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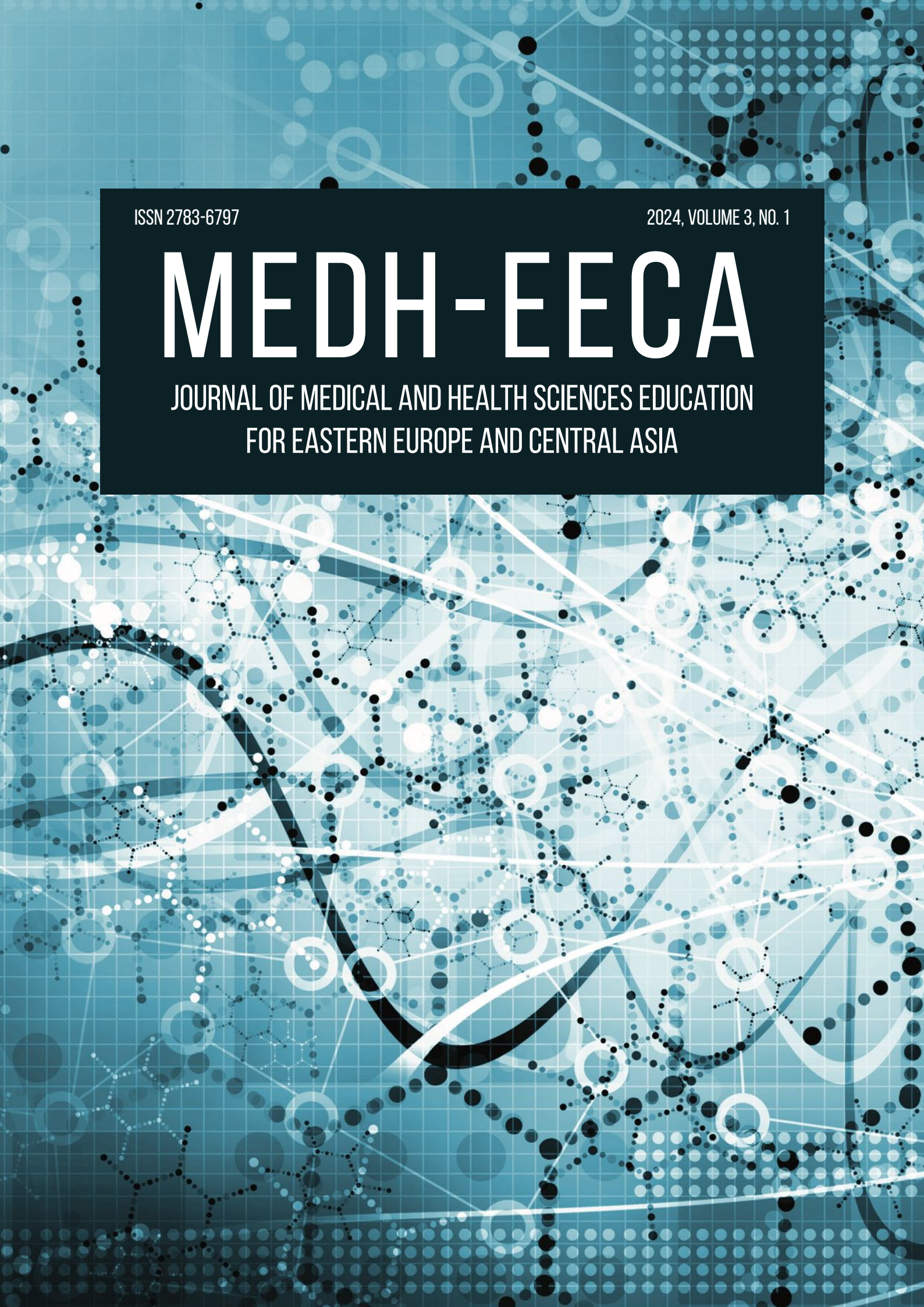

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Aims and Scope

The Journal of Medical and Health Sciences Education for Eastern Europe and Central Asia (MEDH-EECA, ISSN 2783-6797 is an annual, peer-reviewed, international general research and practice journal).

The purpose of the MED-EECA is to advance knowledge and disseminate research findings that are directly relevant to the practice of health science education, including multiple fields of medical, public health, nursing, and pharmaceutical training. The journal publishes scholarly papers on all aspects of health science education including: peer review evaluation and case studies; institutional accreditation and training programme accreditation related materials; the theory, practice and policies relating to management, improvement of quality in medical and other health sciences education; new initiatives and models in learning and teaching that impact on quality and standards; links between quality assurance and employability of healthcare staff; evaluation of the impact of quality procedures at national level; theoretical and practical analyses of quality and quality initiatives in health science training; comparative studies between institutions or countries, etc. In particular, the journal specifically aims to become a platform available for Eastern European and Central Asian countries to share the new ideas and demonstrate rapid and significant advancements in reforming the training of human resourses for healthcare.

Original articles with scientific investigations and systematic literature reviews are welcomed from professionals of other health related fields on issues that have a direct impact on the area of staff training and strengthen evidence-based practice. Letters to the editor with commentaries on published papers or research and clinical issues, as well as short communications, will be taken into consideration and not left unanswered. This journal also provides space for announcements and an international calendar for professional conferences in the area of training of healthcare professionals.

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EDITORIAL

TEACHING IN THE AREA OF HEALTH SCIENCES: CHALLENGES OF BOLOGNA PROCESS IN CONTEXT OF MODERN INNOVATIONS AND TECHNOLOGIES

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Europe continues undergoing major evolution and changes during the last several decades starting from 1990's. These transformations were the result of radical social changes toward free market economies in the Central and Eastern Europe, also in the South Europe countries and Central Asia. In addition, transformation of Europe to post-industrial society became another moving mean forward and toward accessibility to universal health coverage for majority of population.

In higher education including medical education the Bologna Process initiated in 1999 was a major signpost with the claimed goal of providing harmonized system of higher education and research qualifications for very different countries [1]. Bologna process made attempt to provide the responses on recognition of university diplomas, on higher education governance and quality assurance, mobility of university teachers and students. In medical education and also in related area – health sciences education Bologna process meant enhanced emphasis on research and final thesis writing, radical changes in the curricula and credits counting, modernization of facilities and their alignment with the programs of other advanced European universities. Despite general recognition of the need of common means and principles, quality standards in higher education it was also some scepticism expressed by medical universities due to specificity of medical training and even leaving the Bologna model of education [2].

We understand that Bologna process is aiming to create the common standards of education, harmonize the recognition of diplomas and in parallel to tackle the challenges of globalisation, computerisation and implementation of artificial intellect technologies in university education. Therefore, in the area of medical and health sciences education undergoing process of innovations requires a special attention.

Despite the COVID-19 pandemic which made the temporal negative impact on process of obtaining practical clinical skills for medical students during 2020–2022 on another hand it was opportunity to start wider implementation of simulation practices and internet-based teaching technologies in many health science specialities – medicine, nursing, public health, biology and other teaching programmes. As the result in the recent years our university – Lithuanian University of Health Sciences (LSMU), Kaunas, Lithuania – focussed more attention to improve educational skills of the academic staff.

LSMU university has established the Educational Research Unit which carry out educational research in the University community – creating and implementing research-based innovations in the study process, solving relevant educational issues in the fields of medical and health sciences, nature, technology, humanities and social sciences. At the same

time this Unit becoming the discussion forum for academic staff and students.

Another innovation was development of Virtual Bank of Educational Resources, which was established in 2024. These bank resources will be constantly updated and supplemented, in order to create opportunities for members of the University community to create digital study content, apply the latest educational technologies in the everyday teaching process, and improve research, general, learning outcomes and other competencies.

Implementing more Simulation Technologies becoming also very important trend in the area of teaching for students especially in the Medical, Nursing and Odontology study programmes, but also in Public Health. This means that blended approach to acquire professional skills by working with simulators and later with patients should be applied in more harmonized way.

One of the most recent steps toward implementing modern technologies in teaching is response to the rapid process of development of Artificial Intelligence (AI) technologies – the Guidelines of LSMU university for the use of artificial intelligence in studies, research, innovation and clinical practice were developed and approved by University Senate in April 18, 2024. Artificial intelligence opens up a wide range of application possibilities by optimising study administration processes, creating interactive individualised educational solutions that improve teaching and learning experience. Natural language processing technologies, machine learning and incentive learning algorithms, computer vision technologies can help create a more playful, engaging, simulation-based, personalised study process, automated assessment of achievements and feedback in real time. Also, these technologies help monitor the student learning process, predict student achievement, identify students with difficulties early in the learning process, provide personalised academic support [3].

As we know quality of education depends not only on implementing international standards and constant implementing of innovations. Internal and external quality assurance play an important role as well as international recognition of students and academic experts. LSMU university was undergoing process of external institutional accreditation by the Lithuanian National Accreditation Agency – SKVC (Centre for Study Quality Evaluation) during 2022–2023. Six Public Health Study programmes of the Faculty of Public Health also were evaluated by the international experts. In addition, basic Medical Education Study Programme (6 years) was evaluated in the framework of WFME. In all cases we received very high scores in these all accreditations [4].

And finally, ERASMUS+ KA2 project SPRING (in 2019–2022) also provided opportunity to focus more attention on internationalisation of quality assurance in medical and health sciences education. In 2022 Journal of Medical and Health Sciences Education for Eastern Europe and Central Asia (MEDH-EECA) was launched by our university in collaboration with partners from Bulgaria, Georgia, Moldova, Belarus, Kazakhstan and Tajikistan. This step could be considered as one of the framework activities in implementing principles of common education area of Bologna process.

All activities, projects and innovations mentioned above means that LSMU continues implementing four Strategy Goals of the University for the Period 2022–2026: 1) Sustainable university 2) Competitive graduates and academic excellence. 3) The evidence and science-based health system and sustainable technologies. 4) Healthy person and healthy biological environment. The Strategy of LSMU university mentioned above makes emphasis on health sciences not only traditional medical education but also veterinary, nursing, public health, odontology, pharmacy and other research, study areas relevant to human and animal health and biology.

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SATISFACTION AND QUALITY OF STUDIES: RESULTS OF SURVEY OF GRADUATES OF MASTER STUDY PROGRAMS AT LITHUANIAN UNIVERSITY OF HEALTH SCIENCES

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Abstract. Aim of the study. To get deeper insights into the studies quality and to evaluate the opinion of the graduates of the master study programs of the Faculty of Public Health of the Lithuanian University of Health Sciences about the completed studies and their satisfaction with the process of studying. **Methods.** Cross-sectional online questionnaire survey was carried out during March 2023. In total, 216 graduates of the Faculty of Public Health of the Lithuanian University of Health Sciences who completed their studies during 2018–2022 were interviewed (response rate – 61.6%). Respondents were asked to provide basic demographic data, to describe their attitude towards completed master's studies. Statistical data analysis was performed using IBM SPSS Statistics (version 29) data analysis program. The difference was considered as statistically significant when $p<0.05$. **Results.** The attitude of the respondents towards the completed master's studies is quite good, completed master's studies and their quality are favorably evaluated by the respondents. The respondents who were 29 years and older, agreed that general competences were developed during the study program compared to younger respondent group ($p<0.05$). Graduates who completed Lifestyle Medicine studies expressed less positive opinion about the master's study programme practical competencies acquired compared to the respondents who completed master's studies in Applied Public Health, Public Health Management and Clinical Health Psychology. **Conclusions.** Most of the respondents positively evaluated the completed master's studies and their quality, the subjects studied during the studies, the resources and infrastructure provided by the university, practical placements and the lecturers (61.7% of respondents completely agreed, and 28.6% of respondents agreed).

Keywords: Master graduates, Public health studies, Satisfaction of students, Quality assurance in university education

Introduction

Quality assessment and quality assurance of higher education studies has been considered as one of the most important strategy trends in the recent years for majority of universities on the international competitive university market of education worldwide for many reasons [1]. It is important to remember that well-prepared and qualified graduates coming from higher education institutions to the work market increase the productivity of a company or organization, which also promotes the economic growth, creation of workplaces of the country itself. This means that higher education is one of the leading drivers of growth performance, prosperity, and competitiveness in national and global economies [2]. Universities of medicine and health sciences and other institutions not only deliver tertiary education and ongoing skills training, but also provide a bustling research environment that produces innovations with valuable clinical and public health applications [3].

Since the higher education institution itself is responsible for the provision of these services and their quality assurance, there is a need to delve into the areas and criteria of quality assessment and develop a study quality assurance system, which must also meet the quality requirements of the

European Higher Education Area [4]. This means that development of university training and education has a direct relationship with the study quality assurance system. [5]. Quality assurance of higher education in Lithuania is based on the provisions and guidelines for quality assurance of studies in the European Higher Education Area. These guidelines emphasize that the main two elements essential in study quality assurance system consists of internal and external study quality assessment components [6, 7].

The interaction of these quality assurance components (internal and external) as one complex system creates a smooth process for long-term improvement of the quality of studies.

In our survey of students, we made focus on internal quality assurance component which includes evaluation of students' feedback on their perceptions, attitudes, and satisfaction by the process of studying [8]. The master study programs were selected for survey, because we have three such programs within the field of public health – Applied Public Health (our mostly generic area program), Management of Public Health (leadership and management oriented educational program) and Lifestyle Medicine (health promotion and disease prevention oriented) programme. Also, Master of Health Psychology Programme was included, which also is related to the area of health sciences.

Although a limited number of different scientific works have been written about improving the quality of studies in a broad sense, the opinion of graduates, employers, on satisfaction by study programmes continues being in the focus of academic communities [9]. Research conducted in the past was more focused on specific target study programs, such as program in Public Health or in Public Health Management. This is why we focused our analysis in recent study on the larger range of public health-oriented study programs.

The aim of our study was to get deeper insights into the studies quality and to evaluate the opinion of the graduates of the master study programs of the Faculty of Public Health of the Lithuanian University of Health Sciences about the completed studies and their satisfaction with the process of studying.

Material and Methods

Study design and sampling. The internet-based e-mail survey was conducted in March 2023 using the official LSMU Microsoft

Table 1. Distribution of respondents by the year of graduation and participation in the survey

Year of graduation	Number of graduates (n)	Number of questionnaires sent (n)	Number of questionnaires filled in (n)	Response rate Graduated/ invited (%)
2018	73	44	25	34.2/56.8
2019	76	61	36	47.4/59.0
2020	61	40	25	41.0/62.5
2021	58	43	27	46.6/62.8
2022	82	28	20	24.4/71.4
Total:	350	216	133	37.0/61.6

In total the response rate from primary sample was 37,7% and from eligible (who agreed to participate according will in the Study contract) sample – 61.6%.

