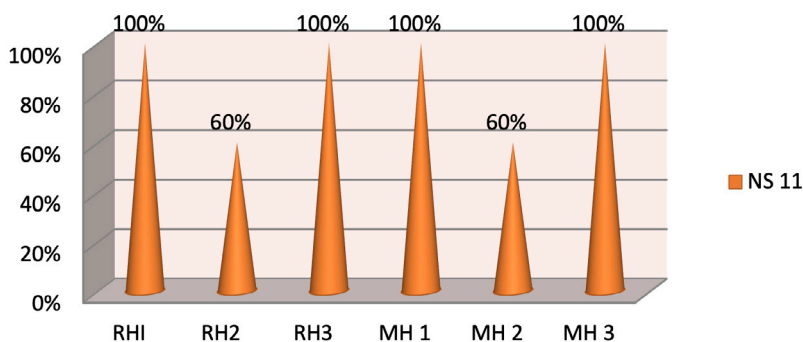
**Figure 10: There is a planned and documented orientation program for new nurses.**



The assessment and scoring for NS 10 are the same as described above for NS 3. As it's presented in Figure 10, the NS 10 standard resulted to be fulfilled: 100% for 5 of the selected hospitals (RH 1, RH 2, RH 3, & MH 1, MH 2). That means there is a planned and documented orientation program for new nurses, which includes at least the following: policies and procedures of the organisation; policies and procedures of nursing departments; individual job description; nursing program for quality im-

provement; fire, disaster, and safety training plan; and infection control policies and procedures. NS 9 standard resulted to be fulfilled: 20% for MH 3, that means they have a lack of documentation for this standard; there isn't a documented orientation program for new nurses.

**Figure 11: There is a continuing education program for nursing in all areas of practice**

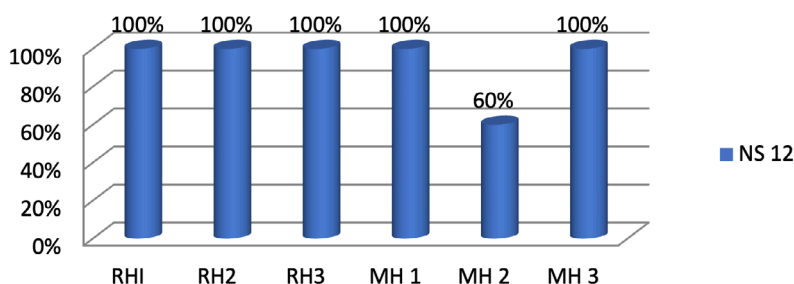


The assessment and scoring for NS 11 are the same as described above for NS 3. As it's presented in Figure 11, the NS 11 standard resulted to be fulfilled: 100% for 4 of the selected hospitals (RH 1, RH 3, & MH 1, MH 3); that means there is a continuing education program for nursing in all areas of practice, and full relevant documentation is available. NS 11 standard resulted to be fulfilled: 60% for RH 2 and MH 2, which means partial documentation is available for this standard.

Requirements for nursing continuing education (CE) vary by state Board of Nursing. Some states require a specific number of CE hours for licensure. Others have both a required number of CE hours and specific CE course topics (e.g., implicit bias, prevention of sexual harassment) that must be achieved upon license renewal. Some states have no nursing CE requirement at all (Ingrid Monteiro 2024).

In the study "Lifelong learning and nurses' continuing professional development, a meta synthesis of the literature", published on BMC nursing, Mlambo, M., et al, (2021) highlights that nurses value continuing professional development and believe that it is fundamental to professionalism and lifelong learning. Moreover, CPD is identified as important in improving patient care standards.

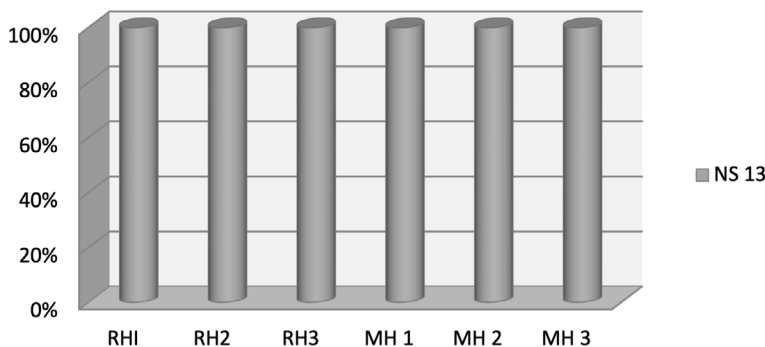
**Figure 12: Continuous training program for nurses, in all areas of practical nursing is made known to the nursing staff**



The assessment and scoring for NS 12 are the same as described above for NS 3. As it's presented in Figure 12, the NS 12 standard resulted to be fulfilled: 100% for 5 of the selected hospitals (RH 1, RH 2, RH 3, & MH 1, MH 3); that means a continuous training program for nurses in all areas of practical nursing is made known to the nursing staff, and full relevant documentation is available. NS 12 standard resulted to be fulfilled: 60% for MH 2, that means partial documentation is available for this standard.

Nursing education doesn't stop after receiving the license. Instead, nurses at all practice levels are required to complete continuing education courses. There are a number of different types of continuing education for nurses that they can chose from (Sarah Handzel, BSN, RN 2024).

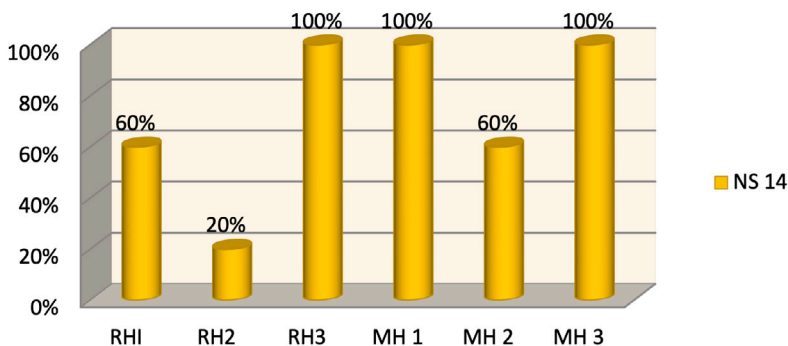
**Figure 13: Nursing care is an essential part of the overall patient care process**



The assessment and scoring for NS 13 are the same as described above for NS 3. As it's presented at figure 13, the NS 13 standard resulted to be fulfilled: 100% for 6 of the selected hospitals (RH 1, RH 2, RH 3, & MH 1, MH 2, MH 3). That means nursing care is an essential part of the overall patient care process, and full relevant documentation is available.

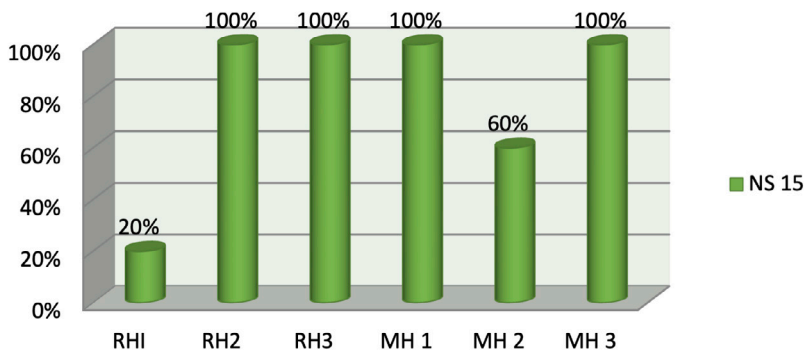
The nursing process functions as a systematic guide to client-centered care with 5 sequential steps. These are assessment, diagnosis, planning, implementation, and evaluation (Toney-Butler TJ, Thayer JM., 2024). In the study "The Relationships Between Patient Experience with Nursing Care, Patient Satisfaction and Patient Loyalty: A Structural Equation Modeling. Patient Prefer Adherence" published in 2022, Chen X, et al. (2022) provides evidence of the importance of patient experience with nursing care in improving patient loyalty. It demonstrates that nursing should be more involved in the shape of hospital brands. This new knowledge could contribute to new understanding of patient loyalty and enrich existing theories, and could enable hospital managers to develop interventions that could greatly create and maintain patient loyalty, resulting in more effective and efficient healthcare management.

**Figure 14: The collaboration of nurses with doctors and other staff for patient care is planned and documented**



The assessment and scoring for NS 14 are the same as described above for NS 3. As it's presented at figure 14, the NS 14 standard resulted to be fulfilled: 100% for 3 of the selected hospitals (RH3, MH 1, MH 3); that means the collaboration of nurses with doctors and other staff for patient care is planned and documented, and full relevant documentation is available. The NS 14 standard resulted in being fulfilled: 60% for RH 1 and MH 2, which means partial documentation is available for this standard. NS 14 standard resulted to be fulfilled: 20% for RH 2, which means no documentation is found for this standard. Referring to Dwyer D. (2011). at the systematic review: Experiences of registered nurses as managers and leaders in residential aged care facilities, at the conclusions it is mentioned that Nurses experience a lack of professional support and collaboration from allied health and medical colleagues. There is a lack of specific education that is focused in clinical leadership and health team management.

**Figure 15: Nurses participate in patient education, including the rehabilitation and discharge process**

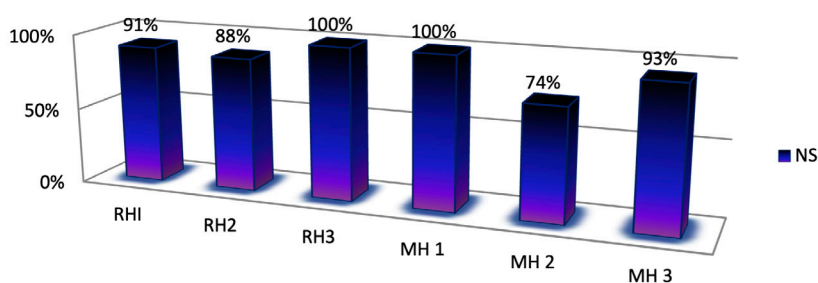


The assessment and scoring for NS 15 are the same as described above for NS 3. As it's presented in Figure 15, the NS 15 standard resulted to be fulfilled: 100% for 4 of the selected hospitals (RH 2, RH 3, and MH 1, MH 3), which means nurses participate in patient education, including the rehabilitation and discharge process, and full relevant documentation is available. NS 15 standard resulted to be fulfilled: 60% for MH 2, which means partial documentation is available for this standard. NS 15 standard resulted to be fulfilled: 20% for RH 1, which means no documentation is found for this standard.

There have been a number of initiatives to improve patient and family-caregiver communication during transitions in care using written communications that facilitate and support the exchange of information from clinicians to patients and their families (Shahid, A., et al, 2022). Among these are patient- and caregiver-centered discharge summaries that include information on medications, activity and diet restrictions, follow-up appointments, symptoms to expect, and who to call if there are questions (Shahid, A., et al, 2022).

Kattel, S., et al (2020), at the Systematic Review. Published on Journal of patient safety "Information Transfer at Hospital Discharge", concluded that Delayed or insufficient transfer of discharge information between hospital-based providers and PCPs remains common. Creation of electronic discharge summaries seems to improve timeliness and availability but does not consistently improve quality.

**Figure 16: The meeting of standards in % of Chapter 24: Nursing Services (NS)**



As it's presented at figure 16, the total fulfilment in% of Chapter 24: Nursing Services (NS) resulted to be: 100% for 2 of the selected hospitals (RH3, & MH 1), 93% for MH 3, 91% for RH 1, 88% for RH 2, and 74% for MH 2. This evaluation is based on interviews with the leaders and managers, interviews with the head nurse, interviews with the nursing staff, interviews with the patients, and documentation review and observation.

This study presented an assessment of the health care nursing services in Albania, referring to the evaluation of hospital accreditation standards by external evaluators of accreditation.

The standards that resulted in 100% meeting for the 6 hospitals selected for this study are:



- NS 1. The head nurse of the hospital is a registered nurse at AON and qualified by educational and managerial experience, as required by the job description.
- NS 5. The head nurse participates in the meetings of the management board for the continuous development, review, and implementation of all relevant hospital plans, programs, and policies.
- NS 7. The head nurse ensures that work schedules are completed for staff members according to the overall workload.
- NS 13. Nursing care is an essential part of the overall patient care process.

In every public healthcare institution, it is mandatory that not only the head nurse but every nurse must be a registered nurse at Albanian Order Nurse (AON) and qualified by educational and managerial experience, as required by the job description. At municipality hospitals, there are usually more nurses than medical doctors, but the head nurse is always present at the meetings of the management board, which ensures that work schedules are completed for staff members according to the overall workload, and this is in their job descriptions. At regional hospitals, there are more medical doctors and specialists than at the municipality hospitals because of the larger number of patients they offer healthcare service. Also, the head nurse has more work to do but must respect all the criteria mentioned above. It is very important to emphasise that standard NS 13: Nursing care is an essential part of the overall patient care process and is evaluated with 100% fulfilment for all 6 hospitals, which means that the role of nurses is recognised despite the fact that they are not valued as much as they should be.

The standards that resulted in not being fulfilled, evaluated with 20% for the hospitals selected for this study are:

- NS 2 and NS 2.1 for RH 2. NS 2: The head nurse is a member of the hospital's steering committee; NS 2.1: The head nurse participates in the meetings of the steering committee. For the regional hospital no. 2, it resulted that there is no written document to show that the head nurse is a member of the hospital's steering committee and participates in the meetings of the steering committee. It is recommended to the hospital managers to take measures to make it possible for the head nurse to be a member of the hospital's steering committee and participate in its' meetings, and this to be documented in written form.
- NS 4.2 for MH 2. NS 4.2: Nurses document directly on the patient's nursing card. Usually at regional hospitals, in collaboration with the department leader of the medical staff, the head nurse may follow the nursing assessment. There is a written description of the nurse's field of assessment that may vary by type of unit (service) or patient. Nurses have the possibility to document directly on the patient's nursing card (NS 4.2 = 20%), because less than 50% of cards observed were completed by nurses or when there is no patient's nursing card in the hospital. In this case, the expert evaluators give a written recommendation to the hospital.
- NS 10 for MH 3, NS 10: There is a planned and documented orientation program for new nurses. The plan includes at least the following: policies and procedures of the organisation, policies and procedures of nursing departments, individual job description, nursing program for quality improvement, fire, disaster, and safety training plan, and infection control policies and procedures. At municipality hospital no. 3, this standard isn't met because of some reasons: 1. They don't have an orientated program for the new nurses documented; 2. They don't know how to write it; and above all, they lack the training to know and get information about writing and implementing the plan, which includes policies and procedures of the organisation, policies and procedures of nursing departments, individual job descriptions, nursing programs for quality improvement, fire, disaster, and safety training ans, and i infection control policies and procedures.
- NS 14 for RH 2 The collaboration of nurses with doctors and other staff for patient care is planned and documented. Regional Hospital No. 2 is a hospital in a big city in the centre of Albania, and it results in the fact in the fact that there is no documentation of the collaboration of nurses with doctors. It's very important to collaborate nurses with doctors and other hospital staff, but it is also very important to be documented in order to ensure a qualitative patient healthcare provision.

In the discussion of the research results, it is important to emphasise that based on the assessments of the quality and safety standards for accreditation of hospitals by external evaluators, nursing services in 6 selected hospitals resulted to be met above 74% of standards for nurse services in hospi-

tals. These results are representative and show the high quality of health care service provision by nurses, but practically it's necessary to empower the nurses and respect them for their everyday work in the health care settings. The nursing role is very important for the quality and safety of health care services.

#### 4. CONCLUSION

The nursing workforce faces different challenges, including adequate numbers, equitable distribution and retention, quality education, effective regulation, quality, and efficiency within universal health coverage (Schveitzer et al. 2016; Crisp and Watkins 2018; Assaye et al. 2018). The nursing role is very important for the quality and safety of health care services. Based on the assessments of the quality and safety standards for accreditation of hospitals by external evaluators, nursing services in selected hospitals resulted in an interval from 74% of standards fulfilment at the Municipality Hospital No. 2, followed by 88% at the Regional Hospital No. 2, both hospitals in the centre of Albania, 91% RH1, 93% MH 3, and 100% for RH 3 (South of Albania) and MH1 (North of Albania). These differences are because of the lack of documentation of the nurses' activity. It is important for nurses to be trained and to actively participate in seminars and conferences in order to get updated information available for their everyday health care practice. These results are representative and show the high quality of health care service provision by nurses, but practically it's necessary to empower the nurses and respect them for their everyday work in the health care settings because the nursing role is very important for the quality and safety of health care services.

