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PUBLIC HEALTH AND EPIDEMIOLOGY: INTERNATIONAL SCIENTIFIC CONFERENCE ON MEDICINE AND HEALTH SCIENCES OF THE UNIVERSITY OF LATVIA, 2026

On 26 April 2026, the University of Latvia, in Rīga, hosted the International Scientific Conference on Medicine and Health Sciences.

This section, “Public Health and Epidemiology”, presents a diverse collection of abstracts reflecting ongoing interdisciplinary efforts to address complex healthcare challenges across public health and healthcare. The research included draws on contexts from Latvia, Lithuania, and Uzbekistan, illustrating a robust commitment to evidence-based practice and cross-disciplinary collaboration.

The abstracts provide insights into statistical modelling of public health-related issues. The topics include sophisticated statistical models predicting a large scale of health outcomes. Another part of the presentations concentrates on the validation of health instruments for assessing health and disease, and on the evaluation and prediction of national and international trends in prevalence and incidence of health outcomes. A specific emphasis was made on the investigations of the genome and interoperability of genomic data infrastructure. An increasing number of abstracts this year evaluate knowledge and awareness of people about health aspects and analyse health habits and behaviours at the population level.

Taken together, this section emphasises the interconnectedness of epidemiological insights, psychosocial factors, and public health analyses. It demonstrates the importance of integrating social, epidemiological, and statistical dimensions in the analysis of health, ultimately leading to a more responsive, evidence-based medicine and healthcare.

Liliāna Civjāne

BODY MASS INDEX-RELATED DIFFERENCES IN DIETARY HABITS AMONG LATVIAN ADULTS

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Background. Excess body weight is associated with a range of adverse health outcomes and is often linked to unhealthy dietary habits. It is a global public health issue, contributing to excessive medical costs.

Aim. The aim of this study was to compare dietary habits among groups with normal body weight, overweight, and obesity in the adult population of Latvia.

Methods. A quantitative cross-sectional study was conducted, including 1087 respondents aged 18 to 94 years. Respondents completed a survey focused on lifestyle and health, ten questions concerning dietary habits were selected for analysis.

Results. Among 1087 participants, 429 (39.5%) had normal body weight, 412 (37.9%) were overweight, and 246 (22.6%) were obese. The sample consisted of 56.1% women (n = 615), and the median age was 50 years [36–66]. Statistically significant association between age group and BMI category was revealed, indicating that younger adults (18–29 years) were more likely to be of normal weight (69.7%, n = 108) whereas older adults showed progressively higher proportions of overweight and obesity. Individuals aged 60 years and older had the highest proportion of obesity (37.9%, n = 142) ($p < 0.001$). Overweight and obese participants rated their diet as less healthy ($p = 0.001$), were less likely to know how much fruit and vegetable one serving contains ($p = 0.05$) and reported lower vegetable intake ($p = 0.016$) compared to normal-weight participants. Participants with a normal BMI reported the highest frequency of fast-food consumption ($p < 0.001$). Performing logistic regression, after adjustment for age and sex, normal-weight status was associated with higher odds of reporting a healthy diet (OR = 1.81, 95% CI [1.40, 2.33], $p < 0.001$) and consuming ≥3 servings of vegetables per day (OR = 1.32, 95% CI [1.06, 1.65], $p = 0.014$) compared with overweight or obese status. After adjustment for age and sex, knowledge of fruit and vegetable serving size and fast-food consumption frequency were not significantly associated with BMI category. The differences between BMI groups were not statistically significant for knowledge of "plate principle" ($p = 0.075$), fruit intake ($p = 0.073$), meal frequency ($p = 0.230$), attention to nutritional value of food ($p = 0.087$) and addition of sweeteners to drinks ($p = 0.078$).

Conclusion. These findings provide important insights into differences in dietary habits across BMI categories, contributing to a deeper understanding of food-related behaviours among adults in Latvia. They indicate the presence of health inequalities and differences in health literacy associated with BMI, highlighting the need for further directions of nutrition education.

Acknowledgements.
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COMPARATIVE ANALYSIS OF DIETARY FACTORS AMONG ADULTS WITH AND WITHOUT CARDIOVASCULAR DISEASE IN LATVIA

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Background. In Latvia, mortality and risk of cardiovascular disease (CVD) remain significantly elevated relative to other EU countries. An integral part of guidelines for management of chronic CVD are dietary recommendations.

Aim. This study aimed to analyse dietary factors among Latvian adults with and without cardiovascular disease.

Methods. A quantitative cross-sectional study was conducted, including 1097 respondents aged 18 to 94 years. Respondents completed a survey focused on lifestyle and health. Eleven questions concerning dietary habits were selected for analysis.

