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editorial

Dear Readers,

The journal “Zdravotníctvo a sociálna práca” (Health and Social Work) was renamed in 2021 to International Journal of Health, New Technologies and Social Work.

Our long-term effort is to gradually acquire for the journal European significance and be included in international databases. Starting with issue No. 4 in 2016, the journal accepted the Harvard style of referencing, and changed guidelines for the authors. The aim of the changes was to move closer to the standard in international journals published in English in the area of health and helping professions. The editors are aspiring for registration in other relevant international databases. Since last 2020 the journal has published all articles in English only.

The journal “Zdravotníctvo a sociálna práca” (*Health and Social Work*) was established in 2006 at Faculty of Health and Social Work blessed to P. P. Gojdič in Prešov and St. Elizabeth University College of Health and Social Work in Bratislava. In 2023, the journal celebrated its 18th year of publication.

Previously professional journal, within 5 years developed into an international, peer-reviewed scholarly journal, published quarterly (4 issues per year). The journal were published by the St. Elizabeth University of Health and Social Work in Bratislava. The journal became international in 2009. The journal was published and distributed in the Slovak Republic and also in the Czech Republic.

Since 2011, the journal is published both in print and as electronic issues, available from: www.zdravotnictvoasocialnapraca.sk. Starting by issue No. 3 in 2014, the scope of the journal has broaden and the journal is covering health sciences, such as Public Health, Nursing, Laboratory Medicine, but also helping professions such as Social Work or Pedagogy.

The journal is indexed in the following databases: Central and Eastern European Online Library — CEEOL (since 2018), Bibliographia Medica Slovaca (BMS), and Slovak reference database CiBaMed.

The part of journal is Supplementum, to publish abstracts from international conferences organized by the St. Elizabeth University of Health and Social Work in Bratislava.

prof. Miron Šrámka, MD, DSc.
redactor-in-chief

SOUTH SUDAN MISSION IN MAPUORDIT HOSPITAL AND ST. ELIZABETH UNIVERSITY – SOME FACTS FROM ANNUAL REPORT

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ABSTRACT

South Sudan's social services and health infrastructure have been decimated after years of war. The Vision/Mission Statement of DOR Mary Immaculate Hospital (MIH) Mapuordit is to provide integral, affordable, accessible and sustainable health care for the people living in the Hospital area.

The aim of the article is the Overview of Health Services in 2022, when continued partnership with St. Elizabeth University — VŠZaSP (Slovakia).

A total of 53,227 patients were seen in Out Patient department (OPD) of whom 14,706, (27.6 %) were < 5 years of age. There were 7,967 patients admitted to the Hospital of whom 2,785 (34.9 %) were < 5 years of age.

ABSTRAKT

South Sudan's social services and health infrastructure have been decimated after years of war. The Vision/Mission Statement of DOR Mary Immaculate Hospital (MIH) Mapuordit is to provide integral, affordable, accessible and sustainable health care for the people living in the Hospital area.

Sociálne služby a zdravotná infraštruktúra Južného Sudánu boli po rokoch vojny zdecimované. Vyhlásenie o vízii a poslaní nemocnice DOR Mary Immaculate Hospital (MIH) Mapuordit je poskytovať integrálnu, cenovo dostupnú, dostupnú a udržateľnú zdravotnú starostlivosť pre ľudí žijúcich v spádovej oblasti nemocnice.

Cieľom článku je prehľad zdravotných služieb v roku 2022, kedy pokračovalo partnerstvo s Univerzitou sv. Alžbety — VŠZaSP (Slovensko).

Celkovo bolo na ambulancii (OPD) vyšetrených 53 227 pacientov, z ktorých 14 706 (27,6 %) malo menej ako 5 rokov. V nemocnici bolo prijatých 7 967 pacientov, z ktorých 2 785 (34,9 %) bolo mladších ako 5 rokov.

Introduction

After years of devastating civil conflict, South Sudan's social services and health infrastructure have been decimated. Compounding matters, conflict in countries bordering South Sudan has also spilled over into the country. To improve the Health status of the population and provide quality Health care to all people of South Sudan, most especially the vulnerable women and children is the main aim in every Hospital.

The Vision/Mission Statement of DOR Mary Immaculate Hospital (MIH) Mapuordit is to provide integral, affordable, accessible and sustainable health care for the people living in the Hospital catchment area, and is directly inspired by the declaration of Jesus Christ that He has come so that "they might have life and life to the full" (John 10,10). The Hospital is committed to a holistic, integrated and sustainable action in health. This includes disease prevention, curative treatment, health promotion, and facilitation of training of health workers. The Hospital tries to instill in its' staff that all their actions should be for the betterment of the community which they serve, with the patient being the focal point and especially the less privileged and vulnerable in this community i.e, women, children, the financially destitute or poor and the chronically ill. MIH is a Rural Hospital situated 75 kms southwest of Rumbek, Capital of Lakes State in the Republic of South Sudan, being founded in 2002.

The current bed capacity is 120 beds. The Hospital Catchment area encompasses 3 Counties (Yirol West, Mvolo and Rumbek East), with an estimated population of approximately 200,000 people. Situated in a very remote rural area, the hospital relies on sophisticated solar powered electricity, which also pumps borehole water, which is then piped to all patient areas. The hospital operates a 5 day /week OPD with an on-call roster for clinicians who attend to emergencies during weekends and after hours. Seriously ill patients can be directly received into inpatient wards on occasions when they present to the hospital during after-hours periods. The O. T. is equipped to attend to emergency operations 24 hrs/day. The hospital carries out a 6-month Basic Nursing Course (usually every two years), providing a training for Hospital Auxiliary Nurses, who, upon graduation, are employed to work in the hospital, constituting the majority of the nursing working force of the hospital.

The number of permanent National staff is 116, supported by 11 expatriates, from the neighbouring Countries of Uganda, Kenya, Italy and Mexico. Since its' Foundation in 2002, the Hospital has been managed for Diocese of Rumbek (DOR) by the Comboni Missionaries Congregation (MCCJ). The Medical Director/CEO (Br. Dr. Rosario Iannetti), and Nurse Anaesthetist, Br. Andres Gaspar, continue to represent MCCJ until today.

The top management of the Hospital comprises the Board of Governors which has 6 core members and is presided over by Bishop Christian Carlassare, Bishop of the Diocese of Rumbek. This year, the Board met three times as per the Hospital Charter, only made possible after the inauguration of Bishop Christian Carlassare on 25th March 2022 this year, in Rumbek, Lakes State Capital and the centre of the Diocese of Rumbek. It was a joyously beautiful and memorable day especially since the Diocese has been longing for a Bishop for almost 11 years, following the death of Bishop Mazzolari on 16th July 2011.

Organizational Structure

The top management of the Hospital comprises the Board of Governors (The Board or BOG), which has the task to secure the Vision and Mission of MIH as an Institution. The Board is comprised of 6 members with voting rights — the DOR Bishop (Chairman), the Provincial Superior of the Comboni Missionaries in SS, a representative of State Ministry of Health (SMoH), a representative of CUAMM (Italian NGO) and a local community Representative. There are also 3 advisory members without voting rights — the Medical Director of MIH, the Hospital Administrator, and the Hospital Secretary, who is also secretary to the Board. The Inaugural (1st) Interim Board (IB) Meeting took place in June 2015 in Rumbek while from November 2016, all following meetings took place in Mapuordit, the last Interim Board was held in March 2020. From April 2022 the IB became a full BOG due to the presence of the newly Consecrated Bishop. The BOG managed to meet three times during this reporting period, as stipulated in the Hospital Charter at which time many pending issues were resolved. The foundational documents so far in place, are the Hospital Charter and the Human Resources Manual, the latter being up-dated this year after the 11th BOG approved the changes proposed by the Hospital Management Team (HMT).

The daily running of the Hospital is ensured by the HMT composed of 10 members, all with voting rights — Medical Director/CEO, Administrator, Deputy Medical Director, Senior Accountant, Senior Nursing Officer, Deputy SNO, Staff Development Officer, Finance Officer, Staff Representative and Hospital Secretary (who also takes minutes).

Material and Methods

Retrospective analysis of the Hospital results in 2022. The daily running of the Hospital is entrusted to the HMT, which presently holds meetings weekly. HMT comprises senior management of the Hospital, with 10 members, 1 of whom is a staff representative. Any issues of great significance, or which deviate from planned policies, are referred to the BOG

for deliberation. On occasion, certain staff will be invited to attend the HMT, usually for matters of work performance appraisal or for Disciplinary matters.

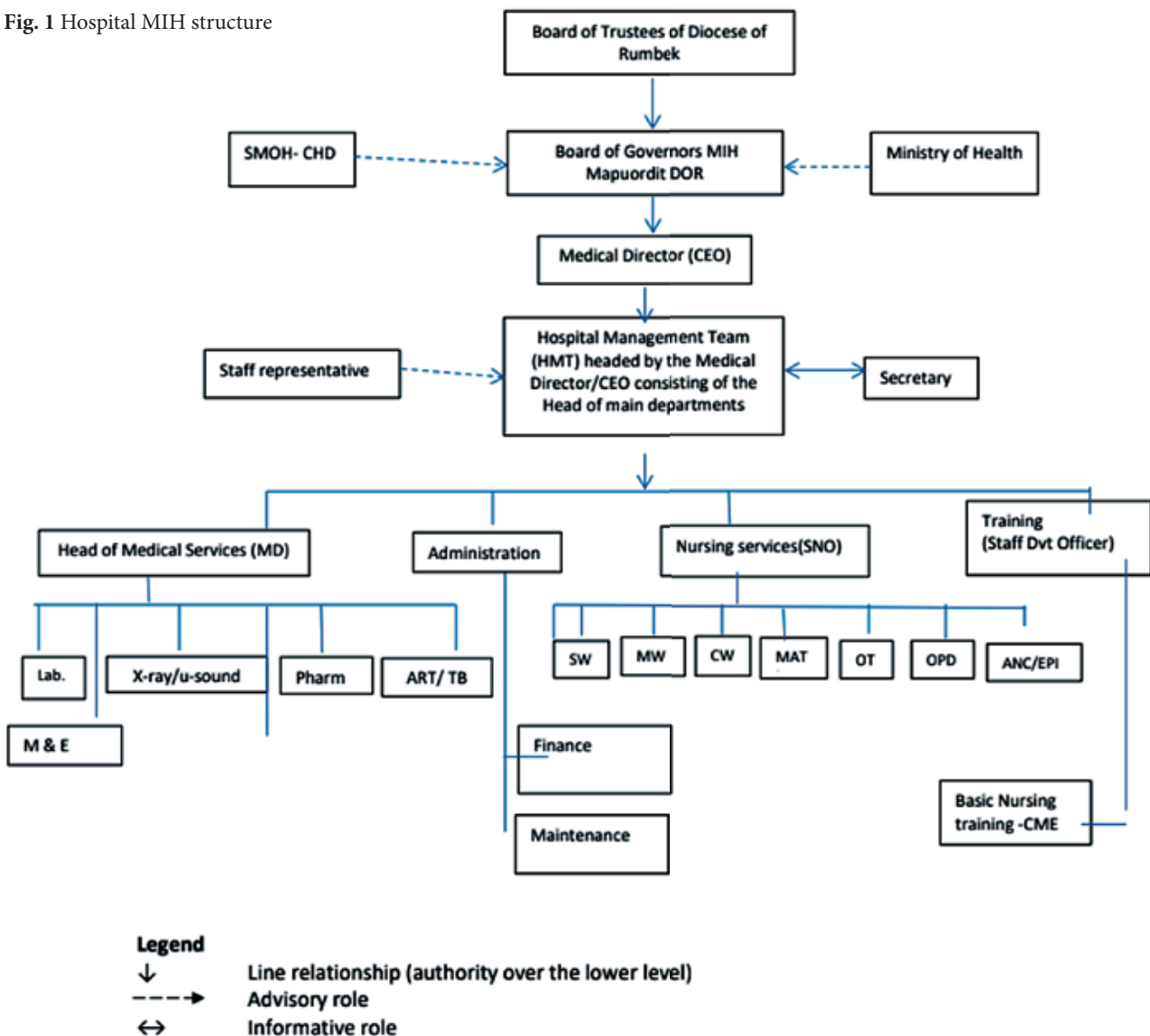
The Out Patient Department (OPD) has 2 sections — the larger area is for all adult consultations, seen by one of 5 clinicians, all of whom are Nationals — 3 are Clinical Officers, one having completed his internship in 2022, one is a Medical Assistant and 1 is a very experienced Community Health Worker. Complex cases are referred to either the Medical CO or the Surgeon, depending on the nature of the complaint. A small user fee is charged for all OPD consultations, which includes all laboratory investigations ordered, as well as all medications dispensed. Patients requiring Ultrasound or X-ray, incur an extra charge. The smaller area of OPD is for Paediatric cases- children < 5 years of age, who are seen by the Senior Clinical Officer.