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# POŠKODBE GLAVE OB PRISOTNOSTI ALKOHOLA V KRVI V URGENTNI DEJAVNOSTI

## HEAD INJURIES IN THE PRESENCE OF BLOOD ALCOHOL IN EMERGENCY SERVICES

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### POVZETEK

**Uvod:** V urgentni dejavnosti poškodbe glave predstavljajo velik delež obravnav. Poškodbe kot take so vodilni vzrok hude obolevnosti in umrljivosti po vsem svetu. Iz literature lahko razberemo, da obstaja močna povezava med zastrupitvijo z alkoholom in povečanim tveganjem za nastanek vseh vrst poškodb, zato tudi poškodbe glave niso izjema. V Evropi je bilo dokazano, da alkohol v krvi spremlja kar 24–25 % bolnikov s poškodbo glave. Poškodbe glave v urgentni dejavnosti zahtevajo multidisciplinarno obravnavo in intenziven ter stalen nadzor poškodovanca. Rezultati zdravljenja pa niso vedno vzpodbudni. Veliko poškodovancev je mladih, zdravljenje takšnih poškodb pa je dolgotrajno in velikokrat neuspešno. Poškodovanci posledice takšnih poškodb v veliko primerih čutijo celo življenje.

**Namen in cilj** raziskave je prikazati in analizirati statistične podatke oseb s poškodbo glave, pri katerih je bila prisotna tudi intoksikacija z alkoholom med letoma 2018 in 2023, ki so bili obravnavani v Urgentnem centru. Predvsem nas zanima pojavnost in starost poškodovancev s poškodbo glave, pri katerih je bil prisoten tudi alkoholni opoj.

**Metode:** za pregled literature in oblikovanje teoretičnih izhodišč smo uporabili sistematični pregled literature. Za pridobivanje informacij iz kliničnega okolja bomo uporabili že obstoječo bazo podatkov, s pomočjo katere bomo po pridobitvi soglasja etične komisije UKC Maribor podatke sistematično analizirali.

**Rezultati:** rezultati pregleda literature so pokazali, da prekomerno uživanje alkohola po vsem svetu močno vpliva na možnost nastanka poškodb glave. Umrljivost in težka rehabilitacija je velik finančni zalogaj za posameznika in družbo. Analiza naših podatkov raziskave je pokazala, da je od 35.757 bolnikov s poškodbo glave 1319 takšnih, pri katerih je bil ugotovljena tudi prisotnost alkohola, delež moških je višji od deleža žensk.

**Zaključek:** problem uživanja alkohola in s tem povezanih poškodb ni zanemarljiv. Pomembno je ozaveščanje mladih o posledicah, ki jih puščajo poškodbe glave na posameznike in družine. Rehabilitacija je težka in zahtevna, velikokrat pa tudi neuspešna.

**Ključne besede:** alkohol, možgani, poškodba, travma, nujna medicinska pomoč

### ABSTRACT

**Background:** In the emergency department, head injuries account for a large proportion of treatments. As such, injuries are a leading cause of severe morbidity and mortality worldwide. From the literature, we can understand that there is a strong connection between alcohol poisoning and an increased risk of all types of injuries, so head injuries are no exception. In Europe, it has been proven that alcohol in the blood accompanies as many as 24–25 % of patients with a head injury. Head injuries in the emergency department require multidisciplinary treatment and intensive and continuous monitoring of the injured person. However, the results of treatment are not always encouraging. Many of the wounded are young, and the treatment of such injuries is lengthy and often unsuccessful. In many cases, the victims feel the consequences of such injuries for the rest of their lives.

**Aims and objectives of the study:** The purpose and goal of the research is to display and analyze the statistical data of persons with head injuries who also had alcohol intoxication between 2018 and 2023, and who were treated in the Emergency Center. We are mainly interested in the incidence and age of head injury victims who were also under the influence of alcohol.

**Methods:** We used a systematic literature review to create theoretical starting points. To obtain information from the clinical environment, we will use an already existing database with the help of which, after obtaining the consent of the ethics commission of the UKC Maribor, we will systematically analyze the data.

**Results:** the results of the literature review showed that excessive alcohol consumption worldwide has a strong impact on the possibility of head injuries. Mortality and difficult rehabilitation are a big financial burden for the individual and society. The analysis of our research data showed that out of 35,757 head injury patients, there were 1,319 in which the presence of alcohol was also found, the proportion of men being higher than the proportion of women.

**Discussion:** the problem of alcohol consumption and related injuries is not negligible. It is important to make young people aware of the consequences that head injuries have on individuals and families. Rehabilitation is difficult and demanding, and often unsuccessful.

**Keywords:** alcohol, brain, injury, trauma, emergency

## 1 UVOD

Poškodba glave in posledično možganov je lahko posledica česar koli, kar povzroči udarec, sunek ali prodorno poškodbo. Padci so glavni vzrok za poškodbo glave, saj predstavljajo okoli 49 % vseh obiskov v urgentnih centrih. Najpogostejši vzroki so padci in s tem udarec ob trši predmet, trki motornih vozil ali namerno samopoškodovanje. Travmatske poškodbe možganov nastanejo zaradi udarca, sunka ali različnih sil, ki motijo njihovo normalno delovanje. Poškodbe glave imajo primarne in sekundarne posledice. Primarne se pojavijo takoj ob nastanku poškodbe, sekundarne pa nastanejo v nekaj urah, dnevih ali tednih. Simptomi se razlikujejo glede na stopnjo poškodbe od blagih do hudih. Bolniki z blago poškodbo možganov imajo lahko prehodne spremembe v zavesti ali miselnosti, medtem ko imajo lahko bolniki s hudo poškodbo glave dolgotrajna obdobja nezavesti, kome ali smrt. Dejavniki, ki vplivajo na razvrščanje resnosti poškodbe, vključujejo spremembe v strukturalnem slikanju, dolžino izgube zavesti, trajanje spremenjenega duševnega stanja, posttravmatsko amnezijo in oceno GCS v prvih 24 urah. Bolniki, ki so kadarkoli utrpeli katero koli stopnjo poškodbe glave in možganov, so bolj izpostavljeni tveganju za dolgotrajne simptome, ki vključujejo spremembe osebnosti, čustveno labilnost, depresijo, poslabšanje spomina, zmožnost koncentracije ter spremembe vida ali sluha. Najpogostejše vidne poškodbe glave zajemajo različne intrakranialne krvavitve, kot so: epiduralni hematomi, subduralni hematomi, intraparenhimske krvavitve, intraventrikularne krvavitve in subarahnoidalne krvavitve (Lizzo in Waseem 2023).

Nenamerni padci in poškodbe glave, ki so povzročene ob uživanju alkohola, so v svetu velik problem. Prav tako je samo uživanje alkohola globalni problem, ki sodi med ključne dejavnike tveganja za prezgodnjo smrt ali bolezen. Evropa je regija sveta, kjer se po podatkih Svetovne zdravstvene organizacije popije največ alkohola na prebivalca na svetu. Slovenija se žal uvršča me države, ki porabo alkohola na prebivalca vseskozi presega. Raziskave kažejo, da pitje alkohola povzroča veliko tveganje, povezano z zdravjem, ki pa je odvisno od količine popitega alkohola. V Sloveniji na vzorec pitja alkohola vplivajo različni dejavniki, kot so: spol, starost, splošno zdravstveno stanje, jemanje zdravil itd. Znano je, da raba alkohola ne vpliva samo na enega posameznika, ampak povzroča bolečino in trpljenje drugih ljudi ter velike socialne in gospodarske izgube v celotni družbi (Krek 2022, 3).

Uživanje alkohola je v Sloveniji po podatkih NIJZ močno razširjeno med mladimi. Zaskrbljujoče je dejstvo, da se uživanje le tega nadaljuje tudi v odrasli dobi. Po podatkih, navedenih na spletni strani NIJZ, je skoraj petina 11-letnikov alkohol že zaužila. Prav tako so številke visoke pri 17-letnikih (84 %). V Sloveniji je letna poraba čistega alkohola leta 2021 znašala 10,62 litra na prebivalca. V letu 2020 smo imeli v Sloveniji zabeleženih 943 smrti neposredno zaradi alkohola, kar pomeni, da vsak dan povprečno umrejo 3 osebe. Več kot polovica umrlih je bila starih manj kot 65 let. Po umrljivosti

zaradi izbranih alkoholu pripisljivih vzrokov, kot jih spremlja Svetovna zdravstvena organizacija, je Slovenija nad povprečjem Evropske unije (Nacionalni inštitut za javno zdravje).

Poškodbe veljajo za vodilni vzrok hude obolevnosti in umrljivosti po vsem svetu. Zlasti poškodbe glave pomembno vplivajo k umrljivosti in obolevnosti pri poškodovancih. Obravnava poškodovancev je v akutni in dolgotrajni obravnavi velikokrat multidisciplinarna, kompleksna in draga. Travmatske poškodbe glave oz. možganov predstavljajo velik javnozdravstveni problem. Incidenca poškodovancev v Evropi se giblje od 91 do 546 ljudi na 100.000 prebivalcev na leto, kar predstavlja eno tretjino vseh s travmo povezanih smrti v Združenih državah Amerike (Leijdesdorff idr. 2021, 2066).

Uživanje alkohola velja za velik dejavnik tveganja za umrljivost pri poškodovancih s poškodbo glave (Bjarko et al. 2019). Študije o poškodbah, povezanih s padci, so pokazale, da imajo bolniki pod vplivom alkohola več poškodb glave v primerjavi s treznimi bolniki (Shakya et al. 2020). Obstaja močna povezava med zastrupitvijo z alkoholom in povečanim tveganjem za nastanek vseh vrst poškodb. Povišane koncentracije alkohola v krvi so bile dokazane pri 24–54 % vseh bolnikov s poškodbo glave v Evropi (Leijdesdorff idr. 2021, 2066). Študije v Ameriki so pokazale, da letno okoli 2,8 milijona prebivalcev potrebuje zdravljenje zaradi poškodb glave. Številka je v realnosti verjetno precej višja, saj veliko ljudi ne poišče zdravstvene pomoči. Poškodbe glave so že dalj časa tesno povezane z akutno zastrupitvijo z alkoholom. Večina študij ocenjuje, da je bilo med 30–50 % poškodovancev vinjenih v času poškodbe v Ameriki (Weil idr. 2018).

Poškodbe glave ob prisotnosti alkohola zajemajo celotno starostno populacijo. Uporaba alkohola med starejšimi se s časoma povečuje. Glede na to, kako se alkohol absorbira in presnavlja v telesu, je lahko uživanje alkohola pri starejših pomemben dejavnik tveganja, saj je staranje povezano tudi s fiziološkimi spremembami vključno z zmanjševanjem delovanja ledvic, manjšo encimsko aktivnostjo in nizko količino vode v telesu. Zaradi teh sprememb starejši počasneje izločajo in presnavljajo alkohol, kar ob rednem pitju alkohola vodi do povišane koncentracije alkohola v krvi kot pri mladih (Shakya idr. 2020). Kljub temu pa je poškodba glave in možganov eden od glavnih vzrokov smrti in dolgotrajne invalidnosti pri mladih, saj je uživanje alkohola zlasti v najstniških in mladostniških letih zelo pogosto (Chandi idr. 2023).

Pogostokrat se zgodi, da poškodbe glave in popivanje spremljajo tudi vandalizem in druge poškodbe. Mehanizem poškodb glave je velikokrat povezan tudi z nasiljem. Takšni poškodovanci imajo poleg poškodb možganov pogosto prisotne tudi različne zlome lobanje, obraznih kosti, čeljusti in nosu (Van Wijck idr. 2021).

## 2 NAMEN IN CILJI

Namen in cilj raziskave je prikazati in analizirati statistične podatke oseb s poškodbo glave, pri katerih je bila prisotna intoksikacija z alkoholom med letoma 2018 in 2023, ki so bili obravnavani v Urgentnem centru. Predvsem nas zanima pojavnost in starost poškodovancev s poškodbo glave, pri katerih je bil prisoten tudi alkoholni opoj. Dobljene podatke želimo primerjati s tujo obstoječo literaturo.

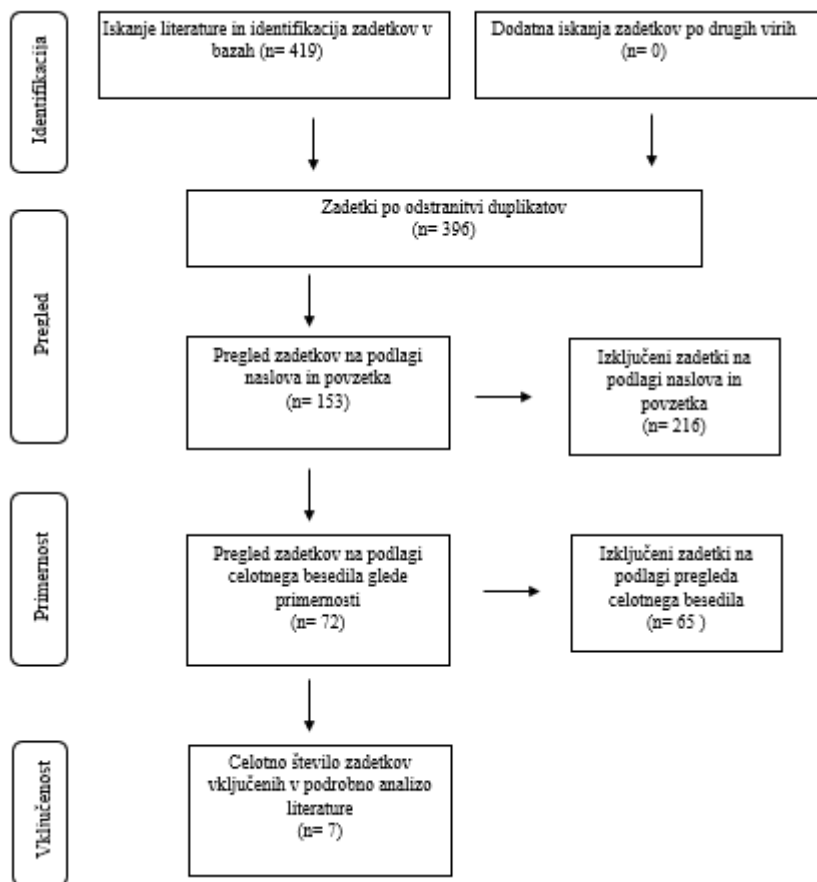
## 3 METODE

To je retrospektivna študija bolnikov, ki so med letoma 2018 in 2023 obiskali urgentni center zaradi poškodbe glave in je bila pri njih ugotovljena tudi intoksikacija z alkoholom. Za dovoljenje raziskave smo zaprosili Etično komisijo Univerzitetnega kliničnega centra Maribor. Pridobljene podatke statistične službe smo smiselno uredili in jih interpretirali. Pri pregledu literature smo uporabili vključitvene in izključitvene kriterije, izbor primerne literature, pregled literature nato pa analizo člankov in končne ključne ugotovitve.

Pri pregledu literature smo upoštevali izključitvene (literatura starejša od leta 2018, nepopolna dostopnost člankov) in vključitvene kriterije (polna dostopnost člankov v slovenskem in angleškem jeziku, literatura, ki ni starejša od leta 2018), izbor primerne literature, pregled literature nato pa analizo člankov in končne ključne ugotovitve. Uporabili smo deskriptivno metodo dela. Podatke smo zbirali sistematično iz obstoječih podatkovnih baz, kot sta PubMed in ScienceDirect. Pri iskanju literature smo si pomagali s ključnimi besedami v angleškem jeziku, npr. alcohol, brain, injury, trau-

ma, emergency. Vzorec raziskovanja je obsegal literaturo med letoma 2018 in 2023. Iskanje literature je potekalo od 1. 11. 2023 do 31. 12. 2023. Pridobljeno literaturo smo sistematično pregledali in izluščili bistvene podatke, potrebne za pripravo članka. Različne kombinacije ključnih iskalnih besed so podale širši nabor literature. Prikaz iskanja strokovne literature je prikazan na Sliki 1, ki prikazuje postopek iskanja literature po podatkovnih bazah. Postopek pridobivanja člankov smo nadaljevali glede na tematsko ustreznost, kjer smo s pomočjo vključitvenih in izključitvenih kriterijev v končno analizo vključili sedem člankov.

**Slika 1: Rezultati pregleda literature po metodologiji PRISMA**



Vir: Lasten vir 2024.

Za pridobitev statističnih podatkov iz obravnav v Urgentnem centru smo potrebovali etično dovoljenje, ki smo ga pridobili pri Komisiji za medicinsko etiko Univerzitetnega kliničnega centra v Mariboru (Št. dopisa: UKC-MB-KME.52/23). Podatke smo pridobili preko statistične službe Univerzitetnega kliničnega centra v Mariboru. Zaposili smo za podatke, ki vključujejo vse poškodovance obravnavane v Urgentnem centru med leti 2018 in 2023, pri katerih je bila končna diagnoza poškodba glave in tiste, pri katerih je bila končna diagnoza poleg poškodbe glave tudi intoksikacija z alkoholom. Pridobljene podatke smo statistično uredili v smiselne sklope ter jih statistično obdelali s programom Excel 2019.

Rezultati pregleda literature so zajemali sedem člankov, od tega šest retrospektivnih kohortnih študij in eno prospektivno študijo.



## 4 REZULTATI

Članki, ki smo jih vključili v končno analizo, so prikazani v Tabeli 1.