Results. The study included 1097 participants, 615 were female (56.1%) and 482 were male (43.9%). Among the respondents 269 (24.5%) had CVD. Participants with CVD were older than those without CVD (median 68 years [57–77] vs 44 years [33–58], $p < 0.01$). Overweight or obese respondents had 3.23 times higher odds of CVD com-

pared with normal-weight respondents (OR = 3.23, 95% CI [2.19, 4.77], $p < 0.001$), adjusted for sex and age. The distribution of dietary factors differed between participants with and without CVD. Participants with CVD were more likely to report ≥1/day whole-grain (64.3%, n = 173 vs. 55.3% n = 456, $p < 0.01$) and milk intake (61.7%, n = 166 vs. 52.4% n = 432, $p < 0.001$) than those without CVD. Participants with CVD were more likely to report monthly/never intake of nuts (80.1%, n = 214 vs. 71.0%, n = 584) and were more likely to consume fewer (< 2 portions/day) fruits (73.5%, n = 194 vs. 66.7%, n = 545, $p = 0.04$) and vegetables (< 3 portions/day: 76.9%, n = 206 vs. 70.2%, n = 574, $p = 0.03$) compared with those without CVD. Legume, fish and seafood intake were similar between groups, more reporting monthly/never intake with no statistical significance ($p = 0.20$; $p = 0.74$, respectively). As for "non-protective" dietary factors, participants with CVD reported monthly/never intake of red meat (35.7%, n = 96 vs. 27.4%, n = 226, $p = 0.02$), sweetened drinks (77.7%, n = 206 vs. 62.2%, n = 510, $p < 0.01$), salty snacks (89.2%, n=239 vs. 73.8%, n = 607, $p < 0.01$), and low intake of processed meat (45.4%, n = 122 vs. 41.1%, n = 339, $p = 0.039$), in comparison to participants without CVD.

Conclusion. Participants with CVD reported higher consumption of some protective dietary factors, such as wholegrains and milk, but lower intake of fruits and vegetables, while generally consuming risk dietary factors less frequently. These patterns may reflect reverse causation, with dietary changes following diagnosis. The findings provide an evidence base for further development of prevention and control measures to mitigate CVD burden in Latvia.

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AN EXPLORATORY ANALYSIS OF THE DISTRIBUTION AND FUNCTIONAL IMPACT OF SELF-REPORTED MUSCULOSKELETAL SYMPTOMS IN LATVIAN WORKERS

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Background. Musculoskeletal symptoms remain a significant challenge in the modern work environment, especially considering increasing cognitive demands, digitalised work processes, and evolving dynamics of human-technology interaction. Understanding not only the distribution of symptoms across body regions, but also their functional impact on work ability, is essential for developing human-centred and preventive strategies for workplace intervention.

Methods. This exploratory cross-sectional study included 46 employed participants who completed a Latvian translation of the Nordic Musculoskeletal Questionnaire (NMQ). Laterality-coded 12-month symptom items were dichotomised to indicate the presence or absence of symptoms, while 7-day items were analysed in their original binary form. Descriptive statistics were used to examine the prevalence of symptoms across body regions. Total musculoskeletal symptom burden was calculated as the number of affected body regions over 12 months. Multi-site symptom burden was categorised into single-site, two-site, and multi-site symptom groups. Associations between symptom burden, recent symptoms, job tenure, body mass index, and work interruption due to musculoskeletal problems were explored using non-parametric methods.

Results. Neck (58.7%), lower back (67.4%), shoulders (43.5%), and upper back (39.1%) were the most frequently reported symptom regions over the past 12 months. The median total number of affected body regions was 3 (range 0–9). Total 12-month symptom burden correlated strongly with symptoms reported in the past 7 days (Spearman's $\rho = 0.676$, $p < 0.001$), supporting good convergent validity of the questionnaire. No significant associations were observed between total symptom burden and either years in profession ($\rho = 0.06$, $p = 0.69$) or body mass index ($\rho = -0.11$, $p = 0.45$). Functional impact increased with symptom spread: none of the participants with single-site symptoms reported work interruption, compared to 8.3% of those with two affected sites and 50.0% of those with multi-site symptoms.

Conclusions. Musculoskeletal symptoms were common and frequently involved multiple body regions. While symptom burden was not associated with job tenure or body mass index, multi-site symptom distribution was strongly related to work interruption, indicating its relevance for productivity and functional capacity. These findings emphasise the importance of early identification of multi-site musculoskeletal symptoms and support the use of simple symptom burden indicators in ergonomics-oriented, human-centred workplace assessments.

Acknowledgements. The authors declare that there are no conflicts of interest related to this study.

LATVIAN GENOME REFERENCE PROJECT IN THE GENOME OF EUROPE: GENOMIC DATA INFRASTRUCTURE-ENABLED INTEROPERABILITY WITH THE NATIONAL GENOMIC DATABASE INFORMATION SYSTEM

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Background. Baltic populations are often underrepresented in genomic resources, hindering the interpretation of variants, the calculation of polygenic risk scores (PRSs), and disease estimates. The development of a population-scale reference dataset of Latvian genetic variation may bridge the gap in European genomes by improving imputation and variant interpretation. These benefits are maximised when the dataset is integrated into broader frameworks, such as the Genome of Europe (GoE).

Aim. To ensure that Latvian population genomic reference resources can be used in pan-European research and healthcare through GoE, based on a Genomic Data Infrastructure (GDI)-backed, privacy-preserving interoperability layer connecting national and European genomic infrastructures.