Health Education sessions are given in the OPD waiting areas at least 2 — 3 times/week, normally carried out by a Mobiliser, who is stationed here under an initiative of UNICEF, and sometimes by an ICAP staff. As a routine, all children presenting for treatment < 5 years of age, have nutritional screening, including weight and mid-upper arm circumference measurement (MUAC) and are referred to the Nutrition Centre if necessary. Nutrition department is managed by the NGO International Rescue Committee (IRC) which has two staff stationed in MIH. They can handle severe and moderate malnutrition without complications as out-patients but any malnourished children with complications are referred to Yirol State

Results

A total of 53,227 patients were seen in Out Patient Department (OPD) of whom 14,706, (27.6 %) were < 5 years

Fig. 1 Hospital MIH structure



of age. There were 7,967 patients admitted to the Hospital of whom 2,785 (34.9 %) were < 5 years of age. In 2022 Hospital attendance figures show an approximate 26.8 % increase in User contacts when compared to the same indicators used for 2021, with 69,755 contacts in 2022 (54,986 contacts in 2021). Year 2022 has been a peaceful year without incidents of insecurity or cattle rustling. In October they achieved the highest daily OPD attendance yet recorded, with 373 patients seen in one day. This increase in patient numbers has greatly increased total drug consumption, with a large portion of the budget (24 %) being allocated to the purchase and transportation of drugs and medical supplies.

The guiding parameters of Hospital performance are the 5 areas of statistical reporting generated each month in the Health Management Information System (HMIS) statistical data and here presented to record the amount of work achieved in 2022:

- 1 Outpatient contacts (OPD)
- 2 Inpatients contacts
- 3 Deliveries
- 4 Antenatal Contacts (ANC)
- 5 Immunisation doses administered through EPI Program (EPI)

The OPD has 2 sections — the larger area is for all adult consultations, seen by one of 5 clinicians, all of whom are Nationals — 3 are Clinical Officers, one having completed his internship in 2022, one is a Medical Assistant and 1 is a very experienced Community Health Worker. Complex cases are referred to either the Medical CO or the Surgeon, depending on the nature of the complaint. A small user fee is charged for all OPD consultations, which includes all laboratory investigations ordered, as well as all medications dispensed. Patients requiring Ultrasound or X-ray, incur an extra charge.

Hospital Stabilisation Centre

From 2018, CUAMM became the Implementing Partner of WFP for all health facilities in Yirol West County. In 2022, WFP, through CUAMM and later IRC, provided the Hospital with food supplies for various feeding programs throughout the year.

Program for malnourished Pregnant and Lactating Women (PLW) and children with Moderate Acute Malnutrition (MAM).

Outpatient Therapeutic Program (OTP) for Children with Severe Acute Malnutrition (SAM) until March 2022, CUAMM supported the Nutrition Surveillance Program which included the Stabilization Centre for severely malnourished children admitted for intensive, supervised nutritional feeding and supportive medical care. From March 2022, the program was handed over to International Rescue Committee (IRC). Unfortunately, IRC did not have sufficient funding to support the Stabilization Center (SC) in MIH and reluctantly, the Stabilization Centre was closed. Since closure of the unit, all malnourished children with complications requiring stabilization, are referred to Yirol County Hospital Stabilization Centre (65 km away).

NAP Nutrition Support Project

The Project has been funded by North American Province of Comboni Congregation (NAP) since May 2012. From the outset, the overall aim of the project has always been to provide nutritional support to vulnerable client groups, identified to be HIV positive clients, pregnant women admitted with conditions such as severe anaemia or premature rupture of membranes, malnourished infants with or without HIV or TB (who are always accompanied by a relative who also needs to have food support) and selected chronic psychiatric patients, as well as some few patients who are admitted without family support.

Meals served in 2022

Note: A plate of cooked food cost SSP 350 (cost of the food plus labour) from January to August and 2 cups of porridge cost SSP 90 (cost of labour only, to which should be added SSP 120 for the cost of the food purchased by MIH). From Sept to December, due to the high cost of market prices caused by the devaluation of the SSP against the USD, the cost of the food was adjusted from SSP 350 to SSP 500 per plate of food and SSP 140 (labour) + SSP 160 (food) per porridge serving (a total of SSP 800 per patient per day which at the current exchange rate of \$1 = SSP 800 translates to \$1 per patient per day).

Partnership with St. St. Elizabeth University (Slovak Republic)

In 2022 Slovakian Doctors sent through St. Elizabeth University Program were Dr Jana Popovova, Dr Dominika

Fig. 2 Total meals served at local currency cost in 2022 in MIH

Type of meals	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Food and porridge	1,426	1,318	1,755	2398	1504	1437	1,768	1,567	1,988	1,782	1,726	1,631	20,300
Cost in SSP	627,400	579,920	772,200	1,055,120	661,760	632,280	777,920	689,480	1272,320	1140480	1104640	1043840	10,357,360

Strakova, Dr Karin Fizekova and Prof. Dr. Alena Furdova. These Doctors greatly contributed to the patient management of MIH. They took part in afterhours calls, performed scans, conducted ward rounds and consultations in Medical clinic and Pediatric OPD clinic. We give special thanks to all the Slovak and Czech doctors who agree to come and give us their full-hearted support, not only through their professional contribution, but also through the richness of the cultural exchange.

MIH are so grateful to St. Elisabeth University for this generous assistance and to Mrs. Daria Kimuli, who currently administers this project from Nairobi.

Thanks to prof. Vladimir Krcmery

The MIH convey to the Administration of the St. Elizabeth University their heartfelt condolences for the untimely departure on 20th December 2022 of Prof. Vladimir Krcmery, the founder of St. Elisabeth University.

Professor Krcmery played a significant role in the history of DOR Mary Immaculate Mapuordit Hospital. In 1999, when he was the chancellor of Trnava University, he answered positively to the appeal of the then DOR Bishop Mazzolari for the establishment at Mapuordit of a small, prefabricated hospital with a fully equipped Operation Theatre Tent. In 2000 Trnava University sent the fully equipped OT tent and the first Slovakian team comprising a Gynaecologist, a nurse, and a logistician. From that time until now, Prof. Krcmery was instrumental in sending to MIH, almost uninterruptedly, more than a hundred Slovakian doctors on a 3 months base rotation (usually two doctors per time), first, in his capacity as chancellor of Trnava University until 2009 and then as Chancellor of St. Elisabeth University from 2011 until 2023, when he died. He was also the one suggesting to Bishop Mazzolari to name the hospital after Our Lady Mary Immaculate. Thanks to his ideas, cooperation between Slovakia and South Sudan was born.

Discussion

Despite the progress in global health, all women but also children in developing countries continue to be among the most vulnerable. This motivates the several organizations to focus on improving their lives and the lives of their communities.

Embracing the bond between the Catholic faith, values, and service to those most in need, they provide effective health solutions founded on love and respect for all.

Achievements in 2022

In The Bible we find: For I was hungry and you gave me food, I was thirsty and you gave me drink, I was a stranger and you welcomed me, I was naked and you clothed me, I was sick and you visited me, I was in prison and you came to me.' Then the righteous will answer him, saying, 'Lord, when did we see you hungry and feed you, or thirsty and give you drink? And when did we see you a stranger and welcome you, or naked and clothe you? And when did we see you sick or in prison and visit you?'(1,2)

The important increase of about 25 % of the patients attending the hospital mainly due to a stable and peaceful environment throughout Lakes State for the entire year 2022 brought about by the tough security measures imposed on all Lakes State communities by the Governor, General Rin Tuony, who took up his position in July 2021. People have been able to move freely and without fear, resulting in an increase in the number of people accessing the various health services. People from as far as Unity State are now being seen in big numbers, seeking service in the hospital. (3)

Conclusion

Apart from ANC and EPI, the main hospital parameters have steadily increased in the last three years. This upward trend is expected to continue as the positive reputation of MIH grows, alongside the continued state of security and peaceful co-existence that we can currently enjoy. All the Staff of MIH wish to thank St. Elisabeth University in Slovakia, for the continued commitment to the hospital and they appreciate the service offered by the young doctors whom they send from Slovakia to South Sudan.

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Consumption of Energy Drinks by Students in Trnava Universities

Užívanie energetických nápojov poslucháčmi na trnavských univerzitách

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ABSTRACT

Objective: The paper deals with the increased consumption of energy drinks as well as sugar-sweetened beverages among young adults. The work mentions the negative impact of energy drinks and sugar sweetened beverages on cardiovascular and neurological system, the possible causes of metabolic problems as well as the dental risks connected with their consumption. Postmodernism is not a key solution for the development of our culture and society nowadays as the elements of postmodern thinking can also negatively affect the general socio-cultural level of social life, but also special areas, morality, school, politics, economy, etc. The postmodern society often encounters various allowed and in some cases accepted behaviors connected with specific understanding of freedom or the possibility of free choice reflected in the consumerist way of life but the main problem today is that consumption has become the norm.

The aim of the study: To analyse the knowledge and consumption of energy drinks based on gender and age on the sample of university students, both males and females, studying at three universities in Trnava, Slovakia, where were assessed the frequency and experienced feelings after the energy drinks use. At the very beginning were stated two hypotheses where was expected that higher energy drink consumption would be influenced by gender and age of respondents and that frequency of energy drink would be also influenced by gender and age. Further was expected better knowledge on energy drinks and less consumption by female respondents. The study data were collected through the anonymous questionnaire (consisted of 30 questions), prepared in compliance with the ethical principles of Helsinki Declaration, where the informed consent was an inseparable part of the questionnaire. The individual parts of the questionnaire were aimed at the knowledge of respondents on energy drinks, the frequency, way and volume of their consumption, possible combinations: energy drinks with alcohol, energy drinks and tobacco. The interest was also focused on the knowledge of respondents concerning the effects and side effects of energy drinks, the substances contained in energy drinks as well as the combination of energy drinks and alcohol. The questionnaires were collected within five-month period from 2/2023 to 6/2023 (twice during the exam session), peak sessions for students-newcomers connected with preparing for exams or with students in their last year of study, during completing their theses or preparing for the final exams, what can be understood as the period of alleviated stress. The study sample was created by 822 students, aged 18—26 years, both males and females, where males formed 27.7 %. The sample was created from newcomers during the exam sessions, when they had to cope with new experience, new way of assessment as they experienced before, but the sample prevalence was of older respondents, namely 71.5 % of older respondents — students of master level in the phase of completing theses and preparing for final exams at university. For proper data processing SPSS statistical program was used.

Results and Discussion: The collected and assessed data showed that over the half of respondents (55.5 %) do not prefer consumption of energy drinks at all, and from the rest almost the same amount use energy drinks regularly (22,6 %) or occasionally (21,9 %). There is found statistically important difference between men and women ($p = 0,522$) users of energy drinks, but women prefer energy drinks more than men (25,3 %: 15,8 %). Within the age groups was found statistically important difference ($p < 0,001$). Caffeine and energy drinks are preferably drunk by adults 71 % adults, 18—29 years of age. Energy drinks are often consumed alone, but frequently they are used as mixers for alcoholic beverages. Energy drinks have negative impact on several parts of human organism, namely they can cause cardiovascular manifestations (tachycardia, increased arterial blood pressure, arrhythmias, etc.), they can further disrupt neurological system (affect cognition, mental health, cause anxiety or muscle twitching), they can influence metabolic problems (risk of obesity) but also cause dental erosion. The European Food Safety Authority realized the study in 16 European countries on the sample of more than 52,000 European respondents connected with the consumption of energy drinks, where the study showed their high popularity among teenagers: 18 % children (3—10 years of age), 68 % teenagers, 10—18 years of age, and 30 % adults, 18—65 years of age.