**Tabela 1: Seznam člankov, vključenih v končno analizo**

Avtor, leto/ Author, year	Tipologija raziskave/ Research typology	Cilji raziskave/ Research objective	Vzorec/ Sample	Ključne ugotovitve/ Key findings
(Bjarko idr. 2019)	Prospektivna študija	Preučiti čas poškodbe in povezavo z zastrupitvijo z alkoholom za zmerno do hudo poškodbo glave.	$n = 493$	Sprejemi z zmerno do hudo poškodbo glave kažejo jasne tedenske in sezonske razlike. Alkohol je prepoznan kot pomemben dejavnik tveganja za zmerno do hudo poškodbo glave.
(Chandi idr. 2023)	Retrospektivna študija	Raziskati odnos med študenti, alkoholom in travmatsko poškodbo možganov.	$n = 636$	Uporaba alkohola pri študentih je višja pri moških kot pri ženskah. Skupina študentov je imela znatno višje ravni alkohola kot skupina ne študentov.
(Grzelczak idr. 2019)	Retrospektivna študija	Oceniti, ali prisotnost znakov zastrupitve z alkoholom vpliva na čas izvajanja računalniške tomografije (CT) glave pri alkoholiziranih bolnikih s poškodbo glave v primerjavi z ne alkoholiziranimi bolniki s poškodbo glave.	$n = 183$	Primerjava alkoholiziranih bolnikov z ne alkoholiziranimi ne kaže razlike v času izvajanja slikovne diagnostike.
(Leijdesdorff idr. 2021)	Retrospektivna študija	Analizirati povezavo različnih ravni intoksikacije z alkoholom ob prisotnosti travmatske poškodbe možganov z izidom zdravljenja.	$n = 2686$	Študija je pokazala, da je pri bolnikih z zmerno do hudo poškodbo možganov ob povečani koncentraciji alkohola v krvi manj poškodovancev hospitaliziranih v intenzivni negi ter imajo višjo možnost preživetja. Avtorji navajajo pomembnost nadaljnje raziskave patofiziološkega mehanizma.
(Lokerman idr. 2023)	Retrospektivna kohortna študija	Ugotoviti vpliv zastrupitve z alkoholom na predbolnišnično prepoznavanje hudo poškodovanih pacientov s strani strokovnjakov nujne medicinske pomoči in raziskati razmerje med sumom na zastrupitev z alkoholom in hudo poškodbo glave.	$n = 19.206$	Hudo poškodbo glave je na terenu težko prepoznati, še posebej pri bolnikih brez znižanja vrednosti GCS. Sum alkoholiziranosti ni vplival na predbolnišnično prepoznavanje poškodbe, saj alkoholiziranost oteži prepoznavo hude poškodbe glave in hkrati poveča previdnost pri obravnavi bolnika.
(Shakya idr. 2020)	Retrospektivna študija	Raziskati demografske značilnosti in značilnosti poškodb starejših z zapisi urgentne službe, ki kažejo na uporabo alkohola med zdravljenjem poškodb zaradi padca.	$n = 38.640$	Uživanje alkohola pri poškodovanih je bilo večje pri moških kot pri ženskah. Obiski urgentne službe so se glede uporabe alkohola s starostjo zmanjšali.
(Van Wijck idr. 2021)	Retrospektivna kohortna študija	Cilj študije je ugotoviti, ali obstaja neodvisna povezava med zastrupitvijo z alkoholom in smrtnostjo pri poškodbi glave.	$n = 2865$	V študiji ni bila ugotovljena neodvisna povezava med zastrupitvijo z alkoholom in večjo umrljivostjo.

Vir: Lasten vir 2024.

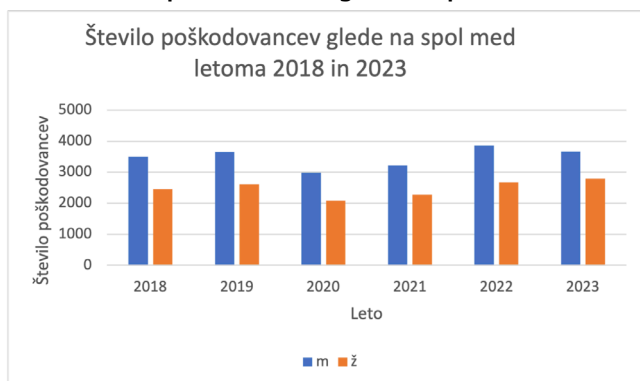
Podatke, ki smo jih pridobili iz statistične službe Univerzitetnega kliničnega centra v Mariboru, smo smiselno uredili v programu Excel 2019. Pridobljene podatke smo uredili glede na leto obravnave, spol in starost poškodovancev, končno diagnozo ter prisotnost alkohola v krvi.

V letih med 2018 in 2023 smo v Urgentnem centru obravnavali 35.757 poškodovancev s poškodbo glave. Od tega je bilo 1319 (3,5 %) poškodovancev alkoholiziranih oziroma je bila ugotovljena intoksikacija z alkoholom. Slika 1 prikazuje število poškodovancev s poškodbo glave, pri katerih je bila ugotovljena prisotnost alkohola v krvi med letoma 2018 in 2023. Največ poškodb glave ob prisotnosti alkohola v krvi (290) je bilo zabeleženih leta 2019. Večji delež poškodovancev, pri katerih je bila ugotovljena intoksikacija z alkoholom, predstavljajo moški (1088, kar predstavlja 82 %), medtem ko je bilo žensk 231, kar znaša 18 %.

**Slika 1: Število poškodovancev med letoma 2018 in 2023 v urgentnem centru**

Vir: Lasten vir 2024.

Če primerjamo podatke vseh poškodovancev s poškodbo glave (35.757) je razlika med spoloma manjša kot pri poškodovancih ob prisotnosti alkohola. Od 35.757 poškodovancev s poškodbo glave je bilo v vseh petih letih (2018–2023) 20.876 moških (58 %) in 14.861 žensk (42 %). Razlike glede na spol po letih prikazuje Slika 2.

**Slika 2: Število poškodovancev glede na spol med letoma 2018 in 2023**

Vir: Lasten vir 2024.

Povprečna starost vseh pacientov s poškodbo glave, ki so bili obravnavani med letoma 2018 in 2023 je 43 let. Rezultat je presenetljivo nižji, saj je povprečna starost bolnikov s poškodbo glave, kjer je bila ugotovljena intoksikacija z alkoholom višji in znaša 54 let.

## 5 RAZPRAVA

Uporaba alkohola je v svetu močno razširjena med ljudmi, tako mladimi kot starejšimi. Različne študije ugotavljajo številne škodljive posledice, ki jih prinaša uživanje alkohola in kažejo povezavo med uživanjem alkohola s poškodbami glave in možganov (Chandi idr. 2023; Shakya idr. 2020; Grzelczak idr. 2019; Bjarkø idr. 2019; Van Wijck idr. 2021).

Po rezultatih naše raziskave lahko ugotovimo, da je pri 3,5 % poškodb glave bil prisoten tudi alkohol. Večji delež bolnikov s poškodbo glave predstavljajo moški (58 %), prav tako večji delež poškodb glave ob prisotnosti alkohola predstavljajo moški bolniki (82 %). Rezultati nam pokažejo, da je velika razlika med moškimi in ženskami glede poškodb glave ob prisotnosti alkohola v krvi, saj je delež žensk občutno nižji (18 %). Študija na Norveškem (Bjarkø idr. 2019) je izpostavila povprečno starost oseb (s poškodbo glave ob prisotnosti alkohola) 47 let. Podatki, ki smo jih analizirali, kažejo na povprečno starost poškodovanih oseb ob prisotnosti alkohola v krvi (v letih 2018-2023) 54 let, medtem ko je povprečna starost vseh poškodb glave v istem časovnem obdobju nekoliko nižja, in

sicer 43 let. Študije, ki ne prihajajo iz Evrope, pa v svojih rezultatih kažejo v povprečju precej nižjo starost bolnikov s poškodbo glave in prisotnostjo alkoholiziranosti. Študija v Združenih državah Amerike (Van Wijck idr. 2021) poroča o povprečni starosti 46 let, medtem ko študija v Braziliji (Grzelczak idr. 2019) poroča, da je povprečna starost poškodovancev med 31 in 40 let.

Podatki iz Nacionalnega inštituta za javno zdravje Slovenije kažejo na problem porabe alkohola v Sloveniji, saj kar 68 % prebivalcev Slovenije, starih med 15–64 let, zmerno pije alkohol (Koprivnikar idr. 2016). Zastrupitev z alkoholom je znan dejavnik tveganja za nastanek poškodbe. Večina študij (Bjarko idr. 2019; Van Wijck idr. 2021; Shakya idr. 2020; Chandi idr. 2023) kaže na problem poškodb ob koncih tedna in med vikendi. Takrat ljudje običajno popijejo več alkohola kot čez teden, zato ni naključje, da je v tem času tudi več poškodb.

Poškodbe glave zahtevajo hitro in natančno ukrepanje in diagnostiko. Oskrba poškodovancev se prične že na terenu, kadar začetno oskrbo začne nujna reševalna služba ali takoj ob sprejemu v bolnišnici. Ocenjevanje resnosti poškodbe je oteženo zaradi različnih dejavnikov, ki lahko vplivajo na stanje zavesti. Intoksikacija z alkoholom lahko začetno oskrbo zelo oteži, saj prvi posredovalci velikokrat ne dobijo primerne anamneze ali je oseba zaužila alkohol ali katero koli drugo substanco. Hude poškodbe glave je težko prepoznati v izvenbolnišničnem okolju oziroma na mestu poškodbe, zlasti pri bolniki, ki nimajo znižane vrednosti GCS (Lokerman idr. 2023).

## 6 ZAKLJUČEK

Poškodbe glave po vsem svetu predstavljajo velik delež poškodovancev, ki obiščejo nujno medicinsko pomoč. Poškodbe glave predstavljajo velik vzrok za dolgotrajno invalidnost pri mladih odraslih in tudi starejših. Stroški zdravljenja in rehabilitacije po poškodbah glave so visoki, trajanje rehabilitacije pa dolgo. Velikokrat se zgodi, da je zdravljenje neuspešno. Kvaliteta življenja poškodovancev ter njihovih svojcev se po travmatski izkušnji močno zmanjša.

V tej retrospektivni študiji smo prikazali, da odstotek poškodb glave ob prisotnosti alkohola ni visok, saj znaša okoli 3,5 % od vseh poškodb glave. Pri analizi podatkov se je pojavilo vprašanje doslednega vnašanja diagnoz v sistem ob zaključku obravnave. Kar pomeni, da bi ob vsaki poškodbi glave, kjer je bila v krvi dokazana tudi prisotnost alkohola, bilo potrebno vnesti diagnozo akutne zastrupitve z alkoholom. Iz prakse predvidevamo, da temu ni tako. Zdravniki se velikokrat usmerijo na poškodbo samo, prisotnost alkohola pa ob zaključku obravnave zanemarijo. To se pogosto dogaja, kadar vrednost alkohola v krvi ni pretirano visoka.

Smiselno bi bilo študijo ponoviti in ob tem dosledno pregledovati prisotnost alkohola v krvi ob poškodbah glave neodvisno na končno podano diagnozo zdravnika.

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## KRATEK ŽIVLJENJEPIS

Ksenija Zbičajnik je raziskovalka zdravstvene nege v Univerzitetnem kliničnem centru v Mariboru. Njeno delo se osredotoča na raziskovanje zdravstvene nege na vseh nivojih zdravstvenega varstva ter oskrbi akutno obolelih in poškodovanih pacientov v urgentni obravnavi.



# **FIZIOTERAPIJA**

# **PHISIO THERAPY**

# VPLIV TERAPEVTSKE VADBE NA ZMANJŠEVANJE BOLEČINE PRI PIŠARNIŠKIH DELAVCIH Z NESPECIFIČNO BOLEČINO V VRATU – PREGLED LITERATURE

## THE EFFECT OF THERAPEUTIC EXERCISE ON PAIN REDUCTION IN OFFICE WORKERS WITH NON-SPECIFIC NECK PAIN – A LITERATURE REVIEW

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### POVZETEK

**Teoretična izhodišča:** Pri pisarniških delavcih so mišično-skeletna obolenja, med katera spada tudi bolečina v vratu, zelo razširjena, imajo pa tudi velik socialno ekonomski vpliv, predvsem zaradi zmanjšane funkcionalne sposobnosti. Razlogi zanje so predvsem dolgotrajno sedenje, s tem povečane biomehanske obremenitve, ponavljajoči se gibi zgornjih udov in slaba ergonomska postavitve delovne postaje oziroma pisarniške mize. Terapevtska vadba se je izkazala za eno izmed možnih fizioterapevtskih intervencij pri zmanjšanju bolečine. Namen diplomskega dela je bil na podlagi pregleda literature raziskati vpliv terapevtske vadbe na zmanjševanje bolečine pri nespecifični bolečini v vratu pri pisarniških delavcih.

**Metoda:** Raziskovalni dizajn diplomskega dela je kvalitativna vsebinska analiza. V pregled so bile vključene podatkovne baze ProQuest, PubMed, ScienceDirect in spletni brskalnik Google Scholar. Uporabili smo ključne besede: »therapeutic exercise«, »exercise«, »neck pain«, »non specific neck pain«, »office workers« in »secretary«. V končni pregled in analizo so bile vključene raziskave v angleškem jeziku, ki so bile objavljene po letu 2013.

**Rezultati:** V končno analizo je bilo vključenih sedem raziskav. Razdeljene so bile v tri skupine glede na preučevani tip terapevtske vadbe. Oblikovale so se skupine: vadba proti upor, vadba za vzdržljivost in vadba za raztezanje.

**Razprava:** S pregledom literature je bilo ugotovljeno, da so vadba proti upor, vadba za vzdržljivost in raztezna vadba učinkovite pri zmanjšanju simptomov bolečine, medtem ko lahko sekundarno vplivajo tudi na povečanje obsega gibljivosti, prag bolečine ob pritisku (PPT), povečajo zmoglosti (NDI) ter zmanjšujejo pojavnost in intenziteto glavobolov.

**Ključne besede:** fizioterapija, terapevtska vadba, nespecifična bolečina v vratu, pisarniški delavci

### ABSTRACT

**Theoretical background:** Musculoskeletal disorders, including neck pain, are prevalent in office workers and have a high socioeconomic impact due to reduced functional capacity. This is mainly due to prolonged sitting, the resulting increased biomechanical loads, repetitive upper limb movements and poor ergonomic design of the workstation or desk. Therapeutic exercise has been shown to be one of the possible physiotherapy interventions to reduce pain. The aim of the thesis was to investigate the effect of therapeutic exercise on pain reduction in non-specific neck pain in office workers, based on a literature review.

**Method:** The research design of the thesis is qualitative content analysis. The databases included in the review were ProQuest, PubMed, ScienceDirect and Google Scholar. The keywords used were „therapeutic exercise“, „exercise“, „neck pain“, „non specific neck pain“, „office workers“ and „secretary“. The final review and analysis includes research in English published after 2013.

**Results:** Seven studies were included in the final analysis. We have found that progressive and regular exercise is effective in reducing pain intensity.

**Discussion:** Our review of the literature found that resistance, endurance and stretching exercise are effective in reducing pain symptoms and may have secondary effects on increasing range of motion, pressure pain threshold (PPT), increasing exercise capacity (NDI) and reducing the incidence and intensity of headaches.

**Keywords:** physiotherapy, therapeutic exercise, non-specific neck pain, office workers

## 1 UVOD

Normalna funkcija vratu je osnova za uspešno opravljanje vsakodnevnih življenjskih dejavnosti. V splošni populaciji sta bolečina v vratu in disfunkcija vratnega dela hrbtenice med najpogostejše pojavljajočimi se mišično-skeletnimi obolenji ter prizadeneta do 67 % splošne populacije v določenem obdobju njihovega življenja (Hush idr. 2006, 1). Mišično-skeletna obolenja, med katera spada tudi bolečina v vratu, opredelimo po trajanju, pogostosti in intenzivnosti. Za bolečino v splošni populaciji naj bi veljalo, da njena prevalenca narašča s starostjo, vrhunec doseže v srednjih letih, medtem ko v kasnejšem življenju upada (Hogg-Johnson idr. 2008, 54; Baker idr. 2018, 1). Bolečina v vratu je lahko mišičnega, travmatskega ali nevrološkega izvora. Kljub temu je nespecifična bolečina v vratu, ki jo številni poimenujejo tudi mehanska bolečina v vratu, diagnosticirana kot bolečina v vratu brez osnovnega patološkega vzroka (Sedej idr. 2014, 135; Cerezo-T´ellez idr. 2016, 1905). Za bolečino so krive spremembe struktur, ki sestavljajo vratno hrbtenico, največkrat medvretenčne ploščice, sklepi, sklepne ovojnice, ligamenti, mišice (Hush idr. 2006, 1). Številne študije so preučevale dejavnike tveganja za pojav nespecifične bolečine v vratu in identificirale različne dejavnike. Ti vključujejo dejavnike posameznika (slaba drža, duševno zdravje, kulturni dejavniki, strah), fizične zahteve na delovnem mestu (delo, ki zahteva dolgotrajno statično držo, ponavljajoče se obremenitve), organizacijske in psihosocialne dejavnike (nizka varnost zaposlitve, slab cikel dela, brez počitka, majhna socialna podpora) (Sterud idr. 2014, 477–478; Hoe idr. 2018, 16). Največkrat simptomatika bolečine v vratu zajema bolečino, občutljivost, mravljinčenje, otekanje in okorelost (Alghadir idr. 2022, 397). Razvoj nespecifične bolečine v vratu je tako v večini povezan z dalj časa trajajočim sedenjem pisarniških delavcev. Drugi fizični dejavniki tveganja, raziskani za razvoj bolečine v vratu, vključujejo neustrezno namestitve računalnika, monitorja, tipkovnice, miške, a tudi dokumentov, s katerimi se srečujejo na delovnem mestu (Nunes 2021, 98). V večini znanstvenih študij je bilo ugotovljeno, da so ženske bolj ogrožene za nastanek mišično-skeletnih obolenj kot moški (El-tayeb idr. 2007, 4; Guez idr. 2009, 456; Ehsani idr. 2017, 5; Frutiger idr. 2019, 222; Nunes 2021, 20; Alghadir idr. 2022, 402). Prav tako naj bi na pojav bolečine v vratu vplivali starost in delovna doba (Ehsani idr. 2017). Wahlström (2005) navaja različne ergonomske intervencije, kot so aktivni odmori in posturalni premiki za zmanjšanje bolečine v vratu med pisarniški delavci. Do podobnih ugotovitev so prišli tudi Ehsani in sodelavci (2017), ki menijo, da počitek oziroma odmor med delovnim časom in redna vsakodnevna dejavnost zmanjšata pojav bolečin v vratu.