Methods. In total, 3838 participants were enrolled, where 616 were from the biobank and 3222 new DNA samples extracted from blood were sequenced (3465 on DNBSEQ-T7 (MGI), 373 on PromethION 24 (ONT)). To date, 2920 paired-end FASTQ files have been processed using nf-core/sarek (where alignment was done to GRCh38 with BWA-MEM2, followed by germline variant calling with the Genome Analysis Toolkit (GATK) HaplotypeCaller) on Rīga Technical University high-performance computing cluster, and the resulting gVCFs have been deposited at the National Library of Latvia.

Results. Pilot datasets have been applied to PRS computation, allele-frequency estimation, and multiple research and consortium activities. The national and European infrastructures are currently under testing, supporting secure data exchange and federated use cases.

Conclusion. Creating a GDI-supported interoperability layer between Latvia's national genomic infrastructure and the GoE ecosystem will mitigate fragmentation, enhance data quality and harmonisation, and ensure that Latvia's genomic resources are effectively integrated into Europe-wide research efforts. The resulting infrastructure will be sustainable, secure, and directly supportive of precision medicine and public-health goals.

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NATIONAL TRENDS IN GASTRIC CANCER INCIDENCE AND MORTALITY IN UZBEKISTAN (2015–2024)

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Background. According to data of Globocan 2022, gastric cancer takes the 5th place in morbidity and mortality among both sexes and 4th place among men. In the Republic of Uzbekistan, gastric cancer takes the 1st place in men and 6th place in women. Thus, remaining one of the frequent pathology and public health problem both all over the world and in Uzbekistan.

Aim. The aim of this study is to analyse the incidence and mortality trends of gastric cancer for the last 10 years in Uzbekistan.

Methods. To investigate the burden of gastric cancer, we conducted retrospective analysis using national data from official statistics in Uzbekistan for 2015–2024. Incidence and mortality rates were age standardised (World).

Results. The most commonly diagnosed cancer for both sexes in Uzbekistan is breast (16.8%), followed by colorectal (7.9%), and gastric (7.3%) cancer. In 2024, 2070 cases were registered with gastric cancer, corresponding to age-standardised rate of 6.2 per 100,000 population. The number of newly diagnosed patients with gastric cancer

over the last 10 years was increased by 13.4%. The median age of patients with gastric cancer increased from 59.4 in 2015 to 60.8 in 2024. Moreover, 56.1% of new gastric case were diagnosed at the age of 50–70 and 28% of them — at the age over 70. Mortality data revealed 1452 deaths from gastric cancer in 2024 with median age 61.5, constituting 4.4 age-standardised rate per 100,000 population. The number of deaths from gastric cancer increased by 5.1.

Conclusion. In conclusion it can be shown that incidence and mortality of gastric cancer has a tendency to increase in Uzbekistan. 50–70-years-old patients are more likely to develop gastric cancer in Uzbekistan. These findings highlight the urgent need to strengthen the national screening programme and improve early diagnostic access.

AGE-RELATED DIFFERENCES IN EATING HABITS OF LATVIAN ADULTS

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Background. Eating habits represent a modifiable determinant of adults' daily functioning and can serve as a target for lifestyle interventions [1]. Aging influences people's eating patterns by changing individuals' physiological, psychological, and social behaviour [2]. Evidence on age-related differences in eating habits among Latvian adults is limited.

Aim. To evaluate the relationship between age and eating habits in Latvian adults.

Methods. A cross-sectional study was conducted on a random sample of Latvian inhabitants, proportionally distributed by their place of living. The survey included 21 questions on demographics and 20 questions on eating habits. Descriptive statistics were performed for all study variables. We used the chi-square and one- way ANOVA tests to investigate the differences in eating habits among age groups of participants. $\alpha \leq 0.05$ was considered significant.

Results. A total of 1133 adults participated in the survey (44.2% men). The mean age was 51.0 years (SD = 18.5, range 18 to 94). The range of each age group was 10 years, with the largest proportion of respondents in 45–54 age group, followed by 35-44 group. A little over a half of the participants (58.2%) rated their diet as "good but needs improvement". Among participants aged 18–44 years, 20.8 to 21.8% reported limited cooking skills, while 12.3% to 22.3% reported a lack of time. In contrast, participants older than 44 years demonstrated significantly better cooking skills ($p < 0.01$), with only 8.9% to 9.9% reporting limited skills, and they were less likely to report a lack of time, with the lowest percentage observed in the 76+ age group (0.7%). Knowledge and implementation of the plate principle were low across all age groups. Overall, less than half (45.5%) were aware of the plate principle, but only 8.6% implemented it. Among participants 18–44 years old, the range of those who knew about the plate principle was 16.9–41.3%, but in those older than 44 years, the range was significantly lower ($p < 0.01$), with the lowest result in the 76 + old group (16.2 %).

Conclusions. Tailored public health strategies are essential for improving nutrition across the population.

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DEVELOPMENT OF A MULTI-CRITERIA DECISION ANALYSIS MODEL FOR REPEATED USE WITHIN LATVIAN REIMBURSEMENT SYSTEM OF PHARMACEUTICAL PRODUCTS

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Background. Multi-Criteria Decision Analysis (MCDA) has become an increasingly important approach used worldwide to support decision-making reimbursement budget allocation when several mutually exclusive and competing criteria specific to pharmaceuticals exist. In Latvia decision-making for the reimbursement of new medicines within the national healthcare system is a complex multidisciplinary process requiring a fair approach in allocating limited financial resource while considering other criteria beyond clinical and cost- effectiveness. Until now, MCDA as the approach in the reimbursement decision-making has not yet been applied in Latvia. Moreover, interests of other stakeholders are mostly omitted during the decision-making process.

