PROSPERITAS VESTRA FINIS NOSTRA!

MEDICAL UNIVERSITY
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HEALTH PROMOTING UNIVERSITIES – DEVELOPMENT OF THE INITIATIVE AND PREREQUISITES FOR IMPLEMENTATION IN THE BULGARIAN SCHOOL OF HIGHER EDUCATION

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DISSERTATION SUMMARY

for the PhD degree

Supervisor

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The dissertation was discussed at a meeting of the extended departmental council of the Department of "Social Medicine and Health Care Organization" at the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna and referred for defense before a Scientific Jury.

The thesis is presented on 184 pages, contains 6 appendices and is illustrated with 21 tables and 8 figures.

The bibliographic reference includes 232 cited literary sources, of which 35 are in Cyrillic and 197 are in Latin.

Scientific jury

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The defense of the dissertation work will be held on 14. 10. 2022, 2 pm at an open meeting of the Scientific Jury.

The defense materials are available in the library of the Medical University "Prof. Dr. P. Stoyanov" - Varna, as well as on the official website of the university.

CONTENT

LIST OF ABBREVIATIONS

HP	Health Promotion
HPU	Health Promoting Universities
MU	Medical University
SRT	Self-Review Tool
UK	United Kingdom
WHO	World Health Organization

I. INTRODUCTION

Effective strategies search for the real application of the health promotion philosophy as presented by the Ottawa Charter, 1986, led to the creation of the "healthy settings" concept. It is based on the supportive environment approach, according to which health is created as a result of the dynamic interaction between personal, environmental and organizational factors. A number of places in modern people's lives are established as effective in improving health - among the most large-scale globally are cities, schools, regions, hospitals and health promoting universities.

Students' health is an important and necessary resource for their realization as future professionals, public activists, politicians and forms the health profile of the nation. Young people are the future or current parents and their health determines their reproductive abilities to create a healthy generation. The transition between adolescence and adulthood is an important phase of the development process when people lay the foundations for their future as adults and set long-term patterns of behavior. However, this fact often goes neglected. Traditionally, the community attention focuses on the health of the children, elderly and the disabled, which is why there is a consensus that the health needs of young people are not fully understood and met. Thus, the health of young people from higher education institutions stays beyond the reach of public health. High academic achievements of students and academic staff development are the main strategic goals of higher education institutions, and health and education are inextricably linked to them. Young people who are well-educated have better health and well-being, and healthy people have higher educational achievements. For nearly three decades, the WHO initiative "Health Promoting Universities" has proven that the higher education institutions are a "viable force in the field of health promotion." Worldwide, the initiative has been recognized and well-received in higher education institutions and has become a global movement. Universities from different countries take responsibility for supporting the health of the university community and the wider public – both in Europe and in Asia, the Americas, Australia, Africa and New Zealand. National and international networks of Health Promoting Universities have been established in order to coordinate and interact between regional and national networks.

Despite the convincing evidence of their effectiveness, so far no Bulgarian higher education institution has adopted the initiative "Health Promoting Universities " as part of its strategy. In the scientific literature not only here is a lack of data about Bulgarian higher education institutions that apply the initiative, but in our

country it is still not known enough. There is no accepted adequate translation of the fundamental international documents, and the potential of Bulgarian universities as an environment for health promotion has not been recognized and studied yet. It is necessary in our opinion for the HPU initiative to find a place in Bulgarian higher education institutions so that they can become part of the global movement by making a clear commitment to promoting the health of the university community and the wider public.

II. AIM, TASKS AND WORKING HYPOTHESES

1. Aim

To study the conditions for the implementation of the WHO initiative "Health Promoting Universities" in the Bulgarian higher education institution by evaluating a concrete university applying internationally approved criteria for Health Promoting Universities.

2. Objectives

To achieve the aim, the following objectives are set:

2.1. To study the development of the fundamental theoretical concepts that contributed to the implementation of the initiative "Health Promoting Universities" on a global scale.

2.2. To explore the international experience with the implementation of the "Health Promoting Universities" initiative in different university communities with various economic, social and cultural contexts.

2.3. To validate the internationally approved "Self-Review Tool" of Health Promoting Universities to the Bulgarian linguistic and cultural context.

2.4. To clarify the available conditions and the scope of existing health promotion activities in a concrete Bulgarian university by applying the culturally adapted Self-Review Tool of Health Promoting Universities.

2.5. To identify the health needs of the students by analyzing their health behavior.

2.6. To bring out the priority areas for health promotion activities at the studied university setting, based on the achieved results.

3. Working hypotheses

3.1. The "Health Promoting Universities" initiative is not equally well received and does not work equally effectively in university communities with various economic, social and cultural contexts.

3.2. The applicability of the self-assessment tool for the fulfilment of the criteria for Health Promoting Universities in Bulgarian context is possible and achievable after trans-cultural adaptation and validation.

3.3. The self-assessment in terms of the criteria for Health Promoting Universities outlines the areas with progress in health promotion activities – creating a favorable environment, providing health services and conditions for personal, academic and social development.

3.4. Spheres with needs for further work are related to the formal adoption of the principles of the initiative, providing funding and creating a mechanism for the implementation of the whole university approach.

3.5. Students' health behavior is characterized by a high incidence of alcohol consumption and smoking, low physical activity and unhealthy diets in terms of intake of fruits, vegetables and processed foods.

III. METHODOLOGY

The identification of the available conditions, the scope of the health promoting activities and the determination of the necessary future actions for the implementation of HPU principles in a Bulgarian higher institution requires an appropriate method and instrument for evaluation. For our country, the HPU initiative is a new, unknown and such a methodology in Bulgarian is missing.

While exploring the experience of internationally established HPU, it was found that the network of "Healthy Universities" in the UK has developed a Self-Review Tool, to help the UK universities, in their aim to adopt the HPU initiative. The instrument has also been applied by higher education institutions outside the UK.

Earlier studies on the applicability of international policies, concepts and documents from the field of health promotion to Bulgarian conditions show that direct transfer of policies and documents is not an effective and working approach. The reasons are in the significant differences - both in the degree of development of health promotion policy and the socio-cultural characteristics of countries. The successful application of foreign experience in the field of health promotion requires its "trans-cultural interpretation and adaptation to the specificity of Bulgarian reality and culture" (Krekovska, 2005).[1]

In order to achieve the objectives, we organized the research process in three phases.

1. First phase – cultural and linguistic adaptation and validation of the internationally approved „Self-Review Tool" in Bulgarian for institutional self-assessment of the preparedness for implementation of the WHO initiative "Health Promoting Universities" in a Bulgarian higher education institution;
2. Second phase – practical realization of a self-assessment empirical study at Medical University "Prof. Dr. Paraskev Stoyanov" – Varna. The opinion of the university community on the available conditions and scope of actual health promotion activities in the university environment are studied, by applying the adapted and validated Self-assessment instrument among the university community members and researching the health behavior of the students.

[1] The cited sources are available in the dissertation

3. Third phase - final self-assessment of the institution, with the criteria for the HPU is performed and future priority action areas in applying the Health Promotion principles are formulated.

1. First phase - adaptation and validation of the internationally recognized "Healthy university Self-Review Tool" to the specificity of the Bulgarian reality and peculiarities of the national language and culture.

Material

- The “Healthy university Self-Review Tool” is an original instrument in English, a resource of the Healthy Universities Network in the UK. The implementation of the instrument supports higher education institutions in the analysis of the key areas in which the university must work in order to commit to adopting the HPU initiative, in the planning of future actions to improve the health and well-being of the university and the broader community, as well as the evaluation of the results achieved.

The tool consists of Introduction and a main part with 68 statements, grouped in the following five sections: Leadership and management; Service provision; Conditions of environment; Communication, information and marketing; Academic, personal, social and professional development. The tool is intended to be filled in online by one or more representatives of the university community, after registering the educational institution on the website of the UK network “Healthy Universities”. Based on the submitted responses, a report and a color graph, in the form of a "traffic lights" is being generated, indicating the areas where success has already been achieved and the areas where it is necessary the university to undertake further actions. The tool is well recognized and widely applied to universities both in the UK and all around the world.

Methods for adaptation and validation of the Self-Review instrument

The standardized WHO methodology for the translation and adaptation of instruments (Process of translation and adaptation instruments) is applied. The method ensures intercultural and conceptual, not literal equivalence between documents in different languages. The process requires compliance with 4 consecutive steps: (1) Forward translation; (2) Expert Panel and Back-translation; (3) Pre-testing and Cognitive Interviewing; (4) Final version of the tool into a language other than the original.

For the adaptation of the original instrument “Self-Review Tool” from English to Bulgarian, the consent of its creator was obtained - prof. Mark Dooris, chairperson of the Healthy Universities Network in the UK and co-chair of the International Network of Health Promoting Universities and Colleges.

The first phase of the study was conducted in compliance with the guidelines of the WHO methodology and went through the standard stages:

1.1. Forward translation of the original tool from English to Bulgarian

Two independent licensed translators generated two different translation documents P1 and P2 of the original tool. Both documents were analyzed and summarized in one initial Version 1.0. in Bulgarian language.

1.2. Expert Delphi panel and back-translation

The Delphi qualitative method for achieving consensus among experts on a specific, important issue for a given area or community was applied. In this case an agreement among experts in the field of health promotion was sought, on the adequate adaptation of more specific terms and expressions from the original version of the self-review instrument to the Bulgarian cultural characteristics.

Experts in the field of HP, members of the academic staff of the MU "Prof. Dr. P. Stoyanov" - Varna were invited according to the following criteria: availability of professional experience in the field of public health and health promotion, experience in preparing questionnaires for sociological research and professional use of the English language.

Information was provided to the experts in advance via e-mail message regarding: the purpose and the subject of the Expert panel and all the necessary materials for prior introduction. Due to the extraordinary epidemic situation in the country related to COVID-19, the expert panel was conducted through the opportunities provided by the university platform for Distance Learning "Blackboard". For this purpose, participants were provided with access to a “Virtual Classroom” on a certain day and time. The work of the experts took place in an open discussion with a moderator, lasting 60 minutes.

A consensus was reached on the initially proposed list of specific concepts, terms, words and expressions from the original and translated documents. As a result, Version 2.0 of the tool was created in Bulgarian. That stage ended with a back-licensed translation of the resulting Expert Panel Version 2.0. of the tool into English. The translator is a native English speaker and is fluent in Bulgarian.

1.3. Pre-testing of the resulting Version 2.0. in Bulgarian language and cognitive interviewing

Instrument

- A structured questionnaire, Version 2.0. – designed for the preliminary testing of the instrument among representatives of the target population. The questionnaire consists of an introductory part and a main form with 68 statements, divided into 5 sections: Leadership and governance; Service Provision; Facilities and environment; Communication, information and marketing; Academic, personal, social and professional development and 3 demographic questions. All questions were closed-type, providing 4 possible answers. After each statement and section, the respondent has been given a space to note why he has responded in this specific way. Expected time for answering the questionnaire was: 20-30 minutes. The questionnaire is provided online, in an electronic Google form, from where the responses were received automatically at the electronic address of the research team.
- An individual in-depth telephone interview followed the survey with the structured questionnaire, Version 2.0**.** with the same respondents who have completed the online questionnaire.
- A questionnaire with open questions for that in-depth telephone interview has been developed asking the respondents about each statement from Version 2.0.