Conclusion: Energy drinks consumption has been permanently rising round the world, the age of energy drink users decreases. Children starts tasting mainly because of good taste, easy access to the products, without awareness of harms on young organism. Consumption of energy drinks can have some positive effects like combatting the fatigue and suppression of sleepiness, increasing endurance and fitness what cannot be denied, but the negative effects are not mentioned very much. Important is to educate young people (also adults) on adverse effects of energy drinks and their combined consumption. Many health hazards are associated with excessive consumption of several substances, drugs but also energy drinks and sweetened beverages. Children and adolescents should not consume energy drinks containing caffeine because of sleep disruption and brain growth cessation. The energy drinks may further affect other body organs like pancreas, stomach, kidney, breast and teeth thus the healthcare providers should inform adolescents and their families about the risks bound with excessive consumption of caffeinated drinks supported by the regulatory sales restrictions to minimize health problems in the group of young adults. The study is the base for the prepared longitudinal study led by the team doctors, psychologists, social workers and other specialists working in the area.

Key words: students, consumption of energy drinks, risk factors, influence of health

Úvod: Práca sa zaoberá problematikou zvýšeného príjmu energetických a sladených nápojov v skupine adolescentov. Zameriava sa na negatívny dopad energetických a sladených nápojov na kardiovaskulárnu a nervovú sústavu, možné príčiny porúch metabolizmu a dentálnych problémov spojených s ich konzumáciou. Postmodernizmus nie je kľúčom pre rozvoj našej kultúry a spoločnosti v súčasnej dobe, nakoľko prvky postmoderného myslenia môžu negatívne ovplyvniť všeobecnú socio-kultúrnu úroveň spoločenského života, ale aj špecifické oblasti akými sú morálka, školstvo, politika, ekonómia, a pod. Postmoderná spoločnosť sa často stretáva s mnohými povoleniami, v niektorých prípadoch akceptovanými vzorcami správania, spojenými s konkrétnym chápaním slobody alebo možnosťou slobodnej voľby, ktoré sa prejavujú konzumným spôsobom života. Hlavným problémom dnešných dní je, že sa konzumácia stala normou.

Cieľ štúdie: Analyzovať vedomosti o konzumácii energetických nápojov podľa pohlavia a veku na vzorke vysokoškolských študentov, mužov a žien, študujúcich na troch univerzitách v Trnave, na Slovensku. Hodnotená bola frekvencia a pocity po užití energetických nápojov. Na začiatku boli stanovené dve hypotézy, v ktorých sa očakávalo, že vyššiu konzumáciu energetických nápojov ovplyvní pohlavie a vek respondentov, a že frekvencia konzumácie energetických nápojov môže tiež byť ovplyvnená pohlavím a vekom. Ďalej sa očakávali lepšie vedomosti o energetických nápojoch a nižšia konzumácia u ženských respondentov. Údaje do štúdie boli zbierané prostredníctvom anonymného dotazníka (pozostávajúceho z 30 otázok), pripraveného v súlade s etickými princípmi Helsinskej deklarácie. Súčasťou dotazníka bol aj informovaný súhlas. Jednotlivé časti dotazníka boli zamerané na znalosti respondentov o energetických nápojoch, frekvenciu, spôsob a objem ich konzumácie, možné kombinácie: energetické nápoje s alkoholom, energetické nápoje a tabak. Pozornosť bola venovaná aj znalostiam respondentov týkajúcich sa účinkov a vedľajších účinkov energetických nápojov, látok obsiahnutých v energetických nápojoch, ako aj kombinácii energetických nápojov s alkoholom. Dotazníky boli zhromaždené v priebehu päťmesačného obdobia od 2/2023 do 6/2023 (dva razy počas skúškového obdobia), počas vrcholného obdobia pre študentov-nováčikov spojeného s prípravou na skúšky, alebo pre študentov v poslednom ročníku, počas vypracovávanía záverečných prác alebo prípravy na záverečné skúšky, čo možno chápať ako obdobie zvýšeného stresu. Vzorku štúdie tvorilo 822 študentov vo veku 18—26 rokov, mužov a žien, pričom muži tvorili 27,7 %. Vzorka bola vytvorená z prvákov počas skúškového obdobia, kedy sa museli vysporiadať s novými skúsenosťami a novým spôsobom hodnotenia, na aký neboli zvyknutí a prevažnej časti starších respondentov, konkrétne 71,5 % starších respondentov — študentov magisterského stupňa vo fáze dokončovania diplomových prác a prípravy na záverečné skúšky na univerzite. Na spracovanie údajov bol použitý štatistický program SPSS.

Výsledky a diskusia: Zhromaždené a vyhodnotené údaje ukázali, že viac ako polovica respondentov (55,5 %) vôbec nepreferuje konzumáciu energetických nápojov a z ostatných ich takmer rovnaká časť používa pravidelne (22,6 %) alebo príležitostne (21,9 %). Zistil sa štatisticky významný rozdiel medzi mužmi a ženami ($p = 0,522$), ktorí používajú energetické nápoje, pričom ženy preferujú energetické nápoje viac ako muži (25,3 %: 15,8 %). V rámci vekových skupín sa zistil štatisticky významný rozdiel ($p < 0,001$). Kofeín a energetické nápoje preferujú dospelí vo veku 18 — 29 rokov, kde ich konzumuje až 71 %. Energetické nápoje sa zväčša konzumujú samostatne, no často sa používajú aj ako komponent do alkoholických nápojov. Energetické nápoje majú negatívny vplyv na niekoľko oblastí ľudského organizmu, konkrétne sa ich účinky môžu prejavovať na kardiovaskulárnom systéme (tachykardia, zvýšený arteriálny krvný tlak, arytmie a pod.), ďalej môžu narušiť neurologický systém (ovplyvniť vnímanie, mentálne zdravie, spôsobiť úzkosť alebo svalové záškľby), môžu ovplyvniť metabolické problémy (riziko obezity) a spôsobiť aj eróziu zubov. Európsky úrad pre bezpečnosť potravín uskutočnil štúdiu v 16 európskych krajinách na vzorke viac ako 52 000 európskych respondentov o konzumácii energetických nápojov, kde štúdia ukázala ich vysokú obľúbenosť medzi tínedžermi: 18 % detí (3 — 10 rokov), 68 % tínedžerov (10 — 18 rokov) a 30 % dospelých (18 — 65 rokov).

Záver: Konzumácia energetických nápojov po celom svete neustále rastie, pričom vek užívateľov týchto nápojov klesá. Deti ich začínajú ochutnávať najmä kvôli dobrej chuti a ľahkej dostupnosti, bez uvedomovania si ich škodlivých účinkov na mladý organizmus. Konzumácia energetických nápojov môže mať niektoré pozitívne účinky, ako napríklad boj proti únave, potlačenie ospalosti, zvýšenie vytrvalosti a kondície, čo nemožno poprieť, avšak negatívne účinky často nie sú spomínané. Dôležité je vzdelávať mladých ľudí (aj dospelých) o nepriaznivých účinkoch energetických nápojov a ich konzumácie s inými látkami. Mnohé zdravotné riziká sú spojené s nadmernou konzumáciou rôznych látok, liekov, ale aj energetických a sladených nápojov. Deti a adolescenti by nemali konzumovať energetické nápoje obsahujúce kofeín kvôli narušeniu režimu spánku a zastaveniu rastu mozgu. Energetické nápoje môžu ďalej ovplyvňovať aj iné telesné orgány, ako sú pankreas, žalúdok, obličky, prsníky a zuby. Preto by poskytovatelia zdravotnej starostlivosti mali informovať adolescentov a ich rodiny o rizikách spojených s nadmernou konzumáciou kofeínových nápojov, podporenou reguláciou predaja, aby sa minimalizovali zdravotné problémy v skupine adolescentov. Táto štúdia tvorí základ pre pripravovanú longitudinálnu štúdiu vedenú tímom lekárov, psychológov, sociálnych pracovníkov a ďalších špecialistov pracujúcich v danej oblasti.

Kľúčové slová: poslucháči, užívanie energetických nápojov, riziká, vplyv na zdravie

Introduction

Postmodernism is not a key solution for the development of our culture and society nowadays as the elements of postmodern thinking can also negatively affect the general socio-cultural level of social life, but also special areas, morality, school, politics, economy, etc.

The postmodern society often encounters various allowed and in some cases accepted behaviors connected with specific understanding of freedom or the possibility of free choice reflected in the consumerist way of life but the main problem today is that consumption has become the norm (Loscalzo 2022). The economy counts on a relentless desire for new things and experiences and people feel responsible and consider consumer behavior a moral obligation in the inverted traditional relationship between needs and satisfaction. People love the promises of the unknown, and it's not just about material things like food, clothes, car, but also experiences. It is considered amusing to experience an experience.

A good consumer therefore loves the unknown, the unknown, is open to fun and experimentation, his real needs basically do not play a role here but important is desire and the ideal consumer should permanently experience

a state of dissatisfaction with needs and long for new things. Consumption is supported mainly by advertising, which attracts people from billboards or television screens like Try the unknown! Bite and experience passion!

Globalization has thus brought man unimaginable opportunities to choose goods and buy, but at the same time he has been thrown into a world of constant hustle and bustle. Through advertising, it is easy to reach the most influential and vulnerable groups (Beck, 2018). Children and youth can be the group with their unusual consumer habits plasticity and in this intention the support of the media industry evoking: try me, experience the taste, choose more energy etc.

The popularity of energy drinks has been increasing in recent years what is actually reflected in the increased consumption of energy drinks (Alsunni 2015) and sugar sweetened beverages (Loscalzo 2022; Stančík, Novotný 2011). Popularity of energy drinks are connected with well-being, better mood, but also with better performance of sportsmen and in fitness (Stančík, Novotný 2011).

Historically the first energy drinks were sold in Europe in the late nineties (1987). Popular energy drinks typically include high level of caffeine as the main ingredient of

energy drinks with the content of 50—500 mg per can (Atefi, Homayounfar 2013) and other ingredients like taurine, caffeine containing herbs such as guarana, vitamins.

Caffeine and energy drinks are preferably drunk by adults 71 % adults, 18—29 years of age (Stančiak, Novotný 2011). Energy drinks are often consumed alone, but frequently they are used as mixers for alcoholic beverages. Energy drinks have negative impact on several parts of human organism, namely they can cause cardiovascular manifestations (tachycardia, increased arterial blood pressure, arrhythmias, etc.), they can further disrupt neurological system (affect cognition, mental health, cause anxiety or muscle twitching), they can influence metabolic problems (risk of obesity) but also cause dental erosion (Alsunni 2015).

Mixing alcohol and energy drinks are highly popular among students but it can be also connected with higher consumption of sugar and calories in combination with caffeine what can result in experienced increased physical and psychological side effects from drinking the mixtures (Gallucci et al., 2016). Centres for Disease Control and Prevention declares the same (Stančiak, Novotný 2011).

The European Food Safety Authority realized the study in 16 European countries on the sample of more than 52,000 European respondents connected with the consumption of energy drinks, where the study showed their high popularity among teenagers: 18 % children (3—10 years of age), 68 % teenagers, 10—18 years of age, and 30 % adults, 18—65 years of age (EFSA 2013). But the popularity of energy drinks among young adults in Hungary depicts detrimental health effects and importance to set preventive measures and programs to address the problem (Toth, Soós, Szovák et al. 2020).