Aim. To develop an MCDA model and tool for its repeated use to support evidence-based and objective decision-making for the reimbursement of new pharmaceuticals within national reimbursement system.

Methods. The model was developed according to guidelines and practices established worldwide. First, a systematic literature review (SLR) was conducted to identify model types and criteria used worldwide. An initial set of criteria was created and further adapted to decision problem. Second, six therapeutic groups were established to form expert focus groups. Third, direct scoring and preference scaling as criteria scoring functions were chosen and adapted. Fourth, focus group workshops were held to elicit criteria ranking using SMART ranking and SWING weights. Fifth, an MCDA tool was developed, its approbation performed, results analysed and recommendations for the model implementation prepared.

Results. Based on the SLR an initial set of 11 criteria was created. To address local needs, nine criteria were chosen and used in the model: severity of disease, unmet needs, size of affected population, clinical effective- ness, safety and tolerability, quality of life, cost-effectiveness, budget impact and impact on other spending. In total 23 participants representing different professional and patient interests participated in workshops. Results of SWING weighting showed that in each therapeutic group four criteria with highest rank composed up to 80% of total weights. In total 22 already reimbursed pharmaceuticals were selected during the model approbation and only minor improvements in its functionality implemented.

Conclusion. The developed MCDA model confirms the mutually compensating characteristics of criteria and provides evidence-based support in new drug reimbursement decisions in Latvia. The implementation of this model creates a continuum in use of clinical and cost-effectiveness assessment performed locally.

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PARENTAL KNOWLEDGE AND SLEEP HYGIENE PRACTICES AMONG PARENTS OF CHILDREN AGED 6–12 YEARS

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Background. Approximately one-third of a person's life is spent sleeping; however, the body continues to function during this time. Sleep is a vital component of a child's health and an important factor in preventing chronic diseases. Sleep hygiene is defined as behaviours that promote proper sleep, including adequate sleep duration, healthy sleep habits, a sleep-supportive environment, and practices that facilitate falling asleep. Parental knowledge and practices play a crucial role in shaping children's sleep habits. Parents who are well informed about sleep hygiene can implement effective strategies to promote healthy sleep patterns in their children.

Aim. To determine parents' knowledge of sleep hygiene and adherence to its principles among children aged 6–12 years.

Methods. A retrospective, quantitative, descriptive, and cross-sectional study. Data were collected using a structured questionnaire developed by the authors of the study.

Results. Difficulties initiating sleep in the evenings less than once per week were reported in 49% of the respondents' children, whereas 16% of parents indicated that their children experienced difficulties falling asleep every night or every other night ($p < 0.0001$). The majority of participating children went to bed between 21:00 and 22:00 ($p < 0.00001$); however, if a child was unwilling to go to bed, two-thirds of parents allowed the child to stay awake longer ($p < 0.0037$). Two-thirds of the surveyed children (66%) exhibited bedtime resistance (e.g., crying, refusing to stay in bed), 20% did so occasionally, and 14% consistently ($p < 0.0001$). Half of the respondents (50%) reported that their child resisted going to sleep before bedtime, sometimes in 32% of cases and always in 18% ($p < 0.0005$). In 53% of cases, parents reported that their child rarely required parental presence in the room to fall asleep, whereas 31% of children always required a parent and 16% required a parent sometimes in order to fall asleep ($p < 0.0001$).

Conclusion. Overall, 52% of children slept less than 8 hours per night, and 29.6% experienced daytime sleepiness, indicating insufficient sleep duration and/or quality. Children often required assistance waking up and frequently exhibited a negative mood upon awakening. Although most parents reported that electronic devices should be switched off 1–2 hours before bedtime, 26% still allowed television viewing before sleep.

Acknowledgements. The authors declare no conflicts of interest.

MEDICAL RISK FUND APPLICATIONS IN LATVIA (2014–2024): PATIENT SAFETY, QUALITY OF HEALTHCARE, AND COMPENSATION DYNAMICS

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Background. Healthcare quality and patient safety are essential public health indicators and core objectives of national health policy. In Latvia, healthcare quality is supervised by the Health Inspectorate of Latvia through the review of patient complaints. Patient rights are additionally protected by the Medical Risk Fund (MRF), which provides compensation for harm to life or health resulting from medical specialists' actions or inaction without requiring court proceedings. Compensation for such damage may reach up to EUR 142,290. The analysis of complaints enables the identification of recurring risks and systemic shortcomings, thereby supporting evidence-based improvements in healthcare quality.

Aim. The study analyses trends in MRF complaints, their distribution across clinical specialties, and related expenditures from 2014 to 2024.

Methods. The study used a retrospective quantitative and qualitative analysis of administrative data available to the Health Inspectorate of Latvia. The number of complaints submitted per year was analysed using thematic classification. Descriptive statistical methods were applied for data processing. The results are presented dynamically over the analysed period.