Subjects of the study were 10 representatives of the university community of the Medical University "Prof. Dr. P. Stoyanov" – Varna: students, members of the academic staff, nonacademic staff and members of the management. The respondents' selection was performed on the basis of the methodology for translation and adaptation of tools, relative share of the different groups among the target population and through the method of the responders.

Methods

➢ A survey – for pre-testing Version 2.0. of the instrument in Bulgarian, among the pilot group described above.

➢ In-depth interview – to evaluate Version 2.0. of the instrument in Bulgarian, in terms of its clarity, comprehensibility and applicability. In the course of the interviews, the researcher read the individual questions, the possible answers and noted the answer chosen by the interviewee. Preliminary prepared questions were addressed to the respondent - whether he/she understood the statement; availability of unclear expressions and phrases; possibility of the respondent to

repeat the question in his/her own words; whether he/she found words and expressions that are offensive and unacceptable. If the interviewee had suggestions for alternative words or expressions, he was asked to choose those which, according to him, best fit the usual Bulgarian language. The method was applied from 7 to 20 days after the structured questionnaire was filled out and the interviewees did not had access to his/her responses given by them in the survey. The interviews were recorded with a dictophone, after obtaining an informed consent from the participants. They were conducted at a time convenient for the individual respondents. The duration of the individual interviews ranged from 60 to 120 minutes, with an average of 90 minutes.

- For analysis of the information from the interviews, the following activities have been implemented: the dictophone records have been listened to and transcribed on a paper, accompanied by a reflection of the intonation of the speech. After a detailed introduction to the text, a system of codes has been developed and all primary documents were encoded; the coded texts were analyzed in order to derive common characteristics and suggestions for final formulation of expressions in the tool.
- Documentary method – at each stage of the first phase of the study, written documents have been prepared, given corresponding names and serial numbers. According to the WHO translation and adaptation method guidelines, the set of documentation contains: Translations P1 and P2; Version 1.0. of the instrument in Bulgarian; Version 2.0.; Protocol of the Expert Group work; Reverse translation from Bulgarian to English P3; Summary analyses of the results of the preliminary testing of the tool in Bulgarian; Final Version 3.0. of the "Self-Review Tool" in Bulgarian; back translation of Version 3.0. from Bulgarian to English P4.

1.4. Preparing the Final Version 3.0. of the “Self-Review Tool” in Bulgarian language

A reverse translation was made from Bulgarian into English (P4) of the final Version 3.0. of the instrument that was provided to prof. Mark Dooris for expert opinion.

2. Second phase – Empirical study

This empirical study is aiming at clarifying the available conditions and actions for health promotion at the MU “Prof. Dr. P. Stoyanov” – Varna in order to determine the priority actions for the adoption of the HPU initiative through the

by application of the adapted in Bulgarian language the “Self-Review Tool”, and the health behavior of the students was analyzed.

Methods

- Structured questionnaire study: 1) research on the opinion of the university community representatives of MU “Prof. Dr. P. Stoyanov” – Varna for the existing conditions and activities for health promotion; 2) study of some typical aspects of the health behavior of the students at MU “Prof. Dr. P. Stoyanov” – Varna. The distribution of the questionnaire among students was via Google form through the Student Council's social student platform, and for the rest of the respondents, via formal email.
- Documentary method – analyzing institutional documents of MU “Prof. Dr. P. Stoyanov” – Varna, available on the official website of the university: mission and information about initiatives in support of the health of the university community.

Instruments

- Structured questionnaire designed for students, containing 35 statements and questions, combined in two sections: “University Environment” and “Health Behavior”. The first part of the tool included selected statements from each section of the validated tool Self-review. The selection was based on the applicability of the questions to the respondents. The opportunity to express a personal opinion, from the students’ point of view and recipients of conditions and activities for improving health, was sought. In the process of pre-testing the tool, it was found that some of the statements were inappropriate for the student target group and therefore not included, such as those related to: strategic planning, organization and management; personal and professional development of other target groups - management, academic staff and employees. The section “Health Behavior” was specifically designed, for self-reporting of health awareness and student behavior regarding: smoking; alcohol and drug consumption; diet; physical activity; mental health; attitudes toward participation in health improvement initiatives organized by the university and demographic data.
- Structured questionnaire for members of the academic staff, containing 19 statements from the validated version of the tool and 2 demographic questions. The statements are selected, based on applicability for respondents and their affiliation with the target group in focus.

- Structured questionnaire for employees, consisting of 14 statements from the validated version of the tool and 2 demographic questions. The questionnaire was created by selecting statements from the validated tool for UHP applicable to the target group.

The subjects of the study were representatives of the university community of the MU "Prof. Dr. P. Stoyanov" – Varna: students, members of the academic staff and administrative staff. The selection was carried out on the basis of a relative share of the individual groups of the target population and the method of the responded.

3. Third phase - final self-assessment of the institution, according to the international criteria for the HPU and formulation of the priority areas for action.

Methods

➢ Delphi method. The results of the conducted studies were provided to representatives of the Academic leadership team of the University and the Student Council. A consensus has been reached to summarize the answers on the individual questions of the self-assessment tool.

Instrument

- Instrument for self-assessment of the HPU in Bulgarian language.

The subjects of the study were members of the Academic leadership team and members of the Student Council of MU "Prof. Dr. P. Stoyanov" – Varna.

4. Statistical methods

The following statistical methods were used to process the data from the studies:

A. Descriptive analysis:

• Alternative analysis – when describing qualitative variables and grouped data.

• Variation analysis – when describing quantitative signs.

Results are presented as arithmetic mean and standard deviation/median and IQR depending on the type of distribution.

B. For hypothesis testing, the following were applied:

1. Parametric methods – for normally distributed quantitative variables:

• Student's t-test when testing hypotheses for the presence of a significant difference between two independent samples;

• Analysis of variance (ANOVA) when testing hypotheses for the presence of a statistically significant difference between more than two independent samples;

2. Nonparametric methods - for testing hypotheses for variables deviating from the normal distribution and qualitative values:

• Pearson's Chi-squared test (χ^2) for multiple tables;

• Fisher's exact test;

• Odds ratio

3. Instrument reliability analyses: to determine internal coherence – Cronbach's alpha coefficient; test-retest reliability – Cohen's kappa coefficient.

For the level of significance of the null hypothesis, alpha = 0.05 was adopted.

C. Tabular and graphical methods for visualizing the obtained results.

The processing and analysis of the data was performed with the statistical package IBM SPSS version 26.0 (Chicago, IL, USA), and for graphical analysis – MS Office Excel 2007.

For the qualitative data analysis, the software product QSR NVivo v.11 was used.

The study was launched after obtaining Ethical permission № 101/24.03.2021 from the Commission on Ethics of Research of MU "Prof. Dr. P. Stoyanov" - Varna.

IV. RESULTS AND DISCUSSION

1. Theoretical foundations and practical application of the HPU initiative

The HPU movement marked its beginning in the mid-1990s in countries with Western European cultural influence, and continued its development on a global scale. The initiative seeks to create a university environment and culture that supports the health of the university community and the general public so that people can achieve their full human potential. The HPU developed its own theoretical foundations, guided by the principles of the Ottawa Charter, 1986 and based on the healthy settings approach. Several important international conferences and documents further develop the HPU concept, affirming its leading principles, guidance and develop the action framework:

- The First international conference of Health Promoting Universities was held in 1996 in Lancaster, UK;
- In 1998, the foundational document "Health promoting universities. Concepts, experience and framework for actions", was developed and published by the initiative of WHO (Tsouros et al., 1998);
- The Second International Conference of HPU and Institutions of Higher Education, at which the Edmonton Charter was adopted, 2005 (Edmonton Charter, 2006) and
- The Seventh International Conference of HPU and Colleges, at which was adopted the Okanagan Charter in 2015 (Okanagan Charter, 2015).

All HPU conferences are listed in Table 1.

Table 1. International conferences and symposia of the HPU

Year	Place	Conference
1996	Lancaster, UK	I International conference of HPU
2005	Edmonton, Canada	II International conference "Vitamin C for HPU. Community, Culture, Creativity and Change"
2007	Ciudad Juárez Mexico	III International Conference "Effective Training Environment"
2009	Pamplona, Spain	IV International conference: "The social commitment of universities"
2011	San José, Costa Rica	V International Conference of HPU "University Community Building Health"
2013	San Juan, Puerto Rico	VI International conference of HPU
2015	Kelowna, Canada	VII International Conference of HPU and Colleges: "Promising Pathways: Research, Practice & Policy for Health and Sustainable Campuses"
2019	Rotorua, New Zealand	International Health Promoting Campuses Symposium
2022	Montreal, Canada	International Health Promoting Campuses Symposium

The Okanagan Charter, 2015 provides an up-to-date framework for action for health promotion in higher education in order to assist higher education institutions in the implementation of the HPU initiative. The framework synthesizes existing strategic documents and the practical experience of the HPU and is adapted to the contemporary health challenges and conditions of higher education. Two appeals have been made to the higher educational institutions: to focus on health in all aspects of university life; and to work to promote health at local and global level.

The guiding principles, on how to mobilize systematic actions for the health promotion in universities are formulated: Applying a whole system approach; Engagement of all in the organization; Stimulating the participation, engagement and "hearing the voice" of students and all academic and administrative members of the university community; Developing cooperation and partnership between disciplines, sectors and communities in the university; Stimulating research, innovation and evidence-based actions; Accounting for the right to health of everyone (Okanagan Charter, 2015).

The framework also offers specific "items of work" – health topics and problems that are typical for young people, such as: alcohol consumption, smoking, physical activity, eating habits, etc., on which the universities can emphasize.

In order to be recognized as an HPU, the school of higher education must commit to the initiative by formally signing the Okanagan Charter, 2015.

Regional and national networks of the HPU bring together hundreds of HPU throughout the world and support them in the development of their activities by providing their own developed resources – action frameworks, application models, case studies, useful experiences, standards of good practices and assessment tools. The International Health Promoting Universities and Colleges Network, IHPU&C was established in 2015 after the adoption of the Okanagan Charter, 2015 and connects 12 national networks.

In order to facilitate practical application and to enable higher education institutions to build a unified, common vision of how health to be embedded in a university environment, Mark Dooris (Dooris, 2010) offers a model of the "Whole University Approach" for health promotion. It contains the main features of the settings-based approach to health promotion, but is adapted to the conditions of the university. The essence and application of the approach are part of the resources of the network of the UK Healthy universities, which together with an accessible tool – a cyclical model of application, examples of good practices, case studies and self-assessment tool (Self-Review Tool/ SRT) provides them for universities that want to implement and develop the HPU initiative. Assessment is necessary at the different stages of the development of the initiative. In the beginning, in its perception – the assessment is important and is done to highlight and analyze the existing strengths and those on which the university needs to focus in planning future actions (Holt et al., 2015). Periodically, it is repeated to determine whether and to what extent the set goals have been achieved, what works well and what is not (Evaluating Universities, 2012). The SRT contains established international criteria that the HPU has to meet, it is validated and widely applied by universities anywhere in the world. Simultaneously with the use of this tool, health needs and problems related to students' risky health behavior should be investigated and analyzed. This information is necessary in order to plan HP activities that meet the needs of the specific student population.