Še vedno je dokaj neraziskano področje vpliva različnih fizioterapevtskih intervencij in terapij na nespecifično bolečino v vratu ter katere izmed njih so najprimernejše, a predvsem najučinkovitejše za obravnavo te (Sihawong idr. 2011; Sedej idr. 2014). Avtorji se strinjajo, da so terapije, ki vsebujejo različne oblike vadb, med najučinkovitejšimi, tako za zmanjševanje bolečine kot tudi za obravnavo zmanjšanih zmoglosti (Sedej idr. 2014). Vadb za krepitev mišic je bila opredeljena kot skupek vaj za krepitev vratnih mišic s ponavljajočimi se gibi z bremenami. Vadb za raztezanje je bila opredeljena kot vadba za povečanje prožnosti ali raztegljivosti sklepnih struktur in mišic vratu z različnimi tehnikami raztezanja. Vadb za mišično vzdržljivost je bila opredeljena kot vadba za povečanje vzdržljivosti vratnih mišic s ponavljajočimi se gibi z bremenami, medtem ko je nespecifična oziroma splošna vadba opredeljena kot vsaka oblika vad-



be za telo, pri čemer njen namen ni jasno izražen (Sihawong idr. 2011; Houglum 2016; Louw idr. 2017). Nekateri avtorji tako kot najučinkovitejšo obliko vadbe za obravnavo nespecifične bolečine v vratu opisujejo proprioceptivno vadbo in vadbo za krepitev z dinamičnim uporom (Sarig-Bahat 2003).

Mnenja avtorjev številnih raziskav so si torej neskladna in velikokrat tudi nasprotujoča. Pisarniških poklicev in s tem delavcev je čedalje več, zaradi vseh dejavnikov posameznika in tudi okolja se večja število mišično-skeletnih težav pri njih. Zaradi neergonomskega načina dela od doma, ki je posledica pandemskega življenjskega sloga v času epidemije koronavirusne bolezni covid-19 po vsem svetu, lahko pričakujemo, da bo število pisarniških delavcev, ki bo potrebovalo obravnavo pri fizioterapevtu, zaradi nespecifične bolečine v vratu, čedalje več. Da bi lahko pisarniškim delavcem fizioterapevti ponudili učinkovito terapijo, ki vključuje tudi program vadbe, je treba pridobiti vpogled, katere oblike terapevtskih vadb so najprimernejše in najučinkovitejše za preprečevanje ter zdravljenje nespecifične bolečine v vratu pri njih. S pregledom literature smo tako raziskali vpliv terapevtske vadbe na zmanjševanje bolečine pri pisarniških delavcih z nespecifično bolečino v vratu.

## 2 NAMEN

Namen raziskave je bil na podlagi pregleda literature raziskati vpliv terapevtske vadbe na zmanjševanje bolečine pri nespecifični bolečini v vratu pri pisarniških delavcih.

Zastavili smo si naslednja raziskovalna vprašanja:

**RV1:** Katere oblike terapevtskih vadb fizioterapevti uporabljajo pri obravnavi nespecifične bolečine v vratu pri pisarniških delavcih?

**RV2:** Katere oblike terapevtske vadbe so najučinkovitejše za obravnavo nespecifične bolečine v vratu pri pisarniških delavcih?

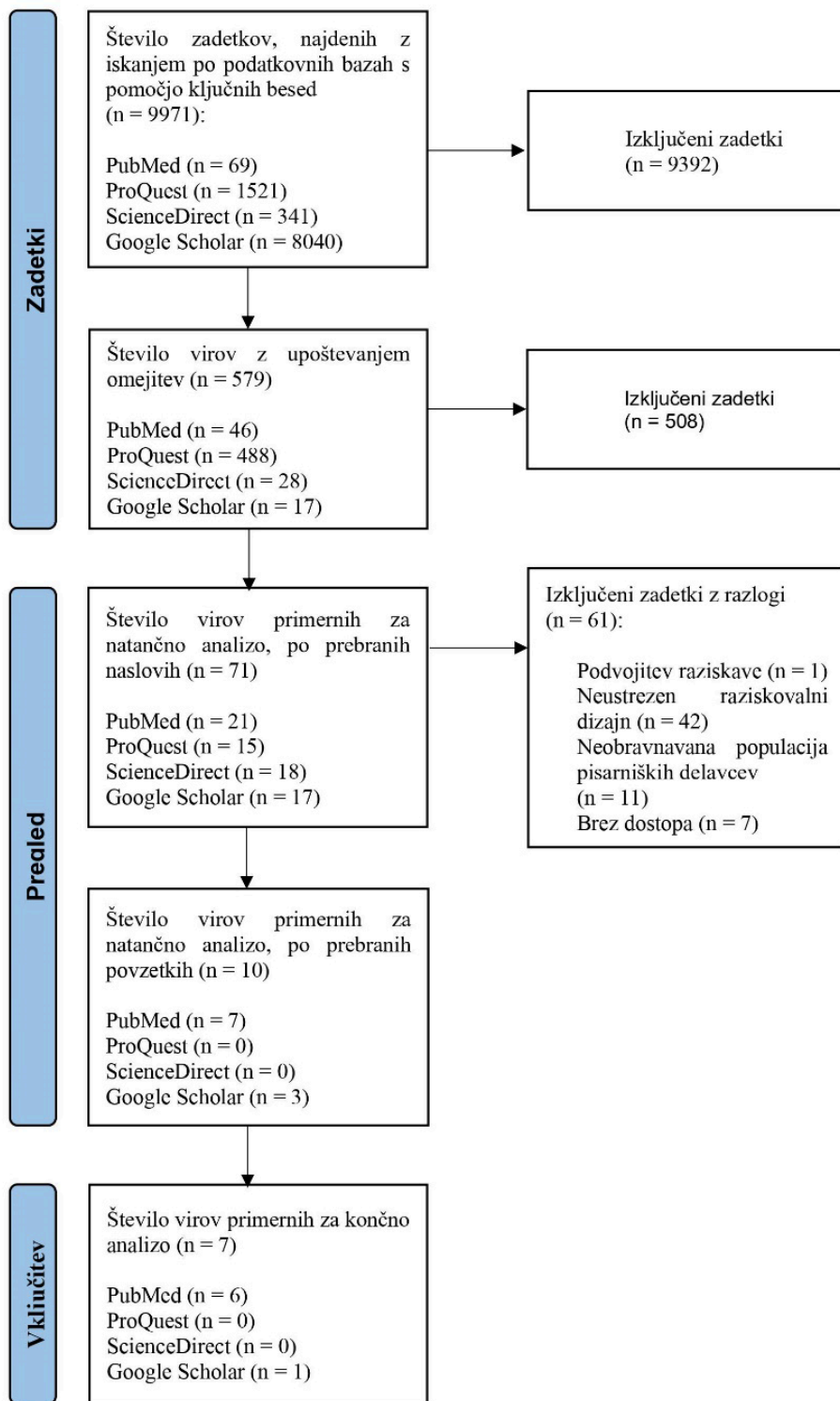
**RV3:** Kateri fizioterapevtski postopki se poleg terapevtskih vadb še uporabljajo pri obravnavi nespecifične bolečine v vratu?

## 3 METODE

Raziskava temelji na kvalitativnem raziskovalnem pristopu. Za iskanje ustrezne literature smo pregledali podatkovne baze ProQuest, PubMed, ScienceDirect in spletni brskalnik Google Scholar. Tujo literaturo smo iskali s pomočjo ključnih besed oziroma besednih zvez: »therapeutic exercise«, »exercise«, »neck pain«, »non specific neck pain«, »office workers« in »secretary«. Pri iskanju ustreznih člankov smo ključne besede in besedne zveze povezali z Boolovim operaterjem AND (sl. IN) ter OR (sl. ALI). V vseh podatkovnih bazah (ProQuest, PubMed, ScienceDirect in Google Scholar) smo literaturo iskali z Boolovimi operatorji pod ključnimi besedami (»therapeutic exercise« OR exercise) AND »neck pain« AND (»office workers« OR secretary).

Pregleden potek izbora člankov prikazuje PRIZMA model.

Slika 1: PRISMA diagram



Vir: Lastna raziskava 2023.

## 4 REZULTATI

Avtor	Leto objave	Raziskovalni dizajn	Namen	Vzorec	Gljučne ugotovitve
Johnston idr.	2021	Sekundarna analiza randomiziranega poskusa	Oceniti takojšnje in dolgoročne učinke kombinirane vadbe in ergonomskih prilagoditev na bolečine v vratu pri PD.	720 PD, > 18 let, ki so delali $\geq 30$ h/teden, brez posebnih zdravstvenih stanj in brez kontraindikacij za vadbo.	Kombinirana intervencija -ergonomski nasveti in vadba, je učinkovitejša od kombinirane intervencije - ergonomski nasveti in promocija zdravja, pri zmanjševanju intenzitete bolečine. Intervencijske razlike se niso ohranile po 12-mesečnem spremljanju.
Li idr.	2017	Randomiziran kontrolni poskus	Primerjati učinkovitost različnih treningov vzdržljivosti proti uporabi na bolečino in povrnitev funkcij.	109 PD (Ž) z bolečino v vratu, 20–55 let, delo $\geq 20$ ur na teden, bolečina na VAS-lestvi $\geq 2/10$ . Brez travmatskih poškodb vratu, specifičnih bolezni.	Vadba je povzročila klinično pomembno zmanjšanje bolečine in povečan ROM, manjši PPT in večjo moč vratnih mišic.
Andersen idr.	2014	Randomiziran kontrolni poskus	Raziskati učinek intenzivne vadbe za funkcijo lopatice v primerjavi z vadbo za zgornja vlakna trapeziusa na zmanjševanje bolečine.	47 PD (10 moških, 37 ženski), bolečina v vratu $\geq 3/9$ . Brez resnih zdravstvenih stanj, travmatskih poškodb na področju vratu.	SFT-vadba vpliva na zmanjševanje bolečine, na PPT, zviša se tudi izometrična moč protrakcije.
Gram idr.	2014	Randomiziran kontrolni poskus	Raziskati učinek vadbe za moč vratu in ramen na bolečino in glavobole pri PD.	351 PD, delo za računalnikom vsaj polovico delovnega časa, brez zgodovine resne travme in brez resnih zdravstvenih stanj.	Vadba za moč je pomembno vplivala na intenzivnost bolečine in glavobola. Učinek intervencije je odvisen od stopnje nadzora fizioterapevta.
Sihawong idr.	2013	Randomiziran kontrolni poskus	Oceniti učinke programa vadbe, ki se osredotoča na raztezanje mišic in trening vzdržljivosti na 12-mesečno pojavnost bolečine v vratu pri PD.	567 PD, 18–55 let, zaposleni polni delovni čas, zmanjšan obseg gibljivosti in zmanjšana moč fleksorjev vratu, izključena zgodovina travme.	Vadba je pomembno vplivala na zmanjšanje bolečine, povečanje povprečnega ROM in na večjo vzdržljivost fleksorjev vratu. Program vadbe je znatno zmanjšal tveganje za nastanek bolečin pri vsaj polovici pisarniških delavcev.
Tunwattanapong idr.	2015	Randomiziran kontrolni poskus	Ugotoviti učinkovitost vaj za raztezanje vratu in ramen za lajšanje bolečin v vratu med PD.	96 PD z zmerno do hudo bolečino v vratu ( $\geq 5/10$ ) vsaj 3 mesece.	Redni program razteznih vadb, ki se izvaja vsaj 4 tedne, lahko bistveno zmanjša bolečino v vratu in ramenih ter izboljša funkcijo vratu pri pisarniških delavcih.
Lee idr.	2016	Individualiziran pristop z uporabo algoritma samorazvrščanja	Raziskati vpliv programa vaj na pametnem telefonu na intenzivnost bolečine, funkcionalno prizadetost, kakovost življenja in ROM pri PD.	23 PD z bolečino v vratu več kot 3 mesece, 18–39 let, VAS $\geq 3$ , ki imajo pametni telefon. Brez drugih zdraviljenj, operacije v zadnjih 3 mesecih, znanih travm na področju vratu.	VAS in NDI sta pokazala pomembno izboljšanje intenzivnosti bolečine in funkcionalne prizadetosti. Kakovost življenja je pokazala izboljšave pri fizičnem delovanju, telesnih bolečinah, splošnem zdravju. FABQ in ROM nista pokazala bistvenih izboljšav.

Vir: Lastna raziskava 2023.

## 5 RAZPRAVA

Po opravljeni primerjavi raziskav smo odgovorili na raziskovalna vprašanja.

**Raziskovalno vprašanje 1: Katere oblike terapevtskih vadb fizioterapevti uporabljajo pri obravnavi nespecifične bolečine v vratu pri pisarniških delavcih?** Iz izbranih raziskav in opisanih rezultatov je opazno, da terapevtska vadba močno vpliva na zmanjševanje bolečine pri pisarniških delavcih z nespecifično bolečino v vratu. Tipi vadb, ki so bile primerjane, so zajemali vadbo proti uporu, vadbo za vzdržljivost in vadbo za raztezanje. Ti tipi vadb so tudi najpogosteje izbrani pri obravnavi bolečine. Največ raziskav je preučevalo vadbo proti uporu. Predvsem je ta zajemala vaje s prostimi utežmi ali z elastičnim trakom. Raziskava Andersena in sodelavcev (2014) je kot program vadbe v raziskavo vključila vaje za funkcijo lopatice, raziskava Leeja (2016) in sodelavcev je preučevala vpliv vadbe za krepitev globokih vratnih mišic. Vadba za funkcijo lopatice je zajemala aktivacijo m. serratus anterior in spodnja vlakna m. trapezius, a je minimalizirala aktivacijo zgornjih vlaken m. trapezius. Ta pristop je lahko uporabljen pri posameznikih s hudo bolečino v vratu. Posamezniki zaradi intenzivne bolečine ne morejo neposredno trenirati zgornjih vlaken trapeziusa, a lahko še vedno dosežejo klinično pomembno zmanjšanje bolečine pri vadbi m. trapeziusa spodnjih vlaken in m. serratus anterior. Bolečine v področju vratu, ki pogosto segajo tudi do ramen, se pri pisarniških delavcih lahko pojavljajo tudi zaradi šibkih skapulotorakalnih mišic in neravnovesja moči, o čemer je že bilo pisano v teoretičnem delu diplomskega dela. Ta način vadbe, pri čemer se trening osredotoča prav na povezavo lopatice in prsnega koša, vpliva na izenačenje moči, spremenjene motorične vzorce in povečano zavedanje telesa. Skupno lahko takšen tip vadbe pripelje do razbremenitve preobremenjenega tkiva in bolečih struktur.

**Raziskovalno vprašanje 2: Katere oblike terapevtske vadbe so najučinkovitejše za obravnavo nespecifične bolečine v vratu pri pisarniških delavcih?** Raziskava se je osredotočila na naslednje tipe vadb: vadbo proti uporu, vadbo za raztezanje in vadbo za vzdržljivost. Za zmanjševanje bolečine so se izkazali učinkoviti vsi trije tipi vadb, a nekatere oblike so izboljšale tudi obseg gibanja, učinkovale na pojavnost glavobolov, povečale zmožnosti (po indeksu NDI) in zmanjšale prag bolečine ob pritisku (ocena PPT). Pri obravnavi nespecifične bolečine v vratu se po mnenju številnih avtorjev kot najučinkovitejša izbira pripisujeta prav vadba za krepitev mišic oziroma vadba proti uporu. Ti sta lahko v kombinaciji s treningom vzdržljivosti, saj skupno vplivata na intenziteto bolečine, nelagodje in trajanje simptomov. V akutni in subakutni fazi lahko uporabljamo kombinacijo raztezne vadbe, a ko bolečina popusti, uporabimo vadbo za krepitev oziroma vadbo za povečevanje moči. Kot učinkovita vadba za preventivo se je izkazala kombinacija vadbe za raztezanje in vadbe za vzdržljivost, preučevana v raziskavi Sihawonga in sodelavcev iz leta 2013. Vpliv vadbe na dolgi rok je preučevala raziskava Johnstona in sodelavcev iz leta 2021. Poročali so o pomembnem zmanjšanju bolečine po izvajanju programa vadbe za moč, tudi dolgoročno. Predvsem je pomembno, da se terapevtska vadba izvaja redno in da sledimo časovnemu poteku vadbe.