Results. During the period analysed, fluctuations in the number of complaints were observed. In recent years, an overall upward trend has emerged, correlating with an increasing number of confirmed cases of harm. Most complaints concerned the quality of medical treatment, diagnostic and therapeutic errors, and deficiencies in patient information. Occasionally, complaint volumes increased, possibly reflecting greater public awareness of patients' rights. Overall, 1705 substantiated complaints were analysed, with harm identified in 476 cases, resulting in total MRF expenses of EUR 12,608,929.65 over the study period.

Conclusion. The analysis of complaints submitted to the MRF provides valuable insight into the functioning of the healthcare system and patient experience:

The results indicate the need to continue improving the quality of medical treatments and strengthening preventive measures to reduce the occurrence of medical risk cases.

Complaints are more often focused on specific specialties: surgery, obstetrics and gynaecology, traumatology, dentistry, neurology/neurosurgery, which can be explained by higher clinical risk.

The main reasons identified in the analysis of substantiated complaints include delayed or inaccurate diagnosis, inappropriate treatment, and insufficient patient information.

Given developments in healthcare, regulatory shifts, and growing patient awareness, it is crucial to evaluate trends in complaints submitted to the Health Inspectorate regarding the operation of the MRF.

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EVALUATION OF PYRROLIZIDINE ALKALOIDS IN THE MOST COMMON WEEDS IN LATVIA AND THEIR TRANSFER DURING MEDICINAL PLANT CULTIVATION AS A PUBLIC HEALTH CONCERN

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Background. Pyrrolizidine alkaloids (PAs) are toxic plant secondary metabolites with hepatotoxic, genotoxic, and carcinogenic properties. Medicinal plants may synthesise PAs themselves or become contaminated through co-harvesting with PA-producing weeds, as well as via uptake from contaminated soil and groundwater. To protect consumers, maximum limits for 35 PAs in food and herbal products have been established under Commission Regulation (EU) 2023/915, based on risk assessments by the European Food Safety Authority and supported by guidance from the European Medicines Agency and the European Pharmacopoeia. Compliance with these limits obliges medicinal plant growers and producers in the European Union to control not only raw materials and final products, but also cultivation practices and environmental conditions.

Aim. To evaluate pyrrolizidine alkaloids as a public health risk during the cultivation of medicinal and aromatic plants in Latvia by identifying dominant PA-producing weeds, assessing their impact on cultivated plants, and investigating PA transfer and persistence in soil systems relevant to groundwater contamination.

Methods. The study focused on PA-producing weeds commonly occurring in medicinal and aromatic plant cultivation areas in Latvia and Central Europe. Selected weeds were cultivated alongside medicinal plants in controlled pot and field trials and were also sampled from commercial agricultural fields. Potential PA transfer to medicinal plants (*Chamomilla recutita, Mentha* × *piperita, Petroselinum crispum*) was evaluated. Soil leaching simulations were performed to assess PA mobility and persistence. PA content in weeds, medicinal plants, and soil was monitored using validated analytical methods in accordance with the European Pharmacopoeia.

Results. Medicinal and aromatic plant cultivation areas in Latvia were commonly affected by PA-producing weeds, with *Myosotis arvensis, Anchusa arvensis, Anchusa officinalis*, and *Senecio vulgaris* identified as dominant species. These weeds contained pyrrolizidine alkaloids regulated at the EU level, although at substantially lower concentrations than those reported for Central European populations (e.g., *Jacobaea vulgaris*). No significant horizontal PA transfer was observed through co-growth alone. The main contamination pathways were co-harvesting of PA-producing weeds with medicinal plants and environmental transfer via soil and groundwater. Soil leaching experiments confirmed that PAs can enter soil systems and subsequently be taken up by cultivated plants, representing a relevant indirect exposure route.

Conclusions. PAs represent a relevant public health concern during medicinal and aromatic plant cultivation in Latvia. The primary risks arise from co-harvesting and environmental transfer through soil and groundwater rather than direct plant-to-plant contact. Targeted weed management and environmental monitoring are therefore essential to support compliance with EU PA regulations.

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CHANGES IN PUBLIC AWARENESS OF OBSTRUCTIVE SLEEP APNEA BETWEEN YEARS 2016 AND 2023

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Background. Obstructive sleep apnea (OSA) is a common and underdiagnosed condition associated with significant health complications. Inadequate knowledge regarding OSA symptoms, risk factors, and potential complications contributes to delayed recognition, diagnosis, and initiation of appropriate treatment, thus increasing the burden of preventable morbidity.

Aim. The aim of this study was to assess change in public awareness of obstructive sleep apnea from the years 2016 and 2023, including awareness of symptoms, risk factors, and related health consequences.

Methods. A cross-sectional online survey was conducted in 2016 and repeated in 2023 using the Google Forms platform. Public awareness of OSA was assessed using identical structured questionnaire consisting of 11 questions in both survey periods. The questionnaire evaluated respondents' knowledge of OSA symptoms, potential health consequences, and general understanding of the condition. A

total of 306 participants completed the survey in 2016, and 248 participants in 2023. Comparative analysis was performed to examine changes in public awareness of OSA between 2016 and 2023.