In practice, universities around the world face a number of challenges in the implementation of the HPU initiative and develop it in different ways, depending on both national cultural specificities and a number of common factors for the

HPU. The most significant are: commitment at the strategic level and recognition of the initiative by the management of the university, certified by the signing of the Okanagan Charter, 2015; provided funding; implementation of the whole university approach; availability of a team coordinating the initiative; participation in a network or networks of the HPU. Depending on these factors, several main groups of HPU are defined – "emerging", "established without funding", "established without networking" and "established" (Suárez-Reyes et al., 2019).

The development of the global HPU initiative; its theoretical concepts and practical application in countries with a culture other than the Western European; national networks of the world's HPU and examples of good practices are discussed in detail in the literature review of the dissertation. Translation and cultural adaptation in Bulgarian of the theoretical framework for action was carried out – the Okanagan Charter, 2015, after obtaining permission from the chairmen of the IHPU&C, based in Canada. The Okanagan Charter in Bulgarian is part of the annexes in the dissertation.

1. First phase - Adaptation and validation in Bulgarian of an internationally established tool for self-assessment of HPU - Self-Review Tool

According to the WHO guidelines for translation and adaptation of instruments, the first phase went through the following stages (Figure 1):

1.1. First stage

Two translations were made from English to Bulgarian of the original Self-Review Tool by two independent licensed translation agencies. Translators are familiar with the English culture, but their native language is the target language - Bulgarian. The documents received are designated as a P1 and a P2.

The analysis showed differences in 26 elements in the content of both translations. In places, a literal translation of individual words and phrases was established, which was not adequate in the context of the original instrument. For example, one of the suggested responses in SRT "Yes, we are there", in the original tool, is used in the sense of the results achieved. In the P1 is literally translated "Yes, we are in this place". In document P2, the translation of this phrase proved to be more adequate and appropriate "Yes, we have taken action in this direction." The term "Wellbeing" was translated into P1 as a "benefit" and in P2 respectively as "good condition". Phrases such as "reasonable health services" and "responsive health services"; "wellness and support services" were found to be unusual for use in the

Bulgarian language, and such as "introduction to the exploitation of emerging systems for healthy life", "induction processes towards students and staff", "more well-being" were defined as unacceptable.

As a result of comparative analysis, discussion and processing, the discrepancies between the two translations are resolved by correction, reconciliation and addition of some elements of the research team. From both documents was formed a summary translated questionnaire in Bulgarian Version 1.0.

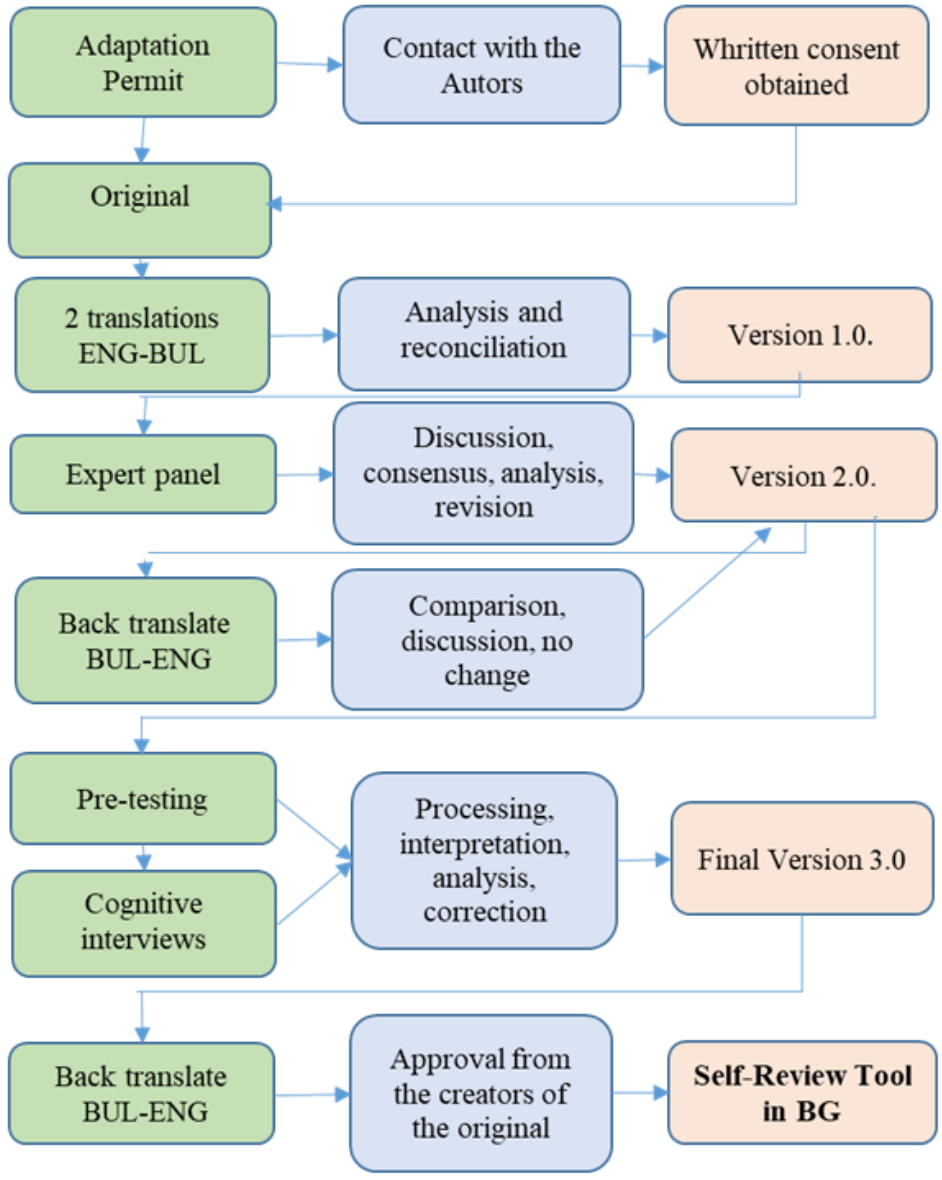

Figure 1. Process of adaptation of the tool Self-Review-Tool in Bulgarian

2.2. Second stage

An Expert Panel was held to reach consensus among experts in the field of public health, on the adaptation of certain specific terms and expressions from the original version of the instrument to the Bulgarian cultural characteristics.

Invited to participate are 10 men and women meeting the criteria reflected in the methodology of the study. Seven people responded, including 6 women and one man (10%). Average age 45.6 of participants.

The experts were preliminary provided with the materials: original Self-Review Tool in English; translations P1 and P2; summarized Version 1.0 in Bulgarian; list of proposed words, concepts and phrases for discussion. The work was held in an open discussion in a working group with a moderator lasting 60 minutes.

The discussion began with a consensus on the name in Bulgarian language of the international initiative. The literature review found out that universities that have been committed to improving health have adopted different names. They are consistent with the specificity of the national language and culture of individual countries. In the English-speaking countries, "Healthy universities", "Health promoting universities" and "Healthy campuses" are accepted. Alternative names were previously offered to the experts. In the course of the discussion, some of them were categorized as unacceptable: "University of Health Promotion" and "University for Health". According to the agreement, the expression “Health Promoting University” was adopted. For alternative or replaceable use, a "Healthy University" is proposed. In the process of working of the Expert Panel, doubts were expressed by two experts about the applicability of the instrument in its full form for the members of a certain target group at the university - students.

The discussed questions and recommendations of the Expert Panel are summarized and analyzed in a written report. Two of the experts sent their written answers on the discussed questions to the research team.

Expert decisions resulted in changes to items in Version 1.0. As a result, a fully translated Version 2.0 of the tool was obtained in Bulgarian.

A reverse translation of Version 2.0 was made from Bulgarian to English. According to the guidelines of the methodology, the translator is independent, licensed, with native language English, is well versed in Bulgarian and is not familiar with the original instrument. A comparative analysis of the translation (P3) and the original instrument in English for significant differences in

conceptual terms followed. A very good match in both documents and Version 2.0 was established and it was kept in the same form.

2.3. Third Stage

Preliminary testing of Version 2.0 was conducted among representatives of the target population, among which the distribution of the instrument is envisaged. This stage went into two parts: conducting a structured survey and semi-standardized cognitive individual interviews.

Invited to participate are 10 men and women, members of the different groups in the university community – students, academic staff, administrative staff and management. Three of the initially responders filled out the questionnaire, but failed to participate in the cognitive interview. This made it necessary to further invite new representatives from the respective target groups. In the end, 9 women and 1 man participated in this stage, of which 4 students, 2 administrative employees, 2 academic staff and two representatives of the academic leadership. Average age 32.4 years.

The structured questionnaire is filled out by participants online, in an electronic form, Google form.

Cognitive individual interviews were conducted within 7-20 days after self-filling of the questionnaire, in a pre-arranged and convenient time for the individual respondent. Respondents did not have access to the responses originally given by them in the questionnaire. In the interviewing process, the respondents re-answered each question on the questionnaire read by the interviewer. Participants were asked if they understood the question; are there vague words and phrases about them and what they would suggest as an alternative option; is there unacceptable and offensive to him expressions and words. Some of the respondents – students and administrative staff were asked to repeat the content of the question in their own words, or to give examples in order to assess how they interpreted it. Interviews lasted between 60 and 120 minutes, an average of 90 minutes. They are recorded with a dictophone, subsequently transcribed, coded, interpreted and analyzed.

- **General provisions**

The original tool consists of 68 statements and requires between 20 and 30 minutes to be completed. Respondents shared their opinion on the time-consuming characteristics: Respondent /P.3/ employee: "*by seeing a long text...*

One is inclined not to read carefully and to consider, but simply to answer with some answer to get the questions done." This directed us that if the tool is preserved in the original form, there is a real risk that the respondents will not fill out the questionnaire until the end or not to focus enough on the individual elements.

The volume of the content of the questionnaire led to lengthy interviews. Some of the respondents towards the end gradually lost their will to talk that they had at the beginning. We also attributed this to the complex impact of the time and the venue. The work environment influenced with official engagement and the presence of others. The home environment and the end of the weekday suggest domestic angagements and rest.

In the course of the interviews, some respondents openly thought not only from their own point of view, but placed themselves in the place of other groups of participants. According to representatives of the academic staff and management, specific groups of respondents would have difficulty, due to the nature of certain statements, especially from the Leadership and Management section: Respondent /P6/ member of the Academic Staff: "*Is it going to be also for the students and the administrative employees this questionnaire?, ……because I don't know how much a student will be familiar with such topics."*

A common positive attitude towards the institution carrying out the research, readiness for cooperation and satisfaction with participation has been established.

- **Difficulties in the process of adaptation of the instrument to the Bulgarian conditions**

The main difficulties are related to: the structure of the statements; the available options for answering; vague words, expressions and phrases; complex expressions; inappropriate words; terms; multi-valued words; misleading words and statements making it difficult for the respondent.

- **Structure of the statements**

Complicated composite sentences account for 30% of all statements in the questionnaire. A significant part of them, they established themselves as too long, formulated in high style and made it difficult for the participants. In some cases, towards the end of the read complex composite statement, the interviewees easily lost its overall meaning. Respondent /R.3/employee: "*I was a little confused here in this question. A little bit longer the wording... if there is an opportunity to*

simplify it," Respondent /R6/ member of the academic staff: "*Well, as if it is not very clear".* There was some hesitancy in the interpretation and, accordingly, in giving a response. Such statements prompted clarifying questions, and subsequently, some of the participants changed their initial responses. By asking questions to the interviewer, some sought confirmation of their understandings: Respondent /R7/member of the academic staff: "*I have understood it correctly?", "Is it right?"* Simple and short sentences were perceived and more easily understood than long and complex ones.