**Raziskovalno vprašanje 3: Kateri fizioterapevtski postopki se poleg terapevtskih vadb še uporabljajo pri obravnavi nespecifične bolečine v vratu?** Poleg terapevtske vadbe lahko fizioterapevti za obravnavo nespecifične bolečine v vratu uporabijo tudi manualno terapijo. Ta je bila izpostavljena kot ena izmed najučinkovitejših. Uporabne so tako mobilizacijske kot tudi manipulacijske tehnike ter masaže. Terapevtska vadba naj bi v primerjavi z manualnimi tehnikami prizadetost vratu zmanjšala izraziteje, medtem ko se je manualna terapija v raziskavi Bernal-Utrera in sodelavcev (2020) izkazala za učinkovitejšo pri zaznavi bolečine v primerjavi s terapevtsko vadbo. Prav tako so se za učinkovite pri zmanjšanju bolečine izkazale oblike fizikalne terapije, ki temeljijo na protibolečinskih učinkih. Za kratkotrajno uporabo nekateri svetujejo akupunkturo in anestetške blokade, prav tako za kratek čas bolečino zmanjša laserska terapija. Svetovane so tudi termoterapija, krio-terapija, ultrazvočna terapija, TENS in interferenca. Kot je bilo že poročano, fizikalne terapije, manualne tehnike in medikamentozna terapija vplivajo na bolečino le kratkoročno. Pri takšni uporabi govorimo o simptomatskem zdravljenju. Na nastanek bolečine vplivajo številni dejavniki, katerih učinek lahko minimaliziramo z ergonomskimi prilagoditvami in s terapevtsko vadbo. Ergonomska edukacija naj bi zajemala priporočila o pravilni postavitvi delovne postaje, postavitvi računalniškega zaslona, miške, tipkovnice, pravilni namestitvi pisarniškega stola (višina sedeža, naslonjalo, ročaji za roke ...), a tudi o dejavnih in številnejših odmorih (četudi kratko trajajočih).

## 6 ZAKLJUČEK

Za najuspešnejšo intervencijo pri zmanjševanju bolečine v vratu se je po pregledu literature izkazala terapevtska vadba. Naš namen je bil zato preučiti vpliv terapevtske vadbe pri obravnavi pisarniških delavcev z nespecifično bolečino v vratu ter izpostaviti pomembnost vadbe in fizioterapevtskih obravnav pri takšni populaciji. Po pregledani strokovni in znanstveni literaturi se lahko združijo ugotovitve in oblikujejo priporočila za prakso. Za obravnavo nespecifične bolečine v vratu se lahko v akutni in subakutni fazi bolečine uporabi kombinacija razteznih vaj, ki jih izvajamo dvakrat dnevno, tri do petkrat tedensko, štiri tedne, a če je bolečina prisotna dalj časa, se svetuje vadba za povečevanje moči (20 minut, trikrat tedensko). Prav tako se je terapevtska vadba izkazala za učinkovito kot del preventivnega programa pri pisarniških delavcih, pri čemer se priporoča vadba za raztezanje in vadbo za vzdržljivost (trikrat tedensko, šest tednov). Pomembno je, da je vadba progresivna, a predvsem dalj časa trajajoča, če želimo doseči dolgoročne učinke. Opisani programi vadbe so po predstavljenem trajanju vplivali na zmanjšanje intenzitete bolečine, pri nekaterih vadbah je bil opazen tudi učinek na povečanje obsega gibljivosti, zmanjšan prag bolečine ob pritisku (PPT) in izboljššan indeks zmanjšanih zmožnosti (NDI). Poznavanje učinkovitosti programa vadbe je pomembno, da lahko fizioterapevti ponudijo učinkovito fizioterapevtsko obravnavo. S tem lahko pisarniškim delavcem zmanjšamo intenziteto bolečine, kar bo vplivalo na lažje opravljanje njihovih vsakodnevnih dejavnosti, dela, posledično s tem vplivamo tudi na njihovo produktivnost.

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# ANALIZA SMERNIC ZA VARNO VADBO V NOSEČNOSTI IN PO PORODU

## ANALYSIS OF THE EXERCISE GUIDELINES IN PREGNANCY AND POSTPARTUM

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### POVZETEK

*Med nosečnostjo in po porodu je ob odsotnosti kontraindikacij zaželeno nadaljevati z vadbo. Telesna dejavnost, ki je ustrezno izbrana in odmerjena, ugodno vpliva na zdravje nosečnice in porodnice. Kljub temu je zaradi fizioloških in anatomskih sprememb v nosečnosti potrebno telovaditi previdno in program vadbe prilagoditi vsaki nosečnici in porodnici. Poznamo kontraindikacije in znake, v prisotnosti katerih je potrebno z vadbo nemudoma prekiniti.*

**Metode:** *Uporabili smo deskriptivno metodo, metodo komparacije in analize ter sinteze. Pri analizi spoznanj smo uporabili kvalitativno vsebinsko analizo. V raziskavo smo vključili osem smernic za varno vadbo v nosečnosti iz osmih držav, od katerih sta dve smernici vsebovali tudi smernice za varno vadbo po porodu. Za izbor raziskav smo uporabili PRISMA diagram.*

**Rezultati:** *Po pregledu in primerjavi smernic smo ugotovili, da večina smernic predlaga vsaj 150 minut zmerno intenzivne vadbe na teden, razdeljene na vsaj 3-krat tedensko. Vse smernice so vsebovale informacije o karakteristiki vadbe in primernih oblikah vadbe v nosečnosti. Šest smernic je predstavilo absolutne kontraindikacije za vadbo v nosečnosti. Vse smernice vadbo spodbujajo, šest smernic je omenilo tudi znake za prekinitve vadbe v nosečnosti. Dve smernici sta predstavili stališče do varne vadbe po porodu.*

**Razprava:** *Ugotovimo lahko, da je vadba v nosečnosti in po porodu zaželeno in ima ugodne učinke na zdravje nosečnice in porodnice. Za večjo zanesljivost rezultatov bi bilo potrebno vključiti več smernic iz različnih držav, predvsem tistih iz manj razvitega dela sveta.*

**Ključne besede:** *telesna aktivnost, nosečnost, poporodno obdobje, smernice*

### ABSTRACT

*During pregnancy and postpartum it is advisable to continue with exercise, if there are no contraindications. Physical activity, that is properly selected and prescribed, has a beneficial effect on health of pregnant and postnatal women. However, due to the physiological and anatomical changes in pregnancy, exercise should be done with caution. Exercise programme should be designed for each pregnant and postnatal woman. There are several contraindications and signs to terminate exercise while pregnant.*

**Methods:** *We used descriptive, comparative, analytical and synthesis methods. Qualitative content analysis was used to analyse the findings. Analysis included eight guidelines from eight different countries. Only two of them included guidelines for safe exercise after childbirth. We used PRISMA diagram to select studies.*

**Results:** *After reviewing and comparing the guidelines, we found that most guidelines suggest at least 150 minutes of moderate intensity exercise per week, at least 3 times a week. All the guidelines included information on exercise characteristics and safe and beneficial forms of exercise in pregnancy. Six guidelines included absolute contraindications to exercise and indications for stopping exercise during pregnancy. Two guidelines introduced guidelines for safe exercise after childbirth.*



**Discussion:** *We can conclude that exercise in pregnancy and postpartum is desirable and has beneficial effect on the health of pregnant woman and newly mother. More guidelines from different countries, especially those from less developed parts of the world, should be included to improve to reliability of the results.*

**Keywords:** *physical exercise, pregnancy, postpartum, exercise, guidelines*

## 1 UVOD

Nosečnost predstavlja obdobje intenzivnih fizioloških in psiholoških sprememb. Dan danes dajejo nosečnice velik pomen zdravi prehrani in redni telesni dejavnosti, ki je ena izmed najpomembnejših dejavnikov zdravega načina življenja. Vadba v nosečnosti je priporočljiva, v kolikor je nosečnica brez težav, saj pozitivno vpliva tako na zdravje nje kot tudi na zdravje še nerojenega otroka (Mlakar idr. 2011, 6–7).

Najnovejše smernice za vadbo v nosečnosti priporočajo najmanj 150 minut srednje intenzivne aerobne vadbe na teden pri zdravih nosečnicah (Hake, 6. avgust).

Kljub ugodnim učinkom vadbe v nosečnosti obstajajo tudi omejitve, zato je zelo pomembno, da nosečnice in izvajalci vadbe za nosečnice dobro poznajo absolutne in relativne kontraindikacije za vadbo v nosečnosti ter znake, ki nakazujejo, da je z vadbo potrebno nemudoma prekiniti (Videmšek idr. 2015, 87).

V priporočilih za telesno dejavnost med nosečnostjo, povzetih v viru Ščepanović idr. (2015, 33), so kot primerne oblike telesnih aktivnosti v nosečnosti navedene hoja, plavanje, vadba v vodi, koleksarjenje, pilates, joga, aerobika in fitnes. Poudarjajo, da so pri določenih športih potrebne prilagoditve. To velja za alpsko smučanje, drsanje, športe z loparji, ekipne igre z žogo, jahanje in potapljanje.

Pomembno je, da se nosečnice ne glede na svojo stopnjo aktivnosti pred zanositvijo, o telesni aktivnosti med nosečnostjo in po porodu posvetujejo z ginekologom ali fizioterapevtom specialistom (Heyman in Brown 2016).

Porod je življenjski dogodek, ki ga zaznamujejo velike psihične in fizične spremembe. Te od ženske zahtevajo ogromne prilagoditve v zelo kratkem časovnem obdobju (Lavrič 2016, 103). Z rojstvom posteljice se zaključi porod in prične poporodno obdobje. Poporodno obdobje je čas, ki traja od poroda do izginotja anatomskih in fizioloških sprememb, nastalih v nosečnosti (Pajntar idr. 2015, 16).

V prvih tednih po porodu je odsvetovana visoko intenzivna vadba, saj maternica potrebuje približno šest tednov, da se vrne v stanje, v katerem je bila pred nosečnostjo (Želj 2019, 31). Večina žensk, po porodu brez zapletov, je za vadbo pripravljena približno štiri do šest tednov po porodu. Ženske po carskem rezu, lahko z vadbo začnejo nekoliko kasneje, navadno osem do deset tednov po porodu, odvisno od celjenja brazgotine (Roy 2014, 3). V prvih dneh po porodu je priporočljiva vadba za krepitev mišic medeničnega dna in globokih stabilizatorjev hrbtenice ter vaje za pospeševanje cirkulacije. V nadaljnjih šestih tednih se ženskam svetuje postopno stopnjevanje intenzivnosti vaj, pri čemer naj poudarek ostaja še vedno na zgoraj omenjenih vajah (Videmšek idr. 2021, 258). Po šestih tednih, lahko ženske, ob odsotnosti težav začnejo z aerobno vadbo. Intenzivnost in količina te sta odvisni od njene aktivnosti pred nosečnostjo. Odsvetujejo se poskoki in hitri sunkoviti gibi (Rajher 2015).

Na sam potek vadbe v poporodnem obdobju vplivajo telesne in duševne spremembe porodnice. Med duševne uvrščamo predvsem poporodno depresijo, utrujenost in izčrpanost, med telesne pa spremembe v telesni teži in telesni pripravljenosti. Nosečnost in porod sta lahko tudi vzrok za težave, kot so diastaza recti abdominis, urinska inkontinenca, fekalna inkontinenca, bolečine v križu, krčne žile in bolečine v predelu carskega reza, v kolikor je bil ta izveden. Te težave namreč močno vplivajo na potek in usmerjenost poporodne vadbe (Šuštaršič in Videmšek 2021, 239–255).

## 2 NAMEN RAZISKOVANJA

Namen raziskave je s pregledom smernic za telesno aktivnost v nosečnosti in po porodu predstaviti najprimernejše oblike vadbe in izpostaviti kontraindikacije ter znake za prekinitve vadbe, na katere moramo biti pozorni.

Cilji:

- s pomočjo podatkovnih baz poiskati primerno strokovno in znanstveno literaturo,
- predstaviti in primerjati rezultate izbranih člankov,
- kvalitativna vsebinska analiza izbranih člankov in predstavitev rezultatov,
- predstaviti smernice za varno vadbo v nosečnosti in po porodu,
- odgovoriti na zastavljena raziskovalna vprašanja.

Skladno z raziskovalnim problemom in pregledom teoretičnih izhodišč smo oblikovali dve raziskovalni vprašanji:

Raziskovalno vprašanje 1: Kakšne so smernice za varno vadbo v nosečnosti?

Raziskovalno vprašanje 2: Kakšne so smernice za varno vadbo po porodu?

## 3 METODE

### 3.1 Metode in tehnike zbiranja podatkov

V raziskavi smo uporabili kvalitativni raziskovalni pristop. Uporabljena je bila deskriptivna raziskovalna metoda, metoda komparacije in analize ter sinteze. Pri analizi spoznanj smo uporabili kvalitativno vsebinsko analizo.

Postopek pregleda in izbora strokovne in znanstvene literature smo iskali v angleškem jeziku s pomočjo naslednjih podatkovnih baz: COBISS, PEDro, Journal of Women's Health Physical Therapy, PubMed, Research Gate. Dostop do baz nam zagotavlja Alma Mater Europaea – ECM. Pri iskanju literature smo uporabili naslednje ključne besede: telesna aktivnost (physical activity), nosečnost (pregnancy), poporodno obdobje (postpartum), vadba (exercise), smernice (guidelines).

### 3.2 Opis instrumentarija

V raziskavi smo uporabili kvantitativno analizo sekundarne analize podatkov. Raziskave, ki smo jih vključili v raziskavo, smo predstavili s pomočjo PRISMA-diagrama (Tabela 1).

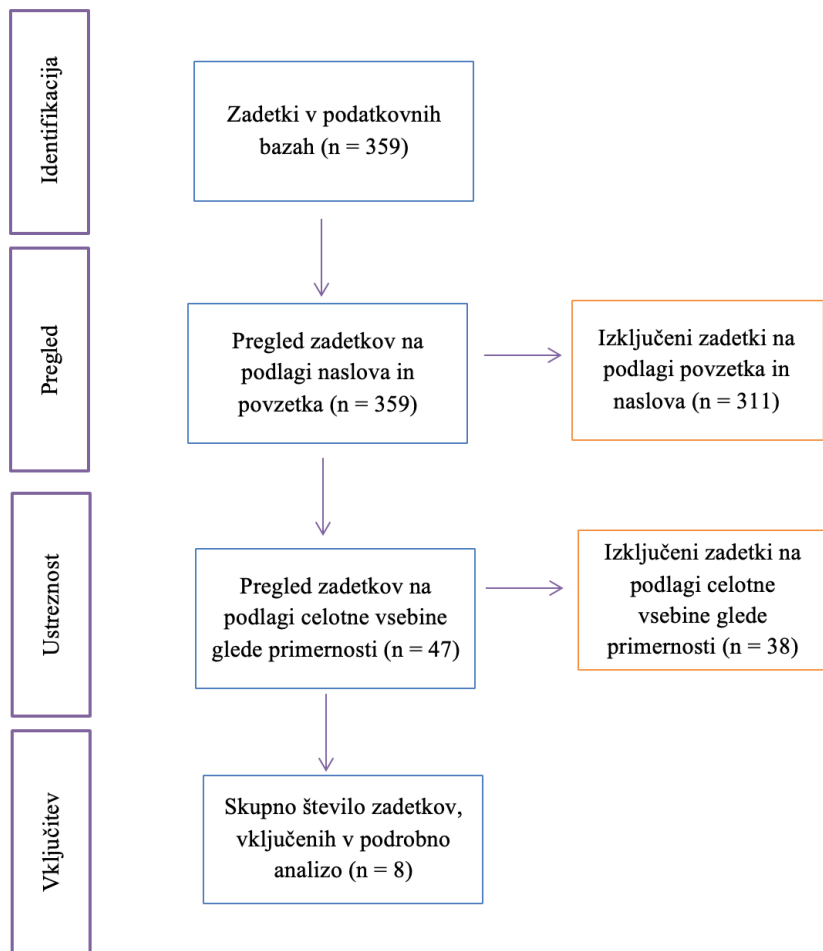
### 3.3 Opis vzorca

V raziskavo smo vključili 8 člankov, ki so ustrezali vključitvenim kriterijem. Vključitveni kriteriji so bili: (1) uporaba raziskav, ki so bile objavljene leta 2012 ali kasneje; (2) omogočen dostop do celotne vsebine članka; (3) članki, napisani v jeziku, ki nam je razumljiv; (4) naključne kontrolirane raziskave. Izključitveni kriteriji so bili: (1) uporaba raziskav, objavljenih pred letom 2012; (2) članki, pri katerih ni omogočen dostop do celotne vsebine; (3) članki, napisani v nam nerazumljivem jeziku; (4) članki brez kontrolirane raziskave.