Results. Public awareness of OSA was limited in 2016, with 8% (n = 26) of respondents having heard of the condition, primarily through informal sources like family and friends (n = 19). By 2023, this figure increased to 13% (n = 32), accompanied by a notable shift towards more formal information sources, such as educational institutions (n = 10). In 2016, 15% (n = 45) of respondents correctly identified the definition of OSA. This proportion increased to 16% (n = 40) in 2023. Among respondents who correctly identified the definition, the proportion reporting prior awareness of OSA increased from 58% (n = 26) in 2016 to 71% (n = 32) in 2023. Indicating that the design of survey leads to respondents identifying the definition of OSA based on a description rather than prior knowledge of the term. The most common recognisable symptom in 2016 was snoring during sleep (n = 21), whereas in 2023, it was apnea (n = 32) which correlates with the definition of OSA.

Conclusion. Between 2016 and 2023, public awareness of OSA increased only marginally, accentuating persistent challenges in reaching the widespread population. However, among respondents familiar with OSA, clinical understanding and recognition of key symptoms improved considerably. These trends coincided with a demographic shift toward a slightly older, professionally educated cohort and greater reliance on formal information sources. Overall, the findings suggest that whilst general awareness remains low, understanding of diagnostics among informed individuals has markedly improved over the seven-year period.

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SELF-ASSESSMENT OF CPR KNOWLEDGE AND READINESS OF UNIVERSITY STUDENTS WITHOUT MEDICAL EDUCATION: A CROSS-SECTIONAL STUDY

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Background. The arrival time of emergency medical services often exceeds the critical interval in which irreversible brain damage or death can be prevented. Therefore, the ability of bystanders to initiate cardiopulmonary resuscitation (CPR) before professional help arrives is critical. The acquisition of CPR skills across the public is an essential aspect of public health and safety, as is the confidence of the rescuer to perform it.

Aim. The aim of the current study was to assess CPR confidence, knowledge, and barriers among university students, most of whom had received prior first aid training through schools or driving courses.

Methods. A cross-sectional survey was conducted among 151 non-medical university students in Latvia. Participants completed questionnaires assessing CPR confidence (5-point scale), previous training experience, willingness to perform CPR, and perceived barriers. Chi-square tests, Kruskal-Wallis H test, and Spearman correlation were used to analyse associations between training factors and confidence levels.

Results. 79.5% (n = 120) of students reported previous first aid training, yet 57.0% (n = 86) demonstrated low CPR confidence levels. Overall mean confidence was 2.25 ± 0.97 on a 5-point scale, with only 8.6% (n = 13) reporting high confidence. Statistical analysis revealed that training frequency significantly affected confidence levels ($H = 27.657$, $p < 0.001$), with students who trained frequently showing the highest confidence (M = 3.67). Practical mannequin experience was significantly associated with higher confidence ($\chi^2 = 40.372$, $p < 0.001$), with 69.5% (n = 105) of participants having had hands-on practice. AED knowledge demonstrated a strong positive correlation with CPR confidence ($r = 0.546$, $p < 0.001$), though 43.0% reported no AED knowledge. Fear of making mistakes was the primary barrier to performing CPR (62.3%), followed by insufficient knowledge (23.8%) and fear of infectious diseases (16.6%). Despite low confidence, 87.5% agreed that CPR training is important, 60.9% expressed willingness to attend further courses, and 32.5% reported readiness to perform CPR in real situations.

Conclusion. Despite previous first aid training, university students without medical education demonstrated generally low self-confidence and limited readiness to perform CPR in real-life situations. Fear of making mistakes and perceived insufficient knowledge were the most significant barriers to action. Nevertheless, strong agreement on the importance of CPR training and a high willingness to attend further courses indicate a clear need and motivation for regular, practical, and confidence-building first aid education programmes targeted to improve bystander response and public health outcomes.

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FORECASTING INFLUENZA AND ACUTE UPPER RESPIRATORY INFECTIONS BASED ON METEOROLOGICAL FACTORS USING A NEGATIVE BINOMIAL REGRESSION MODEL IN VILNIUS AND RĪGA

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Background. Studies have revealed the effect of temperature and humidity on respiratory virus stability and transmission rates. There is clear evidence that respiratory virus-related diseases peak in the coldest months, with the highest morbidity occurring during this period, confirming seasonal patterns. The low-temperature condition promotes the ordering of lipids on the viral membrane and contributes to the stability of the influenza virus particle. Low relative humidity combined with colder temperatures appears to have the greatest effects on aerosol transmission. However, high relative humidity seems to support droplet and contact transmission, and cooler temperatures may prolong virus survival on surfaces and in droplets.

Aim. To evaluate the association between meteorological factors and to forecast influenza and acute upper respiratory infections using a negative binomial regression model in Vilnius and Rīga.

Methods. The dataset comprises quantitative monthly count data on reported influenza and acute upper respiratory infections (AURI) cases together with corresponding meteorological indicators: mean monthly temperature, humidity and precipitation values. Data from Vilnius (2014–2024), Rīga (2016–2024), were used in the analysis. Negative binomial regression (performed using IBM SPSS 30) was applied because overdispersion was present in the analysed data, and the model's additional dispersion parameter allows this excess variability to be appropriately accounted for.