Having more than one complex expression or concepts in one sentence, confuses the respondents: Respondent /R1/ student: "*Hmm, I have the feeling that I am reading a colloquium in pathophysiology"*, Respondent /R3/ employee: "*It is complicated…. it is confusing, expressions such as communication strategy, complex expression, and the complex approach also."* Respondent / R6/ member of the academic staff: "*It is at a higher level in this question... to whom will this question be addressed?*", Respondent /R4/, representative of the management: "*Very complex question."*. Due to the length and complexity of the sentences in some of them, there was a brokenness and lack of fluency of the speech.

It was noticed that some of the respondents did not read the statements in the self-filling of the questionnaire. The reading of the interviewer, with appropriate intonation and meaningful pauses separating the parts of the sentence, improved the reflection by the respondents. Interviews also helped with the recall. Some participants gave examples that they had not previously paid attention to – a student guessed, about access to the Rectorate through platforms for people with disabilities, a member of the academic staff – the presence of bicycle stands, or about the services provided at the Medico-Dental Center. The evidence for this are the expressions: "*Now that you read it to me", "Now, on second reading", "Now I remember that..." "...But now when I hear it a second time...."*. Others were surprised at their original answer: Respondent / R6/ member of the academic staff: *"What did I say here?", well, I didn't answer correctly"*. There were also those who, during the time between self-filling the questionnaire and the interview, have changed their mind on the same question: Respondent /R3/ employee: "*But now I answer that...."*. This led to a very definite change in the initial responses, ranging in the two extreme "I don't know" to "Yes, we have taken action in this direction".

The presence of examples or clarifying words in brackets facilitated understanding. The respondents themselves noted it and recommended to have

examples in more statements: Respondent /P1/ student: "so as you give examples after each question will be better, as this makes me feel clearer", Respondent /R3 / employee: "*Yes, here the example facilitates".*

- **Formulation of the answers**

Each of the statements, according to the original instrument, is followed by 4 standard answers: "No not at all/Don't know"; "In the process of discussion", "We are currently working on this issue" and "Yes, we have taken action in this direction". After each section, there is a possibility of a free comment in which the respondent can provide additional information on why he has responded accordingly.

Most of the respondents, 60% defined the answer "No not at all/Don't know" as two different in meaning, incompatible for simultaneous use. Participants from all target groups recommended being divided into two separate responses. Respondent /R1/ student: "*It turns out that I do not agree with this. I rather really don't know",* Respondent /R2/ employee: *"The questions with which I have responded with "no, or I don't know at all, I meant "I don't know" in any case,"* Respondent /R6/member of the academic staff: "*No not at all" and "Don't know" to be referred to as separate answers...different is the meaning, "no not at all" means that I am not sure that the university does not do anything".* Member of the academic staff: *"For me, there are two completely different answers. One is adamant that there is no such thing and it is very different from that one does not know or is not sure how to answer...you have to separate yourself."* Participants explicitly emphasized how they responded to the individual statements, choosing a separate part of the "No not at all" or "Don't know" response. The response thus formulated, at the same time, makes it difficult for them and deprives them of the opportunity to express their personal opinion when completing the questionnaire on their own, whether they "don't know" or say a "No" categorically.

The answers "In the process of discussion" and "We are currently working on this," according to one respondent, "are a little but vague" i.e. it is difficult to distinguish when the discussion process ends and work on this issue begins. The discussion itself is again a matter of work on it, it is not clear the line between them. In the interviews, some respondents perceived "Currently we are working on this issue" and "Yes, we have taken action in this direction" as interchangeable - as actions that have already been carried out, but continue to be carried out.

It was noticed that the responses thus formulated did not provide adequate response options from all respondents. “In the process of discussion” and “We are currently working on this issue”, are suitable mainly for those persons who hold managerial positions or are participants in working groups engaged in the organization and implementation of health-related activities. Probably, for this reason, in the questionnaires and in the course of the interviews, there was an accumulation of more answers in the two extreme possibilities: “I don’t know” and “Yes, we have taken action in this direction”. This conclusion applies not only to students, but also to the representatives of the academic and administrative staff.

- **Obscure words, expressions and phrases**

“Guarantees” is one of the most frequently commented words from the participants – representatives of the academic staff, nonacademic staff and the management. In all the statements, which contain the word ‘guarantee’, respondents argue that it is not clear to them how such a guarantee is actually established. The word "guarantees" is usually associated with the existence of the assumed responsibility in a written document. The tool consists of sentences – statements that in the Bulgarian language are declarative in nature. This enabled the next stage to be made correction by removing this word.

"A wider policy" - the expression is used in the statement summarizing, but the application of a comparative degree in the Bulgarian language requires the existence of a basis for comparison. There was another understanding that did not correspond to the meaning - for a policy that goes beyond the university.

“Minimum impact on the environment” – the expression is understood by the majority, but some participants ask clarifying questions. Since in the colloquial Bulgarian speech, the expression “environmental pollution” is usually used, its formulation is undertaken.

- **Inappropriate**

“Targeted” is defined as inappropriate in the statement that the university’s strategy and plan is focused on the health of the university community and the general public. As an educational institution, the main priority of the University is to achieve high educational and scientific achievements and health care is not a major strategic goal.

"A wide range of health services" - first of all, doubts have been expressed about the applicability of "wide range". The expression implies too large a range of health services that an educational institution could not provide, given that it is not a medical institution. Secondly, there were doubts in general about the applicability of the statement, which contains the expression, in the conditions of Bulgarian higher education. Given the regulations in Bulgaria, some of the respondents assumed that there are hardly any health services provided in Bulgarian universities.

"Contact information" – although all respondents understand the expression and give appropriate examples, the word "contact" is determined by two participants – an employee and a member of the academic staff as unsound. They recommended a change with a "Contact list."

- **Complex expressions**

The presence of the word "strategy" alone or in derivative expressions, such as "strategic planning," "strategic connections," "strategic role," "communication strategy," in any of the statements, is perceived as complex and confusing by students, administrative staff, and academic staff.

"System/systems" are perceived as too pretentious in the sense of a large-scale organization. The proposal are: approach, way.

"Ethical, comprehensive, sustainable policy" – used in the context of organized nutrition at the university. A complex expression that, according to respondents, is too complex and must be simplified.

- **Terms and notions**

"Sustainable development" – students do not understand the meaning.

For a small part of the students it is clear which these groups are. Representatives of the academic staff recommended to be clarified in order to make it clear to all respondents.

"Whole system approach" – for students it is vague and incomprehensible due to lack of knowledge on the nature of this approach.

"External stakeholders" – some of the participants understand the term and gave appropriate examples. Representatives of the academic staff and the management recommended in order to give a definition and in the statement to be clarified with words-examples.

- **Misleading**

“Free of charge” – the word is used in the sentence: “Free drinking water is available on the territory of the university”. Respondents focused on the definition of "free" that led them to an association with water bottled or dispensers supplied. The definition of "free" is useless. Drinking water in our country is provided by the water supply network and the respondents do not have to pay for its consumption. Explicit payment is required if you want to consume mineral or bottled water.

- **Double meaning**

"Retention" in the expression "student retention". The use in the statement is in the sense of students’ drop out from the education system. However, it was perceived tentatively and insecurely by a student, caused rather by the negative meaning of the word in the Bulgarian language (deprivation of liberty).

“Accommodation” – individual respondents interpret it unambiguously, according to their affiliation with a particular group. Students – for accommodation in dormitories, employees and members of the academic staff – for placement in the workplace and in the study halls. A clarifying definition has been added: "residential accommodation."

“Travel” – interpreted in two senses: in one as moving between the different bases of the university, in the second – as a trip within student programs or business trips.

The “local community” – is perceived in two different ways, in one case it is understood mainly by some of the students: they perceive the local community as the residents of the city of Varna. The other interpretation is mainly from employees and academic staff that these are institutions that are structures for health promotion at the local level.

- **Superfluous**

“The way of sharing information” – a respondents from the academic staff expressed a strong opinion that the word “the way” should be dropped as superfluous.

- **Statements making it difficult for the respondent**

- Difficulty due to lack of information of the specific target group to which the respondent belongs

Issues related to university policy, strategic planning and implementation make it difficult for students, employees and members of the academic staff. The reason is the lack or insufficiency of information of this nature, due to their affiliation with a particular target group. The most common difficulties of this nature were observed in the first section “Leadership and Governance”.

- Difficulty for the respondent because they don't directly concern him/her

Statements that require an opinion regarding issues concerning other target groups have made it difficult for the respondents. For example, those relating to the professional and personal development of employees, academic staff and management required a response from students other than their own vision and awareness, i.e. respond on behalf of other respondents. Other participants had difficulties in response due to their affiliation with a target group other than that to which the statement relates.

The hampering statements, for these reasons, were identified as unworkable at the same time to all target groups in the study.

All respondents confirmed that they had not established words and expressions that harm their personality, or violate the confidentiality of the information given by them.

Reliability and validity of Tested Version 2.0.

The extent to which respondents’ responses were relatively consistent when the questionnaire had been completed on its own and when re-testing with an interview was assessed using the Cohen’s kappa coefficient (tables 2 and 3).

Table 2. Results of Pre-Testing Version 2.0. among the students.

Cohen's kappa (k)				
Section	**Students**			
№	Respondent 1	Respondent 5	Respondent 9	Respondent 10
1	0.280*	0.609*	0.707**	0.430*
2	0.588*	0.548*	0.792*	0.353*
3	0.349	0.527**	0.894**	0.218*
4	0.375	0.310*	0.756**	1.000**
5	0.516*	0.508*	0.000	0.259*
Total	0.407**	0.531**	0.794**	0.407**

p<0.001**, p<0.005*

Table 3. Results of Pre-Testing Version 2.0. among representatives of the academic leadership, academic staff and employees.

Cohen's kappa (k)						
Section	**Academic leadership**		**Academic staff**		**Administrative staff**	
№	Respondent 4	Respondent 8	Respondent 6	Respondent 7	Respondent 2	Respondent 3
1	0.870**	0.727**	0.806**	1.000**	0.492**	1.000**
2	0.633*	1.000**	0.113	1.000**	1.000**	0.457*
3	0.891**	1.000**	0.897**	1.000**	0.551**	0.661**
4	1.000*	1.000*	0.841**	0.200	1.000**	0.254
5	1.000*	1.000**	0.000	0.412	1.000**	0.286
Total	0.885**	0.964**	0.677**	0.808**	0.752**	0.607**

p<0.001**, p<0.005*

The correlation coefficient between the two measurements ranges from weak to very high (min 0.407 - max 0.964). The validity of the test was established as a high Cronbach's α=0.938 (CI 95%).

2.4. Fourth Stage

At this stage, the final Version 3.0 of the SRT in Bulgarian was formulated.

Detailed discussions of each statement regarding clarity, comments on words and expressions and matching responses to those in the questionnaire are described in detailed analyses of the individual sections. The comments of the respondents were taken into account and discussed. Each statement is reviewed for compliance with the original SRT instrument, compared to the two translations P1, P2, Versions 1.0. and 2.0., analyzed and discussed.