Outlook platform. The link to the anonymous questionnaire created on the OFFICE365 platform was sent by e-mail to former master program graduates of the Faculty of Public Health who has graduated from 4 master study programs (Applied Public Health; Public Health Management, Lifestyle Medicine, and Health Psychology) during period of five years – from 2018 to 2022 (see Table 1). Only those graduates who agreed to participate in the questionnaire survey were included to the mailing lists. As the result invitations to participate in the survey were sent by e-mail to 216 eligible respondents (Table 1).

Questionnaire. The questionnaire form for university graduates consisted of 62 closed type questions with one or several options to answer. In addition, 4 open-ended questions were suggested to answer. The topics of questions were focused on satisfaction with the studies (reasons of selection the study programme, opinion on teaching methods, curriculum, teaching subjects, university infrastructure, and support for students etc.). Some answer options/opinions on different statements agreement/disagreement were evaluated on a six-point the Likert scale (from 1 to 6), where 6 points represented the strongest degree of acceptance with the statement (I completely agree), and 1 point represents the strongest degree of disagreement (I completely disagree).

Internal consistency reliability. To establish the reliability of the questionnaire on the opinions of graduate on their satisfaction about study programmes, the internal consistency reliability Cronbach α coefficients, which reflect the internal homogeneity of the questionnaire questions, were calculated. The results of the statistical analysis showed that the internal consistency reliability of the questionnaire questions were very high – the Cronbach α coefficients were higher than 0.9.

Statistical data analysis. Statistical analysis was performed using the software package IBM SPSS Statistics 29.0. To assess the distribution of the attributes under consideration in the selected sample, descriptive data statistics were used – absolute numbers (n) and frequencies (in percent, %) were applied. The averages of the statements in the questionnaires and their standard deviations (which are given in parentheses in the text) were calculated. By the application of the Kolmogorov-Smirnov test, it was found that distributions of all statements in the questionnaire for the attitude to completed postgraduate studies and questions for satisfaction with professional activity did not meet the conditions of normality. Therefore, the differences between the two distributions were assessed using the Mann-Whitney U criterion, the differences between the three or more distributions – using the Kruskal-Wallis criterion. Independent samples of nominal variables were compared according to the Chi-squared (χ^2) criterion. Samples of independent interval variables were compared using the Student's t criterion (for two samples) or the ANOVA test (for more than two samples). In the questions where respondents could choose from multiple answer options, the response rate was calculated. The results of the statistical analysis of the data were presented in tables and graphs, the reliability of the conclusions was assessed using the $p<0.05$ statistical significance level.

The ethics of the study. Biomedical ethics approval to conduct the study was granted by the Bioethics Center of the Lithuanian University of Health Sciences on 01/02/2023 (protocol No BEC-VSV(M)-63). The respondents received the questionnaire by e-mail, therefore, the graduate had the opportunity to reject the invitation to participate in the survey. In addition, questionnaires were sent only to those graduates who had indicated in their study contract with the University that they agree to receive information related to research and marketing purposes. Confidentiality was ensured because the questionnaires were electronic and the researcher did not know the names of the respondents who par-

ticipated in the study. This study did not use any personal and graduate identifying data.

Results

Demographic characteristics of the respondents

The total number of filled in questionnaires was 133. Table 2 presents the distribution of respondents from 4 master programs by gender, age, university where they completed previous bachelor studies.

Analysis showed that most of the respondents were female students (96.2%). The age of the respondents ranged from 24 to 61 years (mean age 31.29+7.14). In addition, it was established that majority of respondents (68.4%) had completed their bachelor's studies at the Lithuanian University of Health Sciences and more than half of the respondents (56.4%) have graduated from full-time or part-time postgraduate studies in Public Health Management Programme.

In further analysis respondents were divided by age into two groups – "28 years and younger" and "29 years and older".

Satisfaction of graduates by their studies

The aim of our survey was to get deeper insights how graduates perceive and assess the quality of completed studies, what attitudes were formed about the competencies developed during the studies, the study subjects studied during the studies, the lecturers, the practical placements and the infrastructure of the university, as well as resources provided during the studies.

The first general statement had suggested to evaluate the statement - „In general I am satisfied with the master studies provided by LSMU university". The Likert scale suggested 6 options: from 1 – completely disagree, to 6 – completely agree. Analysis showed that majority of respondents provided answer – I „completely agree" (61.7%) and „agree" (28.6%), Fig. 1.

The answers of students about „general satisfaction by the study programme "were analyzed according to the year of completion of the study programme (Fig. 2). The mean of satisfaction for 5 years observed was 90.3%. It was established that from 2018 to 2020, the satisfaction of the graduates who completed master's studies increased from 80.0% to 96.0%. In the period from 2020 to 2021, the number of respondents satisfied with completed postgraduate studies slightly decreased from 96.0% to 92.6%, and in 2022 the percentage made regression to the mean – 90.0%.

Table 2. Distribution of respondents from four master programs by gender, age, and university of completed bachelor studies.

Demographic and university graduation data of the respondents		N	%
Gender	Female	128	96.2
	Male	5	3.8
Age	28 years and younger	65	48.9
	29 years and older	68	51.1
University, where bachelor studies completed	Lithuanian University of Health Sciences	91	68.4
	Other Lithuanian universities	42	31.6
Programme of master's studies	Public Health Management	75	56.4
	Lifestyle Medicine	22	16.5
	Applied Public Health	20	15.0
	Health Psychology	16	12.0

Note: N – number of respondents.

Reasons for selection of the master programme to study

In our survey we addressed question to the graduates about their motivation to study in the programme – "Why did you select the master programme at LSMU?".

In Fig. 3 percentage of selected reasons to study at the master's level in 4 programs is presented. As we see the most important reason was „expectations to be promoted at work" (69.2%). Second reason was – expectations on higher salary (66.2%), the third – future carrier opportunities (58.6%), and the fourth – intention for self-development (53.4%). Other

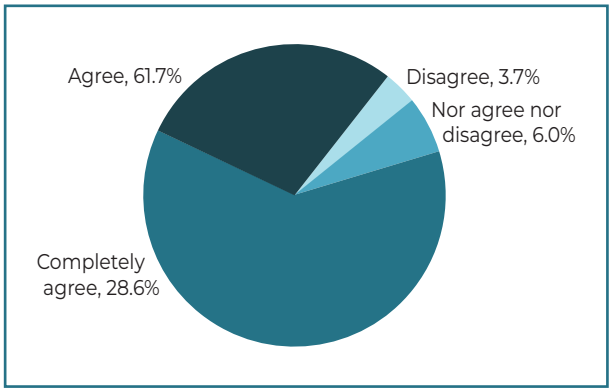

Fig. 1. Distribution of answers of respondents according to general satisfaction with the completed master programme (%)

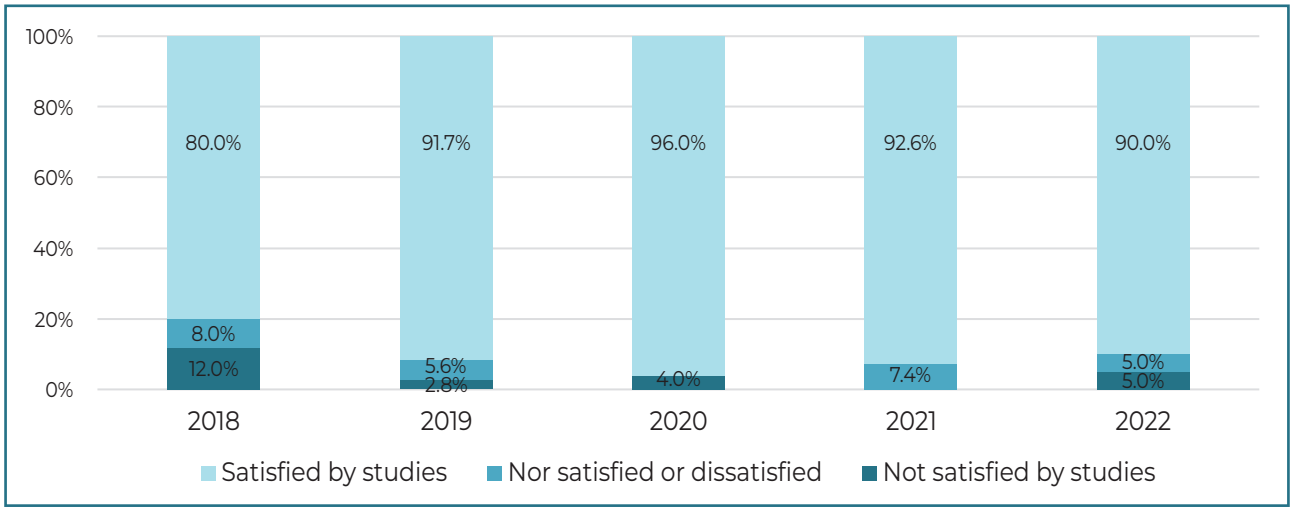

Fig. 2. Distribution of answers of respondents according to general satisfaction by the year of completion of the master programme (%)

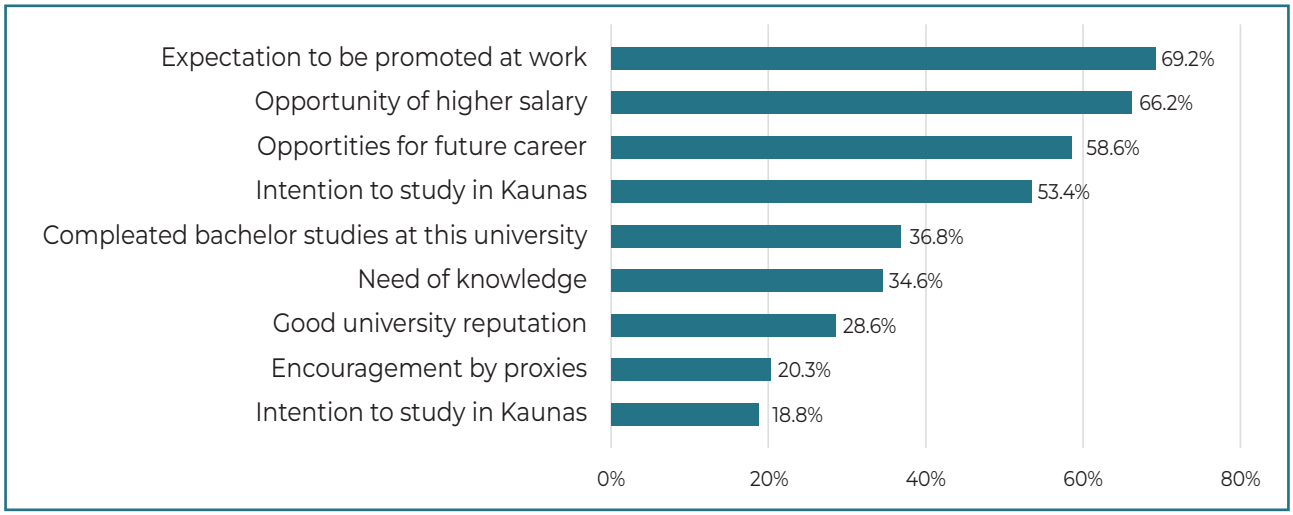

Fig. 3. Statements/reasons selected by the respondents why did they select master programmes at the Faculty of Public Health, LSMU (%)

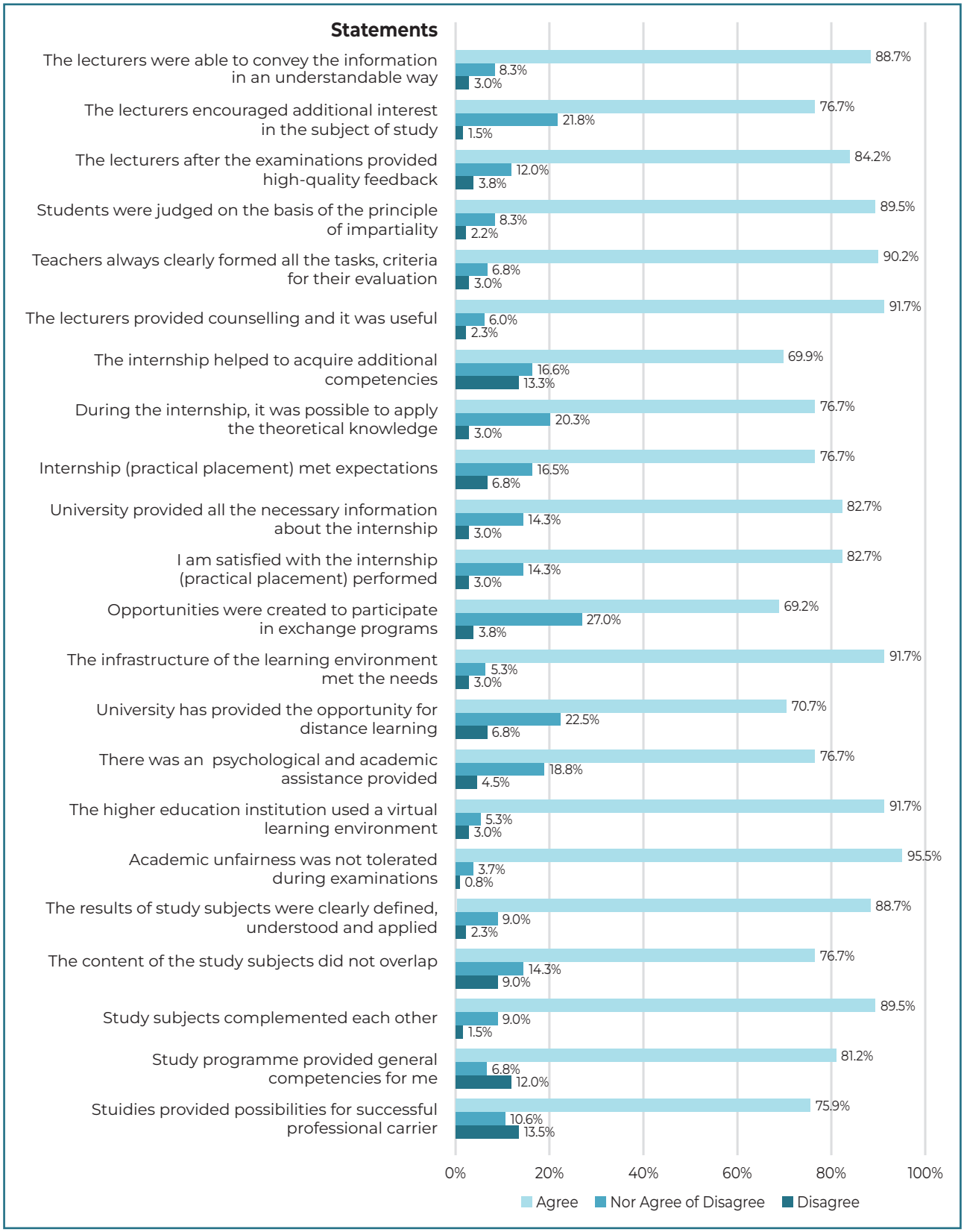

Fig. 4. Opinion of graduates about different features and characteristics of completed master's degree programmes (%)

less important reasons also were as follows: completed bachelor studies at LSMU; need to extend the received professional knowledge; good reputation of the university and the faculty; recommendations of close proxies; intention to study in Kaunas city.