Results. The model for Vilnius indicated that air temperature (^{o}C), relative humidity (%), and precipitation (mm) were statistically significant predictors of the monthly morbidity of influenza and acute upper respiratory infections (AURI). For influenza the regression coefficients (B) were –0.537 ($p < 0.001$) for temperature, –0.063 ($p < 0.001$) for relative humidity, and 0.210 ($p = 0.040$) for precipitation, whereas for AURI the corresponding coefficients were –0.038 ($p < 0.001$), 0.008 ($p = 0.039$), and –0.071 ($p = 0.010$).

The model for Rīga showed similar results, indicating that air temperature (^{o}C), relative humidity (%), and precipitation (mm) were a statistically significant predictors of the monthly morbidity of influenza. The corresponding regression coefficients were –0.377 ($p < 0.001$), –0.075 ($p < 0.001$), and 0.804 ($p = 0.001$), respectively. In contrast, only temperature was a statistically significant predictor of AURI morbidity (B = –0.043, $p = 0.020$).

Conclusion. In the models for both Vilnius and Rīga, higher temperature and relative humidity were associated with lower influenza morbidity, while higher precipitation was associated with increased morbidity. Higher temperature was also associated with lower AURI morbidity in both cities, whereas humidity and precipitation were significant only in Vilnius.

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TRANSLATION INTO LATVIAN AND VALIDATION OF THE INSTRUMENT "CLIENT-CENTRED REHABILITATION QUESTIONNAIRE"

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Background. The role of rehabilitation in healthcare is expanding, with growing recognition of patient experience as an essential dimension of care quality. Patient-centred care integrates patients' values, needs, and preferences into care delivery, while patient-reported experience measures (PREMs) enable systematic evaluation of patient-centredness. However, standardised assessment of inpatient rehabilitation patient experience in Latvia remains limited, highlighting the need for adaptation of a validated international instrument.

Aim. The aim of this study was to translate into Latvian and validate the Client-Centred Rehabilitation Questionnaire (CCRQ).

Methods. The study used the Client-Centred Rehabilitation Questionnaire (CCRQ), originally developed and psychometrically tested in Canada. The CCRQ consists of 33 items grouped into seven subscales. The instrument was translated into Latvian using a forward–backward translation process with three independent translators, followed by expert review. The study was conducted in 2025 at the inpatient rehabilitation department of Rīga East University Hospital. Data were analysed using descriptive statistics and internal consistency analysis (Cronbach's alpha) in SPSS.

Results. The study included 34 patients (median age 66 years; range 24–83); 20 were women (58.8%) and 14 were men (41.2%). Stroke was the most common diagnosis (n = 11; 32.4%), followed by neurodegenerative diseases (n = 7; 20.6%).

Thirty participants completed all questionnaire items (completion rate 88.2%), with minimal missing data (2.7%), indicating good feasibility.

Cronbach's alpha was calculated for all CCRQ subscales. Good to excellent internal consistency was observed for Emotional support ($\alpha = 0.89$), Family involvement ($\alpha = 0.82$), Client participation in decision-making and goal setting ($\alpha = 0.78$), and Physical comfort ($\alpha = 0.75$). Outcomes evaluation from the client perspective showed acceptable internal consistency ($\alpha = 0.70$). Lower internal consistency was found for Client-centred education ($\alpha = 0.51$) and Continuity/coordination ($\alpha = 0.42$).

Conclusion. The findings support the feasibility and preliminary use of the Latvian version of the Client-Centred Rehabilitation Questionnaire in inpatient rehabilitation settings. Differences across subscales reflect the multidimensional nature of patient-centred rehabilitation care and align with international studies that have applied item reduction and structural refinement of the instrument. Further psychometric evaluation in a larger sample is warranted to optimize the instrument for use in Latvia.

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AWARENESS AND ATTITUDES OF THE LATVIAN POPULATION TOWARDS INFLUENZA VACCINATION

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Background. Influenza represents a major public health issue, and vaccination is the most effective preventive measure; however, influenza vaccination coverage in Latvia remains low.

Aim. To assess population knowledge, information sources, and reasons for acceptance or refusal of influenza vaccination.

Methods. A cross-sectional study was conducted using a structured anonymous questionnaire. A total of 306 respondents (260 females and 44 males; sex not specified for two respondents) aged 18–74 years participated in the study. The study was approved by the Research Ethics Committee of Rīga Stradiņš University. Data analysis was performed using IBM SPSS Statistics software and descriptive statistical methods.

Results. The study included 306 respondents. Of these, 43.5% (n = 133) had received influenza vaccination, while 56.5% (n = 173) had not. Vaccinated respondents demonstrated a statistically significantly higher level of knowledge about influenza and vaccination compared to unvaccinated respondents ($p < 0.001$). Among vaccinated individuals, official and authoritative information sources predominated, primarily information provided by the Centre for Disease

Prevention and Control of Latvia (52.6%) and general practitioners (GPs) (47.4%), as well as consultations with physicians of other specialties (34.6%). In contrast, unvaccinated respondents more frequently relied on online news portals (47.4%) and social media (31.2%); however, GPs also remained an important information source (42.8%). Healthcare workers (46.7%) and respondents with chronic diseases (58.1%) were statistically significantly more likely to be vaccinated against influenza ($p < 0.001$). The main reasons for vaccination were the desire to protect oneself (90.2%) and family members (58.3%), whereas non-vaccination was primarily associated with the belief that vaccination is unnecessary (51.4%), lack of confidence in vaccine effectiveness (27.2%), and concerns about potential adverse effects (19.7%).