Methodology and data collection

The aim of the study was to analyse the knowledge and consumption of energy drinks based on gender and age on the sample of university students, both males and females, studying at three universities in Trnava, Slovakia, where were assessed the frequency and experienced feelings after the energy drinks use.

At the very beginning were stated two hypotheses where was expected that higher energy drink consumption would be influenced by gender and age of respondents and that frequency of energy drink would be also influenced by gender and age. Further was expected better knowledge on energy drinks and less consumption by female respondents.

The study data were collected through the anonymous questionnaire (consisted of 30 questions), prepared in compliance with the ethical principles of Helsinki Declaration (Stančiak, Novotný 2011), where the informed

consent was an inseparable part of the questionnaire. The individual parts of the questionnaire were aimed at the knowledge of respondents on energy drinks, the frequency, way and volume of their consumption, possible combinations: energy drinks with alcohol, energy drinks and tobacco. The interest was also focused on the knowledge of respondents concerning the effects and side effects of energy drinks, the substances contained in energy drinks as well as the combination of energy drinks and alcohol.

The questionnaires were collected within five-month period from 2/2023 to 6/2023 (twice during the exam session), peak sessions for students-newcomers connected with preparing for exams or with students in their last year of study, during completing their theses or preparing for the final exams, what can be understood as the period of alleviated stress.

The study sample was created by 822 students, aged 18—26 years, both males and females, where males formed 27.7 %. The sample was created from newcomers during the exam sessions, when they had to cope with new experience, new way of assessment as they experienced before, but the sample prevalence was of older respondents, namely 71.5 % of older respondents—students of master level in the phase of completing theses and preparing for final exams at university. For proper data processing SPSS statistical program was used (Drdková 1988).

Results and discussion

The collected and assessed data showed that over the half of respondents (55.5 %) do not prefer consumption of energy drinks at all, and from the rest almost the same amount use energy drinks regularly (22,6 %) or occasionally (21,9 %). There is found statistically important difference between men and women ($p = 0,522$) users of energy drinks, but women prefer energy drinks more than men (25,3 %: 15,8 %). Within the age groups was found statistically important difference ($p < 0,001$).

Almost half of the respondents (49.2 %) consume energy drinks only occasionally (19.7 % once a week), 14.8 % less than 3 times a week, and 16.4 % of respondents more than 3 times a week. There is a statistically significant difference between men and women ($p = 0.038$), consumption once a week, or more than 3 times a week is reported more often by women (21.7 %), while occasional consumption, or less than 3 times a week are reported more often by men (53.3 %). There is also a statistically significant difference between younger and older respondents ($p = 0.003$). Younger people use energy drinks more often than older ones, up to 60.9 % of older respondents consume energy drinks only occasionally. The knowledge on the side effects of energy drink was mentioned by almost two thirds of respondents (59,1 %), noted were mainly harming effects connected with high amount of caffeine and sugar (46,9 %) and problems with heart-beat (37 %).

The collected data showed that energy drinks were preferably consumed by females (46.5 % vs. 39.5 %) and also older respondents (46.9 % vs. 38.5 %; $p < 0.05$) where our hypothesis on higher consumption of energy drinks based on age of respondents was proved.

The female sample (22.2 % vs. 10.5 %) and the sample of younger respondents (28.2 % vs. 15.3) showed significantly higher consumption of energy drinks combined with alcohol.

In older respondents (both in male and female sample) were the most often mentioned reason for energy drinks consumption study ($p < 0.05$) and supply of energy ($p < 0.001$). Important finding was that significantly more males (73.7 % vs. 53.5 %) considered energy drinks dangerous (Table 1).

The reason for the energy drink use was in the whole sample mentioned arousal (55.7 %), reported was also better physical performance (19.7 %), the same number of respondents consume energy drinks because of the good taste. Gender does not affect the reasons for consuming energy drinks, there is no statistically significant difference between men and women ($p = 0.322$), but age does ($p = 0.039$). Respondents over the age of 18 stated the reason for „arousal” and „better physical performance” more often than 18-year-old respondents (60.9 %: 40 %, 21.7 %: 13.3 %), while younger people more often stated the energy drink taste (46.7 %: 10.9 %). The reasons statistically significantly also depend on whether the respondents consume energy drinks regularly or only occasionally ($p < 0.001$). Occasional consumers are more likely to give reasons for arousal and better physical performance (63.3 %: 48.4 %, 26.7 %: 12.9 %), none of them

was giving importance to “good taste”, while of regular consumers this reason indicated up to 38.7 %.

After the experienced consumption of energy drinks in the sample of regular energy drink consumers showed importance of better concentration after the energy drinks consumption (37,7 %), increased physical activity (31,1 %), experienced hyperactivity (20 %) of respondents after the energy drinks consumption, sleep suppression (65 %), but the most of them emphasized better mood (95 %).

Respondents had the possibility to choose 4 options important for them when choosing the energy drink: brand, taste, price, content. 11.5 % respondents did not answer this question but the most common response was taste (34.4 %), then price (24.6 %), and in the same amount the brand and content (14.8 %). The choice was not affected by gender ($p = 0.101$), although men depict the price (46.7 %:17.4 %), while women depict the drink taste (37 %: 26.7 %). Younger respondents choose according to taste (73.3 %: 21.7 %)while older also emphasized price (32.6 %: 0 %). Age statistically significantly affects the choice of energy drink ($p = 0.003$).

Interesting for us to find information and comparisons connected with drinking alcohol and drinking energy drinks, but finally in the answers of our respondents was not found statistically significant difference between drinking alcohol and drinking energy drinks ($p = 0.128$). The sample showed that usually younger ones are opened to combine alcohol with energy drinks. In the answers of respondents was not found statistically significant interconnection of drinking energy drinks and smoking.

Table 1. Knowledge and consumption of energy drinks based on gender and age (n =274)

Variables	Females n (%)	Males n (%)	≤18y. n (%)	>18y. n (%)
I consume energy drinks	92 (46.5)	30 (39.5)	30 (38.5)	98 (46.9) ²
I consume energy drinks with alcohol	44 (22.2) ¹	8 (10.5)	22 (28.2) ²	30 (15.3)
I consume energy drinks occasionally	44 (22.2)	16 (21.1)	4 (5.1)	56 (28.6) ²
I consume energy drinks while studying	48 (24.2)	22 (28.9)	14 (17.9)	58 (28.6) ²
I consume energy drinks to energy supply	48 (24.2)	20 (26.3)	12 (15.4)	60 (28.6) ³
The taste is decisive in the selection of the energy drink	34 (17.2) ¹	8 (10.5)	22 (28.2) ²	20 (10.2)
Energy drinks have impact on my mood	34 (17.2) ¹	6 (7.9)	8 (10.3)	32 (16.3)
Energy drinks are dangers	106 (53.5)	56 (73.7) ³	48 (61.5)	114 (58.2)

Source: Authors' own conception

1 $p < 0.05$; significance between females and males

2 $p < 0.05$; significance between ≤18y. and >18y.

3 $p < 0.001$; significance between ≤18y. and >18y.

Discussion

Energy drinks consumption has been permanently rising round the world, the age of energy drink users decreases (Stančiak, Novotný 2011). Children starts tasting mainly because of good taste, easy access to the products, without awareness of harms on young organism.

Energy drinks consumption and closeness of possible addictions is becoming an up-to-date issue and require further studies. Reported were the problems caused by combined consumption of energy drinks and drugs that required urgent medical help (Stanciak, Vareckova, Samohyl 2017). Problems of substance combinations for better performance was proved among musicians from specific subcultures. Connection of alcohol combined with energy drinks were proved by the studies performed among addicted young adults, voluntarily undergoing the psycho-therapeutic process in a resocialization centre (Ruckova, 2018).

The study tried to analyse the knowledge and consumption of energy drinks based on gender and age on the selected sample, interest was paid to experienced feelings after the energy drinks use. The stated two hypotheses expected that higher energy drink consumption and frequency of energy drink consumption would be influenced by gender and age what was proved by our research. The respondents had knowledge on energy drinks but surprising was that female respondents were consuming more energy drinks compared with male. Limitation of the study was the disproportional sample connected based on age and sex.

Conclusions

Consumption of energy drinks can have some positive effects like combatting the fatigue and suppression of sleepiness, increasing endurance and fitness what cannot be denied, but the negative effects are not mentioned very much. Important is to educate young people (also adults) on adverse effects of energy drinks and their combined consumption. Many health hazards are associated with excessive consumption of several substances, drugs but also energy drinks and sweetened beverages (Stančiak, Novotný 2011; Mirossay, Mojžiš et al. 2021).

Children and adolescents should not consume energy drinks containing caffeine because of sleep disruption and brain growth cessation. The energy drinks may further affect other body organs like pancreas, stomach, kidney, breast and teeth thus the healthcare providers should inform adolescents and their families about the risks bound with excessive consumption of caffeinated drinks supported by the regulatory sales restrictions to minimize health problems in the group of young adults (Heshmat, 2019).

The paper presents a study bound with energy drinks, knowledge on them and their use in combination with alcohol or other substances among young respondents. It is important to widen and gather more facts about harm effects of energy drinks, collect the negative information on energy and sweetened drinks and their impact on health. The study is the base for the prepared longitudinal study led by the team doctors, psychologists, social workers and other specialists working in the area.

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Quality of life for cochlear implant users

Kvalita života užívateľov kochleárnych implantátov

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ABSTRACT

Introduction: The number of people with hearing impairments of various degrees is increasing worldwide and is becoming a serious public health problem. Currently, there is a growing interest in the assessment of the quality of life of the disabled or long-term ill. Evaluation of the benefit of audioprosthesis devices such as cochlear implants (CI) and hearing aids (HA) could bring new knowledge and incentives to improve the lives of people with hearing impairment.

Objective: To find out whether the benefit of CI for improving communication and thus the quality of life will be higher for their users compared to the benefit in the group of NA users.

File and methods: We used the method of a questionnaire survey of the quality of life. The research group consisted of 189 respondents. To determine the relationship between discrete variables, we used the chi-square test in contingency tables and, in the case of low expected frequencies, Fisher's exact test. We used the non-parametric Kruskal-Wallis test to compare continuous variables in the three samples. We used General linear model for modeling relationship between domains and audio prosthetic devices, age, gender and education. We worked at significance level $\alpha = 0,05$. We used statistical software IBM SPSS 28.

Results: The results show a statistically significant contribution of CI and improvement of the quality of life of their users compared to the results of the evaluation of the quality of life in the group of HA users of both types (Digital or Analog). CI users rated significantly better the rehabilitation and contribution of CI in access to information, for improving the ability to talk to several people present at the same time (when listening to music on television, visiting the theater, etc.) compared to the results in the group of users of HAD as well as HAA. We found the lowest satisfaction in the group of HAA users.

Conclusion: Our results support numerous studies that have found a significant benefit of CIs in improving the quality of life of their users, compared to the quality of life of NA users. The evaluation of the quality of life of users of audioprosthesis devices in all groups of the hearing impaired population can bring us new useful knowledge about the impact of hearing impairments on the quality of life and the contribution of audioprosthesis devices to improving communication, access to information and thereby improving their quality of life.

Keywords: Audioprosthesis aids, cochlear implants, cochlear implant user, hearing aids, quality of life, communication.

Úvod: Počet osôb s poruchami sluchu rôzneho stupňa celosvetovo narastá a stáva sa závažným problémom verejného zdravia. V súčasnosti narastá záujem o hodnotenie kvality života zdravotne postihnutých alebo dlhodobo chorých. Hodnotenie prínosu audioprotetických pomôcok ako sú kochleárne implantáty (KI) a načúvacie aparáty (NA) by mohlo priniesť nové poznatky a stimuly pre zlepšenie života osôb so sluchovým postihnutím.

Cieľ: Cieľom bolo zistiť, či prínos KI pre zlepšenie komunikácie a tým aj kvality života bude u ich užívateľov vyšší v porovnaní s prínosom v skupine užívateľov NA.