### 3.4 Opis obdelave podatkov

Članke smo izbrali na podlagi vključitvenih in izključitvenih kriterijev. Vsak članek smo analizirali in ga nato primerjali z ostalimi izbranimi članki. Smernice izbranih člankov smo nato primerjali, jih interpretirali in predstavili v razpredelnicah. V podatkovnih bazah smo skupno našli 359 zadetkov. Po pregledu naslovov in povzetkov smo izključili 311 člankov. Podrobno smo pregledali 47 člankov in na podlagi pregleda celotnega članka dodatno izključili 38 člankov. V raziskavo smo vključili 8 člankov, ki so bili vsebinsko ustrezni ter so izpolnjevali vključitvene pogoje.

Tabela 1: Prikaz iskanja virov po smernicah PRISMA



Vir: Lastni vir 2023.

## 4 REZULTATI

V rezultatih smo primerjali posamezne smernice iz različnih držav. V tabelah so predstavljene primerne oblike vadbe v nosečnosti, znaki za prekinitev vadbe, absolutne kontraindikacije za izvajanje vadbe, karakteristike vadbe v nosečnosti in značilnosti vadbe po porodu.

### 4.1 Primerjava primernih oblik vadbe v nosečnosti

V tabeli 2 je predstavljena primerjava primernih oblik vadbe glede na smernice iz različnih držav. Vse smernice vadbo med nosečnostjo priporočajo in svetujejo. Smernice iz vseh 8 držav skupno navajajo 19 primernih oblik vadbe v nosečnosti. Hojo (hoja, hitra hoja) kot primerno obliko vadbe v nosečnosti navajajo vse smernice. Slovenske smernice so edine, ki med primerne oblike vadbe uvrščajo tek na smučeh, veslanje in pohodništvo. Training mišic medeničnega dna med primerne oblike vadbe v nosečnosti uvrščajo le kanadske in slovenske smernice, ga pa omenjajo kot primerno obliko vadbe po porodu v ameriških in brazilskih smernicah. Danska edina izmed vseh držav v svojih smernicah navaja vrtnarjenje kot primerno obliko vadbe v nosečnosti. Izmed vseh smernic, največ primernih oblik vadbe v nosečnosti navajajo singapurske smernice in sicer sobno kolesarjenje, aerobno vadbo, vaje proti upor, plavanje, hitro hojo, jogo, pilates, vaje z lastno težo in tek (Lee idr. 2020). Najmanj primernih oblik vadbe navaja Brazilija.

Tabela 2: Primerne oblike vadbe v nosečnosti

vadb	države							
	ZDA	BR	SG	CA	DK	SI	UK	AU
hoja	X						X	X
sobno kolesarjenje	X	X	X		X	X		X
aerobna vadba	X		X	X		X		X
ples	X			X				
vaje proti uporu	X		X					
vaje za moč		X			X		X	X
plavanje	X		X		X	X		X
vodna aerobika		X			X			
hitra hoja		X	X		X	X		
joga			X	X			X	
pilates			X				X	
vaje z lastno težo			X					
trening mišic medeničnega dna				X		X		
vrtnarjenje					X			
tek na smučeh						X		
veslanje						X		
pohodništvo						X		
raztezanje	X			X				
tek			X				X	

Vir: Lasten vir 2023.

#### 4.2 Primerjava znakov za prekinitev vadbe v nosečnosti

Znaki za prekinitev vadbe v nosečnosti so bili navedeni v šest od osmih smernic iz držav Amerike, Singapurja, Kanade, Slovenije, Velike Britanije in Avstralije. V brazilskih in danskih smernicah znaki za prekinitev vadbe v nosečnosti niso bili omenjeni. V celoti je v šestih smernicah omenjenih dvanajst opozorilnih znakov za prekinitev vadbe v nosečnosti. Vseh šest smernic je kot znak za prekinitev vadbe navedlo redne, boleče popadke in omotico ter glavobol. Pet držav izmed šestih priporoča prekinitev vadbe ob pojavu dispneje, odtekanju plodovnice in bolečinah v mečih ter zatekanju. Bolečine v hrbtenici ali medenici, ki ovirajo hojo, kot znak za prekinitev vadbe v nosečnosti navajajo le slovenske smernice. Zmanjšano zaznavanje plodovih gibov kot znak omenjajo le avstralske smernice.

Tabela 3: Znaki za prekinitev vadbe v nosečnosti

znaki	države							
	ZDA	BR	SG	CA	DK	SI	UK	AU
krvavitev iz nožnice	X		X				X	X
bolečina v trebuhu	X					X		
redni, boleči popadki	X		X	X		X	X	X
odtekanje plodovnice	X		X	X			X	X
predrtje plodovih ovojev				X				
dispneja	X		X	X		X		X
omotica, glavobol	X		X	X		X	X	X
bolečine v prsnem košu	X		X	X				X
bolečine v mečih, zatekanje	X		X			X	X	X
šibkost mišic, ki vpliva na ravnotežje			X					
bolečine v hrbtenici ali medeničnih sklepih						X		
zmanjšanje plodovih gibov								X

Vir: Lasten vir 2023.

### 4.3 Primerjava absolutnih kontraindikacij za vadbo v nosečnosti

Absolutne kontraindikacije se nanašajo na stanja, pri katerih vadba v nosečnosti ni priporočena. Vse smernice skupno navajajo šestnajst absolutnih kontraindikacij. Absolutne kontraindikacije za vadbo v svojih smernicah omenja šest od osmih držav. Danske in britanske smernice absolutnih kontraindikacij ne omenjajo, ker se te nanašajo na zdrave ženske z normalnim potekom nosečnosti. Smernice iz Amerike, Brazilije, Singapurja in Kanade vse navajajo krvavitve iz nožnice v 2. in 3. tromesečju, placento previo in gestacijsko hipertenzijo kot absolutne kontraindikacije. Zastoj v rasti ploda kot absolutno kontraindikacijo navajajo le kanadske smernice. Težave s kostmi in sklepi kot absolutno kontraindikacijo navajajo samo avstralske smernice, hudo aritmijo pa samo brazilske smernice.

**Tabela 4: Absolutne kontraindikacije za vadbo v nosečnosti**

kontraindikacije	države							
	ZDA	BR	SG	CA	DK	SI	UK	AU
srčna obolenja	X	X				X		X
šibkost materničnega vratu, cerklaža	X	X	X			X		
večplodna nosečnost s tveganje za prezgodnji porodom	X			X		X		X
krvavitve iz nožnice v 2. in 3. tromesečju	X	X	X	X		X		X
placenta previa	X	X	X	X				X
gestacijska hipertenzija	X	X	X	X		X		
obstruktivna pljučna obolenja		X		X		X		X
restriktivna pljučna obolenja			X	X		X		
preeklampsija			X			X		X
huda anemija			X					
obolenja ščitnice (nenadzorovana)			X	X				X
sladkorna bolezen tipa 1 (nenadzorovana)			X					X
predrtje plodovih ovojev				X		X		
zastoj v rasti ploda				X				
težave s kostmi in sklepi								X
huda aritmija		X						

Vir: Lastni vir 2023.

### 4.4 Primerjava karakteristik vadbe v nosečnosti

Vseh osem držav v svojih smernicah navaja priporočila za količino, intenzivnost in frekvenco vadbe v nosečnosti. Vse države navajajo spodnjo mejo za količino vadbe 150 minut na teden, izjema je le Danska, ki v svojih smernicah kot spodnjo mejo za aktivnost navaja 210 minut tedensko. Dve izmed osmih držav navajata tudi zgornjo mejo trajanja vadbe, in sicer 300 minut na teden. To sta Brazilija in Avstralija. Vse države v svojih smernicah svetujejo zmerno intenzivnost vadbe. Amerika, Singapur in Avstralija navajajo še mejo maksimalne srčne frekvence, ocenjene za materino starost, in sicer ne več kot 60–80 % maksimalne srčne frekvence svetujejo ameriške in avstralske smernice in manj kot 90 % maksimalne srčne frekvence omenjajo singapurske smernice. Velika Britanija in Brazilija v svojih smernicah svetujeta vadbo v nosečnosti vsak dan, Danska večino dni v tednu, medtem ko Amerika, Singapur, Avstralija 3–4-krat tedensko in Slovenija najmanj 3-krat do 7-krat tedensko.

**Tabela 5: Karakteristike varne in učinkovite vadbe v nosečnosti**

država	količina	intenzivnost	frekvenca
Amerika	30–60 minut na vadbo, najmanj 150 minut na teden	60–80 % maksimalne srčne frekvence ocenjene za materino starost	najmanj 3–4-krat tedensko
Brazilija	150 do 300 minut na teden	zmerna intenzivnost	vsak dan
Singapur	najmanj 150 minut na teden	zmerna intenzivnost, ne več kot 90 % maksimalne srčne frekvence ocenjene za materino starost	3–4-krat tedensko
Kanada	najmanj 150 minut na teden	zmerna intenzivnost	najmanj 3-krat tedensko
Danska	najmanj 210 minut na teden	zmerna intenzivnost	večino dni tedensko
Slovenija	30–60 minut, najmanj 150 minut na teden	zmerna intenzivnost	najmanj 3-krat do 7-krat tedensko
Velika Britanija	do 150 minut na teden	lažja do zmerna intenzivnost	vsak dan
Avstralija	najmanj 30 minut na vadbo, med 150 in 300 minut na teden	60–80 % maksimalne srčne frekvence ocenjene za materino starost	3–4-krat tedensko

Vir: Lastni vir 2023.

#### 4.5 Značilnosti vadbe po porodu

Ameriške smernice in brazilske smernice navajajo tudi smernice za vadbo po porodu. Tako Amerika kot tudi Brazilija opredelujeta trening mišic medeničnega dna kot primerno obliko vadbe po porodu. Ameriške smernice poleg tega kot primerno obliko vadbe navajajo tudi vaje za globoke stabilizatorje trupa, odsvetujejo pa izvajanje vaj za krepitev preme trebušne mišice, kot so na primer trebušnjaki. Obe skupini smernic svetujeta vadbo po porodu ne glede na dojenje in trdita, da vadba ne vpliva na laktacijo. Ameriške smernice dodajajo še, da naj porodnice dojijo ali črpajo mleko pred vadbo, da se s tem izogone neprijetnemu občutku v prsih med vadbo.

**Tabela 6: Značilnosti vadbe po porodu**

države	trening mišic medeničnega dna	vaje za globoke stabilizatorje trupa	vaje za krepitev preme trebušne mišice	vpliv vadbe na laktacijo
Amerika	DA	DA	NE	Vadba ne vpliva na laktacijo. Strokovnjaki svetujejo, naj porodnice dojijo otroka ali črpajo mleko pred vadbo, da bi se izognile neprijetnemu občutku v prsih med vadbo.
Brazilija	DA	Ni omenjeno.	Ni omenjeno.	Vadba ne vpliva na laktacijo.

Vir: Lastni vir 2023.

## 5 RAZPRAVA

Namen raziskave je bil s pregledom že obstoječe strokovne znanstvene literature poiskati smernice za telesno aktivnost v nosečnosti in po porodu, predstaviti najprimernejše oblike vadbe in izpostaviti kontraindikacije ter znake za prekinitve vadbe, na katere moramo biti pozorni.

Člankov, ki so ustrezali vključitvenim kriterijem, je malo, saj je veliko smernic objavljenih v nam nerazumljivem jeziku. V raziskavo smo jih zato vključili le osem. Večina smernic je veljavnih od tri do osem let. Najnovejše smernice so brazilske (Mielke idr. 2021), ki so bile napisane pred dvema letoma. Smernice so v večini namenjene zdravim nosečnicam, brez kontraindikacij za telesno aktivnost, zato menimo, da bi bilo za bolj kvalitetno obravnavo nosečnic s strani fizioterapevta potrebno v smernice vključiti tudi nosečnice, ki imajo omejitve za izvajanje vadbe. Samo v dveh (ACOG 2020 in Mielke idr. 2021) izmed osmih člankov so opredeljene tudi smernice za varno vadbo po porodu, zato menimo, da bi za kvalitetno in celostno obravnavo porodnic smernice morale vsebovati tudi to. Določene smernice so obsežne in vsebujejo veliko informacij za nosečnice in porodnice, določene smernice pa so zelo površinske in splošne.

Med primerjavo lahko ugotovimo, da smernice temeljijo na podobnih načelih. Nobena izmed osmih držav vadbe v nosečnosti ne odsvetuje, temveč je vadba v nosečnosti v vseh smernicah zelo zaželeno, v kolikor zanjo ni kontraindikacij. Le dve (ACOG 2020 in Mielke idr. 2021) izmed osmih držav v svojih smernicah navajata tudi smernice za varno vadbo po porodu. Ugotovili smo, da se smernice po večini razlikujejo glede na državo, datum objave in ustanovo, ki je smernice izdala. Smernice, ki jih je izdalo združenje ginekologov in porodničarjev, so veliko bolj obsežne kot tiste, ki so jih izdala ministrstva za javno zdravje. Kljub razlikam opazamo veliko enakih mnenj. Na primer, vse smernice priporočajo zmerno intenzivnost telesne vadbe med nosečnostjo, pri čemer ameriške, avstralske in singapurske smernice (ACOG 2020, RANZCOG 2020 in Lee idr. 2020) intenziteto vadbe opredeljujejo prek maksimalnega srčnega utripa matere. Večina smernic (ACOG 2020, Mielke idr. 2021, Lee idr. 2019, Mottola idr. 2019, Videmšek idr. 2015 in RANCOG 2020) pred začetkom ali nadaljevanjem vadbe priporoča posvet z zdravnikom ali za to usposobljenim zdravstvenim delavcem.

Pri opredelitvi karakteristik varnega in učinkovitega vadbenega programa so vse smernice kot parametre uporabile količino, intenzivnost in frekvenco. Na podlagi pregleda smernic iz različnih držav ugotavljamo, da vse države svetujejo najmanj 150 minut vadbe na teden razen Danske (Broberg idr. 2015), ki svetuje vsaj 210 minut vadbe na teden. Dve (Mielke idr. 2021 in RANZCOG 2020) izmed osmih držav omenjata tudi zgornjo mejo trajanja vadbe v nosečnosti, in sicer 300 minut na teden. Intenzivnost vadbe je pri vseh smernicah opredeljena kot zmerna. Ameriške (ACOG 2020), avstralske (RANZCOG 2020) in singapurske (Lee idr. 2020) smernice navajajo tudi vrednost maksimalne srčne frekvence, ocenjene glede na materino starost, in sicer 60–80 % ameriške in avstralske smernice in največ 90 % singapurske smernice. Pet (ACOG 2020, Lee idr. 2020, Mottola idr. 2019, Videmšek idr. 2015 in RANZCOG 2020) od osmih smernic svetuje izvajanje vadbe najmanj 3-krat tedensko. Danske smernice (Broberg idr. 2015) svetujejo izvajanje vadbe večino dni v tednu, brazilske in britanske smernice (Mielke idr. 2021 in Ministrstvo za javno zdravje Velike Britanije 2017) pa vsak dan.

Nobena izmed osmih držav v svojih smernicah ne navaja priporočil za intenzivno vadbo v nosečnosti, kar kaže na pomanjkanje študij in dokazov o izidu nosečnosti v primeru izvajanja intenzivne vadbe. Temu je najbrž tako zaradi etične spornosti glede izvajanja študij in raziskav na skupini nosečnic. Vse države v svojih smernicah navajajo primerne oblike vadbe v nosečnosti, pri čemer sta kot obliki telesne aktivnosti največkrat omenjeni hoja ali hitra hoja. Kot primerni obliki vadbe ju označujejo vse države z izjemo Kanade (Mottola idr. 2019). Slovenske smernice (Videmšek idr. 2015) kot primerne oblike vadbe v nosečnosti edine navajajo tek na smučeh, veslanje in pohodništvo. Večina smernic kot primerne oblike vadbe navaja aerobne vadbe, medtem ko Brazilija, Danska, Velika Britanija in Avstralija (Mielke idr. 2021, Broberg idr. 2015, Ministrstvo za javno zdravje Velike Britanije 2017 in RANZCOG 2020) omenjajo tudi vadbo za moč. Glede na potencialne ugodne učinke vadbe za moč med nosečnostjo bi bilo potrebno bolj raziskati omenjeno področje in na podlagi pridobljenih rezultatov predstaviti program vadbe za moč, ki je varen za nosečnice v smislu intenzivnosti in količine.