Conclusions. Influenza vaccination uptake is closely associated with knowledge level, use of reliable information sources, and awareness of individual health risks. Healthcare professionals, particularly general practitioners, play a crucial role in public education. Influenza vaccine hesitancy and refusal are mainly determined by attitudes and perception-related factors rather than vaccine availability or practical barriers.

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PREVALENCE OF OVERWEIGHT AND OBESITY AMONG LITHUANIAN FIRST GRADE CHILDREN OVER A 15 YEAR PERIOD

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Background. The monitoring of children's growth is crucial for assessing growth patterns and weight status. Overweight and obesity, determined by Body Mass Index (BMI) cut-offs, are associated with unhealthy nutrition and noncommunicable diseases. Lithuania participates in the WHO European Childhood Obesity Surveillance Initiative (COSI) to monitor these trends.

Aim. To evaluate the changes in prevalence of overweight and obesity among Lithuanian first-graders over a 15-year period (2008–2023).

Methods. Following the COSI protocol, the study compared six rounds of anthropometric measurements of 7–8-year-old Lithuanian schoolchildren (separated by gender) from 2008 to 2023. The primary variables were weight and height, used to calculate BMI, that was afterwards grouped to overweight and obesity according to International Obesity Task Force (IOTF) cut-offs. The prevalence was calculated and presented as percentages.

Results. The number of children measured ranged from 2341 in 2008; 2455 in 2010, then gradually decreasing to 1622 in 2023. Among seven--year--olds, the prevalence of overweight among boys increased from 12.1% in 2008 to 13.2% in 2023, while girls' rates fluctuated, from around 13% in 2008–2016 peaking at 15.2% in 2019 and afterwards dropping to 13.7% in 2023. Prevalence of obesity in seven-year-old boys decreased from 6.5% in 2008–2013 to 5.6% in 2023 with a peak of 8% in 2016; while girls from around 7% in 2008–2016 peaked at 9.1% in 2019 and dropped to 7.6% in 2023. Among eight-year-olds, the proportion of boys with overweight varied between minimum 10.8% in 2010 to maximum of 13.5% in all years till 2023; however, percentages of girls showed a clear upward trend, from 12% in 2008 reaching 16.3% in 2023. The prevalence of obesity in eight-year-old boys remained stable, around 5.4–6% in earlier years, ending at 6.4% in 2023. However, the prevalence of obesity among girls increased from 4% in 2008, peaked to 7.7% in 2019 and declined to 5.5% in 2023.

Conclusions. Prevalence of girls' weight indicators exhibit greater fluctuations and are often higher than those of boys, particularly in the latest years. The significant trends in the prevalence of overweight and obesity highlight the need to strengthen preventive measures and increase family and community involvement in promoting healthy lifestyles.

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PREVALENCE OF VITAMIN D AND IRON DEFICIENCY AMONG INTERNATIONAL ADULT PATIENTS IN PRIMARY CARE IN LATVIA

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Background. Foreign nationals represent an increasing proportion of patients in primary care in Latvia. Nutritional deficiencies, especially vitamin D and iron, are often seen worldwide and could be affected by geography, diet, and reduced sunlight exposure after changing residency. Data regarding the incidence of such conditions among international patients in Latvia remain scarce.

Aim. This study aimed to evaluate the prevalence of vitamin D deficiency, iron deficiency, and thyroid dysfunction among adult international patients in a primary care setting in Latvia.

Methods. This is a retrospective observational cross-sectional study that was conducted with medical records from a family medicine practice in Rīga. International patients aged 18–59 years who underwent laboratory testing were included. Information was taken from paper medical records and the electronic medical system *Medius*. Collected variables included age group, sex, country of origin, and laboratory results within the first year of residency in Latvia. Laboratory results were defined according to standard reference ranges used in routine clinical practice. Countries with small samples were categorised into geographical regions for analysis. Descriptive statistics were used to calculate all outcomes using IBM SPSS Statistics 26 software.

Results. 385 international patients were included in the study. Findings have shown that vitamin D and iron deficiency were most commonly observed in patients from South and Southeast Asia, the Middle East and North Africa. Iron deficiency was more prevalent in patients aged 18–30 years. Thyroid disorders were less frequent but predominantly found in female patients, with all affected patients between the ages of 33 and 42 years. A substantial proportion of thyroid disorders in South and Southeast Asian women was first diagnosed after relocation to Latvia.

Conclusions. Vitamin D and iron deficiency are highly prevalent among international adult patients in primary care in Latvia after their first year of residency. Thyroid disorders predominantly affect women of working age and are often diagnosed after migration. Taking into account the socio-economic and cultural conditions of international residents, these results show the significance of targeted screening and preventive strategies in a Latvian family medicine setting.

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