The features of the study programs, which were mentioned as an attractive for students

The further research analysis was focused on study quality assurance means (role of teacher, teaching methods, support of students, teaching infrastructure, content of the programme, balance between theoretical and practical training and other. In total 23 items/statements were asked to read and rate – agree or disagree and nor agree or disagree.

In our analysis of answers of respondents, we were considering that very positive result on statement is when 90% or more of graduates have agreed with the statement on the selected study quality assurance item. Fig. 4 presents distributions of answers. The results imply that teachers were important sources of satisfaction by the study programme – teachers were providing useful consultations (91.7%), teachers were providing clear test tasks and assignments (90.2%). Also, graduates were satisfied with the university infrastructure (91.7%) and with virtual/intranet infrastructure used at university (91.7%).

The number of components of study quality assurance were evaluated as positive in a smaller extent (less than 80% students agreed with statement): these study components were related to practical placement, possibility to take part in study mobilities, possibility to have distance learning opportunities. Anyway, more than 60% or 70% of respondents agreed positively with statements on mentioned study quality features.

Opinion of students about the selected completed study programs

The results of the study showed (Table 3) that students who completed Lifestyle Medicine studies (D) were less satisfied with the overall completion of postgraduate studies compared to all remaining study programs ($p<0.05$). It was also established that graduates who graduated from Lifestyle Medicine Studies (D) had a statistically significantly lower estimate on the statement about the practical competencies which are required for a successful professional career ($p<0.05$). Another statistically significant difference was found that respondents from the Applied Public Health (A) and Public Health Management (full-time) (B) programmes were less likely to agree with the statement that a "higher educational institution provided the opportunity to study remotely" compared to graduates from Public Health Management (part-time) (C) and Health Psychology (E) master studies ($p<0.05$).

In addition, a statistically significant difference was noticed in opinion of respondents who had completed studies in Applied Public Health (A) and Lifestyle Medicine (D) – they were more likely to support the statement on lower satisfaction with the completed studies compared to respondents who had completed postgraduate studies in Public Health Management (Part-time) (C) and Health Psychology programme (E) ($p<0.05$).

Opinion on practical placements (knowledge and abilities) was lower among graduates from Lifestyle Medicine Programme (D) compared to respondents who have completed studies in Applied Public Health (A), Public Health Management (part-time) (C) and Health Psychology (E) ($p<0.05$).

Discussion

The survey of master programmes graduates who graduated from master studies during period 2018 to 2022 showed that majority of respondents completely agree (61.7%) or agree (28.6%) that are satisfied by their master studies at the Faculty of Public Health, LSMU. Also, we noticed the trend of increase in general satisfaction with these studies during the study period.

When comparing different study programmes, a significant difference was found

Table 3. Opinion of graduates about different characteristics of completed master degree programme by selected study programs completed (%)

Statement	Completed master programs, m (SD)					p
	A N=20	B N=46	C N=29	D N=22	E N=16	
General opinion on the study programs						
I am satisfied with the completed master programme	4.45 (1.27)	5.09 (1.00)	5.24 (0.63)	4.32 (1.49)	5.25 (1.00)	0.005*
Completed master programme provided possibilities for successful professional carrier	4.15 (1.66)	4.70 (1.41)	5.28 (0.64)	4.18 (1.46)	4.88 (0.88)	0.012**
Study programme provided general competencies for me	4.50 (1.39)	4.98 (1.27)	5.10 (1.04)	4.50 (1.40)	5.19 (1.04)	0.19
Study subjects complemented each other	5.05 (0.99)	5.11 (0.79)	5.38 (0.62)	5.05 (0.89)	5.44 (0.62)	0.29
The content of the study subjects did not overlap	4.50 (1.35)	4.61 (1.34)	5.24 (0.68)	4.68 (1.35)	5.06 (1.23)	0.14
The results of study subjects were clearly defined, understood and applied in the study process	5.25 (0.71)	5.04 (0.91)	5.34 (0.61)	4.95 (1.17)	5.63 (0.50)	0.08
Academic unfairness was not tolerated during examinations	5.35 (0.93)	5.43 (0.50)	5.45 (0.57)	5.23 (0.81)	5.50 (0.81)	0.72
Learning facilities and support for students						
The higher education institution used a virtual learning environment	4.90 (1.11)	5.22 (0.84)	5.52 (0.38)	5.36 (0.58)	5.50 (1.03)	0.09
There were opportunities to take advantage of the psychological and academic assistance provided	5.15 (0.93)	4.76 (1.32)	5.17 (0.88)	4.87 (0.94)	5.50 (0.73)	0.12
By promoting self-study, the higher education institution provided the opportunity for distance learning	4.35 (1.56)	4.43 (1.29)	5.24 (1.02)	5.14 (0.83)	5.25 (0.68)	0.004***
The infrastructure of the learning environment met the educational needs	5.30 (0.57)	5.02 (1.22)	5.41 (0.68)	5.41 (0.50)	5.38 (1.02)	0.31
During the studies, opportunities were created to participate in exchange programs, international conferences, projects, etc.	5.00 (1.12)	4.89 (1.21)	4.93 (1.19)	4.82 (0.85)	5,00 (1.41)	0.98
Practical placement						
I am satisfied with the internship (practical placement) performed during my studies	5.05 (1.23)	4.96 (1.19)	5.07 (0.92)	4.86 (1.28)	5.63 (0.50)	0.26

Table 3, cont.

Statement	Completed master programs, m (SD)					p
	A N=20	B N=46	C N=29	D N=22	E N=16	
The graduate school provided all the necessary information about the internship (practical placement)	4.80 (1.19)	5.13 (0.98)	5.10 (0.93)	5.00 (0.73)	5.44 (0.81)	0.47
Internship (practical placement) met expectations	4.90 (1.25)	4.67 (1.33)	4.90 (1.04)	4.82 (1.46)	5.31 (0.87)	0.52
During the internship, it was possible to apply the theoretical knowledge gained during the studies	4.75 (1.33)	4.76 (1.23)	4.97 (1.11)	5.05 (0.99)	5.25 (1.00)	0.58
The internship helped to acquire additional competencies (knowledge and skills)	5.10 (1.07)	4.59 (1.30)	4.59 (1.45)	3.82 (1.76)	5.50 (0.81)	0.003****
Support by teachers						
The lecturers provided counselling and it was useful	5.30 (0.73)	5.15 (0.94)	5.48 (0.68)	5.27 (0.82)	5.38 (1.02)	0.58
Teachers have always clearly formed all the tasks of reporting the subject of study and the criteria for their evaluation	5.00 (1.02)	5.28 (0.83)	5.41 (0.56)	5.09 (1.23)	5.44 (0.89)	0.42
Students were judged based on the principle of impartiality	5.35 (0.48)	4.98 (1.16)	5.34 (0.55)	5.23 (0.68)	5.31 (0.87)	0.32
The lecturers after the examinations provided high-quality feedback in summarizing the evaluated work	5.05 (1.14)	4.85 (1.01)	5.38 (0.77)	5.05 (0.89)	5.31 (1.01)	0.18
The lecturers encouraged additional interest in the subject of study, provided knowledge on where to find sources of information	4.85 (0.81)	4.83 (0.87)	5.21 (0.81)	4.91 (1.01)	5.19 (0.98)	0.33
The lecturers were able to convey the information of the study subject in an interesting and understandable way	5.10 (1.21)	5.00 (1.13)	5.45 (0.57)	5.05 (0.84)	5.50 (0.63)	0.18

Note: A – Applied Public Health; B – Public Health Management (full-time); C – Public Health Management (part-time); D – Lifestyle Medicine; E – Health Psychology; m – mean; SD – standard deviation; p – statistical significance; * – statistically significant ($p<0.05$).
* – D ($p<0.05$) agreed less frequently in comparison with A, B, C and E study programme.
** – D ($p<0.05$) not agreed more frequently in comparison with A, C and E study programme.
*** – A and B ($p<0.05$) agreed less frequently in comparison with C and E study programme.
**** – D ($p<0.05$) agreed less frequently in comparison with A, C, and E study programme.

that respondents who had completed post-graduate studies in Applied Public Health and Lifestyle Medicine were more likely to consider the statement with a lower estimate they were satisfied with the completed studies compared to the respondents who had completed studies in Public Health Management (part-time) and Health Psychology ($p<0.05$). In addition, we compared the results of that survey with the former survey data, which was carried out at the Faculty of Public Health some years ago. Two similar surveys were conducted in 2007 and 2021, respectively, and showed high satisfaction of graduates with master study programmes [10,11].

Several strengths of methodology of this study could be mentioned. For the first time, survey was conducted on all master programs at the Faculty of Public Health. Another strength is related to elaboration of quite innovative questionnaire, which covered the most common features of quality assurance in the study programmes. The main limitation of the study was related to the relatively low response rate achieved in this survey. Therefore, this could be considered as inherited problem of such type of studies, where students or graduates voluntarily could fill in or refuse filling in the questionnaire forms in the internet platform.

When discussing the further prospects and practical significance of this study, it is important to emphasize that the results of the conducted research are important and significant for the quality and practice of improving the study programs of the Faculty of Public Health of the Lithuanian University of Health Sciences. Therefore, the study program committees of the Faculty of Public Health should pay attention (some changes were already implemented at LSMU) to the aspects and limitations that cause less satisfaction of students. This imply to look for possible solutions and filling the gaps identified including academic resistance to changes and to quality management [12]. It is recommended to conduct regularly similar studies and interviews of graduates in all master programmes at the Faculty of Public Health. Also, another practical implication is to suggest using the similar research instrument in other faculties at our university or other universities that conduct master's degree studies in the area of health sciences.

Our survey was focused on evaluation of the specific features of study programs (content, teaching methods, schedules, balance of contact and independent work, on-line and on-site teaching balance etc.). These features could be related with higher or lower satisfaction of graduates by the study programs. This is why practical implications of the survey suggest paying more attention to assign for students the problem-based, recent practices related tasks of independent work related to the most pressing health problems in today's society and their possible solutions. In addition, it is recommended to periodically analyze how lecturers update and modify the study programmes, considering the inquiries formulated by students, graduates and employers. Wider implementation of the blended learning, which includes both on site and on-line classes and involves elements of problem-based learning, applying methods of simulations, and especially focusing on field practice skills, but not only theoretical learning outcomes could be the proper strategy for further improving the quality of study programmes.

In conclusion, this paper, focuses only on some problems of quality management at the university related to students' satisfaction with the teaching process. Despite this, we are sure that monitoring of students' feedback on teaching methods, teaching content could be considered as essential components in quality assurance in the context of wider approach in organizing quality management at the level of university or the level of study programmes [13, 14].

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INTERNATIONALIZATION AT NICOLAE TESTEMITANU STATE UNIVERSITY OF MEDICINE AND PHARMACY: PRIORITIES, ACHIEVEMENTS, CONSTRAINTS AND DEVELOPMENT DIRECTION

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Abstract. Aim. This study evaluates *Nicolae Testemitanu* State University of Medicine and Pharmacy's internationalization strategy in Moldova, focusing on its efforts to enhance global collaborations and academic experiences in medical and pharmaceutical education. **Methods.** Employing a retrospective review of the university's department for external relations and European integration activities from 2019 to 2023, the study assesses the initiatives aimed at bolstering the institution's international standing. Through qualitative analysis of internal documents, reports, and by-laws, the study examines the university's internationalization priorities, achievements, and challenges without delving into detailed statistical methodologies. **Results**. The findings highlight significant advancements in international collaborations and academic engagement, showcasing the development of international study programs and partnerships. Challenges include navigating global academic standards and competition, with identified opportunities for further expanding international networks and integrating global perspectives into the curriculum. **Conclusions.** The internationalization of *Nicolae Testemitanu* State University of Medicine and Pharmacy emerges as a key factor in its development, enhancing its global competitiveness and academic reputation. The study emphasizes the need for continuous strategic efforts to address challenges and exploit opportunities for the university's ongoing international engagement and growth.

Keywords: internationalization, students, mobility, higher medical education, external relations.

Introduction

The internationalization of a higher education institution is a strategic and deliberate process through which universities expand and diversify their collaborations, study programs, and academic experiences to attract and integrate perspectives, students, and faculty staff from around the world. This includes student and faculty mobilities, collaborations on international research, offering international study programs, and promoting cultural and linguistic diversity. Internationalization must be perceived as a resource used by an institution or a state with the purpose of increasing the quality of the educational and scientific act, in accordance with international standards, creating an open, stimulating, and responsive educational system to global needs [1].

In the 21st century, internationalization is ubiquitous in the field of higher education and research. For several decades, universities have opened outward to form a global knowledge community. French experts Jean-Marie De Ketele and Bernard Hugonnier, in "L'Internationalisation de l'Enseignement Supérieur: Le Meilleur des Mondes?", define internationalization as a "process which, owing to the

international mobility of students and teachers, leads to the integration of international and intercultural dimensions into the educational functions and governance of higher education institutions." [2].

At the *Nicolae Testemitanu* State University of Medicine and Pharmacy, internationalization represents a strategic priority within its efforts for development and excellence in the field of medical and pharmaceutical education. The university is constantly dedicated to increasing the level of internationalization in several key areas, such as education, research, and international collaboration. Referring to the University Charter, among the objectives of *Nicolae Testemitanu* USMF are: alignment of the integrated educational process with scientific research and clinical activity according to international standards, and strengthening international cooperation in the fields of training, scientific research, clinical activity, with regard to internationalization of the study programs, academic mobilities and creating partnerships [3].