Po pregledu učinkov vadbe smo ugotovili, da ima vadba v nosečnosti ob odsotnosti kontraindikacij ugodne učinke na telo (ACOG 2020, Mielke idr. 2021, Mottola idr. 2019, Lee idr. 2019, Broberg idr. 2015, Videmšek idr. 2015 in RANZCOG 2020). Največkrat omenjeni ugodni učinki vadbe so bili večja indikacija za vaginalni porod in manjša možnost urgentnega carskega reza, manjša možnost nastanka gestacijskega diabetesa, nadzorovano naraščanje telesne teže, ohranjanje kardio-respiratorne zmogljivosti in manjša možnost nastanka preeklampsije. Raziskave kažejo, da se telesna aktivnost žensk po porodu zmanjša, kar vodi v povečanje telesne teže in debelost. Nadaljevanje z vadbo ali ustvarjanje nove vadbene rutine po porodu je ključnega pomena za vzdrževanje zdravega življenjskega sloga, zato se svetuje pričetek z vadbo takoj po porodu, ko je to varno in zanjo ni medicinskih kontraindikacij (ACOG 2020 in Mottola idr. 2019).

Zastavili smo si dve raziskovalni vprašanji, katerih namen je bil predstaviti smernice za varno vadbo v nosečnosti in po porodu. Raziskovalno vprašanje 1 se je glasilo: »Kakšne so smernice za varno vadbo v nosečnosti?« Če povzamemo mnenja vseh držav, smernice priporočajo izvajanje zmerno intenzivne vadbe vsaj 150 minut na teden, porazdeljenih med minimalno 3 dni v tednu. Kot primerne oblike vadbe so v smernicah največkrat omenjene naslednje: hoja ali hitra hoja,

sobno kolesarjenje, aerobna vadba, plavanje ali vodna aerobika. Iz rezultatov lahko sklepamo, da so bolj svetovane aerobne oblike vadbe. Vaje za moč so omenjene le v štirih (Mielke idr. 2021, Broberg idr. 2015, Ministrstvo za javno zdravje Velike Britanije 2017 in RANZCOG 2020) smernicah od osmih. Prav tako je trening mišic medeničnega dna omenjen samo dvakrat, in sicer v kanadskih in slovenskih smernicah (Mottola idr. 2019 in Videmšek idr. 2015), kar je zanimivo glede na poudarek, ki ga fizioterapevti posvečamo mišicam medeničnega dna v nosečnosti in po porodu. Spodbudno je, da je trening mišic medeničnega dna največkrat omenjen prav v slovenskih smernicah (Videmšek idr. 2015), kar ugodno vpliva na ozaveščenost slovenske populacije glede pomembnosti krepitev mišic medeničnega dna v nosečnosti in po porodu. Po pregledu smernic so bili največkrat omenjeni znaki za prekinitev vadbe redni, boleči popadki, omotica in glavobol, otekanje plodovnice, dispneja ter bolečine v mečih in zatekanje. Omenjeni znaki nakazujejo začetek poroda ali preeklampsijo. Slednja je v primeru postavitve diagnoze v času nosečnosti absolutna kontraindikacija za izvajanje vadbe (Lee idr. 2019, Videmšek idr. 2015 in RANZCOG 2020). Smernice večine držav so kot znake navajale bolj splošne znake; izjema sta Singapur in Slovenija (Lee idr. 2019 in Videmšek idr. 2015), ki sta omenila tudi znake, vezane na mišično skeletni sistem. Bolečine v hrbtenici ali medeničnih sklepih so navajale slovenske smernice (Videmšek idr. 2015), šibkost mišic, ki vpliva na ravnotežje pa singapurske smernice (Lee idr. 2019). Po pregledu smernic smo ugotovili, da je absolutna kontraindikacija za izvajanje vadbe v nosečnosti krvavitev iz nožnice v 2. in 3. tromesečju (ACOG 2020, Mielke idr. 2021, Lee idr. 2019, Mottola idr. 2019, Videmšek idr. 2015 in RANZCOG 2020). To stanje so kot absolutno kontraindikacijo navedle vse države razen Danske in Velike Britanije (Broberg idr. 2015 in Ministrstvo za javno zdravje Velike Britanije 2017), ki absolutnih kontraindikacij za vadbo v nosečnosti v svojih smernicah ne omenjata. Poleg krvavitev iz nožnice v 2. in 3. tromesečju lahko iz smernic povzamemo, da so absolutne kontraindikacije za vadbo v nosečnosti še placenta previa, gestacijska hipertenzija, šibkost materničnega vratu ali cerklaža, srčna obolenja in obstruktivna pljučna obolenja. Ta stanja so v smernicah navedena največkrat.

Smernice omenjajo tudi večplodno nosečnost s tveganjem za prezgodnji porod, restriktivna pljučna obolenja, preeklampsijo, nenadzorovano obolenje ščitnice ter sladkorne bolezni tipa 1, predrtje plodovih ovojev. Najmanjkrat omenjena stanja, ki so po mnenju različnih smernic absolutne kontraindikacije za vadbo v nosečnosti, so zastoj v rasti ploda, huda anemija, težave s kostmi in sklepi ter huda aritmija. To, da so slednja omenjena le po enkrat v posameznih smernicah, najbrž kaže na to, da bi jih morali bolj raziskati, da bi lahko ocenili tveganje nosečnice in ploda pri izvajanju vadbe.

Raziskovalno vprašanje 2 je bilo: »Kakšne so smernice za varno vadbo po porodu?« Po pregledu člankov, smo ugotovili, da jih le malo vsebuje tudi smernice za varno vadbo po porodu. Od osmih smernic sta le dve državi (ACOG 2020 in Mielke idr. 2021) omenili vadbo po porodu. Ko smo primerjali rezultate, smo ugotovili, da sta najpomembnejši vaji po porodu vaje za krepitev mišic medeničnega dna in vaje za krepitev globokih stabilizatorjev trupa, med katerimi je najpomembnejša prečna trebušna mišica (*lat. musculus transversus abdominis*). S treningom mišic medeničnega dna je zaželeno pričeti takoj po porodu (ACOG 2020).

V smernicah je bilo opredeljeno stališče glede dojenja in vadbe, ki naj ne bi imela vpliva na laktacijo (ACOG 2020 in Mielke idr. 2021). Vaje za krepitev preme trebušne mišice so odsvetovane, saj povečujejo abdominalni tlak in raztegujejo mišice trebušne stene ter s tem dokazano povečujejo možnost nastanka diastaze recti abdominis (ACOG 2020).

Kljub temu da so bile smernice dobro zasnovane, se pri nekaterih pojavljajo pomanjkljivosti. Ena izmed teh je to, da sta le dve državi v svojih smernicah opredelili tudi vadbo po porodu, zato smo imeli zelo ozek nabor informacij, s katerimi smo lahko razpolagali. Zavedamo se omejitev raziskave, ki so vplivale na končen rezultat. Ena izmed omejitev je bil majhen vzorec smernic. Predvidevamo, da obstajajo smernice, ki bi ustrezale našim kriterijem, vendar jih nismo zajeli v raziskavo, saj jih nismo našli v bazah. Raziskava tako vključuje pregled smernic držav, ki so bolj razvite, kar kaže na to, da smernice manj razvitih držav z manjšimi dohodki niso bile zajete med našim iskanjem, ali pa, da smernice teh držav ne obstajajo. Druga omejitev je bil nam nerazumljiv jezik smernic.



## 6 ZAKLJUČEK

Vadba v nosečnosti in po porodu predstavlja minimalno tveganje za zdravje nosečnice in porodnice. Dokazano je, da ima pri večini nosečnic in porodnic pozitivne učinke na zdravje. Zaradi anatomskih in fizioloških sprememb je potrebno vadbo prilagoditi. V odsotnosti ginekoloških in drugih zdravstvenih težav je vadba v nosečnosti in po porodu varna in zaželena (ACOG 2020).

V raziskavi smo pregledali smernice za varno vadbo v nosečnosti in po porodu. Po podrobnem pregledu literature smo opazili, da le malo smernic vključuje tudi priporočila za varno vadbo po porodu. Smernice za varno vadbo v nosečnosti so različno obsežne, kar se razlikuje glede na institucijo, ki jih je izdala. Ob pregledu smernic in ob njihovi primerjavi lahko zaključimo, da ima vadba številne pozitivne učinke na zdravje nosečnice in porodnice. Kljub temu da je vadba zaželena, moramo biti pozorni na kontraindikacije in znake za prekinitev vadbe in v primeru prisotnosti slednjih nemudoma prekiniti z vadbo.

Za bolj natančne rezultate in priporočila glede varne vadbe v nosečnosti in po porodu bi bilo v prihodnje potrebno v raziskavo vključiti več smernic za varno vadbo po porodu. Dodatne raziskave bi bilo potrebno opraviti tudi glede učinkov vadbe pri ženskah s težavami v nosečnosti.

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1.08 Objavljeni znanstveni prispevek na konferenci  
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# MANAGEMENT OF STRESS URINARY INCONTINENCE IN HEALTH PROMOTION AND HEALTH EDUCATION CENTRES IN SLOVENIA

## OBRAVNAVA STRESNE URINSKE INCONTINENCE V CENTRIH ZA KREPITEV ZDRAVJA IN ZDRAVSTVENOVZGOJNIH CENTRIH V SLOVENIJI

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### ABSTRACT

**Introduction:** Stress urinary incontinence is not just a life-threatening condition, but it also affects an individual's quality of life. For prevention and treatment of stress urinary incontinence, pelvic floor muscle training is important as well as a training of the bladder and lifestyle change. In Slovenia, a professional counselling can be provided by physiotherapists and kinesiologists in health promotion and health education centres on the primary health care level.

**Research problem:** The main goal was to obtain data on the share of people with stress urinary incontinence visiting health promotion and health education centres and to identify the ways for treating it, as well as to obtain data on the most frequently treated target groups.

**Methods:** The research was based on the quantitative method. We conducted the survey using a questionnaire on the 1KA online platform, which was accessible from 14<sup>th</sup> of March 2022 till 19<sup>th</sup> of May 2022. The questionnaire was distributed to providers of physical activity treatments in health promotion and health education centres. We collected 43 completed questionnaires (53 %). The data were processed using IBM SPSS Statistics 23.0, analysed using descriptive statistics and assessed for reliability using the Cronbach's alpha coefficient (0.65 and 0.85).

**Results:** The most common detected forms of incontinence are stress and mixed urinary incontinence. The share of people participating in treatment suffering from stress urinary incontinence ranges from 40 % to 59 %. Stress urinary incontinence is most commonly treated with pelvic floor muscle training.

**Discussion:** Stress urinary incontinence is a moderate to severe life problem. The most common treatment is pelvic floor muscle training, for which the recommendation is to explain the correct procedure with the help of didactic aids and use conservative treatment methods/techniques/aids. When there is no improvement it is important to direct the patient to a medical specialist or specific/clinical physiotherapy treatment.

**Keywords:** stress urinary incontinence, target groups, adults, primary health care, pelvic floor muscle training

### POVZETEK

**Teoretična izhodišča:** Čeprav stresna urinska inkontinenca ni življenjsko nevarno stanje, zelo vpliva na posameznikovo kakovost življenja. Za preprečevanje in zdravljenje stresne urinske inkontinence je pomembna vadba mišic medeničnega dna, trening mehurja in sprememba življenjskega sloga. V Sloveniji strokovno svetovanje nudijo fizioterapevti in kineziologi v centrih za krepitev zdravja in zdravstvenovzgojnih centrih na primarnega ravni zdravstvenega varstva.

**Raziskovalni problem:** Temeljni cilj je bil pridobiti podatek o deležu oseb s stresno urinsko inkontinenco in ugotoviti načine njene obravnave ter pridobiti podatek o najpogosteje obravnavani ciljni skupini, ki se pojavlja v centrih za krepitev zdravja in zdravstvenovzgojnih centrih.

**Metoda:** Raziskava je temeljila na kvantitativni metodi. Raziskavo smo izvedli z anketnim vprašalnikom na spletni platformi 1KA, ki je bil dostopen od 14. 3. 2022 do 19. 5. 2022. Vprašalnik je bil posredovan izvajalcem obravnave in aktivnosti na področju telesne dejavnosti v centrih za krepitev zdravja in zdravstvenovzgojnih centrih. Nazaj smo pridobili 43 izpolnjenih vprašalnikov (53 %). Podatke smo obdelali s programom IBM SPSS Statistics 23.0, jih analizirali s pomočjo opisne statistike in ocenili zanesljivost z alfa koeficientom po Cronbachu (0,65 in 0,85).

**Rezultati:** Najpogostejši odkriti obliki inkontinence sta stres in mešana urinska inkontinenca. Delež oseb, ki sodelujejo pri zdravljenju zaradi stresne urinske inkontinence, se giblje od 40 % do 59 %. Stresna urinska inkontinenca je najpogosteje obravnavana z vadbo mišic medeničnega dna.

**Razprava:** Stresna urinska inkontinenca predstavlja srednje velik do velik življenjski problem. Najpogostejše je zdravljenje z vadbo mišic medeničnega dna, pri kateri priporočljiva razlaga o pravilni izvedbi s pomočjo didaktičnih pripomočkov ter z uporabo metod/tehnik oziroma pripomočkov za konservativno zdravljenje. Kadar ni izboljšanja, je pomembna dodatna obravnava, kjer se pacienta usmeri naprej k zdravniku specialistu ali na poglobljeno fizioterapevtsko obravnavo.

**Ključne besede:** stresna urinska inkontinenca, ciljne skupine, odrasli, primarna zdravstvena oskrba, vadba mišic medeničnega dna

## 1 INTRODUCTION

The International Continence Society defined urinary incontinence (UI) in 2002 as any involuntary leakage of urine (D'Ancona et al. 2019). It is a common and unpleasant ailment that occurs at all ages and in both sexes. According to the symptoms, we divide them into stress (SUI), urgent (UUI) and mixed urinary incontinence (MUI) (Goforth and Langaker 2016, p. 423). Among all these, SUI is the most common (Bø and Herbert 2013, 159). Pelvic floor muscle training, exercise of bladder muscles and lifestyle changes are important to prevent and treat urinary retention problems (Burkhard et al. 2020). In Slovenia, professional counselling in this regard is offered (among others) by providers in the field of physical activity in health promotion centres (HPC) and health education centres (HEC). Although urinary incontinence (UI) is not a life-threatening condition, it has a major impact on an individual's quality of life. It is a hygienic, psychophysical and social problem that carries a financial burden (Corrado et al. 2020). UI affects 5-70 % of women worldwide. 40 % of women over the age of 70 experience UI (Milsom and Gyhagen 2019, 2017).

## 2 PURPOSE AND GOALS

The main goal of this study was to obtain data on the share of adults with stress urinary incontinence, identify the most frequent target groups and the most commonly used management strategies in HPC and HEC.

## 3 METHODS

The thesis is based on a quantitative research method. The data was collected through an online survey 1KA. The survey was conducted using a survey method in the form of an online questionnaire, which was intended for practitioners of treatments and activities in the field of physical activity carried out in HPC and HEC. Prior to conducting the survey, we obtained the consent of the community health centres directors and leaders of all HPCs and HECs to participate in the online survey. The survey was conducted anonymously and voluntarily. After obtaining consent, we sent the invitation to graduated physiotherapists and graduated kinesiologists for the participation in the online survey through their center leaders. The questionnaire was available from 14<sup>th</sup> of March 2022 till 19<sup>th</sup> of May 2022. The data were obtained with the help of the web platform 1KA and then exported and processed with the help of the statistical computer program IBM SPSS Statistics 23.0. We analysed the data using descriptive statistics, calculating frequency and percentage values as well as meas-

ures of central tendency and dispersion where the nature of the data allowed. For two sets of questions, where the measured data level was appropriate, we also calculated the confidence measure using the Cronbach alpha coefficient.

## 4 RESULTS

There were 43 respondents employed in HPC or HEC, who participated in this survey. 33 were women (76,7 %) and 10 were men (23,3 %). Their average age was 34 years and about 68 % of respondents are between 24 and 44 years of age (min = 24; max = 60; PV = 34,00; SD = 9,45). Respondents differ in the highest level of education attained. Most of them (n = 31; 72,1 %) have completed a professional higher education, fewer (n = 9; 20,9 %) have an academic higher education, and the least (n = 3; 7,0 %) have a higher vocational education. Among them, the largest proportion (n = 31; 72,1 %) represented the profile of a physiotherapist, there were few kinesiologists (n = 8; 18,6 %), and those who were both physiotherapists and kinesiologists in one person, were only 3 (7,0 %). The sample also included 1 registered nurse (2,3%). The average length of service of respondents in HPC or HEC was about 3 years (min = 0; max = 15; PV = 3,26; SD = 2,41). 3 respondents (7,0 %) have been employed for less than 1 year, and 1 of them (2,3 %) reported 15 years of service, which is the highest service among all respondents in the sample. Respondents are representatives of different HPCs and HECs across Slovenia, as can be seen in Table 1. The least of them are from the Obalno-Kraška and Posavska regions, and the most of them are from Osrednjeslovenska, Podravska and Pomurska regions.