Materiál a metódy: Použili sme metódu dotazníkového prieskumu kvality života. Na zistenie vzťahu medzi diskretnými premennými sme použili chí kvadrát test v kontingenčných tabuľkách a v prípade nízkych očakávaných početností Fisherov exaktný test. Na porovnanie spojitých premenných v troch výberoch sme použili neparametrický Kruskal-Wallisov test. Na zistenie vplyvu používanej audioprotetickej pomôcky na hodnoty jednotlivých domén pričom sme brali do úvahy aj vek, pohlavie a vzdelanie respondentov, sme použili všeobecný lineárny model. Pracovali sme na hladine významnosti $\alpha = 0,05$. Použili sme štatistický softvér IBM SPSS 28.

Výsledky: Výsledky poukazujú na štatisticky významný prínos KI a zlepšenie kvality života ich užívateľov v porovnaní s výsledkami hodnotenia kvality života v skupine užívateľov NA oboch typov. Užívateľia KI výrazne lepšie hodnotili rehabilitáciu a prínos KI v prístupe k informáciám, pre zlepšenie schopnosti rozhovoru viacerých osôb prítomných súčasne (pri počúvaní hudby, televízie, návšteve divadla a pod.) v porovnaní s výsledkami v skupine užívateľov NAD i NAA. Najnižšiu spokojnosť sme zistili v skupine užívateľov NAA.

Záver: Naše výsledky podporujú početné štúdie, ktoré zistili výrazný prínos KI pre zlepšenie kvality života ich užívateľov v porovnaní s kvalitou života užívateľov NA. Hodnotenie kvality života užívateľov audioprotetických pomôcok vo všetkých skupinách populácie sluchovo postihnutých nám môže priniesť nové užitočné poznatky o vplyve porúch sluchu na kvalitu života a prínos audioprotetických pomôcok pre zlepšenie komunikácie, prístupu k informáciám a tým aj zlepšenie kvality ich života.

Kľúčové slová: Audioprotetické pomôcky, kochleárne implantáty, užívateľ kochleárneho implantátu, načúvacie aparáty, kvalita života, komunikácia

ÚVOD

Poruchy sluchu predstavujú rastúci problém verejného zdravotníctva, ktorý je spojený s poklesom kvality života súvisiacej so zdravím (Health Related Quality of Life -HRQoL) a majú aj negatívny vplyv na pracovný život. Aj keď bol dokázaný pozitívny vplyv používania audioprotetických pomôcok, najmä načúvacieho aparátu (NA), tieto audioprotetické pomôcky boli z medicínskeho hľadiska pričasto prezentované ako „všieliek na poruchy sluchu,“ ako zariadenia, ktoré „obnovujú“ schopnosť počutia do takej miery, ako ju poznáme u normálne počujúcej osoby. Táto mylná viera potom implikovala aj chybný predpoklad, že už zabezpečenie jedinca s poruchou sluchu načúvacím prístrojom je samo o sebe dostačujúcim riešením a odstraňuje dôsledky poruchy sluchu. Pacientom podľa takeého prístupu už nebolo potrebné poskytnúť inú formu intervencie. V skutočnosti načúvacie prístroje nezlepšia sluch, ale ich úlohou ako kompenzačnej pomôcky je napomôcť k zlepšeniu zrozumiteľnosti reči a tým zlepšujú komunikáciu ako takú. A preto predstava, že postihnutý už nepotrebuje po pridelení NA ani žiadnu ďalšiu intervenciu, je mylná. Spoľahnúť sa len na NA, že vyriešia problémy v sociálnej, emocionálnej oblasti a v celkovom prispôsobovaní sa novej situácii — poruche sluchu, dnes nestačí. Dnes sa už uznáva, že získaná porucha sluchu si vyžaduje vždy viac ako iba jednoduché pridelenie

a nastavenie načúvacieho prístroja (Groma 2009; Kulich, Radičová 2021; Petrik 2021).

V súčasnosti môžeme sledovať rastúci záujem o pojem kvality života vo viacerých odboroch: v sociológii, sociálnej práci, psychológii a v zdravotníckych odboroch (ošetrovateľstvo, verejné zdravotníctvo (Gurková 2011)). Pre zdravotníkov prináša hodnotenie kvality života mnoho dôležitých poznatkov aj informácií. Lekárov, ale aj verejných zdravotníkov by mal zaujímať dopad ochorení alebo zdravotného postihnutia na kvalitu života. Predmetom záujmu je kvalita života bežnej populácie, kvalita života seniorov, kvalita života chronicky chorých, kvalita života postihnutých (telesne, zmyslovo, zdravotne) osôb. V rámci záujmu o výskum a hodnotenie či posúdenie kvality života postihnutých osôb zaujíma osobitne postavenie aj problematika kvality života osôb so sluchovým postihnutím.

INTRODUCTION

Hearing impairment is a growing public health problem that is associated with a decline in health-related quality of life (HRQoL) and also has a negative impact on working life. Although the positive impact of the use of audioprotective devices, especially hearing aids (NA), has been proven to have a positive effect on the use of audioprotective devices,

these audioprothetic devices have too often been medically presented as a “panacea for hearing impairment,” as devices that „restore” the ability to hear to the extent that we know it in a normally hearing person. This erroneous belief then implied the erroneous assumption that providing an individual with a hearing loss with a hearing aid is a sufficient solution in itself and eliminates the consequences of hearing impairment. According to such an approach, it was no longer necessary to provide patients with another form of intervention. In fact, hearing aids do not improve hearing, but their role as a compensatory aid is to help improve speech intelligibility and thus improve communication as such. Therefore, the idea that the affected person no longer needs any further intervention after being assigned an NA is wrong. Relying only on NA to solve problems in the social, emotional and overall adaptation to a new situation — hearing impairment — is not enough today. Today, it is recognized that acquired hearing loss always requires more than simply assigning and adjusting a hearing aid (Groma 2009; Kulich, Radičová 2021; Petřík 2021).

At present, we can observe a growing interest in the concept of quality of life in several fields: sociology, social work, psychology and health care (nursing, public health (Gurková 2011)). For health professionals, the assessment of quality of life brings a lot of important knowledge and information. Doctors, as well as public health professionals, should be interested in the impact of diseases or disabilities on the quality of life. The subject of interest is the quality of life of the general population, the quality of life of the elderly, the quality of life of the chronically ill, the quality of life of the disabled (physically, sensorially, health-wise). Within the interest in research and evaluation or assessment of the quality of life of disabled people, the issue of the quality of life of people with hearing impairment also occupies a special position.

PREHĽAD O KOCHLEÁRNYCH IM-PLANTÁTOCH NA SLOVENSKU

Ľuďom s ťažším stupňom poruchy sluchu priniesli v 20. storočí novú nádej kochleárne implantáty (KI). Ale aj pri *kochleárnej implantácii*, podobne ako pri načúvacích aparátoch, je potrebné si uvedomiť si, že samy o sebe nie sú záračnou rýchlou metódou obnovujúcou počutie, lež vyžadujú si dôslednú rehabilitačnú prácu (Kabátová, Profant 2007; Chen *et al.*, 2019). Ak audioprotetické pomôcky ako KI alebo NA dokážu zlepšiť zrozumiteľnosť reči a tým zlepšiť komunikáciu, zlepšiť počutie hudby, rozhlasu, televízie, môžu tým prispieť k zlepšeniu kvality života. Na Slovensku zatiaľ nemáme dostupné vhodné materiály na hodnotenie sluchovo — rečových schopností pre deti a dospelých s poruchou sluchu. Štandardizácia niektorých škál a testovacích metód, ktoré sú zamerané na mapovanie sluchových a rečových schopností

(detekcia, diskriminácia, identifikácia, sluchová pamäť, sluchová pozornosť) príznačných pre osoby s poruchou sluchu kompenzovanou NA a prelingválne nepočujúce osoby po kochleárnej implantácii, zatiaľ prebieha (Petřík 2021).

Na Slovensku je priekopníkom metódy kochleárnej implantácie 1. ORL klinika v Bratislave, kde sa prvá kochleárna implantácia uskutočnila 8 júla 1994. Na tomto pracovisku bolo už odoperovaných niekoľko stoviek pacientov. Ich záujmy zastrešuje Občianske združenie ZUKI — Združenie užívateľov kochleárnych implantátov, ktoré má aj vlastnú webovú stránku (www.zuki.sk). Podľa informácie podpredsedu a zástupcu ZUKI máme v súčasnosti na Slovensku 1 200 užívateľov kochleárnych implantátov.

OVERVIEW OF COCHLEAR IMPLANTS IN SLOVAKIA

In the 20th century, cochlear implants (CI) brought new hope to people with severe hearing impairment. However, even with cochlear implantation, as with hearing aids, it is necessary to realize that they are not a miraculous quick method of restoring hearing, but require consistent rehabilitation work (Kabátová, Profant 2007; Chen *et al.*, 2019). If audioprothetic aids such as CI or NA can improve speech intelligibility and thus improve communication, improve listening to music, radio, television, they can contribute to improving the quality of life. In Slovakia, we do not yet have suitable materials available for the assessment of auditory and speech abilities for children and adults with hearing impairment. Standardization of some scales and testing methodologies that are focused on mapping auditory and speech abilities (detection, discrimination, identification, auditory memory, auditory attention) characteristic of people with NA-compensated hearing loss and prelingually deaf people after cochlear implantation is still ongoing (Petřík 2021).

In Slovakia, the pioneer of the cochlear implantation method is the 1st ENT clinic in Bratislava, where the first cochlear implantation took place on July 8, 1994. Several hundred patients have already been operated on at this workplace. Their interests are covered by the ZUKI Civic Association — Association of Cochlear Implant Users, which also has its own website (www.zuki.sk). According to the information of the vice-chairman and representative of ZUKI, we currently have 1 200 users of cochlear implants in Slovakia.

MATERIÁL AND METÓDY

Pre získanie údajov potrebných k splneniu cieľov prác a overeniu predpokladov, pracovných hypotéz) sme zvolili dotazníkovú metódu. Pri tvorbe dotazníka sme sa opierali o existujúci štandardizovaný dotazník kvality života podľa Damiána Kováča (Ústav experimentálnej psychológie

SAV), ktorý je prekladom skrátenej formy dotazníka WHOQOL-bref a ktorý hodnotí aktuálny stav zdravia, berie do úvahy jeho hodnotenie za posledné dva týždne života. V prvej časti dotazníka 6 otázok sa týkalo demografických ukazovateľov, 7 otázok sa týkalo typu poruchy sluchu a používanej audioprotetickej pomôcky. V druhej časti dotazníka sa 28 otázok sa týkalo hodnotenia kvality života respondentmi. V tretej časti dotazníka 16 otázok sa týkalo hodnotenia prínosu audioprotetických pomôcok. Pre potreby našej práce sme v súlade s dotazníkom D. Kováča a WHOQOL-bref zvolili škálu so stupnicou od 1 do 5. Hodnoty (výrazy) sme priradzovali podľa zamerania otázky. Napríklad škála pri hodnotení kvality života, spokojnosti (s prístupom k informáciám a pod.) alebo pomoci či ťažkosti:

1. Veľmi nízka / veľmi nespokojný / nijako nepomáha / úplné ťažkosti
2. Nízka / Nespokojný / málo pomáha / veľké ťažkosti
3. Ani nízka ani vysoká / ani spokojný ani nespokojný / stredne pomáha / stredné prijateľné ťažkosti
4. Vysoká / spokojný / veľmi pomáha / mierne ťažkosti
5. Veľmi vysoká / veľmi spokojný / úplne pomáha / nijaké ťažkosti

Výskumný súbor tvorilo 189 respondentov, z nich 90 (49,2 %) boli užívateľmi KI, 57 (31,1 %) boli užívateľmi NA s digitálnym spracovaním zvuku (NAD) a 36 (19,7 %) boli užívateľmi NA s analógovým spracovaním zvuku (NAA). Priemerný vek respondentov v našom súbore bol $45,41 \pm 18,30$ rokov (medián 45 rokov), najnižší vek respondenta bol 19 rokov, najvyšší vek bol 77 rokov. Vo všetkých troch skupinách užívateľov audioprotetických pomôcok boli najviac zastúpení respondenti s najvyšším dosiahnutým vzdelaním „stredoškolské s maturitou.“ Vo všetkých troch sledovaných skupinách užívateľov audioprotetických pomôcok výrazne prevažovali respondenti so získanou poruchou sluchu, t. j. ku poruche sluchu došlo u nich až neskôršie, po narodení. Uvedené tri skupiny užívateľov audioprotetických pomôcok sa líšia štatisticky významne v absolvovaní rehabilitácie ($p < 0,001$). Ako je vidieť z výsledkov uvedených v Tabuľke 1, v skupine užívateľov KI absolvovali rehabilitáciu všetci respondenti (100,0 %). Ale v skupine užívateľov NAD, ktoré

sú modernejším typom načúvacích aparátov, prekvapivo až 71,9 % respondentov uviedlo, že takú rehabilitáciu neabsolvovali. V skupine užívateľov NAA (starší typ načúvacích aparátov s analógovým spracovaním zvuku) len necelá polovica (44,4 %) respondentov uviedli, že rehabilitáciu po pridelení načúvacieho aparátu neabsolvovali.