Changes have been made to the statements while preserving the basic meaning and the sense that they carry in the original instrument. The edits that led to the final Version 3.0. in Bulgarian language, concern:

Simplification of the sentences' construction where possible;

- Change in word order;

- Change in response options;

- Adding of words and examples in brackets specifying relevant complex expressions and terms;

- Replacing vague words and expressions with more appropriate synonyms;

- Replacement of words with more than one meaning with the relevant ones;

- Elimination of unnecessary and misleading words.

The statements that have been reformulated or edited are 61 out of 68 statements. The changed Version 3.0 was shaped as the final “SRT of the HPU” in Bulgarian.

The process of adaptation of SRT in Bulgarian was conducted in close cooperation with the creators of the original instrument. Reverse translation from Bulgarian to English of the received Version 3.0 has been carried out. The translator is a native English and is fluent in Bulgarian. The translated document was provided for expert opinion and was approved by prof. Mark Dooris.

Discussion of the results of the first phase

Suárez-Reyes & Van den Broucke, 2016, define the adaptation of the HPU initiative to the national traditions, understandings and even religion of the respective countries, as one of the essential success factors. The New Zealand network of the HPU has developed a health model for "Te Whare Tapa Whä", embodying the cultural traditions, beliefs and understandings of the health of the indigenous peoples (Waterworth & Thorpe, 2017). In qualitative research, Sirakamon et al.,2011 explained the high level of participation and cooperation in the HPU initiative at a Thai university, with the values of Eastern culture, which is very different from Western European and American. Later study at the same university, after the six-year application of the HPU initiative, finds that sustainable development is largely determined by its cultural adaptation to the specific environment (Sirakamon et al, 2017).

According to the experience of leading health promotion experts in Bulgaria, the direct application of ready-made, but created in different from the Bulgarian environment, theories and practices in the field of HP, are related to insurmountable difficulties and is a prerequisite for failure (Kerekovska, 2005). Kerekovska, 2005 emphasizes that in order to achieve effective application of global theoretical concepts and practical models of the HP in our country, it is necessary their harmonization with the Bulgarian cultural and social characteristics, while preserving the main idea and essence of the original.

The process of intercultural adaptation of the Self-Review Tool, affected not only the language (translation), but also the preparation for its use, in a completely different environment of creation and usual application. The efforts were aimed at achieving the equivalence of the original, consistent with the peculiarities of the Bulgarian language and synchronization with the Bulgarian cultural characteristics.

The main difficulties in the process of cultural adaptation of the original instrument are related to the nature of different words and phrases, which were distinguished into several groups: vague; inappropriate; misleading; superfluous; ambiguous; complex; terms and concepts characteristic of the HP philosophy.

The greatest difference in the degree of understanding and interpretation, between different groups of respondents, is established in terms of concepts and terms, from the field of health promotion. The differences are related to the affiliation with the respondent group – for the students and the employees were more incomprehensible, or they explained them wrongly, while for the representatives of the management and the academic staff, they were clearer. Adaptation by replacing words and phrases of such terms and concepts has proved to be quite difficult and even impossible because they have no other analogue in the Bulgarian language, for example: “whole system approach”; “sustainable development”; “strategic connections”; “strategic planning”; “target groups”. The use of these terms is not characteristic of colloquial everyday speech, and this explains their perception as complex.

There is also a difference in the degree of understanding of the sections of the instrument. The difference is both between groups of respondents and between sections. As the most complex and "heavy" for students, academic staff and administrative staff, the first, "Leadership and Governance", while the fifth section "Academic, personal, social and professional development" was adopted with the greatest ease. This is understandable, as the first-section statements focus on topics of a strategic nature related to the competences of the top management.

The degree of sequence or matching of responses between two tool tests determines its reliability. A difference was found in the matching of the responses to the respondents to the individual statements of the tool – when completing the questionnaire on its own and retesting after the individual interviews. As a lower, it is defined in the student group than in the groups of management, academic staff and employees. The correlation coefficient between the two measurements ranges from weak to very high (Cohen’s kappa min 0.407 – max 0.964, $p<0.001$), with the lowest values measured in two students and the highest at a representative of the academic leadership. Academic staff and academic leadership have a more sustainable consistency of responses. It is noticed that the change of responses to respondents is in many cases due to a change in the initial opinion, as a result of additional information acquired or insufficient attention to the issues of self-filling.

A difference between the individual statements in the instrument was also established, based on applicability between the groups of participants. Some have become unworkable for some groups of respondents because they are intended for another target group, others - due to a shortage of information depending on the nature of the group affiliation.

In a different way, the answers in the instrument and the respondents were perceived differently. Some thought there was no clear line between “We are currently working on this issue” and “Yes, we have action taken in this direction”. Whereas for almost everyone, "No not at all / Don't know" allows a categorical expression of opinion.

The stage of pre-testing among representatives of the university community, to the highest extent helped the process of adaptation of the tool. As a result of the active participation of respondents, analysis and discussions in the author’s team and subsequent corrections, the final version of the SRT in Bulgarian was achieved. The translation of the instrument into English has received a concerted approval by prof. Mark Dooris, creator of the original Self-Review Tool.

Our results confirmed the conclusions of the earlier experience of Kerekovska, 2005 that the intercultural interpretation of concepts in the field of the HP, to the Bulgarian language and culture is a difficult but essential process. Otherwise, these ideas will remain misunderstood, ineffective and even unaccepted.

3. Second phase

A real empirical study of the opinion of the university community at MU “Prof. Dr. P. Stoyanov” – Varna for the available conditions and activities for health promotion in the university environment and study of the health behavior of the students

In this phase of the study, the validated SRT of health promoting universities in Bulgarian language is applied among the university community of MU - Varna. The opinion of the people at the university – students, academic staff and administrative staff – is especially important for assessing the conditions and activities carried out to improve health in the university environment.

The tool consists of 68 statements divided into 5 sections. Each section evaluates what has been achieved in separate areas, key to the university, according to the international criteria for HPU: Leadership and Governance; Service Provision; Facilities and Environment; Communication, Information and

Marketing; Academic, Personal, Social and Professional development. From each section of the instrument, statements applicable to individual groups of respondents have been selected. The questionnaire for students contains 14 questions, for members of the academic staff 19, for administrative staff – 14 questions. The participants were asked to respond by expressing their personal consent or disagreement or to indicate that they are not informed about the relevant topic.

3.1. Demographic characteristics of respondents

The overall number of the respondents is 668. Of these, 570 (85.3%) were students, 77 (11.5%) academic staff and 21 (3.1%) administrative staff. Each of the respondent's groups represents about 10% of the different target groups of the university community of MU "Prof. Dr. P. Stoyanov" – Varna. The demographic characteristics of the participants are shown on the tables 4 and 5.

Table 4. Distribution of respondents by gender

Characteristic	Students		Academic staff		Administrative staff	
	n	(%)	n	(%)	n	(%)
Gender						
Male	65	11.4	22	28.6	1	4.8
Female	505	88.6	55	71.4	20	95.2

Among the respondents females are predominant both in the total sample - 86.8% of all respondents, as well as in the three subgroups: students, academic staff, administrative staff. Of the employees, only one male took part.

Table 5. Allocation of participants by age

Respondents	Median	IQR	p value
Students	21.0	4.0	
Academic staff *	47.0	13.0	
Administative staff *	39.5	11.0	
Total	22.0	14.0	p=0.001

**Non-responders were excluded from the analysis*

Students ranged in age is from 18 to 57 years of age. In this group, participants from 18 to 27 years prevailed n=458 (80.35%). The academic teachers are in the age group 25-63 years, while the employees are between 24-68 years of age. There

is a statistically significant difference by age between the groups of students and academic staff (p=0.001) and students and administrative staff (p=0.001).

The respondent among the students are trained in 17, out of a total of 26 specialties at MU-Varna. Over half of the students are from the primary courses – first and second, n=393 with a relative share of 68.9%. With an increase in years of study, a decrease in activity for participation in the study was found. Students from the Faculty of Public Health had the highest relative share, 65.6% (n=374), followed by Faculty of Medicine 22.2% (n=148).

3.2. Study on the available conditions and activities under the HP, according to the separate sections of the SRT of the HPU.

Section I. Leadership and Governance

The first section focuses on the university's commitment at the management level to work to support the health of the university community (students, faculty and staff) and the general public. It is organized in 3 parts: A) Institutional commitment and responsibility. This subsection assesses the existence of a commitment to health in the strategic documents of the organization, the planning of the HP activities, according to the health needs of all people in the university and the assessment of the results of what has been done. B) Strategic planning and implementation. This part assesses the implementation of the overall university approach, the financing of the initiative and the presence of one or a team of prepared experts coordinating the activities of the HP. C) Stakeholder Engagement – concerns the joint work and partnership with representatives of the whole university community, external organizations and associations and the general public in health promotion activities.

According to the majority of respondents of all target groups, n=551 (88.4%), the university has been committed to improve health at the strategic level (Table 6). Most of the participants from the students' group - n=477 (90.3%) agreed with the statement that the university has committed to supporting the health of the university community in its strategy and action plan. The prevailing opinion in the group of academic staff is also positive n=66 (85.2%), as well as over half of the group of employees n=11 (52.4%). Only 20 (3.2%) were participants who disagreed and 53 (8.4%) of all respondents were not informed.

Table 6. Opinion of respondents by section Leadership and management.

	Yes n (%)	No n (%)	p value
In its strategy and action plan, the university is committed to supporting the health and well-being of the university community (students, academic staff and administrative staff) and the wider public.			
Students*	477 (90.3)	17 (3.2)	p<0.001
Academic staff	66 (85.2)	0 (0.0)	
Administrative staff	11 (52.4)	3 (14.3)	
Total	551 (88.4)	20 (3.2)	
The University has determined and secured a budget for health promotion activities.			p=0.002
Academic staff	49 (64.5)	3 (3.9)	
Administrative staff	6 (28.6)	2 (9.5)	
Total	55 (56.7)	5 (5.2)	

**Non-responders were excluded from the analysis*

A statistically significant difference was found between the proportion of participants who agree with this statement among students, academic staff and administrative staff (Fisher's Exact Test=27.09, p<0.001). At the lowest level the representatives of the administrative staff have expressed the opinion that the university has taken responsibility for health at the strategic level.

More than half of the university teachers and the administrative employees n=55 (56.7%), confirm, according to them, the availability of envisaged and provided funds for HP activities. The relative share of the uninformed persons n=3 (38.1%) is not small, but only 5 (5.2%) believe that such funds are not determined by the university.

There is a statistically significant difference between the proportion of consonants with the statement that there are also funds provided for and provided for the HP activities and the sponsor's affiliation of the target group (Fisher's Exact Test=8.968, p=0.002). Employees are less consonant and more inclined to argue that the university does not provide funds for the HP.

Section II. Service Provision

This part of the instrument examines the progress of the institution in providing HP services, including health, social, sports, financial and others, in response to the needs of the members of the university community. Issues concerning the university privacy policy of personal information are also affected. The section consists of two parts: A) Health Services and B) Support services and better

quality of life. The opinions of the participants on the selected statements in this section are presented in Table 7.

The University offers health services, consistent with the needs of the academic staff and administrative staff, considered 58 (60.5%) of those asked. For the opposite opinion, there were 15 (15.6%), and 25 (25.5%) of the academics and employees say they do not know about such actions. A statistically significant difference was found in the share of those that agree with the statement between academic and administrative staff (χ^2=9.804 p=0.02) – fewer employees than academics are of the opinion that health services are offered at the university.