**Table 1: Statistical region**

Statistical region	f	%
Osrednjeslovenska	6	13,9
Gorenjska	5	11,6
Koroška	3	6,9
Goriška	4	9,3
Obalno-kraška	1	2,3
Primorsko-notranjska	3	7,0
Zasavska	2	4,7
Posavska	1	2,3
Savinjska	4	9,3
Podravska	6	14,0
Pomurska	6	14,0
Jugovzhodna Slovenija	2	4,7
Sum	43	100,0

Legend: f = frequency

18 practitioners (41,9 %) reported that patients with SUI represent a medium proportion, or between 40 and 59 %. Among 17 practitioners, representing 39,5 % of the sample, answered that patients with SUI represent a minority proportion, or between 20 and 39 %. 7 practitioners (16,3 %) reported that patients with SUI represent a higher proportion – more than 60 % of the participants. A more detailed picture can be seen in Table 2.

**Table 2: Proportion of workshop participants coping with stress urinary incontinence**

Proportion	f	%
All or a large majority (more than 80 %)	6	14,0
Majority (between 60 % and 80 %)	1	2,3
Medium (between 40 % and 59 %)	18	41,9
Minority (between 20 % and 39 %)	17	39,5
None or very little (less than 20 %)	1	2,3
Sum	43	100,0

Legend: f = frequency

The most common detected form of UI was SUI (n = 19; 44,2 %) and MUI (n = 19; 44,2 %). Approximately 1/4 (n = 11; 25,6 %) of respondents reported treatment of patients with UUI.

Participants of our study stated that in most cases (n = 30; 69,8 %) patients were referred to them for the treatment by a personal family practitioner and a family medicine nurse practitioner. There were some cases of self-referral (n = 25; 58,1 %), followed by referrals from gynaecologists (n = 15; 34,9 %), referrals from clinical physiotherapists (n = 11; 25,6 %) and 3 (7 %) referrals from a community nurse. 1 of the respondents (2,3 %) said that those who know or see the adverts on Facebook also came. More precise response rates can be seen in Table 3.

**Table 3: Referral profiles**

Referral profiles	f	%
Personal family practitioner	30	69,8
Family medicine nurse practitioner	30	69,8
Clinical physiotherapist	11	25,6
Community nurse	3	7,0
Gynecologist	15	34,9
Patients come on their own without referral	25	58,1
Acquaintance/Advertisement via Facebook	1	2,3

Legend: f = frequency

Table 4 shows that all respondents (n = 43) performed individual counseling/conversation hours, in which topics related to the SUI, were discussed frequently (PV = 3,58). At the "I move" workshop respondents discussed topics related to the SUI very frequently (PV = 3,95), while 4 respondents (9,3 %) did not conduct it in practice. The "Healthy weight" workshop was conducted by 35 respondents, representing 81,4 % of the total sample. Among these respondents, topics related to SUI are most frequently addressed (PV = 4,00). In the case of activities in the local community, respondents least often addressed topics related to the SUI (PV = 2,78). However, this activity was not carried out in 7 cases of respondents (16,3 %). Some respondents (9,3 %) stated that they also address topics related to SUI at group prevention interventions with pregnant women.

**Table 4: Descriptive statistics on the frequency of treatment of topics related to stress urinary incontinence**

Treatments/activities	N	Min.	Max.	PV	SD
Individual counseling/conversation hours	43	1	5	3,58	1,05
"I move" workshop	39	1	5	3,95	1,07
"Healthy weight" workshop	35	1	5	4,00	1,06
Activities in the local community	36	1	5	2,78	1,05

Legend: N = number of responses; Min. = minimal value; Max = maximum value; PV = arithmetic mean; SD = standard deviation

21 of the respondents (48,8 %) rate the effectiveness of pelvic floor muscle training in treating SUI as highly effective (effective in 61-80 %), and about a 1/4 (n = 10; 23,3 %) rate the effectiveness as 100 % or very high (effective in 81-100 %). Furthermore, about a 1/4 of them (n = 10; 23,3 %) consider the effectiveness to be moderate (effective in 41-60 %). However, 2 respondents (4,7 %) rated the effectiveness of the method as low (effective in 21-40 %).

The most common method or technique of treating individuals for the purpose of conservative treatment of SUI was pelvic floor muscle training, which was practiced by almost all (n = 42; 97,7 %), with the exception of 1 respondent. 4 respondents, representing 9,3 % of the sample, also reported the use of pelvic floor stimulation. The other methods given were not used by the operators included in the sample.

Most respondents (n = 40; 93,0 %) reported using didactic aids, while 3 respondents (7,0 %) reported not using them in their work.

Among those who reported the use of didactic aids, the most frequently used were the "I move" workbook (77,50 %) and the "Pelvic floor muscle training" poster (75,0 %). This was followed by the "Healthy weight" workbook (65,0 %), the pelvic floor muscle model (62,50 %), the ABC exercise cards (57,50 %), the audio-visual aids (videos) (15,0 %), the questionnaire: "How I am progressing" (10,0 %) and other pelvic floor training aids (educators, pelvic weights) (5,0 %). In addition to the above, respondents also reported the use of the anatomic spine model, the website that describes physical activity during pregnancy and their own didactic aids (e.g. PowerPoint presentations).

If treatment providers came to the conclusion that participants in treatments or activities related to SUI or any other form of UI require additional and more in-depth treatment, they were then referred to a gynaecologist (n = 24; 55,8 %) or a personal family practitioner (n = 23; 53,5 %). They were also referred to a physiotherapist with specialized skills in a clinic or women's health resort (n = 18; 41,9 %), less to a urologist (n = 3; 7,0 %) and a physiotherapist in a physiotherapy outpatient clinic (n = 1; 2,3 %). 3 respondents indicated that they had not yet experienced further referral either because of their own higher knowledge in relation to SUI or because of the absence of such a situation.

The Covid-19 epidemic resulted in individual adaptations of work in the treatment process of participants. The largest proportion of respondents (n = 25; 58,1 %) reported more individual treatment. About 30 % of respondents (n = 13; 30,2 %) reported a change in group size from larger to smaller groups and a change in the course setting - both live and remote (n = 14; 32,6 %). Around 1/5 of respondents (n = 8; 18,6 %) reported that no adjustments were needed. About 1 in 10 (n = 5; 11,6 %) reported that they started performing online interventions. In summary, adjustments were made, but they were not drastic: the hearings became a bit more individual, taking place both live and remotely.

Almost all respondents (n = 41; 95,3 %), with the exception of 2 (4,7 %), reported a desire to acquire an additional and in-depth knowledge in the field of SUI.

The survey results show that women are the most frequently treated in all age categories for SUI. Older women (65+ years) are the most frequently treated (PV = 3,42), followed by middle-aged women (36-64 years) (PV = 3,40). Among the younger ones, pregnant women are the most frequently treated (PV = 2,77). Men are treated less than women of all ages. For both women and men, the proportion of those entering treatment for SUI increases with age.

Treatment providers estimate that in about 1/2 of the cases (n = 24; 55,8 %) they do not know the social stratum of treated participants. However, around 30,2 % (n = 13) indicated that they were in the lower middle class. Fewer, reported treatment of participants coming from upper middle or upper class (n = 5; 11,7 %) and lower class (n = 1; 2,3 %).

On average, according to the estimation of treatment/activity providers, SUI represents a medium to large life problem for their participants (n = 30; 69,7 %).

## 5 DISCUSSION

According to our survey, the proportion of participants, who came to individual counselling and/or group treatment dealing with SUI ranges between 40 and 59 %. In some workshops/treatments, all or the vast majority struggled with SUI, presenting SUI as a widespread problem. There was a chance that people were generally afraid or ashamed to talk about their UI problems and that we did not discover the full number of people with UI. According to the Epidemiology of Incontinence in the Country of Nord-Trøndelag (EPINCONT) survey conducted from 1995 to 1997 in Norway, questionnaires were sent to 34,755 women aged 20 years or older. The results showed that 25% of women struggle with UI (Hannestad et al. 2000).

Based on the results of our research, we could see that the participants of the treatment were equally likely to deal with both MUI and SUI. A meta-analysis conducted after the LUTS POLAND study, which examined 6.005 surveys (3.393 women, 2.612 men), showed that women were most likely to have SUI (248 subjects, or 7,3 %), while men had UUI (61 subjects, or 2,3 %) (Przydacs et al. 2021).

The majority of people in our survey were referred for treatment by a personal family practitioner and a family medicine nurse practitioner, while a good 1/2 of them come on their own initiative and a good 1/3 were sent by a gynecologist, and about a 1/4 by outpatient physiotherapists. In the

study by Palkovič (2012, p. 34), 52 % or 55 patients were referred by a gynecologist, 20 % or 21 persons by a personal family practitioner, and 28 % or 29 persons came to the treatment on their own initiative. In the study by But et al. (2013), medical doctors in most cases refer patients to a specialist for further treatment (92,7 %).

The results of our research shown that topics related to SUI were most often discussed at the "I Move" workshop. The research conducted by the National Institute of Public Health (NIJZ), which took place from 31st of March 2015 till 30st of November 2015 in pilot environments of the community health centres Celje, Sevnica and Vrhnika, showed that in Sevnica, they prefer to conduct a conversation about UI individually (NIJZ 2016, 156).

Most practitioners in HPC and HEC rated pelvic floor training as highly effective (61-80 % efficiency) when performed correctly and consistently according to evidence-based instructions. However, a large percentage also considered the efficiency to be very high (81-100 % efficiency). A meta-analysis by García-Sánchez et al. (2019), which analyzed 1.701 articles, showed that the pelvic floor muscles training significantly reduces urine loss. It also showed greater improvement in UI in people who trained their pelvic floor muscles several times per week.

Our study shown that the respondents also use pelvic floor stimulation in addition to exercising the pelvic floor muscles. A meta-analysis by Moroni et al. (2016) found that a combination treatment involving pelvic floor training and other conservative treatment methods (biological feedback, pelvic floor stimulation and vaginal weights) had a better effect on treatment outcome.

Most of our respondents in our survey used didactic aids, because they were needed for better understanding. The most commonly used tools were the "I move" workbook and the "Pelvic floor muscle training" poster. In a survey conducted from 31<sup>st</sup> March till 30st November 2015, conducted by National Institute of Public Health with 4.346 participants, found that practitioners use various didactic aids (NIJZ 2016, 175).

When patients need additional and more in-depth treatment regarding SUI, the treatment providers or respondents of our research most often referred them to a gynecologist or personal family practitioner. In a study conducted by National Institute of Public Health (2016, 169), it was found that patients were most often referred to a personal family practitioner, a community nurse and a gynecologist.

According to the results of our research, treatments during the Covid-19 epidemic in more than 1/2 of the cases became more individual or took place in smaller groups, furthermore they were performed both live and remotely. In the annual report 2021 from the Nova Gorica community health center, we could see that only 31 % of preventive programmes were implemented, as the HPC was completely inactive for a first 1/3 of the year, and the rest of the year it operated with reduced staff. The programmes were conducted remotely (Nova Gorica community health center 2022, 7). HEC Ljubljana also ceased operations twice in 2020 (spring and autumn). In summer and autumn, the groups became smaller (5 participants) or more individual (Zdravstveni dom Ljubljana 2021, 185).

Respondents also answered that they would like to gain additional and in-depth knowledge in connection with SUI. This was first researched in 2016, when the National Institute of Public Health conducted a study on the pilot implementation of the program of integrated prevention of chronic non-communicable diseases and reduction of health inequalities in adults. Their findings showed that the practitioners of the "I move" workshop have insufficient knowledge in certain areas (NIJZ 2016, 177).

Our survey showed that older women (65+ years) were the most frequently treated, followed by middle-aged women (36-64 years) and then young pregnant women (18-35 years). Men were treated less than women. For both women and men, the proportion of those entering treatment for SUI increased with age. Similarly, the EPINCONT study found out that the frequency of UI increased with age. The lowest incidence occurred in younger age groups (12 % in women under 30 years of age), followed by middle-aged women (30 % in women 50-54 years of age), and the highest incidence occurred in older women (40 % in women over 90 years of age) (Hannestad et al. 2000). A meta-analysis conducted by Moosdorff-Steinhauser et al. (2021) showed that the incidence of UI among early pregnancies ranges from 16,4 % to 21,7 % and increased in late pregnancies between



45,6 % and 63,2 %. They also found that the incidence of UI during pregnancy, regardless of pregnancy trimester, ranged from 16,8 % to 39,1 %.

The social stratum of the participants was unknown in 1/2 of the cases in our study, and where it was known, the participants were mostly from the lower middle class. UI was a medium to large life problem according to our research. This was also confirmed by the EPINCONT study, which showed that urine leakage was a major life problem for 10% of people with UI. 2/3 of women with UI leakage presented no problem or only minor inconvenience (Hannestad et al. 2000).

## 6 CONCLUSION

Since the percentage of people, who came to individual counselling and/or group treatment and cope with SUI is high (between 40 and 59 %), it is necessary to inform patients about possible preventive procedures and treatment. SUI is not only a result of biological aging, but there are several possible causes of its occurrence. SUI can be prevented, so prevention and awareness-raising of people about the possible causes of its occurrence or ways of preventing its occurrence are important. SUI is also curable, so it is important to spread information about possible treatments and that different healthcare professionals can offer help. Within the Slovenian healthcare system, the patient has the fastest access to preventive treatments offered by healthcare professional in HPC and HEC. Most respondents of our survey see pelvic floor muscle training as highly effective, so it is important to intensively raise awareness about proper and regular pelvic floor muscle exercise using additional didactic aids to facilitate understanding of the correct way of exercising. In addition to pelvic floor muscle exercises, it is important to use other techniques and methods as well as tools for conservative treatment, such as biological feedback, pelvic floor stimulation, vaginal weights and pessary, as they can help speeding up the recovery. People with different forms of UI also face many social and psychological problems that urine leakage brings to their daily lives. It is significant to get help and information from well-trained healthcare professionals or practitioners. Most respondents in our survey want further and in-depth education in this area. Since SUI is still a taboo topic, it is important to start talking about it more publicly. The question needs to be raised in professional circles as to what we need to do to get patients to talk more openly about their problems with healthcare professionals. Most likely, we would find more individuals of both sexes struggling with SUI. People keep silent about their health problems, which may be due to a lack of awareness, but it may also be due to their personal beliefs that it is either a normal situation or a temporary problem that will soon pass. It is significant to detect SUI as soon as possible and refer the patient to appropriate conservative treatment. When there is no improvement in SUI after completion of this treatment, it is important to refer the patient to a specialist (physician and/or women's health clinical physiotherapist) for further treatment. It is crucial that all those involved in the process of conservative treatment and/or prevention are aware of the characteristics that a person experiences, when he or she loses control over urination. Since this type of health issue most often occurs in older women, the awareness rise is very important among them. In addition to the generally studied causes (age, gender, pregnancy), other causes could be investigated in more detail, such as overweight, chronic cough as a result of smoking, heavier physical exertion, etc. Based on a questionnaire for participants, we could explore the reasons why they don't talk to doctors about their UI problems.

In the future, we could investigate in more detail the causes of the same amount of occurrence of SUI and MUI in HPC and HEC, because according to the current questionnaire we found the presence of both UI with the same frequency. In further research, we could explore in more details knowledge of respondents and information about the precise desired knowledge. Among other things, we discovered that in one case the training part was also performed by nurse, for whom we do not know whether she was specially or additionally trained for this type of field work. Further research could also lead to the design of a targeted questionnaire for trial participants to obtain more accurate information on the size of the SUI problem. Next research could also determine what we can do to make patients more educated about how to prevent and treat SUI, and how much awareness they already have. Finally, the availability of health information on possible prevention and treatment options and why patients prefer to undergo surgery or use diapers, could also be explored. We could find out, how big a lifestyle problem UI really is of our patients in different stages of their

life. Our survey had some shortcomings, namely that only a good 1/2 or 53 % of treatment and activity providers participated in the survey. Despite the fact that we obtained the consent of many directors of community health centres and leaders of HPC and HEC to participate in the online survey, we did not get the questionnaire answered by most of the providers of treatments and activities in the field of physical activity in practice.

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## SHORT BIO

**Aleša Kukovica** is a graduate physiotherapist, who graduated from Angela Boškin's Faculty of Health Care the 7 of April 2023. She wrote a research paper entitled "Prevalence and Management of stress urinary incontinence in health promotion and health education centres", with the co-authorship and mentorship of Andrea Backović Juričan.

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# STUDY PROGRAMS ACCREDITED AT AMEU ECM

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	EUROPEAN BUSINESS STUDIES PROJECT MANAGEMENT	PROJECT MANAGEMENT
PHYSIOTHERAPY	HEALTH SCIENCES Nursing, Public Health, Physiotherapy, Integrative Health Sciences, Autism	PHYSIOTHERAPY
NURSING		
ARCHIVES MANAGEMENT	ARCHIVES AND RECORDS MANAGEMENT	ARCHIVAL SCIENCES
	ENVIRONMENTAL STUDIES	
DANCE, CHOREOGRAPHY	DANCE STUDIES	
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LOGOPEDAGOGY Specialist studies		
PSYCHOTHERAPEUTIC PROPEDEUTICS Specialist studies		