In one study published in 2020 by Gutu E. and Gherghelegiu E. two forms of internationalization are distinguished in USMF "Nicolae Testemitanu" [4]:

1. Abroad – credit mobility; mobility of study programs; mobility programs for teaching staff; transnational higher education (opening of branches, programs with double specialization/joint programs, e-learning, distance learning).
2. At home – registration of international students; international languages of instruction; involvement of international academic staff; internationalization of curriculum; the organization of various international events; supporting international relations initiatives; support services for international students; employability.

Identifying the two forms of internationalization (abroad and at home) has given us the opportunity to prioritize over time internationalization through:

- Development and strengthening of international partnerships. The university aims to expand its network of partnerships with other universities and institutions around the world to facilitate the exchange of students and faculty, collaboration in research, and joint projects.
- Improving international mobility programs. The university makes significant efforts to offer more mobility opportunities for students and faculty, including study and practice internships abroad, to allow them to enrich their academic and professional experience.
- Promoting international recognition. The university commits to increasing its visibility and reputation internationally, so that its qualifications and achievements are recognized and valued globally.
- Integrating the international dimension into the curriculum. The university seeks to enhance and internationalize its study programs and continuous professional training to prepare students for a career in an increasingly interconnected and multicultural world.
- Supporting international research. The university encourages international collaboration in medical and pharmaceutical research, facilitating the exchange of ideas, expertise, and resources between researchers from different countries.

Despite the progress made, there are also constraints and challenges to internationalization, such as limited resources, language and cultural barriers, as well as the volatility of global political and economic landscapes, exemplified by events such as the war in Ukraine, as well as the status of the Republic of Moldova as a third country not associated with the Erasmus+ program. However, USMF "Nicolae Testemițanu" stands unwavering in its commitment to press on with its internationalization endeavors. It aims to leverage every opportunity to fortify its standing as a globally recognized institution of excellence in medical and pharmaceutical education. In this sense, USMF "Nicolae Testemițanu" remains in the top 10% in the Global Aggregate Ranking, for the third consecutive year, being among the best 2500 universities in the world [5].

USMF "Nicolae Testemițanu" distinguishes itself on the global academic stage, securing a place within the ranks of the prestigious Three University Missions (MosIUR), where it is positioned between 901st and 1000th. Additionally, it holds the 2456th spot in the SCImago Institutions Rankings (SCIMAGO) and is registered in the European database of accredited programs DEQAR, which contains information about higher education institutions and educational programs. The university is institutionally accredited by the World Federation for Medical Education, mainly the three integrated study programs – Medicine, Dentistry, and Pharmacy. Moreover, the university has achieved the highest mark of recognition (A) in DEQAR, reflecting its exceptional quality and standing in the realm of higher education.

The purpose of this article is to analyze and evaluate the strategies, priorities, achievements, constraints, and prospects associated with the internationalization process at USMF "Nicolae Testemițanu". It offers a concise examination of how the university navigates the global dimensions of medical and pharmaceutical education and research, showcasing its successes and identifying paths for future growth and enhancement of its international engagement. In conducting the study, we were guided by the Strategic Development Plan of the *Nicolae Testemițanu* State University of Medicine and Pharmacy for the years 2021–2030, among the priorities is the field of Internationalization, with the general objective of "Strengthening international cooperation in the fields of teaching activities, scientific research, academic mobility, recruitment of foreign citizens for studies, and creating partnerships with universities and professional institutions abroad, including those in the diaspora who collaborate with teaching staff from the University, as well as Alumni who work abroad" [6].

Methods

The article reflects an analysis of the activities of the Department of External Relations and European Integration (DREIE) within the university for the years 2019–2023, focusing on the core activities carried out between 2019-2023:

- Strengthening the collaborative agreements established with international partners;
- Conducting a comparative review of the progress in mobility programs;
- Analyzing the development in the quantity of projects and initiatives executed by DREIE over a five-year period;
- Ensuring the international recognition of medical and pharmaceutical qualifications obtained by local graduates.

Starting from the main mission of increasing the degree of internationalization and institutional modernization through participation in the development, updating, and implementation of the Development Strategy of USMF "Nicolae Testemițanu", DREIE aims to identify, organize, and coordinate possibilities for strategic development and international promotion of the university and the expansion of collaborative activities with institutions and professional organizations from within the country and abroad.

According to the *Regulation governing the organization and functioning of the DREIE* [7], the subdivision carries out the following attributions:

- Playing an active role in executing the university's strategy, specifically in areas pertaining to European programs and international collaborations with universities, businesses, associations, or other entities;
- Facilitating the realization of the university's internationalization strategy;
- Developing and proposing policy initiatives, regulations, rules, and procedures concerning internationalization and external communication for approval by the Senate. Manages, promotes and ensures the functionality of international partnerships;
- Manages official communications with foreign partner institutions, embassies, and diplomatic missions;
- Elaborates specific reports and communi-

cates necessary information for the university's international activity reports;
- Plans, organizes, and coordinates protocol activities for international events and priority international delegations;
- Prepares documents essential for international activities, including schedules for major international events, invitation letters, agreement templates, collaboration proposals, attestations, and participation certificates;
- Oversees and facilitates the management and reporting of international mobilities;
- Administers the operational aspects of the Erasmus+ Program activities;
- Organizes and disseminates information to potential project promoters about educational programs to encourage participation in the Erasmus+ Program;
- Generates resources through the development, application, and implementation of institutional development projects;
- Processes, registers, verifies, and prepares confirmation documents for the university and postgraduate studies of the institution's graduates, based on inquiries from international bodies.

Results and discussion

The push towards internationalizing the educational process, especially within higher medical education, has emerged as a crucial mandate in today's global landscape. Given the universal nature of medical studies across different nations, this facet of education stands out as a particularly compelling element of global integration. Moreover, the internationalization of medical education is essential for securing grants that support research projects, training programs, and overall institutional development.

Fortifying interinstitutional partnerships is paramount for advancing and internationalizing the university amidst a progressively globalized environment. Presently, the university has concluded 106 cooperation agreements with foreign higher education institutions across 27 countries, including France, Belgium, Norway, Romania, Germany, Italy, Lithuania, Poland, the USA, Turkey, Ukraine, Tunisia, among others. In 2023 alone, 23 new collaboration agreements were negotiated and finalized, marking a significant increase from the 12 agreements signed in 2019. This upward trend in partnership agreements signifies the University's unwavering commitment to enlarging its collaboration networks and enhancing academic and scientific exchanges on an international scale.

The comparative analysis of interinstitutional agreements between 2019 and 2023 for USMF "Nicolae Testemițanu" indicates a significant evolution in various aspects such as:
- Internationalization of higher medical education. The increase in the number of interinstitutional partnerships indicates a growing interest in the internationalization of higher medical education. The university understands the importance of exposing students and academic staff to different cultures, perspectives, and learning methods, contributing to the development of a global mindset.
- Diversification of academic exchange opportunities. By concluding new collaboration agreements, the university offers students and faculty the chance to access a wider range of academic exchange opportunities, such as exchange programs, research internships, or participation in international conferences. This enriches the educational and professional experience of students and academic staff.
- Improvement of education and research quality. Collaboration with prestigious higher education institutions from other countries contributes to improving the quality of the curriculum and university research through the exchange of best practices, expertise, and resources. This strengthens the university's position in the academic and scientific field.
- Strengthening of international reputation. Forming partnerships with renowned institutions from other countries enhances the university's international reputation,

attracting global attention and recognition and increasing the institution's attractiveness to international students and researchers.

- Promotion of international mobility. Through collaboration agreements, the mobility of students and faculty between partner institutions is facilitated, thus contributing to the development of a diverse and dynamic academic environment.
- Stimulation of research collaboration. Interinstitutional partnerships also include collaborations in the field of scientific research, offering the opportunity to initiate and develop joint research projects with partner universities or research institutions abroad, leading to outstanding scientific results and innovations.

The increase in the number of collaboration agreements signed by USMF "Nicolae Testemițanu" reflects its commitment to internationalization and academic excellence, as well as the desire to provide students and faculty with access to diverse opportunities for learning, research, and professional development on a global level. This contributes to improving the quality of education and research in the medical and scientific field.

Academic mobility programs are a necessity in today's global perspective, promoting international coherence and enriching the scientific horizon. They contribute to developing the ability to adapt to a new learning environment and understand different cultures. In our study, we analyzed the current situation regarding the realization of mobility programs for foreign students coming for short programs to the Republic of Moldova (incoming) as well as the mobility of students from USMF "Nicolae Testemițanu" going abroad for short-term learning (outgoing) between the years 2019-2023. Academic mobility programs, whether conducted within Erasmus+, CEEPUS, AUF, FOSFOM, Fulbright, Open World Program, or under miscellaneous Collaboration Agreements, have played an important role in developing professional competencies. Additionally, we found that academic mobilities have led to:

- Exchange of knowledge and experience. Academic mobility improves the quality and relevance of studies by strengthening international cooperation and increasing transnational access to educational resources. This enriches teaching and research by bringing new perspectives and innovative approaches such as research-based education, open access to the institutional repository, development of interinstitutional projects, etc.
- Professional development. The academic mobility program provides university members the chance to develop their professional skills, including linguistic competencies, intercultural communication abilities, and the capacity to work in an international academic environment.
- Expansion of contact and collaboration networks. Academic mobility facilitates establishing new relationships and collaborations with colleagues and institutions in partner countries, leading to academic and research collaborations, exchange of best practices, and joint projects that contribute to improving the quality of education and university research.
- Promotion of institutional reputation. The involvement of USMF "Nicolae Testemițanu" members in global academic and research activities enhances the University's prestige. In recent years, the university has attracted the attention of potential students, researchers, and international partners, increasing interest in medical studies in the Republic of Moldova and the number of foreign students at the university.
- Promotion of diversity and inclusion. Academic mobility programs encourage cultural diversity and the promotion of intercultural dialogue. Through participation in academic exchange programs, students and faculty members interact with colleagues and professors from various cultural and ethnic backgrounds. This creates a multicultural learning environment where participants are exposed to new perspectives, traditions, and ways of thinking. Meet-

Table 1. Total number of Incoming/Outgoing Mobilities 2019–2022

Year	Studies		Teaching/training		Countries
	Outgoing	Incoming	Outgoing	Incoming	
2019	68	9	15	6	Romania, China, Norway, France, Belgium, Slovakia, Lithuania, Spain, Bosnia and Herzegovina
2020	5	0	1+5 (online)	2 (online)	Romania, Lithuania, Spain, Greece, Poland
2021	17	6	13	3	Romania, Spain, Greece, Poland
2022	13	6	6	3	Lithuania, Brazil, Norway, Romania, USA
2023	48	7	42	19	Romania, USA, Lithuania, France, China, Ukraine, Italy
TOTAL	151	28	82	33	

ing and collaborating with people from different cultures and social backgrounds encourages understanding and appreciation of human diversity. Thus, essential intercultural competencies are developed, such as empathy, openness to new ideas, and the ability to work effectively in a multicultural environment. Open discussions and collaboration in academic projects and research create a climate in which each person feels valued and respected for their unique contribution.

Analyzing the number of mobilities realized between 2019–2023 shown in Table 1, we observe a significant increase in the interest of the USMF "Nicolae Testemițanu" community to obtain a scholarship abroad. Moreover, the number of incoming mobilities has also increased, which enhances the institution's degree of internationalization. Predominantly, we observe that USMF "Nicolae Testemițanu" engages in experience exchange with countries such as Romania, China, Norway, France, Belgium, Slovakia, Lithuania, Spain, Bosnia and Herzegovina, Ukraine, Italy, Greece, and Poland.

Therefore, as illustrated in Fig. 1, there is a notable rise in both incoming and outgoing mobility in 2023 when compared to preceding years.

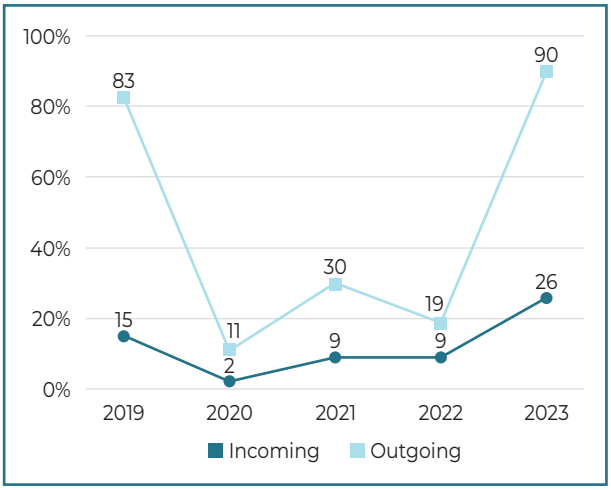

Fig. 1. Number of academic mobilities during 2019–2023

During 2020–2021, universities worldwide faced significant challenges and constraints regarding academic mobility due to the COVID-19 pandemic. This period was marked by lockdown measures, travel restrictions, and other social distancing rules imposed to limit the virus's spread. These measures had a direct impact on the ability to conduct academic mobilities, such as student exchanges, research internships, or study abroad programs. One of the main challenges was the rapid adaptation to the online environment and the

transition to remote teaching and learning. In the context of a global pandemic, universities were forced to find creative solutions to continue the educational process without compromising its quality. The COVID-19 pandemic disrupted education systems everywhere, increased the use of online technologies, led to significant institutional reorganizations to allow teaching models that combine online and offline delivery, and revealed pre-existing inequalities in access to educational resources within and between countries [8].

Despite the considerable obstacles and limitations imposed by the pandemic, it simultaneously acted as a catalyst for educational innovation. Higher education institutions were compelled to devise novel strategies to facilitate distance learning, thereby fostering the development of virtual or mixed frameworks for academic mobility. This period presented an invaluable opportunity for substantial investment in technical advancements and online resources, enhancing collaboration and the exchange of ideas on a global scale with unprecedented intensity. Consequently, in 2020, a total of five outgoing and two incoming academic mobilities were accomplished through online platforms. Hence, while the COVID-19 pandemic posed a significant impediment to academic mobility during the 2020–2021 period, it concurrently encouraged a paradigm shift towards innovation and adaptability within the realm of higher medical education [8].

The current circumstances, marked by Russia's military aggression in Ukraine, present a several challenges as well as distinct opportunities for higher education institutions regarding internationalization. This military conflict necessitates that universities in the Republic of Moldova to face significant challenges in terms of academic mobility. Restrictions to academic exchanges, danger to personal safety, and the psychological and emotional impact represent only a fraction of the multifaceted challenges posed by this situation.