V druhej časti dotazníka sme zisťovali kvalitu života a s tým súvisiacich iných oblastí života. Respondenti boli vyzvaní, aby pri odpovedi brali do úvahy aj posledné dva týždne v čase vyplňania dotazníka. Respondentom bola položená otázka, ako by ohodnotili kvalitu svojho života. Odpovede sú uvedené v Tabuľke 4. V skupine užívateľov KI hodnotenie najviac z nich zvolilo hodnotenie „Ani nízka ani vysoká“ (53,3 %), druhé najviac frekvencované hodnotenie bolo „Vysoká“ (36,7 %). V skupine užívateľov NAD a NAA najviac respondentov (42,1 %) sa priklonilo k hodnoteniu „Ani nízka ani vysoká“. Ale v skupine užívateľov NAA až 27,8 % respondentov zvolilo hodnotenie „Nízka“. Hodnotenie „Vysoká“ alebo „Veľmi vysoká“ z nich uviedlo len 8,3 % respondentov. Respondenti z troch skupín užívateľov audioprotetických pomôcok sa štatisticky významne líšili aj v hodnotení kvality svojho života ($p < 0,001$).

MATERIAL AND METHODS

In order to obtain the data necessary to meet the objectives of the work and verify the assumptions, working hypotheses, we chose the questionnaire method. When creating the questionnaire, we relied on the existing standardized quality of life questionnaire according to Damián Kováč (Institute of Experimental Psychology SAS), which is a translation of the abbreviated form of the WHOQOL-bref questionnaire and which evaluates the current state of health, takes into account its evaluation for the last two weeks of life. In the first part of the questionnaire, 6 questions were related to demographic indicators, 7 questions were related to the type of hearing loss and the audioprothetic device used. In the second part of the questionnaire, 28 questions concerned respondents' assessment of quality of life. In the third part of the questionnaire, 16 questions concerned the evaluation of the

Tabuľka 1. Rozdelenie súboru respondentov podľa audioprotetických pomôcok, ktoré používajú

Audioprotetická pomôcka		n	%	% z vyplnených	Kumulatívne %
	KI	90	46,6	49,2	49,2
	NAD	57	29,5	31,1	80,3
	NAA	36	18,7	19,7	100,0
	Spolu	183	94,8	100,0	
Chýbajúce / Nepoužíva		10	5,2		
Spolu		193	100,0		

benefits of audioprosthesis devices. For the purposes of our work, in accordance with the questionnaire of D. Kováč and WHOQOL-bref, we chose a scale from 1 to 5. We assigned values (expressions) according to the focus of the question. For example, a scale when assessing quality of life, satisfaction (with access to information, etc.) or help or difficulties:

1. Very low / very dissatisfied / does not help in any way / complete difficulty
2. Low / Dissatisfied / Helps little / Great difficulty
3. Neither low nor high / neither satisfied nor dissatisfied / moderately helps / medium acceptable difficulty
4. High / satisfied / helps a lot / moderate difficulty
5. Very high / very satisfied / totally helps / no hassle

The research group consisted of 189 respondents, of whom 90 (49.2 %) were CI users, 57 (31.1 %) were NA users with digital audio processing (NAD) and 36 (19.7 %) were NA users with analog sound processing (NAA). The average age of respondents in our group was 45.41 ± 18.30 years (median 45 years), the lowest age of the respondent was 19 years, the highest age was 77 years. In all three groups of users of audioprosthesis aids, the respondents with the highest achieved education were the most represented „secondary school with a high school diploma.” In all three monitored groups of audioprosthesis device users, respondents with acquired hearing impairment significantly prevailed, i.e. their hearing loss occurred later, after birth. The three groups of audioprosthesis device users differ statistically significantly in the completion of rehabilitation ($p < 0.001$). As can be seen from the results presented in Table 1, all respondents in the group of CI users underwent rehabilitation (100.0 %). But in the group of NAD users, which are a more modern type of hearing aid, surprisingly as many as 71.9 % of respondents said that they had not undergone such rehabilitation. In the group of NAA users (an older type of hearing aids with analogue sound processing), only less than half (44.4 %) of respondents stated that they did not undergo rehabilitation after being assigned a hearing aid.

In the second part of the questionnaire, we investigated the quality of life and other related areas of life. Respondents were

asked to take into account the last two weeks at the time of filling in the questionnaire when answering. Respondents were asked how they would rate the quality of their lives. In the CI User Group, the most of them chose the rating „Neither low nor high” (53.3 %), the second most frequent rating was „High” (36.7 %). In the group of NAD and NAA users, the majority of respondents (42.1 %) leaned towards the rating „Neither low nor high”. But in the NAA user group, as many as 27.8 % of respondents chose the rating „Low”. Of these, only 8.3 % of respondents rated „High” or „Very High”. Respondents from three groups of audioprosthesis device users also differed statistically significantly in the assessment of their quality of life ($p < 0.001$).

VÝSLEDKY A DISKUSIA

Respondenti, ktorí rehabilitáciu absolvovali, boli v dotazníku požiadaní, aby ohodnotili jej primeranosť trvania a prínos. V hodnotení absolvovanej rehabilitácie sa respondenti z troch skupín užívateľov audioprotetických pomôcok štatisticky významne líšili ($p < 0,001$). Najlepšie hodnotili trvanie a prínos rehabilitácie respondenti zo skupiny užívateľov KI. Takmer polovica (48,9 %) zvolila hodnotenie „Dostatočný čas trvania, významný prínos“ a jedna tretina (33,3 %) hodnotenie „Optimálny čas trvania, významný prínos.“ V skupine užívateľov KI a užívateľov NPD ju nikto z respondentov nehodnotil ako nedostatočne alebo krátko trvajúcu so žiadnym alebo nízkym prínosom. Ale naopak v skupine užívateľov NPA (kde rehabilitáciu absolvovalo 55,6 %), bolo najčastejšie udávané hodnotenie „Krátke trvanie, nízkym prínos“ (až 40 %) nasledované hodnotením „Tak stredne“, ktoré zvolilo 35 % respondentov.

Respondenti, ktorí rehabilitáciu absolvovali, boli v dotazníku požiadaní, aby ohodnotili jej primeranosť trvania a prínos. V hodnotení absolvovanej rehabilitácie sa respondenti z troch skupín užívateľov audioprotetických pomôcok štatisticky významne líšili ($p < 0,001$). Najlepšie hodnotili trvanie a prínos rehabilitácie respondenti zo skupiny užívateľov KI. Takmer polovica (48,9 %) zvolila hodnotenie „Dostatočný čas trvania, významný prínos“ a jedna tretina

Table 1. Distribution of the respondent group according to the audioprosthesis devices they use

Audioprotetic aid		n	%	% z vyplnených	Kumulatívne %
	KI	90	46,6	49,2	49,2
	NAD	57	29,5	31,1	80,3
	NAA	36	18,7	19,7	100,0
	Together	183	94,8	100,0	
Missing / Nepoužíva		10	5,2		
Together		193	100,0		

(33,3 %) hodnotenie „Optimálny čas trvania, významný prínos.“ V skupine užívateľov KI a užívateľov NPD ju nikto z respondentov nehodnotil ako nedostatočne alebo krátko trvajúcu so žiadnym alebo nízkym prínosom. Ale naopak v skupine užívateľov NPA (kde rehabilitáciu absolvovalo 55,6 %), bolo najčastejšie udávané hodnotenie „Krátke trvanie, nízkym prínos“ (až 40 %) nasledované hodnotením „Tak stredne“, ktoré zvolilo 35 %. Respondenti z troch skupín užívateľov audioprotetických pomôcok sa štatisticky významne líšili v hodnotení pocitu, že v ich živote niečo chýba ($p < 0,001$).

RESULTS AND DISCUSSION

Respondents who had completed rehabilitation were asked in a questionnaire to rate its adequacy of duration and benefit. In the evaluation of the completed rehabilitation, respondents from three groups of users of audioprosthetic devices differed statistically significantly ($p (0.001)$). The duration and benefit of rehabilitation were best evaluated by respondents from the group of CI users. Almost half (48.9 %) chose the rating „Sufficient duration, significant benefit” and one third (33.3 %) the rating „Optimal duration, significant benefit”. In the group of CI users and NPD users, none of the respondents rated it as insufficient or short-lived with no or low benefit. On the other hand, in the group of NPA users (where 55.6 % underwent rehabilitation), the most frequently given rating was „Short duration, low benefit” (up to 40 %), followed by the rating „So moderate”, which was chosen by 35 % of respondents.

Respondents who had completed rehabilitation were asked in a questionnaire to rate its adequacy of duration and benefit. In the evaluation of the completed rehabilitation, respondents from three groups of users of audioprosthetic devices differed statistically significantly ($p (0.001)$). The duration and benefit of rehabilitation were best evaluated by respondents from the group of CI users. Almost half (48.9 %) chose the rating „Sufficient duration, significant benefit” and one third (33.3 %) the rating „Optimal duration, significant benefit”. In the group of CI users and NPD users, none of the respondents rated it as insufficient or short-lived with no or low benefit. On the other hand, in the group of NPA users (where 55.6 % underwent rehabilitation), the most frequently given rating was „Short duration, low benefit” (up to 40 %), followed by the rating „So moderate”, which was chosen by 35 %. Respondents from three groups of audioprosthetic device users differed statistically significantly in their assessment of the feeling that something was missing in their lives ($p (0.001)$).

ZÁVER

Výsledky hodnotenia schopnosti rozhovoru s viacerými osobami prítomnými súčasne ukazujú významný prínos audioprotetických pomôcok. Respondenti z troch skupín

užívateľov audioprotetických pomôcok sa štatisticky významne líšili v hodnotení prínosu audioprotetických pomôcok pre zlepšenie schopnosti viesť rozhovor s viacerými osobami prítomnými súčasne ($p < 0,001$). Pre porovnanie distribúcie v schopnosti rozumieť rozhovoru s viacerými osobami v troch výberoch (skupinách užívateľov audioprotetických pomôcok sme použili neparametrický Kruskal-Wallisov test. Štatisticky významný vzťah bol zistený medzi užívateľmi KI a NAD a medzi užívateľmi KI a NAA ($p = 0,000$), ale nebol zistený štatisticky významný vzťah medzi užívateľmi NAD a užívateľmi NAA. Respondenti z troch skupín užívateľov audioprotetických pomôcok sa líšia štatisticky významne v hodnotení prínosu používanej audiopomôcky v bežnom živote ($p < 0,001$). V skupine užívateľov KI nikto z respondentov neuviedol odpoveď „Nijako nepomáha“ alebo „Málo pomáha“. Ale v skupine užívateľov načúvacích prístrojov jeden respondent zo skupiny NAD uviedol odpoveď „Nijako nepomáha“. Odpoveď „Málo pomáha“ uviedli respondenti zo skupiny NAD (7 %) aj NAA (11,4 %). V skupine užívateľov KI najviac respondentov zvolili hodnotenie „Veľmi pomáha“ (54,4 %) alebo „Úplne pomáha“ (44,4 %). Percento odpovedí „Úplne pomáha“ bolo v skupine užívateľov NAD aj NAA výrazne nižšie v porovnaní s užívateľmi KI.