Table 7. Reply to respondents to the statements of the Services section

	Yes n (%)	No n (%)	p value
The university has a range of appropriate and responsive health services that recognize the diverse needs of its academic and non-academic staff			
Academic staff	51 (68.0)	11 (14.7)	
Administrative staff	7 (33.3)	4 (19.0)	
Total	58 (60.5)	15 (15.6)	p=0.02
The university has clear policy and procedures understood by all staff regarding referral, confidentiality, information sharing and disclosure of health issues by individuals.			
Administrative staff	14 (66.7)	1 (4.8)	
Staff are aware of key contacts for internal and external support services and for emergency situations.			
Administrative staff	12 (57.1)	4 (19.0)	
The university ensure access to a range of wellbeing and support services for students, academic and non-academic staff – including social, welfare, financial, sport and leisure opportunities.			
Students	529 (92.8)	17 (3.0)	
Academic staff	66 (88.0)	2 (2.7)	
Administrative staff	13 (61.9)	3 (14.3)	
Total	608 (91.3)	22 (3.3)	p=0.001
The university and students' union have links with external providers to ensure appropriate provision of student and staff wellbeing and support services (e.g. sport and leisure bodies, local volunteering groups)			
Students	470 (82.5)	19 (3.3)	

The University provides access to a variety of support services for members of the university community, according to the opinion of the majority of respondents

n=608 (91.0%). The participants who do not agree with the statement were only 22 (3.3%) and 38 (5.4%) did not know. Responses between groups of participants differed statistically (Fisher's Exact Test=19.964, p=0.001). Members of the administrative staff are the least likely to agree. The majority of the students n=470 (82.5%) affirm that the university together with the Student Council provides additional services – sports, entertainment, etc., which improve the quality of life by organizations external to the institution.

Predominated the opinion among the employees that the university has a policy related to the confidentiality of personal information related to health-related personal information n=14 (66.7%). Sufficiently informed about the necessary contact information with external or internal emergency services for the institution, in case of emergency are more than half of the employees - n=12 (57.1%) and 4 (19.0%) believed that this is not the case.

Section III. Facilities and Environment

The section assesses the conditions and environment in the university conducive to the health and well-being of students, academic staff and employees. It consists of 5 subsections, covering a variety of topics: the infrastructure, the nutrition, transport, accommodation and the environmental conditions for recreation in the university and the physical and social activity of the university community.

Almost all respondents, n=645 (96.6%), have confirmed that university buildings favor the health of the university community (Table 8). Only 17 (2.5%) disagreed with the statement, and 8 (0.9%) did not know.

According to the majority of the respondents, n=590 (88.3%) the university is making sufficient efforts to promote opportunities for recreation, sports and physical activity. Only 4.1% of the participants said they were not informed about this issue and 50 (7.5%) expressed disagreement. A statistically significant difference in the proportion of those who agreed between the individual groups of respondents (Fisher's Exact Test=16.786, p=0.031) was found. The academics expressed a more positive opinion compared to the groups of students and employees.

In terms of nutrition, the majority of respondents from all target groups n=504 (75.5%) argue that there are opportunities for a varied and healthy diet in a university environment. Students and employees agreed to a lowest degree from the academics regarding this statement (Fisher's Exact Test=40.007, p<0.001).

Less than half of the students asked n=277 (48.6%) considered that healthy food and beverages are actively advertised in the campus, a third of participants n=185 (32.5%) disagreed and 73 students (12.8%) had no information.

Statistically significant is the difference between the three groups of respondents on the issue of the accessibility of drinking water in the buildings of the university. More administrative staff than students and academics believed that drinking water is not available at the university (χ^2=17.240, p=0.028).

The issue of the transport of the university is addressed to the groups of academics and employees. Over half of them, n=55 (56.7%) have a positive opinion that its organization ensures the protection of the environment and health in school and business trips. At the same time, 10 (10.3%) of those asked disagreed with this, among them were the university teachers n=9 (11.8%) of all participants in the academic staff.

Students considered, n=450 (78.9%) that the University and the Student Council stimulate them and encourage them to be physically active and to use the given environment for recreation and social activity.

Actively encouraging walking and cycling, such as opportunities to save the environment and perform active physical activity, is stated by more than half of the university community members n=418 (62.6%). A significant part of the respondents n=116 (17.4%), deny this, and the rest n=114 (20.0%) do not know. Statistically significant is the difference between the consent of the different respondents' groups (Fisher's Exact Test=16.361, p=0.044). Academic staff and students report a more positive opinion from employees.

Table 8. Answers to the selected statements from the section III.

	Yes n (%)	No n (%)	p value
The University provides a built environment that favors health.			
Students	550 (96.5)	15 (2.6)	
Academic staff	76 (98.7)	1 (1.3)	
Administrative staff	19 (95.0)	1 (5.0)	
Total	645 (96.6)	17 (2.5)	p=0.407
The University promotes the opportunities for recreation, sports and physical activity it provides for the use of the university community and the general public.			
Students	498 (87.4)	47 (8.2)	
Academic staff	73 (94.8)	1 (1.3)	
Administrative staff	19 (90.5)	2 (9.5)	
Total	590 (88.3)	50 (7.5)	p=0.031
The university's dining facilities (canteens, restaurants, snack machines) provide a variety of options for healthy eating.			
Students	417 (73.2)	82 (14.4)	
Academic staff	70 (90.2)	6 (7.8)	
Administrative staff	17 (80.9)	3 (14.3)	
Total	504 (75.5)	91 (13.6)	p<0.001
Healthy food and drinks are actively advertised and offered on the university grounds.			
Students	277 (48.6)	185 (32.5)	
Drinking water is available on the campus			
Students *	404 (70.9)	60 (10.5)	
Academic staff	69 (89.6)	4 (5.2)	
Administrative staff	17 (80.9)	3 (14.3)	
Total	490 (73.4)	67 (10.0)	p=0.028
The university has its own transport organization, which ensures the protection of the environment and health when traveling on official and educational tasks			
Academic staff	41 (53.9)	9 (11.8)	
Administrative staff	14 (66.7)	1 (4.8)	
Total	55 (56.7)	10 (10.3)	p=0.679
The university actively promotes walking and cycling as means of transportation in order to protect the environment and increase physical activity.			
Students	354 (62.1)	105 (18.4)	
Academic staff	54 (70.2)	6 (7.8)	
Administrative staff	10 (47.6)	5 (23.8)	
Total	418 (62.6)	116 (17.4)	p=0.044
The University and Student Council encourage and stimulate students to be physically active and use the environment for recreation and social activities.			
Students	450 (78.9)	65 (11.4)	

**Non-responders were excluded from the analysis*

Section IV. Communication, Information and Marketing

This section of the instrument consists of 3 parts and assesses the mechanisms associated with the dissemination of information and messages related to health among students, academics and administrative staff.

Almost all academic staff representatives, n=72 (93.5%) agreed to the availability of accessible mechanisms of communication at the university, to promote policy, decisions and good practices related to health among the university community. There is also a positive opinion expressed by this group - n=73 (94.8%) on the efforts being made to have the information disseminated is based on reliable evidence and sources (Table 9.).

The majority of respondents n=604 (90.4%) have agreed that digital technologies and new media are being used in the dissemination of health-related information and novelties among the university community. Only 32 (4.8%) disagreed, and equally respondents n=32 (4.8%) did not know.

Table 9. Allocation of responses to the selected statements of Section IV.

	Yes n (%)	No n (%)
The University has easily accessible communication channels through which health-related policies, decisions and good practices can be disseminated to the university community.		
Academic staff *	72 (93.5)	1 (1.3)
The University uses digital technologies/new media (eg Twitter, Intranet, Facebook and mobile messaging) to disseminate health-related information and news to students, faculty and staff.		
Students	515 (90.3)	26 (4.6)
Academic staff	71 (92.2)	5 (6.5)
Administrative staff	18 (85.7)	1 (4.8)
Total	604 (90.4)	32 (4.8)
Efforts are made to base health-related information, messages and campaigns on reliable and evidence-based sources.		
Academic staff *	73 (94.8)	1 (1.3)

**Non-responders were excluded from the analysis*

Section V. Academic, Personal, Social and Professional Development

This section contains 3 parts evaluating the university on criteria in several areas: using the opportunities of ше curricula, programs and elective disciplines to incorporate health-related topics; supporting the personal, social and professional

development of all people in the institution. These questions are mainly addressed to representatives of the student and the academic staff (Table 10).

The positive opinion prevails among students and academic staff (93.7%), regarding the opportunities that the curricula and programs provide for consideration of topics and problems related to health and well-being. Those who answered “no” are 4.6% of the students. Respondents from the group of academic staff, categorically (94.8%) approve the opportunities provided to them by the University for organizing elective discipline, additional modules and courses, thematically related to health. The same is the relative share of 94.8% (n=73) of the respondents who agreed that the university has contributed to the expansion of knowledge in the field of health through research.

Overwhelmingly affirmative n=67 (87.0%) is also their opinion that the university uses its own mechanisms for dissemination and exchange of research results between academic structures and disciplines. Three of the academic staff (3.9%) don't think so, the other 7 (9.1%) don't know.

In terms of the opportunities the university provides for students to participate in research concerning personal life health issues, 461 (80.9%) of students report having them. The opposite opinion, 36 (6.3%) responded negatively, and 73 (12.8%) students do not know.

Less than half of the employees n=9 (42.9%) support the opinion on trainings and providing information to the administrative staff, assisting them in the work to solve problems related to the health of students.

The statement of training and resources provided to help academic staff implement health and well-being problems, 65 (84.4%) of the lecturers respond positively, and only 4 (5.2%) disagree.

The positive opinion prevails among almost all respondents n=615 (92.1%) about the diverse opportunities provided by the University for personal, social and professional development. This is stated in the greatest extent by the students n=537 (94.2%) and the university teachers - n=65 (84.4%). A statistically significant difference in the proportion of the respondents who agreed with the statement and the affiliation to the target group (Fisher’s Exact Test=42.185, $p<0.001$) was found.

Table 10. Allocation of responses to the selected statements in Section V.

	Yes n (%)	No n (%)	p value
The curricula and programs provide opportunities to address issues related to health, well-being and sustainable development.			
Students	531 (93.1)	26 (4.6)	
Academic staff	75 (97.4)	0 (0.0)	
Total	606 (93.7)	26 (4.6)	
The university provides opportunities for freely chosen disciplines, additional courses and modules related to health, well-being and sustainable development.			
Academic staff	73 (94.8)	2 (2.6)	
The University has mechanisms in place to disseminate health-related research results across disciplines, academic structures and services.			
Academic staff	67 (87.0)	3 (3.9)	
Through its research and initiatives, the university contributes to expanding the spectrum of knowledge and practice in the field of health and well-being.			
Academic staff *	73 (94.8)	0 (0.0)	
The University actively seeks and provides opportunities for students to engage in health research related to "real life" issues.			
Students	461 (80.9)	36 (6.3)	
The University provides training, information and resources for staff to adequately address student health concerns.			
Administrative staff	9 (42.9)	3 (14.3)	
The University offers training and resources to help academic staff integrate health, well-being and sustainable development into curricula.			
Academic staff	65 (84.4)	4 (5.2)	
The university provides students, teachers and employees with a variety of opportunities for personal, social and professional development.			
Students	537 (94.2)	18 (3.2)	
Academic staff	65 (84.4)	4 (5.2)	
Administrative staff	13 (61.9)	6 (28.6)	
Total	615 (92.1)	28 (4.2)	p<0.001

**Non-responders were excluded from the analysis*

Discussion of the results of the respondents' opinion on the conditions and health promotion activities at the University

Section I. Leadership and Government

The University is committed to supporting the health and well-being of the university community and the general public – this is the expressed strong opinion

of the participants from all the target groups in the study. Students the most, 477 (90.3%) validate this statement. Although the documents presenting the university's strategy and development plans are most likely not known directly and in detail by respondents, people from the university community feel the support for improving health. The opinion of the respondents is given as a result of their subjective impressions of practical actions at the level of the management and governance.