Furthermore, the prevailing security dynamics in the region significantly impede the traditional avenues of academic exchange, restricting the mobility of both students and faculty. Conversely, this milieu endows the USMF "Nicolae Testemițanu" with a unique opportunity to establish itself as a regional hub for international students in search of secure and high-quality medical education alternatives. Leveraging its geographical proximity and historical connections with Ukraine, the university has extended an offer to Ukrainian students, enabling their transfer from Ukrainian medical institutions to continue their education in Republic of Moldova. This initiative not only provides these students with an educational lifeline but also offers them the flexibility to pursue their studies in either English or Russian, thereby easing their integration process. This strategic approach not only underscores the university's adaptability in the face of conflict but also highlights its role in fostering educational resilience and continuity within the region.

The war in Ukraine, notwithstanding its profound challenges for the region, may paradoxically serve as a pivotal stimulus for the internationalization of universities within the Republic of Moldova. Through strategic adaptation to the evolving geopolitical landscape, these academic institutions are poised to leverage emergent opportunities to enhance the quality of medical education provided. This includes broadening the scope of international collaborations and making substantive contributions to the sphere of global health. Such strategic realignment not only underscores the resilience and adaptability of these universities in the face of adversity but also highlights their potential role as key players in advancing medical education and global health initiatives in tumultuous times.

Active participation of both faculty and students in academic mobility initiatives is instrumental in elevating the quality of educational offerings. This advancement is achieved through the refinement of contemporary pedagogical methodologies, curricula, and programs, which are increasingly aligned with European educational standards. The dynamic of influence observed is bidirectional,

encompassing both student-to-teacher and teacher-to-student interactions. Specifically, faculty members who engage in mobility programs exhibit enhancements in their pedagogical approaches, interpersonal relationships with students, and curricular development. Conversely, students who return from mobility programs abroad introduce new knowledge and practices, thereby catalyzing the adoption of innovative teaching strategies among faculty members who did not participate in these programs. This iterative process of exchange and adaptation fosters significant transformations within USMF "Nicolae Testemițanu," progressively aligning it with European educational quality standards.

The evolution of the number of projects and activities carried out by DREIE over five-year span

Universities worldwide face challenges in delivering quality education, advancing research, and enhancing services. Against this backdrop, international projects emerge as crucial for institutional development. It's imperative to assess the significance of these projects at the USMF "Nicolae Testemițanu", highlighting their impact on the university's strategic goals and global engagement.

International projects in higher medical education serve multifaceted goals, from broadening access to global resources to fostering innovation in practices. Engaging in these projects offers the university significant benefits, including additional funding, partnerships with leading institutions, enhanced educational quality, and increased global visibility and reputation.

In this study, we sought to investigate the role and impact of international projects USMF "Nicolae Testemitanu", focusing on their specific context. We analyzed how engaging in these projects supports the university's strategic goals, and enhances the quality of medical education, research, and services both within Moldova and internationally. Through this analysis, we underscored the value and advantages of international projects, offering insights and recommendations to optimize participation and amplify their positive effects on academia and society.

Within the University, DREIE plays a pivotal role in coordinating and assisting the academic community and in project writing. The department is instrumental in generating resources and engages in the conceptualization, drafting, application, management/coordination, and execution of projects for institutional development. This multifaceted and strategic endeavor aims to enhance infrastructure, diversify educational programs, and advance research and medical services. The process unfolds across several distinct stages:

- Concept development. In this initial phase, DREIE collaborates with community members to identify institutional development needs and priorities. This stage encompasses consultations with administrative staff, faculty, students, and other stakeholders to formulate strategic objectives and development directions.
- Project writing. Following concept definition, the focus shifts to crafting a detailed project plan. This plan outlines specific objectives, activities, budget, timelines, and performance metrics, ensuring alignment with the funding criteria and requirements of potential donors or partners.
- Funding application. With the project plan in place, DREIE assumes the responsibility of identifying potential funding sources and submitting applications. Potential funders include governmental bodies, international development agencies, private foundations, NGOs, the European Commission, and other international financiers.
- Project management. Upon securing funding, the project enters the management phase. Key activities include setting up a coordination structure, allocating human and financial resources, monitoring and reporting on progress, managing risks, and ensuring compliance with the funder's requirements and the project's objectives.
- Project implementation. The final stage entails executing the planned activities

in accordance with the work plan and budget. Actions might involve infrastructure construction or renovation, educational program development, event organization, research activities, and equipment procurement.

By effectively managing these stages and available resources, the university carries out successful institutional development projects. These efforts significantly boost the quality of medical education, research, and services, advancing healthcare education and practice nationally.

In recent years, the university actively participates in the projects financed by the Horizon 2020, EPLUS and 3HP framework programs of the European Commission, being a partner in the projects EECAlink (FP7-HEALTH-2007-B), ESPOIR (FP7-HEALTH-2011), Introducing Problem Based Learning in Moldova: Toward Enhancing Students' Competitiveness and Employability (EAC-A04-2014; EPLUS), Strengthening Research Management and Open Science capacities of HEIs in Moldova and Armenia (EAC-A05-2017; EPLUS), RECOVER-E (H2020SC1- 2017-RTD) and InfAct (HP-JA-2017; 3HP). The members of the teaching staff are experts and representatives of Moldova in the committees of the Horizon 2020, SCI Health, Demographic Change and Wellbeing programs, in the international consortium in personalized medicine ICPerMed.

The analysis reveals that institutional development projects yield significant benefits for the university, including:

- Access to resources and expertise. Engagement in international projects grants access to financial resources, cutting-edge technologies, and expertise from prestigious institutions worldwide, enhancing university infrastructure, academic programs, and staff development.
- Experience exchange. These projects enable valuable experience sharing with partner institutions abroad, fostering the adoption of best practices and aligning development strategies with international standards.
- Internships and academic mobility. The university gains from internships and academic exchanges for students and faculty, offering enriching opportunities for learning and professional growth in an international context.
- Collaborative research. International projects promote research collaboration with globally recognized institutions, leading to significant scientific breakthroughs, publications in top-tier journals, and access to extra research funding.
- Increased international visibility: Participation in international projects elevates the university's global profile, attracting foreign students and facilitating long-term partnerships and collaborations with other international entities.

Overall, international projects play a pivotal role in the modernization and internationalization of the university, enhancing the quality of medical education, research, and healthcare services. However, the implementation of international projects presents various challenges, and managing these is critical for the projects' success and positive impact. Here are some key considerations identified as essential and requiring attention:

- Efficient resource management. One of the greatest hurdles in implementing international projects is the efficient management of resources. This encompasses proper financial management, optimal use of personnel, and other available resources. Identifying suitable funding sources and allocating resources appropriately is crucial to ensure the project's successful implementation.
- Adherence to set deadlines and budgets. Maintaining the integrity and efficiency of a project requires adherence to established deadlines and budgets. Project teams must set clear and realistic timelines for all stages and closely monitor progress to ensure the project stays on track and within budget.
- Ensuring project sustainability over time. One of the major challenges is ensuring

the project's impact continues beyond its completion. It is important to consider the project's sustainability and plan measures to ensure the benefits are felt in the long term. This includes developing local capacities, engaging the community, and establishing lasting partnerships.

To overcome these challenges, the university employs teams that are both well-trained and experienced. Furthermore, it solicits guidance from experts in international project management. Effective communication among all stakeholders, coupled with adaptability to unforeseen changes, is essential for the successful management of international projects and for realizing their intended impact within the community.

Validation and official recognition of medical and pharmaceutical diplomas of local graduates

In recent decades, the trend of medical professionals from developing countries migrating abroad for professional opportunities and personal development has intensified. The Republic of Moldova, renowned for its medical traditions and globally recognized medical education system, is no exception. Increasing numbers of USMF "Nicolae Testemitanu" graduates seek the DREIE to authenticate their medical or pharmaceutical diplomas for work in foreign medical institutions. This migration is driven by the high-quality medical education, extensive clinical experience, and stringent professional standards upheld in Moldova.

Against this backdrop, the validation and international recognition of medical and pharmaceutical qualifications obtained by university graduates are becoming increasingly critical. Such certification is essential for the professional accreditation of Moldovan medical practitioners in overseas healthcare settings.

Through the examination of these facts, our objective is to provide a pertinent and current discussion on the emigration of Moldovan medical professionals, underscoring the critical need for international recognition of Moldova's medical education quality and the competencies of its doctors.

The data analyzed reveals a discernible trend in the increasing demand for diploma validation between 2019 and 2023, indicating increased interest among graduates in pursuing opportunities abroad. Specifically, in 2019, there were 103 certification requests, which surged to 161 in 2020, and further to 186 in 2021, evidencing a significant uptick. Despite this growth, there was a modest retraction to 179 validations in 2022, and slightly down to 174 in 2023, probably due to COVID-19 restrictions. This trajectory underscores the ongoing relevance of international certification for Moldovan medical and pharmaceutical graduates, reflecting their aspiration towards global professional engagement and recognition.

The results of that analysis indicate a significant initial increase in requests for degree validation, which can be interpreted as a reflection of the university's graduates' increased interest in practicing abroad and

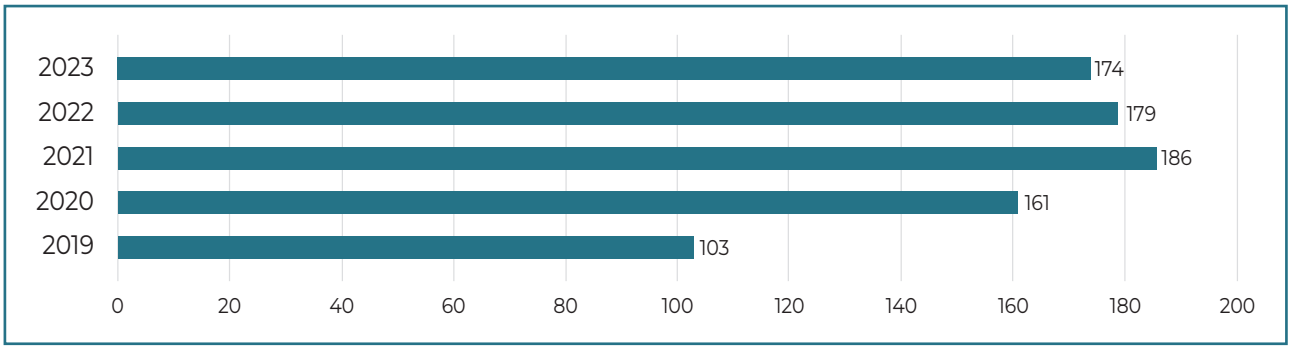

Fig. 2. Validation of Medical and Pharmaceutical Studies of Local Graduates

benefiting from the professional development opportunities offered by international medical institutions. However, the slight decrease over the past two years can be attributed to variable factors such as changes in migration policies, economic developments or other influences.

Practicing abroad offers Moldovan doctors extensive professional development opportunities. It allows them to collaborate with esteemed colleagues, partake in advanced medical education and training initiatives, and contribute to leading-edge medical research. Furthermore, working in a foreign environment affords them the chance to forge new professional connections across diverse medical specialties and to engage with patients from varied cultural and lifestyle backgrounds. Such experiences are invaluable in enhancing their competencies, broadening their perspectives, and propelling their careers forward.

The international experience gained by doctors from the Republic of Moldova is deemed highly valuable, potentially enhancing their career prospects across the global medical and pharmaceutical landscapes. Doctors from the Republic of Moldova are appreciated for their competence, professional ethics and dedication in providing high quality medical services in hospitals around the world. Their success and high-level professional training not only bolster the image of the Republic of Moldova and their Alma Mater but also reinforce its standing within the international medical community. This acknowledgment serves to highlight the significant contribution Moldovan medical professionals make to healthcare globally, reflecting the quality of medical education and training they receive.

In this context, the certificates of confirmation of medical studies issued to university graduates are essential to validate and recognize their quality and competences in medical institutions outside the country. Through these certificates, graduates can demonstrate and confirm their professional training at an international level, thus strengthening the fame and international recognition of the quality of medical education in the country and their professional skills.

On the other hand, this analysis could be used to better understand the dynamics of medical migration and to inform political and strategic decisions of the Republic of Moldova. It could also serve as a basis for further investigations to explore in more depth the reasons and factors underlying the fluctuations in the number of requests for validation of medical degrees during the analyzed period.

Perspective

The humanitarian crisis generated by the war underscores the importance of training health professionals capable of responding effectively to emergencies and managing complex trauma cases. In this sense, the USMF “N. Testemitanu” from Republic of Moldova can develop and strengthen training programs in the fields of emergency medicine and trauma surgery, attracting international experts and establishing partnerships with prestigious educational institutions and health organizations from around the world.

In addition, this period can accelerate digitalization and the use of advanced educational technologies in educational processes. The adoption of distance learning and virtual simulations for medical training can expand access to quality education for students from conflict-affected areas, but also for those from other parts of the world, thus strengthening the international positioning of the universities of the Republic of Moldova.

International research collaborations represent another area with significant potential in the current context. USMF “N. Testemitanu” can initiate or join research projects focused on public health, epidemiology and crisis management, benefiting from international funding and expertise. These partnerships not only increase the quality and visibility of research, but also contribute to the formation of a network of professionals prepared to face global health challenges.

Conclusions

The process of internationalization at the USMF "Nicolae Testemitanu" has reached an advanced stage, evidencing notable successes. Despite inherent risks, the imperative of internationalizing the university is undeniable in the contemporary landscape, presenting no feasible alternative and promising considerable prospects. This process encompasses a broad spectrum of university activities and necessitates the active participation of the entire university community, including students, residents, academic and administrative staff. It is crucial for all university members to enhance their communication skills and embrace cultural and ethnic diversity. To sustain its preeminence in medical and pharmaceutical education globally, the university must persist in amplifying its internationalization efforts. By doing so, it will fully leverage the opportunities and benefits that come with international integration.