Na otázku týkajúcu sa hodnotenia pocitu, či z dôvodu poruchy sluchu nemajú pocit, že v ich živote niečo chýba sa respondenti všetkých troch skupín užívateľov audioprotetických pomôcok sa väčšinou priklonilo k hodnoteniu „Tak stredne“. Z čoho možno usudzovať, že tento pocit je prítomný, vyskytuje sa vo všetkých troch skupinách užívateľov pomôcok. Respondenti z troch skupín užívateľov audioprotetických pomôcok sa štatisticky významne líšili v hodnotení pocitu, že v ich živote niečo chýba ($p < 0,001$). Naše výsledky sú v dobrej zhode s výsledkami viacerých štúdií, ktoré svedčia o významnom prínose KI pri rehabilitácii porúch sluchu a tým aj prínose pre zlepšenie kvality života. Sú v dobrej zhode napr. s výsledkami štúdie poľských autorov z Katedry foniatrickej a audiológie Lekárskej univerzity v Poznani, ktorých cieľom bolo zistiť kvalitu života pacientov po kochleárnej implantácii (Czerniejewska-Wolska et al. 2019). Dospeli k záveru, že kochleárna implantácia výrazne zvyšuje kvalitu života pacienta, jeho fyzické a emocionálne fungovanie.

CONCLUSION

The results of the assessment of the ability to talk to several people present at the same time show a significant benefit of audioprosthetic devices. Respondents from three groups of audioprosthetic device users differed statistically significantly in their assessment of the benefit of audioprosthetic devices for improving the ability to conduct a conversation with several people present at the same time ($p (0001)$). A nonparametric Kruskal-Wallis test was used to compare the distribution in the ability to understand conversations with multiple

subjects in three selections (groups of users of audioprosthesis devices). A statistically significant relationship was found between CI and NAD users and between KI and NAA users ($p = 0.000$), but no statistically significant relationship was found between NAD users and NAA users. Respondents from three groups of audioprosthesis device users differ statistically significantly in the evaluation of the benefits of the audio aid used in everyday life ($p (0.001)$). In the group of CI users, none of the respondents gave the answer „It does not help in any way” or „It helps little”. But in a group of hearing aid users, one respondent from the NAD group gave the answer „It doesn't help in any way”. The answer „It helps little” was given by respondents from the NAD (7 %) and NAA (11.4 %) groups. In the group of CI users, most respondents chose the rating „Helps a lot” (54.4 %) or „Completely helps” (44.4 %). The percentage of „Totally helping” responses was significantly lower in both the NAD and NAA user groups compared to KI users.

When asked about the evaluation of the feeling whether they feel that something is missing in their lives due to a hearing impairment, respondents of all three groups of users of audioprosthesis aids were mostly inclined to evaluate „Moderately”. From which it can be concluded that this feeling is present, it occurs in all three groups of device users. Respondents from three groups of audioprosthesis device users differed statistically significantly in their assessment of the feeling that something was missing in their lives ($p (0.001)$). Our results are in good agreement with the results of several studies that testify to the significant contribution of CI in the rehabilitation of hearing disorders and thus the contribution to improving the quality of life. They are in good agreement, for example, with the results of a study by Polish authors from the Department of Phoniatrics and Audiology of the Medical University of Poznań, which aimed to determine the quality of life of patients after cochlear implantation (Czerniejewska-Wolska et al. 2019). They concluded that cochlear implantation significantly increases the patient's quality of life, physical and emotional functioning.

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Anatomy and Variations of the Trigeminal Nerve and Their Clinical Implications (review)

Anatómia a variácie trojklanného nervu a ich klinický význam. (prehľadový článok)

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ABSTRACT

Background: The trigeminal nerve (nervus trigeminus) is the fifth cranial nerve, responsible for transmitting sensory and motor impulses to and from the facial region. It consists of three main branches: ophthalmic (V1), maxillary (V2), and mandibular (V3).

Core of work: This article focuses on the anatomy and variations of the trigeminal nerve, which have significant clinical implications, particularly in the diagnosis and treatment of disorders such as trigeminal neuralgia, herpes zoster ophthalmicus, and post-traumatic neuropathy. Variations in the nerve's course and branching can affect the success of anesthesia and surgical procedures.

Conclusions: Understanding these variations is crucial for accurate diagnosis, effective treatment, and the prevention of complications. The article highlights the importance of integrating anatomical knowledge into clinical practice and the need for further research in this field.

Keywords: trigeminal nerve, variations, importance.

ABSTRAKT

Úvod: Trojklanný nerv (nervus trigeminus) je piaty hlavový nerv, ktorý prenáša senzorické a motorické impulzy z a do oblasti tváre. Skladá sa z troch hlavných vetiev: oftalmickej (V1), maxilárnej (V2) a mandibulárnej (V3).

Jadro práce: Tento článok sa zameriava na anatómiu a variácie trojklanného nervu, ktoré majú významné klinické dôsledky, najmä pri diagnostike a liečbe porúch, ako je trigeminálna neuralgia, herpes zoster ophthalmicus a posttraumatická neuropatia. Variácie v priebehu a vetvení nervu môžu ovplyvniť úspešnosť anestézie a chirurgických zákrokov.

Závery: Znalosť týchto variácií je kľúčová pre presnú diagnostiku, efektívnu liečbu a prevenciu komplikácií. Článok zdôrazňuje význam prepojenia anatomických poznatkov s klinickou praxou a potrebu ďalšieho bádania v tejto oblasti.

Kľúčové slová: trojklanný nerv, variácie, význam

Background

The trigeminal nerve, also known as the nervus trigeminus, is the fifth cranial nerve, playing a crucial role in transmitting sensory and motor impulses to and from the facial region. This nerve is divided into three main branches: the ophthalmic (V1), maxillary (V2), and mandibular (V3). Its anatomy is a fascinating subject of study due to the variations in its course and branching, which often have clinical significance. This article focuses on the anatomical variations of the trigeminal nerve and their implications for the diagnosis and treatment of related disorders.

Anatomy of the Trigeminal Nerve. The trigeminal nerve arises from the anterolateral surface of the pons in two roots: a sensory root and a motor root. The sensory root is dominant and transmits impulses from the skin of the face, mucous membranes, and other structures. The motor root serves the masticatory muscles and parts of the middle ear. The nerve divides into three main branches at the Gasserian ganglion (Huff T, Weisbrod LJ, Daly DT, 2024) (Figure 1) sitting in the trigeminal impression of the temporal bone petrous part:

1. **Ophthalmic branch (V1):** a sensory branch that innervates the forehead, upper nose, and orbital region.
2. **Maxillary branch (V2):** a sensory branch responsible for innervating the middle facial region, including the upper teeth and parts of the nose.
3. **Mandibular branch (V3):** a combination of sensory and motor fibers, innervating the lower teeth, chin, and masticatory muscles.

Aim of work is to focus the attention on the importance of the knowledge of the variability in branches and course of the trigeminal nerve.

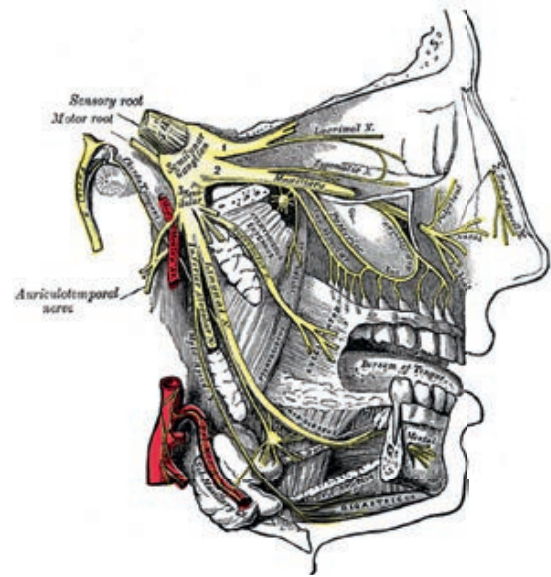
Material and method. The methodology of this work is the scientific databases literature review.

Core of Work.

Variations in Course and Branching. Variations in the trigeminal nerve's anatomy are relatively common and clinically significant, particularly in anesthesia and surgical procedures. Key findings from the literature include:

1. **Supraorbital and supratrochlear branches (V1):** The supraorbital nerve may exit the orbital region through one or multiple foramina. Studies have shown that differences in the location of these openings can lead to unsuccessful pain blocks or nerve injuries during surgery (Hosaka F, Yamamoto M, Cho KH, Jang HS, Murakami G, Abe S, 2016).
2. **Infraorbital Nerve (V2):** Variations include different numbers of branches and the presence of multiple foramina, affecting the success of anesthesia (Nderitu JM, Butt F, Saidi H, 2016) (Figure 2, 3).

Figure 1. Trigeminal nerve divisions. The illustration shows the distribution of the 3 trigeminal nerve branches. The ophthalmic division gives rise to the lacrimal nerve and supplies the superior third of the face and skull. The maxillary division supplies the midfacial region. The mandibular division innervates the muscles of mastication and gathers sensory information from the lower third of the face. The trigeminal nerve's semilunar ganglion and sensory and motor roots are also shown. Henry Vandyke Carter, Public Domain (Huff T, Weisbrod LJ, Daly DT, 2024).



3. **Auriculotemporal Nerve (V3):** This nerve often exhibits extensive branching and communications with other nerves, potentially leading to overlapping sensory regions (Becser Andersen, N, Bovim, G, Sjaastad, O, 2001).

Disorders Associated with Variations. Anatomical variations in the trigeminal nerve are important in diagnosing and treating the following conditions:

1. **Trigeminal neuralgia:** A painful disorder characterized by sharp pain in areas innervated by the trigeminal nerve. The most common cause is vascular compression near the nerve root, leading to demyelination. Anatomical variations, such as differences in nerve branch length, can affect the success of surgical interventions (Chen GQ, Wang XS, Wang L, Zheng JP, 2014). (Figure 4)
2. **Herpes zoster ophthalmicus:** Reactivation of the varicella-zoster virus often affects the frontal branch of the ophthalmic nerve (V1). Anatomical variations can influence the spread of infection and lead to complications such as neurotrophic keratitis (Vanikieti K, Poonyathalang A, Jindahra P, Checharoen P, Patputtpong P, Padungkiatsagul T, 2018). (Figure 5)
3. **Post-traumatic neuropathy:** Injuries near foramina, such as fractures or surgical interventions, can lead to neuralgia or sensory loss in the facial region (Tubbs RS, Loukas M, May WR, Cohen-Gadol AA, 2010).

Figure 2: Anatomical variations of the external nasal (EN) and the superior labial (SL) nerves. a) The external nasal nerve gives off branches after arising from the infraorbital foramen. The branches join towards the skin of the nasal ala. The SL nerve appears as two sub-branches, the lateral SL and the medial SL which are divided also into smaller branches before arriving at the superior lip. (b, c) Accessory superior labial nerve (aSL) comes from the foramen inferior to the infraorbital foramen and it innervates the same area as the major SL sub-branches (Nderitu JM, Butt F, Saidi H, 2016).