And in theory, according to the Okanagan Charter, 2015 (Okanagan Charter, 2015) and in practice (Dooris and Doherty, 2010b); (Reis et al., 2018); (Suárez-Reyes et al., 2019; 2021), the successful implementation and development of the HPU initiatives, are primarily determined by the presence of a commitment at the level of the university management. In fact, this is the case and the concept of the HP – the clear will of decision makers and the responsibility for health at the political level are the key to the implementation of the health promotion activities (Dokova, 2018).

Suárez-Reyes et al., 2019 found in their study that not all HPU have a clear commitment to health at the institutional level, most often due to lack of interest in people's health at the university, on behalf of the management. This raises problems related to the coordination of the initiative, the participation of all in the university and the partnership with external organizations. The lack of support for health, as well as for the initiative itself, is a distinctive element for universities that are at the beginning of the implementation of the initiative.

Unlike what was reported in the publication of Suárez-Reyes et al., 2019 even before the initiative was launched in practice, at the stage of interest and initial assessment of the existing conditions, this support is noticeably felt by all people at MU-Varna and they state it. In addition, in its mission, the university has clearly stated a commitment to health. This effectively fulfils the first, major call to action by the Okanagan Charter, 2015 the commitment to build on health in university policy.

In the mission, widely available from the official website of the university it is written: "*Mission of the Medical University "Prof. Dr. P. Stoyanov" - Varna is to meet the public needs of highly qualified medical and management personnel in health and social sphere in accordance with the national strategies for development of education and health and international standards; to develop fundamental and applied research, innovations and new technologies, as well as* ***to improve the health of the nation in partnership with the other units in the***

health system. *In the implementation of its mission, the university is guided by its core values: sustainable knowledge transfer; providing a stable learning environment, practice and life to students; ensuring scientific and teaching potential; accessibility and equality; opportunities for development; respect for academic traditions".*

Funding for health promotion activities is the other main criterion for proving this area. The commitment to health from the university is not limited to its written documentation, a budget and regular funding are needed. In a study among HPU in different countries, Suárez – Reyes et al., 2019 found that a group of HPU that had adopted the initiative for a long time developed it without budgetary funds from the university. Financial uncertainty, however, negatively affects the sustainability of the initiative and the motivation of the participants (Suárez-Reyes et al., 2019; 2021).

Compared to these findings, the results of our study confirm a budget provided by the university, and this is indicative of the responsible leadership for improving health. Over half of those asked in our study - academic staff and employees 56.7% reported this. Not a small part, over a third of the participants, however, have not been informed about this. These results are somewhat explainable. The budget formation of the organization and its distribution in directions are subject to management decisions and not all are available to all members of the organization. However, the group of administrative staff has been identified as more uninformed on this issue.

The results of our study showed compliance with the two main international criteria for HPU from the first section of the instrument – the existence of a commitment to health in the mission of the organization and delegation of responsibility assumed by providing a budget for the health promotion activities.

Section II. Service Provision

The main indicators in this section include some of the activities contained in the first call to action of the Okanagan Charter, 2015 – reorienting services to the needs of people at the university, offering health services and support services to members of the university community.

The attitude of those asked in the survey is positive, to the provision of tailored health services from the university (60.5%). Although the higher school is not a medical center and its mission is not related to the provision of health services, there are provided ones. In the MU-Varna structure there are several units in

which training of students, postgraduate training of medical professionals and research is developed. Simultaneously with these activities, health services are provided to students and the general public. These units are: “Medical-dental center”, “Center of Eastern Medicine” and university pharmacy “UniPharma”. In the face of the COVID-19 pandemic, the university provides free vaccination opportunities for all students, faculty, staff and their relatives. A specially organized team of specialists-epidemiologists, gives information and instructions about the necessary actions to be taken by the university community members in case of disease.

There is also a clear policy and procedures ensuring the confidentiality of personal health information - the employees themselves affirm this (66.8%). The issue is important because in its professional activity, part of the administrative staff receives, processes and stores information of this nature. According to the indicator “awareness to make contact with internal or external services for the university, in cases of emergency situations”, there is more to work – a fifth of the employees are not identified as being informed.

Fully are met the requirements of the criteria for providing access to a variety of support services for students, lecturers and employees. All participants (91.3%) and especially students (92.8%), confirm the equal opportunities for the use of social, sports, financial and entertainment services. Students are additionally provided access for sports and entertainment, as a result of student council cooperation and management with external organizations. The indicator is managed in its full potential for 82.5% of the respondents.

Section III. Facilities and Environment

The criteria in this section assess the degree to which the university provides health-friendly learning, working and living environments in various aspects – buildings, green spaces, recreational places, nutrition, transport, physical activity, environmental protection, etc.

The opinion of the respondents on the statements provided to them gives reason to state that the indicators regarding the built environment, (96.6%) validation, promotion of opportunities for recreation, physical activity and sports (88.3%), encouraging and stimulating students for active physical activity (78.9%) to be assessed as fulfilled to a very high degree. A high degree of performance was established for the criteria - the provision of healthy eating (75.5%) and the availability of drinking water on the territory of the university (73.4%).

Not so much high achievements, the university has in the field of active encouragement of walking and cycling, such as ways to protect the environment and increase physical activity (62.6%). It is necessary for the university to take into account the opinion of the university community and direct future activities in this field.

As “unfulfilled” and with the lowest degree of consent is the criterion for active advertising of healthy foods and beverages among students - 48.6% of all statements of the respondents. The results call for to additional actions - the promotion of health-beneficial food and beverages should find a place in the university nutrition policy.

Section IV. Communication, Information and Marketing

The highest performance rates in response to the criteria of the instrument are established in this area. The university fully meets the indicators on the availability of mechanisms for the dissemination of communications, information and knowledge related to health. These activities use easily accessible communication channels (93.5%), the capabilities of new technologies and social media (90.4%), and the information disseminated is based on reliable scientific sources (94.8%).

Section V. Academic, Personal, Social and Professional Development

This section of the instrument assesses the implementation of a number of activities from the framework for action of the Okanagan Charter, 2015 to integrate health, well-being and sustainability in all disciplines and in the curricula; to support personal development; to create opportunities to build competence and personal skills to improve health among students, academic staff and administrative staff, so that they can unleash their full potential; to contribute to the creation, implementation and establishment of standards and health-related knowledge that will be beneficial to our communities and to the planet.

The criteria affecting the inclusion of health within curricula, programs, elective disciplines, courses and modules, according to students and members of the academic staff were implemented to the highest degree 93.7% and 94.8%. This is not surprising, the university is an educational institution, for the preparation of highly qualified medical professionals and management personnel in the field of health and health, well-being and sustainable development are an integral part of this training.

Our results confirm what has been found in several studies. Reis et al., 2018 and Suárez-Reyes et al., 2019 report that the development of personal health skills and increasing knowledge about health and well-being are some of the most widely advocated in the activities of the HPU, because they are most closely related to the educational mission of the universities.

The development of research through which the university contributes to the expansion and dissemination of knowledge related to health is the criterion assessed by the respondents of the academic staff as excellently fulfilled (94.8%). In addition, the development of research is part of the mission of the university.

These results again confirm the reported by Reis et al., 2018 and Suárez-Reyes et al., 2019. According to them, the support of research in the field of health is one of the most developed in the HPU activities, as they are part of their strategic goals.

The availability of mechanisms by which the university disseminates the results of research related to health is also a highly rated criterion (87%). In addition to the respondents' opinions, MU-Varna, through its own university publishing house, manages scientific publications in which health and scientific achievements in the field of health are a major topic. Own TV distributes broadcasts, programs conducted by the university, health-related initiatives, both on the territory of the university and on social media, to reach the general public.

The indicator concerning the provision of training and resources to support the academic staff, health, well-being and sustainable development to be successfully integrated into the curricula, was positively evaluated by the academic staff (84.4%). Employees, however, assess their training and the information provided to them to resolve student health problems from their work to a low degree (42.9%). However, it is necessary to take into account the circumstances that the sample is small and employees have taken part in the study, whose duties may not involve working with students. This can explain the unawareness on this issue among 42.8% of the administrative staff.

In addition, according to the criteria of this section, a documentary analysis of the scientific activities, events and health-related events organized and conducted by the university has been carried out. The source is the widely available official website of MU-Varna for a selected period of one academic year - 2018/2019. There are 16 conferences, symposia and scientific forums carried out in the period; 31 academic lectures were presented; trainings in the form of courses,

seminars and summer schools – 14; 1 festival; organized campaigns and free research – 4; talks, quizzes, round tables, exhibitions – 15; charity bazaars – 2; 3-trainings for students, children and parents.

The University provides students, faculty and employees with a variety of opportunities for personal, social and professional development - this is how the criterion is assessed by all respondents (92.1%). The highest degree of consent was obtained from students (94.2%), they also confirmed that they had opportunities to participate in health research (80.9%).

3.3. Study of the students' health behavior

The student survey card contains an additional part of 17 questions addressing significant features of their health behavior, such as: smoking, alcohol and drug use, nutrition and physical activity. Included are issues of self-assessment of health, health awareness, level of stress, duration of sleep, academic success from the course of university education and attitudes to participate in HP initiatives. The evaluation of these characteristics is necessary to determine the health needs and problems of the students at MU-Varna.

Self-assessment of health and health awareness

More than two-thirds of respondents n=388 (68.2%) defined their health as excellent and very good. Satisfactory and poorly is only by 34 (6.4%) students. When asked, "Do you agree with the statement that behavior such as: smoking, alcohol use, drug use, low physical activity, and unhealthy eating impairs a person's health?", almost all students, n=550 (96.5%) have answered in the affirmative. There are only 18 of the respondents (3.2%) who answered negatively and two participants do not know.

Smoking and substance abuse

Over a third of the study's student participants were smokers n=201 (35.5%). A little more than half of them, n=108 (53.7%) smoke from the age of 18, and 46.3% began smoking after entering the university. With regard to the frequency of daily smoking, users up to 10 pcs prevail cigarettes n=99 (49.3%). Between 10 and 20 cigarettes smoked 71 (35.3%) students, more than 20 pcs smoked only three students. There is no difference in the proportion of smokers by gender and training course. A significant statistical difference in terms of smoking is observed

between different specialties - the least are smokers among medical students (Table 11).

Table 11. Distribution of smoking among respondents by gender, specialty and training course

	Smokers n (%)	Non-smokers n (%)	p value
Gender			
Male	20 (30.8)	45 (69.2)	
Female	181 (35.8)	324 (64.2)	
Total	201 (35.3)	369 (64.7)	p=0.420
Specialty			
Medicine	35 (23.6)	113 (76.4)	
Dental medicine	9 (32.1)	19 (67.9)	
All others	157 (39.8)	237 (60.2)	p=0.002
Course of study			
First	73 (39.0)	114 (61.0)	
Second	74 (35.9)	132 (64.1)	
Third	30 (28.3)	76 (71.7)	
Fourth	11 (28.9)	27 (71.1)	
≥ Fifth	13 (39.4)	20 (60.6)	p=0.486

A statistically significant link between smoking and the academic success of respondents was found (χ^2=4.812, p=0.028). Among students with high success, the proportion of non-smokers (73.7%) was higher (Figure 2).