List of abbreviations

AUF – Francophone University Agency
CEEPUS – Central European Exchange Program for University Studies
DEQAR – Database of External Quality Assurance Results
DREIE – Department of External Relations and European Integration;
FOSFOM – Medical Training Support Fund
MosIUR – The Three University Missions Ranking
RM – Republic of Moldova
SCIMAGO – SCImago Institutions Rankings
USMF "Nicolae Testemitanu" – *Nicolae Testemitanu* State University of Medicine and Pharmacy

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PERCEPTIONS OF UKRAINIAN UNIVERSITY STUDENTS ON HEALTH, LIFESTYLE CHANGE AND HEALTH PROMOTION

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Abstract. Aim. This article was focusing its scope an analysis of the attitude of university students on their perceived understanding of health status, attitudes on health behavior and possibilities of involvement in health promotion, life-style change activities. The aim of the research was to analyze the perceptions of university students regarding health lifestyle changes and health promotion. The study also had objective to identify key factors influencing youth health and to develop recommendations for improving their physical and mental well-being. **Methods.** The object of this questionnaire survey involved the full-time university students divided into two groups (in total 60 respondents): 30 first-year and 30 second-year students studying psychology. The research was conducted at Dnipro Humanities University, in a classroom setting during daytime hours after lectures in April 2024. **Results.** Data analysis has shown that perceptions of health concepts are closely linked to personal values, knowledge, and skills in the health domain. Engagement in wellness activities and a positive attitude towards a healthy lifestyle are indicators of students' readiness for successful performance in various aspects of their lives. **Conclusions.** The results of the analysis highlight the necessity of a comprehensive approach to health promotion and disease prevention among the younger generation. It is crucial to consider the diversity of opinions and support positive health habits while enhancing understanding and health literacy regarding harmful behaviors, such as addictive behaviors (alcohol consumption, smoking, drug use), and promoting physical activity among university students.

Keywords: health, healthy behavior, university students, health promotion programs, lifestyle modification, physical activity.

Introduction

The holistic health understanding encompasses physical, emotional, social, spiritual, and intellectual development of a young person recently showed the increasing importance. On another hand modern health policy in developed societies recently as never before is more focused on the health promotion and disease prevention strategies rather than on conservative biomedical health model.

Health education and improving health literacy in the area of health promotion and lifestyle medicine is considered as an important priority direction of the state education policy in Ukraine. However, the evolution of attitudes, health awarenes of a significant part of general aducation school and university students often requires years of conscious development. The complex set of factors (attitudes, stereotypes, exposia to media, self-efficiency, skills environmental factors) are involved in the process resulting knowledge transformation to believes and believes to positive behavioral practices.

Our survey on health behaviour has been focussed its scope on the awareness of students in Ukraine regarding the importance of a healthy lifestyle. Studies by V. B. Mykytiuk

and A. M. Lyashevych revealed that students show moderate readiness to adhere to the principles of a healthy lifestyle. The highest degree of readiness was noticed in maintaining proper body hygiene and avoiding harmful substance abuse (alcohol, smoking, drugs), the lowest readiness was observed in engaging in various types of physical activity. The overall readiness of students for a healthy lifestyle is most closely associated with their readiness to adhere to health safety principles, exercise routines, and self-regulation [2].

Meanwhile, A. V. Krasulya's research concluded that students often lack adequate health knowledge in this area, have a limited understanding of benefits of physical activity. In addition, they fail to understand causal relation between the need of regular physical activity for current health status and for future well-being. Despite this, research confirms that good health remains among the top three life priorities for modern students [3]. According to V. G. Fotinyuk's study, while students are aware of the relationship between lifestyle and health status, their understanding of the main health detrminants is poor. Their perspectives are generally optimistic, with evaluations of various health elements being consistent across different health groups, indicating insufficient critical evaluation of their lifestyle elements. Additionally, students lack a scientific evidence based understanding on importace of healthy lifestyle, which they often associate with specific behavioral acts or formulas of "non-use." This viewpoint is more a result of "trial and error" than a path of assimilating acquired knowledge [4].

In last decade Ukraine has experienced a general negative trend of decline in life expectancy and worsening population health indicators, including school children and youth. According to health statistics, Ukraine is among the least successful countries in Europe regarding self-assessed health status among adults and children [1]. Unhealthy life style (such as smoking, alcohol consumption, drug use, and exposure to toxic substances, unbalanced diet) contributes significantly to health deterioration. Mental health issues also are important component of wellbeeing. Due to academic overload, many students are exposed to too long screen time, insufficient physical activity, high levels of stress and anxiety, not regular unbalanced nutrition, and a lack of skills in planning study and leisure time. One of the primary factors in addressing lifestyle-related problems is associated with personal values, a culture of healthy living, and overall health literacy, which is a key component of an individual's overall cultural competence [5].

World health organization has initiated movement on Health Promoting Universities more than 20 years ago [6]. This movement stated that "Universities can do many things to promote and protect the health of students and staff, to create health-conducive working, learning and living environments, to protect the environment and promote sustainability, to promote health promotion in teaching and research and to promote the health of the community and to be a resource for the health of the community." It is evident that university as a health setting is a very important mean for health communication. International experience shows that health promotion activities should be initiated during the first year of studies. Such means could be relevant: blend of academic teaching methods in combination with the practical activities for students; development of positive attitudes on health and health promotion, also expanding relevant knowledge, skills, and abilities. In addition, health promotion and education facilities should be developed at the university.

Studying at a university is affected by different factors and constraints which do not facilitate development of positive attitude on health as a human cultural value for students. As an educational institution, the university often narrows its focus and educational strategy towards teaching humanities, social sciences, technological subjects, or specific professional skills, while paying only minimal attention to activities that promote student health. Additionally, in many universities, there is a significant overload of students with contact hours in classes, an excess

of independent, homework, and numerous assignments. In summary, every university should develop strategies focused not only toward universal and specific area educational goals but also pay more attention to personal health promotion of students and al staff of the university. This also requires the collaboration between teachers and students, between non-governmental organizations at university and the administration bodies in the institution [6].

In recent years, special attention has been paid to the creation of a legal and educational base for the promotion of a healthy lifestyle for the youth generation. To solve this problem, a set such national level documents as the State National Program "Education" (Ukraine of the 21st century), Concept of National Education, National Program "Children of Ukraine", Targeted Comprehensive Program "Physical Education – Health of the Nation", etc. have been elaborated. Despite these measures, there is a persistent trend of deteriorating health and physical fitness levels among children and youth, linked to the military situation in Ukraine since 2014, and especially since February 24, 2022, when a massive invasion began on our territory [7]. Undoubtedly, under martial law, many national priorities, including healthcare, have been relegated to lower positions on the list of survival issues facing the population and the very existence of Ukraine as a sovereign state.

Almost all spheres of life were affected by the war situation – significant number of schools and some universities were destroyed, millions of people were displaced, social distress has resulted in mental health deterioration in our population including young people. Despite this process of studies at the Ukrainian universities continues and our goal is to continue providing health promotion programs and psychological support for vulnerable groups and the whole population of students [8]. The National Doctrine for the Development of Education in Ukraine in the 21st Century identifies health promotion as a key strategic priority. One of the primary goals of education is to encorage young people for a responsible attitude toward their own health and life, as well as the health and life of others, recognizing these as the highest individual and societal values. Engaging young people in various forms of physical education could serve as an important means of promoting health and preventing diseases. The regular involvement in physical activities in combination with balanced diet and stress management programs could reduce probability of chronic diseases in the adult life [9].

This article was focusing its scope an analysis of the attitude of university students on their perceived understanding of health status, attitudes on health behavior and possibilities of involvement in health promotion, life-style change activities. The aim of the research was to analyze the perceptions of university students regarding health lifestyle changes and health promotion. The study also had an objective to identify key factors influencing youth health and to develop recommendations for improving their physical and mental well-being.

Materials and methods

Study population. The research was focused full-time students of Faculty of Psychologyty, Dnipro Humanitarian University, categorized into two cohorts of 60 respondents each – comprising 30 first-year students and 30 second-year students.

The following inclusion criteria were applied:

- Age: first-year students (16–18 years old) and second-year students (17–20 years old).
- Study track: only full-time classroom students.
- Participation: Students who have provided written consent to participate in the survey.
- Exclusion criteria were as folowing:
- Age: Students below 16 years or exceeding 20 years.
- Study track: Students engaged in part-time or distance learning.
- Participation: Students who declined participation in the survey.
- Questionnaire completion: Students who did not fully complete the survey.

Research instrument. The questionnaire comprised 20 closed-ended questions (dichotomous and multiple-choice) addressing health comprehension, health-related behaviors, and engagement in health-promotion activities. The survey instrument was developed by the researchers, who are the authors of this study. It covered four groups of questionnaire items related to health:

- Students' awareness of fundamental health concepts.
- Personal attitudes toward opportunities for health enhancement.
- Perceptions of health as a priority and healthy behaviors.
- Opinions on potential strategies for health improvement.

Statistical analysis. The results were quantified in percentage terms, and the significance of differences between the two groups was assessed using the chi-square test, with a critical level of statistical significance (p) established at <0.05. Statistical analysis was performed utilizing statistical package Statistica v.6.1 (StatSoft, USA) under serial number AGAR 909E415822 FA.

Results

Table 1 presents distribution of answere of students by the year of studies.

Table 1. Perceptions of university students on health, lifestyle change and health promotion according to Chi-Square Analysis (χ^2)

No.	Question	1st course	2nd course	p<0.05
1	Are you interested in your health?	Yes – 100% No – 0%	Yes – 100% No – 0%	1.0
2	How do you assess your health?	Bad – 13.2% Average – 50% Good – 36.8%	Bad – 6.2% Average – 68.8% Good – 25%	0.525
3	Do you follow the rules of personal hygiene?	Yes – 100% No – 0%	Yes – 100% No – 0%	1,0
4	Are you following the correct daily routine?	Yes – 50% No – 50%	Yes – 66.6% No – 33.4%	1.0
5	Are you involved in sports (groups) or individual sports?	Yes – 31.8% No – 68.2%	Yes – 37.5%; No – 62.5%	0.494
6	Do you undergo regular medical examinations?	Yes – 63.6% No – 36.4%	Yes – 83.3% No – 16.7%	0.85
7	From what sources do you get health information? (May be some answers)	Parents – 19% Acquaintances – 9% Friends – 11% In classes – 15% From the Internet – 20% Doctors – 26%	Parents – 27% Acquaintances – 0% Friends – 0% In classes – 16.2% From the Internet – 21% Doctors – 48%	0.003
8	Do you think people should do a prophylaxis against diseases (for example, by getting vaccinated)?	Yes – 76.6% No – 23.4%	Yes – 83.3% No – 16.7%	0.875

Table 3, cont.

No.	Question	1st course	2nd course	p<0.05
9	Do you wear a mask during the infectious disease season?	Yes – 80% No – 20%	Yes – 90% No – 10%	0.638
10	Do you follow a sleep schedule?	Yes – 43.3% No – 56.7%	Yes – 40% No – 60%	0.975
11	How many times per day do you take meal?	3 – 100%	3 – 97% 1 – 3%	0.975
12	Do you discuss ways to improve your health with your family?	Yes – 63.6% No – 36.4%	Yes – 87.5% No – 12.5%	0.04
13	Are you a merry person?	Yes – 83.4% No – 16.6%	Yes – 83.4% No – 16.6%	1,0
14	Do you have any hereditary diseases in your family: diabetes mellitus (for example, cancer, etc)?	Yes – 43.3% No – 56.7%	Yes – 40% No – 60%	0.975
15	In your opinion, are your parents an example of a healthy lifestyle for you?	Yes – 36.4% No – 63.6%	Yes – 75% No – 25%	0.02
16	Do you live as a complete family (with father and mother)?	Yes – 40.0% No – 60	Yes – 80.0% No – 20.0%	0.03
17	What do you use to restore your health?	Coffee – 15.5% Walks – 28.8% Communication – 31.1% Energy drinks – 11.1% Alcohol – 4.4% Tea – 8.8%	Coffee – 17.0% Walking – 29.8% Communication – 29.8% Energy drinks – 4.2% Alcohol – 4.2% Tea – 14.9%	0.03
18	When you wake up in the morning, are you feeling rested and fine?	Yes – 30.0% No – 70.0%	Yes – 76.6% No – 23.4%	0.02
19	Who is your role model for a healthy lifestyle to follow?	Movie characters – 19% Famous personalities – 38.2% You personally – 19% Friends - 14.3% Teachers – 9.5%	Movie characters – 3.7% Famous personalities – 33.3% You personally – 40.7% Friends – 11.1% Teachers – 11.1%	0.15
20	What do you suggest for improving the state of your resources (multiple answers possible)	Nutrition – 33.3% Hobbies – 25.5% Favorite activity – 19.6% Sport – 21.6%	Nutrition – 31.3% Hobbies – 12.5% Favorite activity – 25.0% Sport – 31.3%	0.001

When comparing the table data for the first and second year of studies, some significant differences were obtained in answers to questions, in particular:

Sources of information about health (question 7, p = 0.003). Second-year students are significantly more likely to receive health information from doctors (48% versus 26% for first-year students) and from parents (27% versus 19%). This may indicate a deeper immersion of second-year students in the educational process and their increasing interest in professional medical sources, which is natural with the advancement of the course and the accumulation of knowledge.

Discussion of ways to improve health in the family circle (question 12, p = 0.004). Second-year students are more likely to discuss health issues in the family circle (87.5% versus 63.6 % for first-year students). This may be due to increased responsibility and awareness of the importance of health, which develops with age and experience.

An example of parents in matters of a healthy lifestyle (question 15, p = 0.002): Sophomores are more likely to consider their parents an example of a healthy lifestyle (75% versus 36.4%). This may be due to the fact that as students age, they begin to appreciate and notice the positive habits of their parents more, and it may also reflect changes in the perceptions and behavior of parents themselves as children become older. In addition, it can be assumed that the presence of a full-fledged family structure may influence the fact that parents are perceived as models of a healthy lifestyle. A high percentage of positive answers to both questions among second-year students may indicate that for them the family context is an important factor in the formation of a healthy lifestyle. Among first-year students it is lower, which is an extremely sad fact of the modern life of Ukrainians in conditions of a full-scale war, the death of parents in it, the migration of mothers with children abroad, the high responsibility of mothers in financially providing for the needs of the family, the costs of children's education, etc. In single-parent families, due to economic and financial difficulties, there is a lack of time for communication and raising children. Often children and young people do not receive the attention of one of their parents.

Two-parent family (question 16, p = 0.003). Second year students in our case more often lived in a two-parent family (80% versus 40% for first-year students). This may indicate that family environmental conditions may influence educational achievement and a higher likelihood of remaining in the family structure, which in turn may influence interests and health perceptions.

Morning alertness (question 18, p = 0.002). Second-year students more frequently report feeling refreshed in the morning (76.6% compared to 30% among first-year students). This could indicate improved time management and daily routines that may develop over the course of their studies, or a more mature approach to personal health.