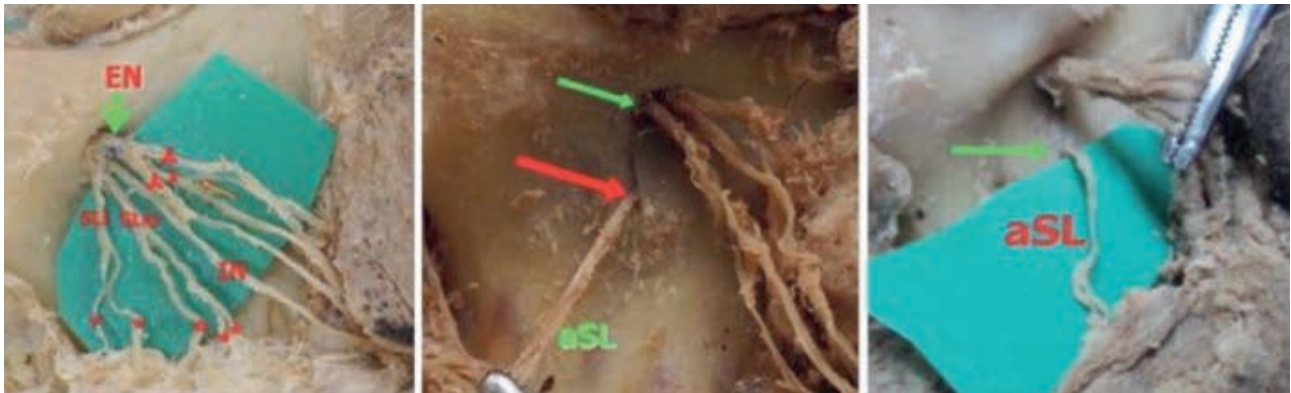


Figure 3: Right hemiface after the enucleation of the globe. Indicating the exit of the already branched infraorbital nerve within the orbit as two separate branches (Tubbs RS, Loukas M, May WR, Cohen-Gadol AA, 2010).

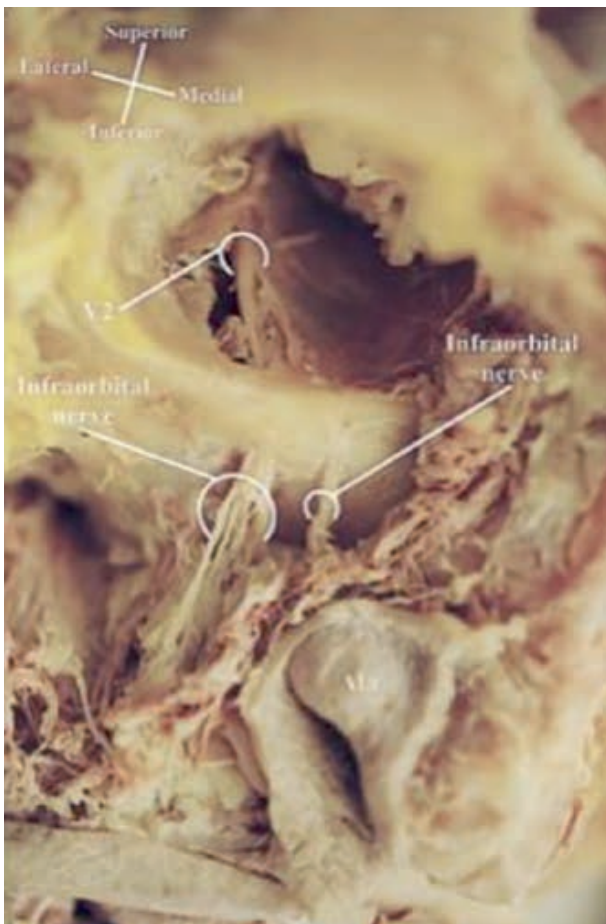


Figure 4: Intraoperative images of a) artery compression and vein, b) vein compression and c) arachnoid adhesions (Chen GQ, Wang XS, Wang L, Zheng JP, 2014)

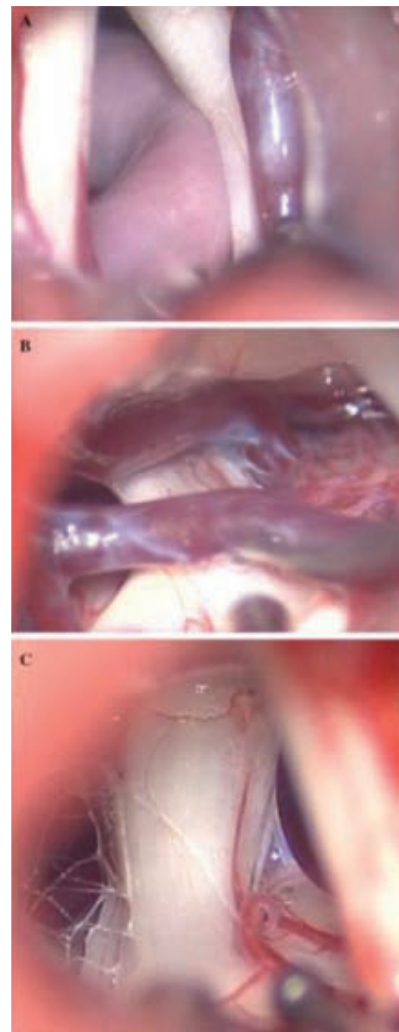
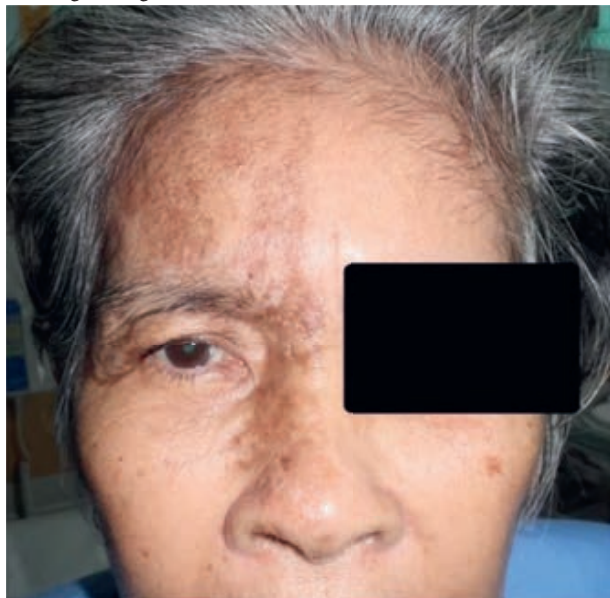


Figure 5: Hyperpigmented macules and patches along the right ophthalmic branch of the trigeminal nerve (Vanikieti K, Poonyathalang A, Jindahra P, Cheecharoen P, Patputtipong P, Padungkiatsagul T, 2018).



Conclusions.

Clinical Implications. Understanding the anatomical variations of the trigeminal nerve is crucial for:

- **Diagnosis:** Imaging techniques such as X-rays and magnetic resonance imaging (MRI) can reveal variations and identify potential compressions or pathological changes.
- **Treatment:** Accurate localization of anesthetic blocks or surgical interventions can minimize treatment failure.
- **Prevention:** Identifying predispositions to neuralgia can help in planning interventions to avoid complications.

By integrating anatomical knowledge into the clinical practice, healthcare professionals can improve outcomes for patients with trigeminal nerve disorders. Further research into these variations will continue to enhance our understanding and management of related conditions.

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Book Review: Peripheral nervous system (Interrelationships and Variations) by Matejčík Viktor, Haviarová Zora and Kuruc Roman

Recenzia knihy: Peripheral Nervous System (Interrelationships and Variations) autorov Matejčík Viktor, Haviarová Zora and Kuruc Roman

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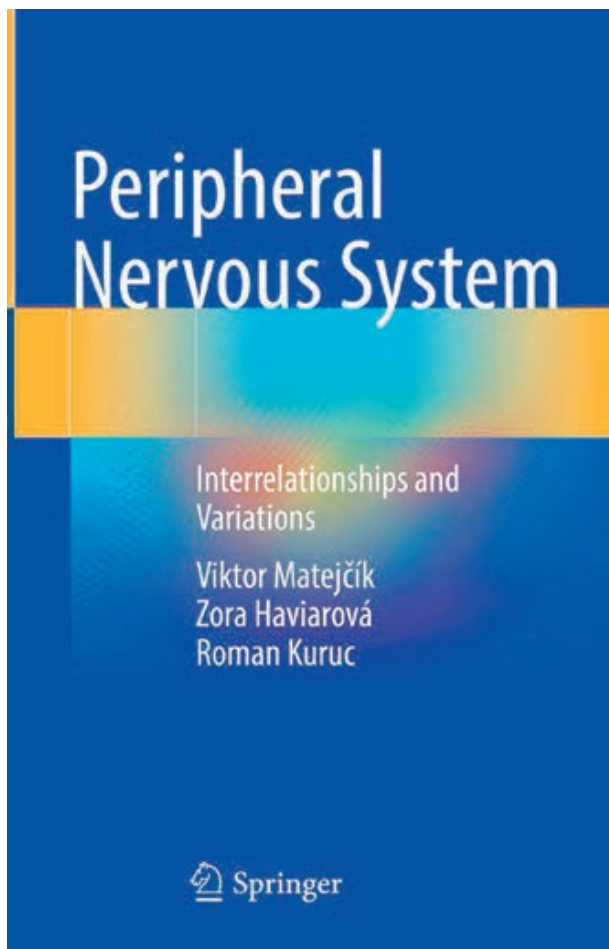
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In the half of November 2024 a new monograph „Peripheral Nervous System (Interrelationships and Variations)“ in Springer Nature edition was successfully published by authors Matejčík Viktor, Haviarová Zora and Kuruc Roman. The authors are experienced authors, since this new monograph is not their first work.

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About the book: This book complexly evaluates the morphological and clinical aspects of the peripheral nervous system and its involvement in various pathologies. It thoroughly describes its topography, morphology, its peculiarities — that are missing in anatomical and surgical textbooks- and their possible influence on the clinical picture. Their preoperative diagnosis is difficult, even impossible. Figures and line drawings enrich the view of structures that so far. have only been partially documented. The authors' descriptions are based on clinical observations and systematic work on the 246 human bodies of healthy people who died a sudden or violent death (most often in car accidents). Dissection is the most precise method to elucidate the range of variability, which is often largely responsible for the failure of surgical treatments. Their recognition can minimize damage to nerve structures, and the acquired knowledge can help clarify clinical signs and symptoms in surgery or internal medicine. The data presented in this publication will however be useful for traumatologists, orthopedists, spinal surgeons, neurosurgeons, plastic surgeons, as well as neurologists and neurophysiologists, and to all those who are dealing with or are interested in this field. It is structured in 6 parts (with their own abstracts and references), each part contains further chapters:

- Part I Morphological and Clinical Aspects of the Peripheral Nervous System and Construction and Structure of Peripheral Nerves
- Part II The Spinal Nerves, The Autonomic Nervous System and the Followed Material
- Part III Cranial Nerves Variations and Autonomics
- Part IV Vascular Innervation
- Part V Lesions of the Innervation of Limb Vessels and Venous Drainage of the Nerves
- Part VI Conclusion

The monograph contains many illustrating drawings, schemes and also own photographs. It is available in hardcover along with its softcover version. Further information about this monograph and access to downloads is possible via: <https://link.springer.com/book/10.1007/978-3-031-73744-2?page=1#toc>.

Reviewer's opinion

The manuscript of the scientific monograph „Peripheral Nervous System (Interrelationships and Variations)” by Prof. Viktor Matejčík, PhD. and his collaborators prepared in English language is composed of 6 parts, with further 18 chapters and 34 subheads, is lettered on 187 pages. The authors supplemented the text with 14 tables, 106 black and white, 123 color sketched, and 7 well-arranged photographs, properly equipped by their legends, They are of superior quality and highly instructive to the manuscript of this scientific monograph. „Peripheral Nervous System (Interrelationships and Variations)” provides readers important information relating to a complex topic of morphology, structure and variations of nerve roots, the nerve plexuses, and individual nerves, that significantly influence clinical symptomatology of different pathological processes affecting the peripheral nervous system. The monograph is well documented and clear, I recommend it for reading.

REFERENCES

- 1) Matejčík Z, Haviarová Z, Kuruc R (2024). Peripheral Nervous System (Interrelationships and Variations). Springer Nature, Cham, Switzerland, 2024. 187 p. Hardcover ISBN 978-3-031-73743-5. Softcover ISBN 978-3-031-73746-6. DOI <https://doi.org/10.1007/978-3-031-73744-2>