Selection of role models in health matters (question 19, p = 0.015). A greater proportion of second-year students view themselves as role models in health matters (40.7% versus 19% among first-year students), while first-year students are more inclined to look up to well-known figures (38.2% compared to 33.3% among second-year students). This may suggest that as students mature and accumulate knowledge, second-year students begin to rely more on their own abilities and achievements rather than on media-influenced personas. Simultaneously, the influence of public figures on students' motivation to maintain a healthy lifestyle underscores the importance of the individuals shaping public opinion and the example they set in terms of lifestyle.

Suggestions for resource improvement (question 20, p = 0.001). Second-year students more often propose sports (31.3% versus 21.6%) and engaging in enjoyable activities (25% versus 19.6%) as means of enhancing their resources. This may indicate a conscious effort to maintain a balanced lifestyle that includes physical activity and fulfilling pursuits. The high percentage of responses favoring

sports suggests that students consider physical activity a vital resource for health enhancement. The significant percentage supporting healthy eating highlights students' awareness of the importance of balanced nutrition for maintaining and improving health. The increase in responses favoring enjoyable activities among second-year students may reflect a greater understanding of the importance of deriving pleasure from such activities for mental health and overall well-being.

Energy drinks significantly disrupt metabolism and energy production in the human body, creating conditions for artificially sustaining productivity; however, their dosage needs to be regulated, as excessive consumption may lead to temporary negative effects on the nervous and cardiovascular systems. Tobacco smoking is also a prevalent harmful habit that leads to addiction. This issue is particularly pertinent among youth and young women, where experimentation with smoking often begins at a very early age [11–13].

Discussion

The findings of this study reveal differences in health perceptions and habits between first- and second-year students, which align with the conclusions of other studies. For instance, a study conducted at Erciyes University found that students exhibit insufficient awareness of a healthy lifestyle and its importance, which impacts their health and behavior. These findings corroborate our results, which also indicate the need to strengthen educational programs on health and disease prevention among younger students [15].

Another study demonstrated that the transition to higher academic years is accompanied by improved understanding of the importance of physical activity and more frequent adoption of healthy habits. This correlates with our data, where second-year students showed better outcomes in areas related to physical activity and healthy eating. This likely reflects the fact that as students adapt to university life, they begin to pay more attention to their health [16].

Furthermore, a study on healthy lifestyles among students in South Korea highlighted significant behavioral differences depending on the year of study and stress levels. This is consistent with our observations, where first-year students exhibit higher stress levels, which adversely affect their habits and health [17].

Comparing our data with research conducted in Poland, it can be noted that students living away from home are more likely to encounter issues related to improper nutrition and insufficient physical activity. This aligns with our findings, which indicate the necessity of enhancing support and informing dormitory-residing students about the importance of balanced nutrition and regular physical activity [18].

Finally, a study published in MDPI emphasizes the importance of psychological support for students, especially during the early years of their studies when they are most vulnerable to stress and psycho-emotional challenges. Our data confirm this need, as a significant portion of first-year students reported difficulties with adaptation and high stress levels, indicating the need for additional psychological services [19].

These studies not only validate your research findings but also broaden the understanding of the factors influencing student health. They demonstrate that:

- First-year students experience **higher stress and adaptation** challenges, which negatively affect their health.
- Upperclassmen exhibit better health-related outcomes, associated with improved adaptation and a **greater awareness** of the importance of a healthy lifestyle.
- Living conditions and **social support** play a significant role in shaping healthy behavior among students.

General conclusion. Our study has uncovered several significant differences in approaches to health and lifestyle between first-year and second-year students. First-year students, despite their high interest in health, demonstrate lower awareness and less stable

habits, which may be linked to the process of adapting to a new stage of life – university studies.

Overall, as students mature and gain more educational experience, second-year students exhibit a more conscious and responsible attitude towards their health. They more frequently consult professional sources of information, monitor their daily routines more meticulously, undergo medical check-ups more regularly, and engage in health-related discussions with family members more actively.

These differences may be attributed to the natural process of maturation, as well as the accumulation of knowledge during their academic journey, leading to a more mature perception of health issues. It can also be inferred that as students advance to higher academic years, they begin to pay greater attention to preventive measures and adopt a more serious approach to their health. In general, as students progress through their academic programs, they become more informed, responsible, and attentive to their health, which is reflected in their behavior and habits.

Therefore, the results of this analysis underscore the necessity of a comprehensive approach to fostering a healthy lifestyle among university students. It is crucial to consider the diversity of opinions and support the development of positive health habits, while also emphasizing education on the potential risks associated with harmful behaviors such as alcohol consumption and smoking. The health of students is a determinant of society's future, making it imperative to actively address issues related to its preservation and enhancement.

Practical application. The interpretation of the data allows us to draw conclusions that can be utilized to improve educational programs and create a supportive environment that promotes the development of a healthy lifestyle among students. This also aids in identifying aspects that require special attention (e.g., reinforcing sleep discipline and daily routines) and determining actions that could lead to improvements in students' overall health.

Thus, interpreting the obtained data not only helps in understanding the current situation but also in making predictions and developing strategies for enhancing the health and well-being of students at different stages of their education.

As students transition from the first to the second year, they demonstrate significant progress in understanding and applying the principles of a healthy lifestyle. These changes reflect their maturation, increased independence, and recognition of the importance of both personal health and the social and familial factors that influence it. These findings can be valuable for developing student support programs and increasing awareness of the importance of a healthy lifestyle at all stages of education.

Based on the data analysis and identified trends, several recommendations can be proposed for universities aimed at improving student health:

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HEALTH MANAGEMENT WORKFORCE CAPACITY BUILDING: CHALLENGES AND POSSIBLE SOLUTIONS IN KAZAKHSTAN

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Abstract. The paper presents an overview of actual problems of development of health management in Kazakhstan. **The aim.** of the article is to overview the development of the training system of healthcare management in the Republic of Kazakhstan in the context of healthcare reforms and point out the possible answers to the issue of growing the management with strong capabilities. **Methods.** Three types of analysis were used: literature review, mini survey and review of international experience in the healthcare management training. Literature review is based on scientific databases such as Web of Science, Scopus, PubMed. A small survey of middle level managers in one of the regions of Kazakhstan was conducted with the WhatsApp messenger system. Review of international experience was conducted on the bases of WHO resources and works of a professional in medical and educational fields. **Results.** The importance of updating qualifications among healthcare managers of the middle level is not fully recognized by the governmental laws nor by the managers themselves. Along with the underestimation of education importance, the type of education should be selected well. Review of the reforms and actions executed at governmental level in health management in Kazakhstan suggest that high-quality education of health management specialists should be focused on capacity building and skills development. These include health information management and research methodology; health law, ethics and psychology of communication; health promotion and policy; methods of data analysis; health economics, change management. Skillset building should be preferred to academic qualifications such as master's degree. **Conclusions.** Effective training of healthcare managers requires the integration of academic education, practical experience and continuous professional development with preference on short trainings. Global experience shows that successful training programs must be tailored to the specific needs of each country's healthcare system and consider modern trends, digitalization and international cooperation.

Keywords: health management, middle level management, medical training, professional development, healthcare, capacity building, skillset

Introduction

One of the most important indicators of sustainable growth in the prosperity of the state's population is the development of the modern healthcare system, which is impossible without a well-educated health care managers.

For the effective implementation of the tasks set, high-level managers are required who have competencies in the key areas such as financial management, human resources, marketing, information technologies, management of changes and innovations, quality assurence and organizational change, as well as regular development and improvement of leadership, management and other special skills [1].

As is known, in 1991 the USSR collapsed, which had a centralized, hierarchical healthcare system, the so-called Semashko system, which was financed from the state budget. Under the situation of the first half of the 20th century, the system had its own strengths and limitations. However, the existing shortcomings in the form of insufficient initiatives, rigidity to change and underfunding (lack of medicines, medical products, equipment) were the main cause of the crisis in the health sector faced by the countries of the post-Soviet space. Kazakhstan also passed the period of crisis during 1990's and made significant efforts for implementing the number of reforms especially during the last decade [2]:

1. Government program "Densaulyk" (2016–2019): The main healthcare reform program aimed at improving the quality of medical services and the availability of healthcare.
2. Introduction of compulsory social health insurance (CSHI) (since 2017).
3. Digital (electronic health, e-health) healthcare: Development and implementation of digital medical records and data management systems. There were 3 main phases of implementation:
   - 2013: Launch of the Government program for the informatization of healthcare, which aims to create an infrastructure and develop standards for e-health.
   - 2016-2019: As part of the Government program for the development of healthcare "Densaulyk".
   - 2020: The introduction of compulsory social health insurance (CSHI) was accompanied by increased measures to digitize healthcare in order to improve the efficiency and transparency of the system.

In 2023 the Ministry of Health had been audited by an independent company that has revealed several problems in healthcare system [3]. These problems can be categorized in four types:

1. Financing.
2. Quality of medical services.
3. Infrastructure.
4. Personnel shortage.

However, despite the measures taken, there are number of problems in Kazakhstan

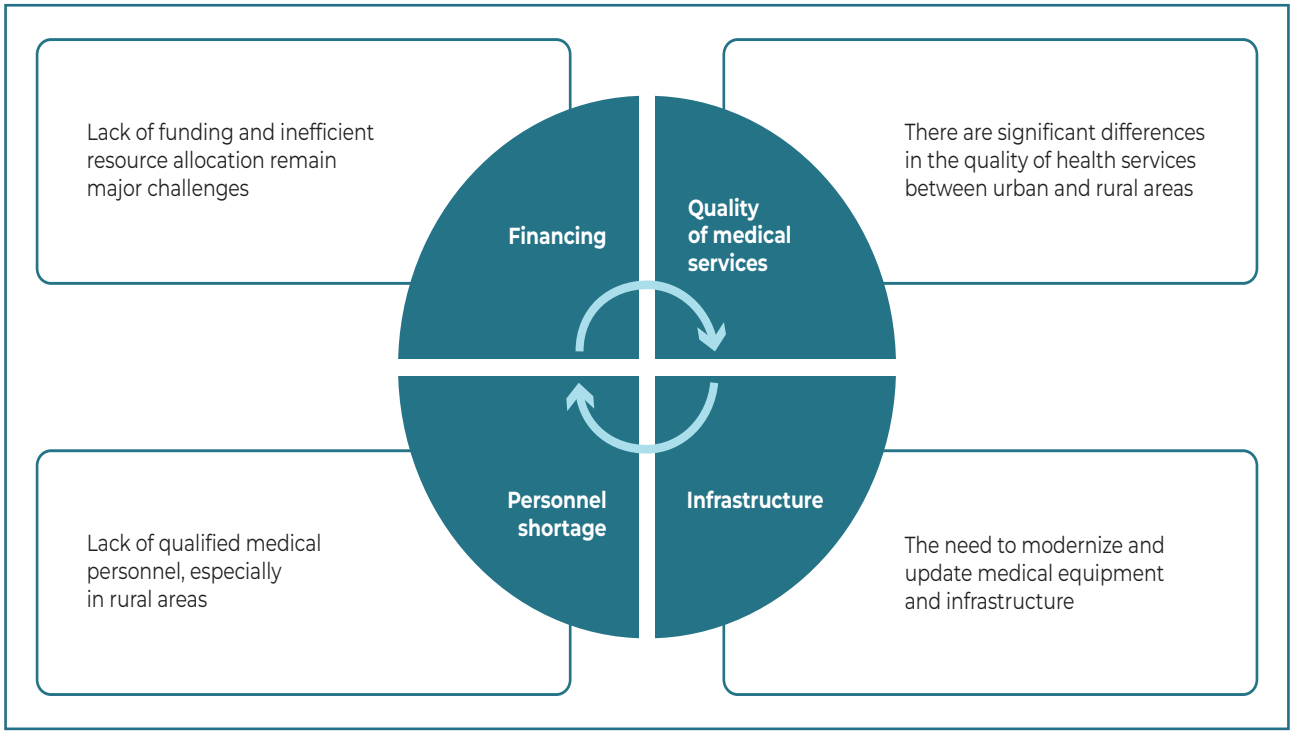

Fig. 1. Key challenges in healthcare system of Kazakhstan

today that require a systematic approach to solve and overcome (Fig. 1).

Implementation of the planned reforms in healthcare needs skilled executive managers. They need proper competencies to understand the goals of reforms, tasks to be implemeted, risks and respond to changes [4]. This is why the education of healthcare managers must be carried out regularly, taking into account importance of problem-based teaching, using other effective educational technologies and creating programs based on a competency-based approach [4].

Aim of this article is to overview the development of the training system of healthcare management in the Republic of Kazakhstan in the context of healthcare reforms and international experience with proposing possible solutions to the challenges of the healthcare management.

Methods

Literature review was conducted using electronic databases including Web of Science, Scopus, PubMed along with governmental websites. Review was done to further assess current situation in the Republic of Kazakhstan in the field of healthcare management along with educational approaches including advanced training, continuous education of medical workers and additional training.

Additionally, questionnaire was performed among 84 healthcare managers in Mangystau region of Kazakhstan to analyze their professional training.

Healthcare managers involved in the questionnaire are deputy directors and heads of departments of these hospitals and clinics. The questions were sent in WhatsApp messenger. The respondents were given two options of answer: “Yes”, “No”. Questions asked were “Have you had any upgrades in your qualifications in healthcare management?” with further sub options of “Master of business administration program”, “master’s degree program”. “Internship in healthcare” and “Other”. The respondents would answer the first question and in case they answer “Yes”, they would choose as “Yes” for any further sub option. The second question was “Do you consider it important to get further upgrade of healthcare management skills?”

The survey was conducted among mid-level healthcare managers in one of the 17 regions of Kazakhstan (deputies of hospitals, clinics, heads of clinical departments, including private departments). Of the respondents, only 27% had undergone healthcare management training in one form or another (of which 35% had a master’s degree, 9% had an internship, 4% had an MBA and 52% had other training).

Only 28% of respondents felt it was necessary to regularly upgrade their healthcare management skills, while the remaining 72% could not answer the question (Fig. 2).

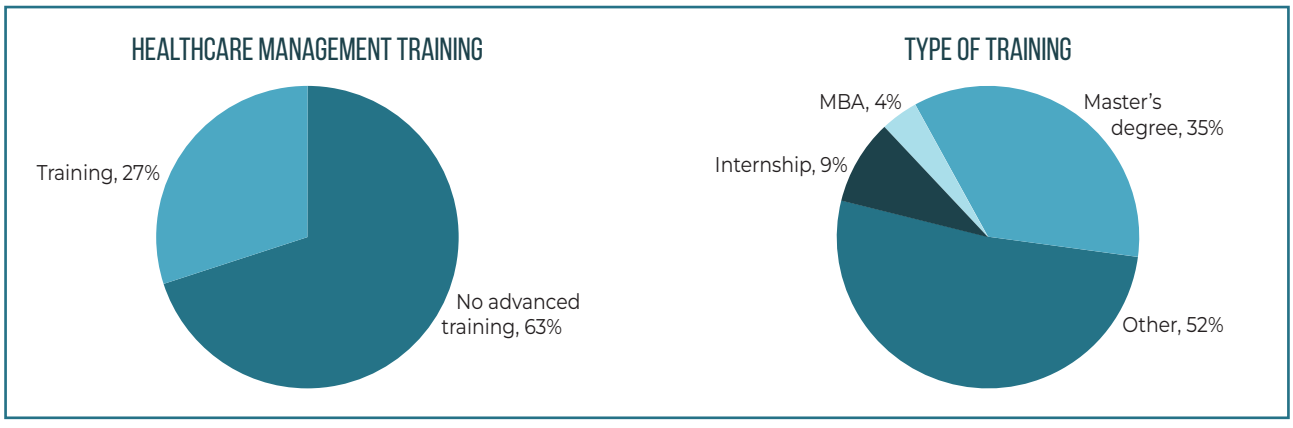

Fig. 2. Survey results to two questions: “Have you had any upgrades in your qualifications in healthcare management?” and “Do you consider it important to get further upgrade of healthcare upgrade of healthcare management skills?”

Along with that, a brief analysis of the training and methodology of healthcare management in European countries was conducted, as well as recommendations for implementation in the healthcare system of the Republic of Kazakhstan.

Results. Reforms and various programs in health management in Kazakhstan can be assumed that high-quality education of health management specialists includes a few necessary skills and basic subjects, such as health information management and research methodology; health law, ethics and psychology of communication; health promotion and policy; methods of data analysis; health economics, change management.

The role of managers in healthcare in Kazakhstan. It is important to differentiate healthcare managers: directors being one separate tier of managers and deputy directors with departments heads being the other tier. When analysing the professional development of healthcare managers, Chen says that in their managerial careers, they complete medical institutions and continue their activities at the level of regional departments and the Ministry of Health [5]. However, according to the Order of Ministry of Health, this tier of healthcare managers are not entitled to receive anymore additional education [6, 7]. Up to a certain point, this scheme is acceptable, but in modern conditions, a manager of any level requires constant improvement of skills and methods of rapid response to changes in the external (macro environment: market, market conditions and demand, pressure from consumers of services and suppliers, etc.) and internal environment (material and immaterial resources, structure, personnel, motivation, leadership, etc.) of healthcare organizations and integration with the world community, especially with the World Health Organization [6]. It is urgently necessary for the Ministry of Health to revise the competencies and methods of improving the qualifications of healthcare managers. While top managers are required to have certain qualifications, middle tier managers are not required to have any updates in their skillsets [6, 7]. This phenomenon makes the execution of the top-bottom decisions complicated due to lack of soft skills and competencies.

Review of governmental actions in education for healthcare managers. Based on the state programs for reforming and developing the healthcare system in the Republic of Kazakhstan, healthcare managers are currently being trained in master's and doctoral programs at higher medical educational institutions; there are also Master of Business Administration (MBA) programs and continuing education and retraining courses at public and private educational institutions. In 2009, the Ministry of Health of Kazakhstan issued a decree and included "healthcare management" in the nomenclature of specialties and approved the qualification characteristics of healthcare managers [2].

The proposed MBA programs of various educational institutions include blocks of disciplines for professional skills training and personal development as well as leadership skills training, where the duration of training is 2 years.

In 2016 the National Scientific Centre for Health Development initiated the project "Development of the Institute of Professional Management in Healthcare". Seven research and design projects in the field of healthcare management were carried out [8].

Based on the experience of implementing capacity building in the Ministry of Health of Kazakhstan [9], a three-year program (referred to as Intervention Framework) was initiated and developed with the aim of building the human resources and political potential of the Ministry of Health staff and improving strategic planning capabilities. It was based on the approach of the United Nations Development Program (UNDP), which had already been successfully implemented in other countries[9].

The approved strategic plan for the implementation of measures to improve and increase the quality of medical care for the population of the Kazakhstan for 2020–2025 identifies as one of the priority areas the or-

ganization of training for managers and financial staff, as well as for independent experts in the field of health care, experts in health technology assessment [10].

Proposed solution to the issue. Kazakhstan is a vast country with several time zones which makes its people different in mentality and resistant to change [11]. Taking into account the differences in some cultural and mental issues caused by territorially mediated reasons, local peculiarities of natural and climatic conditions in different geographical zones, stable economic and cultural traditions, a differentiated approach to planning, formation of training plans and implementation of innovations were required due to the historical isolation of some regions, which resulted in a certain rigidity to change in general [11].

While adaptation of the standard frameworks of UNDP is considered more difficult due to regional peculiarities, successful cases exist. Chanturidze, Adams, Tokezhanov, et al discuss how 5 initial phases proposed by UNDP were transformed to 8 phases suitable for the country [9] (Table 2).

As can be seen in Table 2, the additional items of the adapted model included capacity building and skill development.

One of the core steps of the adapted model was assessing capacity needs (step 4) and at the implementation of this step it was found that certain capabilities are weak and need development (Table 3). According to the Table 3, all seven skills have two types of capabilities: strong and weak. If we look into those that are listed as weak, all of these capabilities are substantially significant for the middle tier healthcare managers: formulating policy and strategy, presenting technical data, technical report writing, political analysis, system's thinking (of policy and strategy skill); decision making, leading people, ability to create vision, set priorities and be focused (of leadership), conflict resolution, monitoring and evaluation of projects, organizing the process (of the ability to commission), etc [9].

The experience showed that complementary approaches to human resource development worked effectively in the context of organizations and systems, where an enabling environment was present, and country ownership and political will was complemented by strong technical assistance to design and deliver high quality tailor-made capacity building initiatives [9]. With the support of the government, it is highly probable that compulsory education of the above-mentioned skills to the middle tier managers will change the overall managerial issue.

Discussion

Analyzing the experience of reforms and various programs in the field of health management education during the period of Kazakhstan's attained sovereignty [12, 14], it can be assumed that high-quality education of health management specialists includes a few necessary skills and basic subjects. These

Table 2. United Nations Development Program (UNDP) adopted in Kazakhstan: the adapted model

United Nations Development Programme (UNDP)	Adapted model in Kazakhstan
1. Engaging stakeholders in capacity development 2. Assessing capacity needs and assets 3. formulating capacity development response 4. Implementing a capacity development response 5. Evaluating capacity development	1. Identifying key stakeholders 2. Engaging stakeholders 3. Tailoring tools for competence needs assessment 4. Assessing capacity needs 5. Designing capacity development response 6. Implementing a capacity development response 7. Evaluating capacity development results 8. Creating enabling environment for career development

Table 3. Results of capability assessment

Capable/strong capability	Needs development/weak
Formulate policy and strategy	
Understand policy and budget cycles and financial planning	Formulate policy and strategy
	Presenting technical data
Understand governance and legal environment	Technical report writing
Understand country development policies	Political analysis
	System's thinking
Leadership	
Strategic planning	Decision making
Establishing performance goals	Leading people
	Ability to create a vision
	Set priorities and be focused
Ability to commission	
Define a product	Conflict resolution
Manage knowledge and undertake robust needs assessment	Monitoring and evaluation of projects
Oversight contract implementation	Organizing the process
Policy review	
Critical thinking	Research
Quantitative analyses	Data analysis
	Qualitative analysis
	Ability to identify special problems and frame questions for analyses and research
Policy dialogue	
Stakeholder and political analysis	Ability to address both politically controversial and technically complex aspects of an issue in a dispute
	Ability to bring diverse interest groups to the table
	Ability to seek to formulate practical solutions to complex problems
	Ability to moderate complex issues and build consensus recommendations between the engaged parties
Ability to convene	
	Negotiation
	Mediation
	Political and economic power mapping
	Collaborative group management, and problem-solving

include health information management and research methodology; health law, ethics and psychology of communication; health promotion and policy; methods of data analysis; health economics and change management [12–22].

However, according to the 2023 analytical report on the results of the internal analysis of the Ministry of Health of the Republic of Kazakhstan, the number of planned updates in managerial qualifications were not attained to the satisfactory level among the employees of the Ministry of Health [3].

There are two broad issue types in updates of managerial qualifications that need attention: one is associated with the type of employee and the other is associated with the type of educational direction. The latter is discussed further along with the review of international experience of training healthcare managers.

Scope, learning objectives and structure of the courses. he growing complexity within public policy, particularly in the health sector, calls for a system thinking approach that emphasizes interconnectedness, dynamic complexities, and the vulnerability of health systems [23, 24]. As a result, course participants are expected to develop the skills necessary to manage both routine and complex, non-routine challenges in health systems. These skills include cognitive elements of problem-solving, such as causal reasoning, decision-making frameworks, and the integration of information, as well as non-cognitive skills like self-regulation, motivation, and social abilities. The main aim of courses to build the competencies required for leadership in the health workforce and support broad learning objectives that foster effective leadership, systems thinking, and the application of policy tools for development [25, 27].

Special attention in training should be paid to change management, because in order to achieve results and set goals, it is important to take into account the processes and likely problems that most managers face when introducing reforms and promoting them, especially after the COVID-19 pandemic [17].

The partial achievement of the setting goals and the failure to meet these goals, as well as some failures in health management in Kazakhstan [3, 4, 14], may be because managers' knowledge in the field of change management is insufficient. This is confirmed by the absence of this discipline in the curricula of master's programs in Kazakh medical institutions.

Organizational change management is studied in organizational and management sciences, public administration, decision sciences, human resources, healthcare, education, innovation [16] and propose a three-areas-classification of change models that emerged in the literature: change as a project; change as a response to resistance and change as an interpretative process [18].

Another important area of healthcare management education that reflects modern realities is ethics and the psychology of communication. Safety and quality medical care depends largely on effective communication between all members of the medical team [19]. It is important that medical personnel can build relationships with patients and their families as well as with representatives of other medical organizations, find the best solution and present it skilfully [20].

Effective collaboration among medical teams, administrative staff, and auxiliary personnel ensures smooth operations within healthcare organizations. Coordinated efforts result in streamlined patient care processes [21].

As one of the discussion points, an in-depth study of the economics of healthcare in the methodology of training healthcare managers is proposed: analysis of medical institutions taking into account their economic and social efficiency as well as regularity and relationships, study of healthcare cost, population needs for healthcare using new technologies with emphasis on world standards [22].

To perform four main functions of management in a timely and effective manner, such as planning, organizing, motivating and controlling [1, 13]; high quality and comprehensive data analysis is also required. This fact is becoming increasingly important due

Table 4. Suggested types of the healthcare management training

Type of the management training	Description
Short Executive Courses	Many universities and business schools offer short-term executive education programs in healthcare management. These courses provide focused training in key areas like leadership, financial management, and strategic planning. Institutions like Harvard T.H. Chan School of Public Health or INSEAD offer tailored programs for healthcare professionals.
Online Business Courses	Platforms like Coursera, edX, and LinkedIn Learning offer online courses in business and healthcare management. These allow for flexibility and self-paced learning, with the option to focus on specific business skills such as financial analysis or organizational behavior
Health Leadership Fellowships	Fellowships such as those offered by the NHS Leadership Academy or The King's Fund in the UK focus on developing leadership skills in a healthcare context. These programs often provide mentorship and hands-on learning in addition to theoretical knowledge
Postgraduate Diplomas in Healthcare Management	Some institutions offer postgraduate diplomas that are shorter and less comprehensive than an MBA but still cover important topics like health economics, policy, and management.
Work-Based Learning and Mentorship	Many healthcare professionals opt to gain management skills through direct experience, taking on leadership roles or working under the mentorship of senior healthcare managers. This hands-on approach allows for learning in real-world scenarios.

to the increase in medical information, the development of technologies and the need to improve the efficiency of healthcare systems. Data analysis methods (machine learning and artificial intelligence, big data analytics, regression analysis, cluster analysis, time series and forecasting) help to make informed decisions, improve the quality of medical care, optimize costs and develop new medical products and services [26].

International experience and best practices. The training of healthcare leaders plays a key role in the effective functioning of healthcare systems around the world [12, 13]. Best practices in this area show how different countries prepare their leaders to manage complex and rapidly changing health systems [25].

In response to the increasing demand for management training among medical professionals, two distinct pathways have emerged. The first consists of specialized courses designed specifically for healthcare professionals, such as master's programs in healthcare management or leadership. The second involves healthcare professionals enrolling in established, often prestigious, programs like MBAs, Executive MBAs, or master's in management. More recently, a third option has developed: general management courses that have been tailored to include a focus on healthcare management, such as MBAs with a healthcare emphasis [27].

There are alternatives that allow medical professionals to develop key management skills without the extensive time and financial investment of a full MBA program (Table 4).

All these educational directions, models and strategies are necessary for the middle tier management and need to be performed periodically with constant monitoring from the human resources department. Moreover,

it should be noted that these skillsets are not academic and hence belong to MBA program, than to master's program. While master's program is a substantial qualification, MBA or short courses (Table 4) are more preferred for qualification update [27].

Conclusion

Kazakhstan has undergone the number reforms in healthcare management since 2009. Despite some positive changes country faces the shortage of medical staff and patient often point on not sufficient quality level, not sufficient access to medical services. While governmental requirements for the top managers of healthcare are high and require them to have MBA or at least master's program, this is not true to the middle level managers. They are not entitled to any educational endeavor nor to any update in qualification. A mini survey conducted has also showed the relatively low interest in updating the competencies among the middle level managers in a Kazakhstan region.

Effective training of healthcare managers in Kazakhstan requires the integration of academic education, practical experience and continuous professional development. Global experience shows that successful training programs must be tailored to the specific needs of each country's healthcare system and consider modern trends, digitalization and international cooperation. UNDP framework of five steps has been adapted to Kazakhstan with an eight-step model. It emphasized the need to improve certain capabilities of managers such as decision making, leadership skills, set priorities, etc. When choosing the educational direction for the managers it is important to head towards MBA and short courses that help to acquire the skillset rather than academic knowledge. These management trainings can improve educational methodology and have significant development potential in the Republic of Kazakhstan.

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