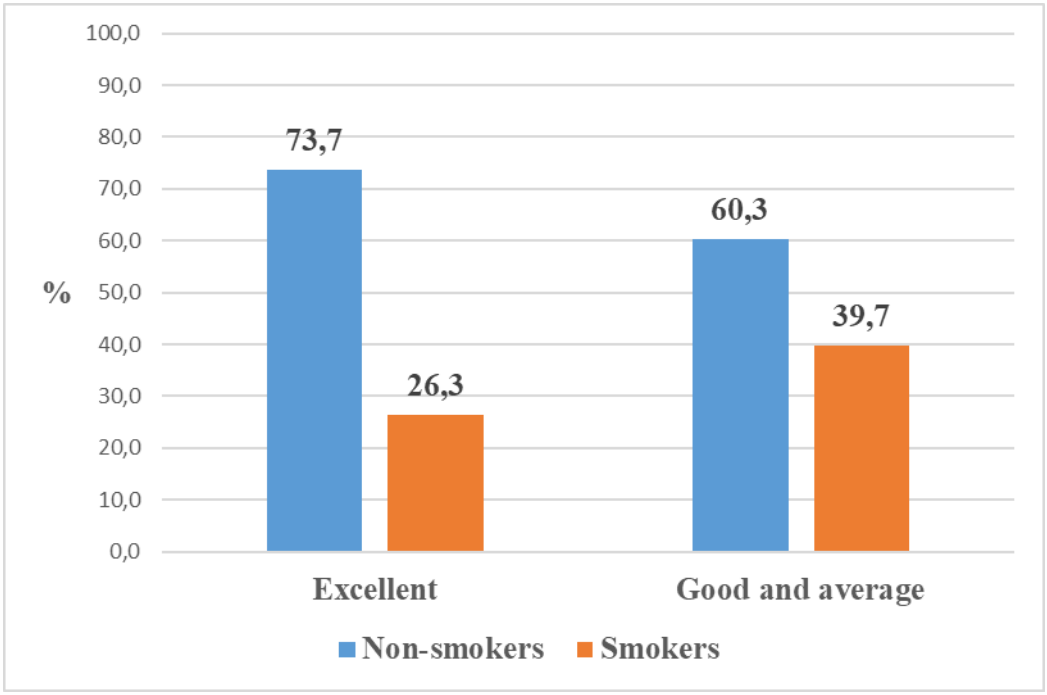

Figure 2. Distribution of respondents in terms of average success and smoking

The majority of students n=563 (98.8%) did not use drugs, but 82 (14.4%) tried once, and seven respondents (three males and four women) reported monthly use.

Alcohol consumption

The use of alcohol is more common in men (χ^2=16.766, p<0.001). With an increase in the course of study, the share of students who consume alcohol (χ^2=41.722, p<0.001) is also increasing (Table 12). For alcohol intoxication or drunkenness in the last month preceding the survey, 105 (34.6%) of those consuming alcohol, and the majority of respondents, n=198 (65.4%), did not get drunk once. The analysis of the results showed a statistically significant difference between a rate of drinking by sex (χ^2=41.72, p<0.001). Men are more often drunk than women.

Table 12. Frequency of alcohol consumption

Frequency of alcohol drinking					
	Total n	Never n (%)	1-4 times a month n (%)	> 4 times a month n (%)	p value
Gender					
Male	65	15 (23.1)	40 (61.5)	10 (15.4)	
Female	505	252 (49.9)	207 (41.0)	46 (9.1)	
Total	570	267 (46.8)	247 (43.4)	56 (9.8)	p<0.001
Course of study					
First	187	97 (51.9)	77 (41.1)	13 (7.0)	
Second	206	103 (50.0)	80 (38.8)	23 (11.2)	
Third	106	53 (50.0)	47 (44.3)	6 (5.7)	
Fourth	38	6 (15.7)	27 (71.1)	5 (13.2)	
≥ Fifth	33	8 (24.2)	16 (48.5)	9 (27.3)	
Total	570	267 (46.8)	247 (43.4)	56 (9.8)	p<0.001
Frequency of getting drunk last month					
		Never n (%)	Once n (%)	More than once n (%)	
Gender					
Male	50	31 (62.0)	7 (14.0)	12 (24.0)	
Female	253	167 (66.0)	64 (25.3)	22 (8.7)	
Total	303	198 (65.4)	71 (23.4)	34 (11.2)	p<0.001

The main reasons for alcohol use indicated by the students are: for company n=113 (37.3%), for fun (34.4%) and for relax (27.1%). Only one respondent drinks alcohol so he doesn't have any different from his colleagues and friends.

A statistically significant difference between smoking and alcohol use among students was found (χ^2=4.563, p=0.033). More smokers drink alcohol compared to non-smokers (Fig. 3).

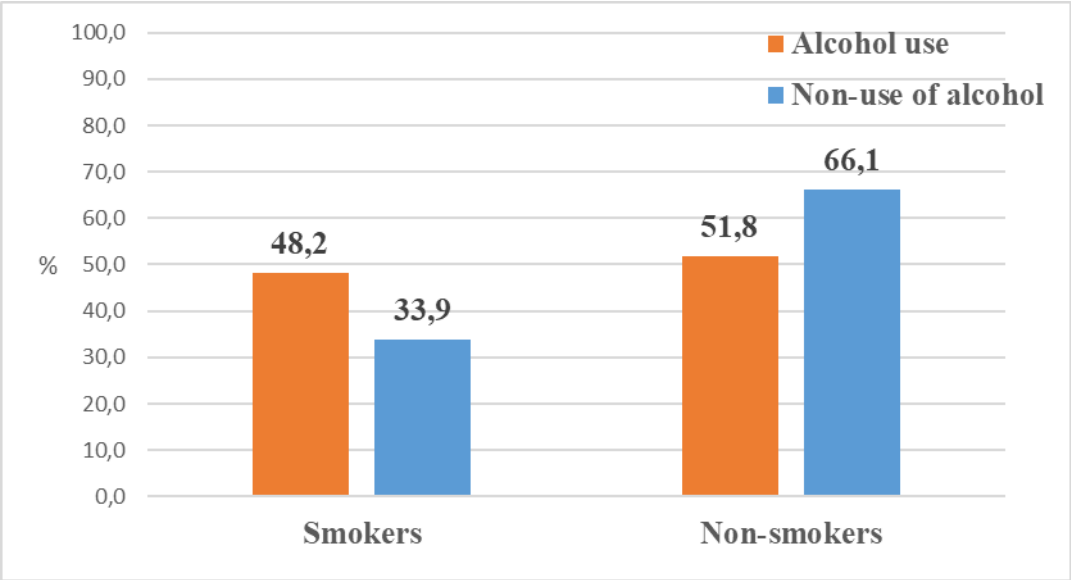

Figure 3. Comparison between smoking and alcohol use

Diet

The nutrition of respondents was analyzed through questions about self-assessment of their eating habits and the frequency of consumption of different food groups.

Over half of the participants stated to eat healthy - n=308 (53.5%). Among the students - 249 respondents (43.7%) rated their eating habits as unhealthy, and 16 reported that they were not informed how to eat healthy. The comparative analysis showed that there was a statistically significant difference between the proportion of healthy eaters and the training rate (χ^2=10.766, p=0.029). With an increase in the years of study at the university, the prevalence of unhealthy diets among students increases (Table 13).

Table 13. Self-assessment of students about their eating habits by gender and course of study

Do you eat healthy?				
	Yes n (%)	**No n (%)**	**I don't know how to eat healthy n (%)**	**p value**
Gender				
Male	40 (61.5)	24 (36.9)	1 (1.5)	
Female	265 (52.5)	225 (44.6)	15 (3.0)	
Total	305 (53.5)	249 (43.7)	16 (2.8)	p=0.440
Course of study				
First	102 (54.6)	81 (43.3)	4 (2.1)	
Second	125 (60.7)	75 (36.4)	6 (2.9)	
Third	46 (43.4)	55 (51.9)	5 (4.7)	
Fourth	18 (47.4)	20 (52.6)	0 (0.0)	
≥Fifth	14 (43.8)	18 (56.3)	1 (5.5)	p=0.029
How is the food you usually eat prepared?				
	Homemade n (%)	**In restaurants n (%)**	**Fast food n (%)**	
Gender				
Male	49 (75.4)	13 (20.0)	3 (4.6)	
Female	457 (90.5)	37 (7.3)	11 (2.2)	
Total	506 (88.8)	50 (8.8)	14 (2.5)	p<0.001

The majority of students consume mostly home-cooked food (88.8%). In restaurants eat usually 8.8%, and only 2.5% prefer “fast food” with significant differences by gender (χ^2=13.418, p<0.001). More men than women usually consume food prepared outside of the home.

Less than a third (28.9%) of the students, consumed daily fresh fruits, without distinction by gender (χ^2=0.738, p=0.947). Every day, vegetables consume 37.7% of the respondents, also without distinction by gender (χ^2=3.889, p=0.421) (Table 14).

At least twice a week, meat consumes the majority of students 86.6% (n=494). On a daily basis, 46.2% of men eat meat. And here is a statistically significant difference in the frequency of meat consumption between men and women (χ^2=23.634, p=0.001). Male consume meat more than women. For fish consumption at least 2 times a week, reported 28.6% (n=163) without gender differences (χ^2=1.714, p=0.788).

Table 14. Frequency of consumption of certain food groups

		Every day n (%)	4-6 times a week n (%)	2-3 times a week n (%)	1-4 times a month n (%)	Never n (%)	p value
Fresh fruit	Male	18 (27.7)	16 (24.6)	20 (30.8)	10 (15.4)	1 (1.5)	
	Female	147 (29.1)	124 (24.6)	167 (33.1)	62 (12.3)	5 (1.0)	
	Total	165 (28.9)	140 (24.6)	187 (32.8)	72 (12.6)	6 (1.1)	p=0.947
Fresh vegetables	Male	18 (27.7)	20 (30.8)	22 (33.8)	5 (7.7)	0 (0.0)	
	Female	197 (39.0)	140 (27.7)	133 (26.3)	32 (6.3)	3 (0.6)	
	Total	215 (37.7)	160 (28.1)	155 (27.2)	37 (6.5)	3 (0.5)	p=0.421
Meat	Male	30 (46.2)	20 (30.8)	11 (16.9)	4 (6.1)	0 (0.0)	
	Female	105 (20.8)	165 (32.7)	163 (32.3)	54 (10.7)	18 (3.5)	
	Total	135 (23.7)	185 (32.4)	174 (30.5)	58 (10.2)	18 (3.2)	p<0.001
Fish	Male	2 (3.0)	4 (6.2)	15 (23.1)	38 (58.5)	6 (9.2)	
	Female	7 (1.3)	21 (4.2)	114 (22.6)	313 (62.0)	50 (9.9)	
	Total	9 (1.6)	25 (4.4)	129 (22.6)	351 (61.6)	56 (9.8)	p=0.788
Sausages[1]	Male	8 (12.3)	12 (18.5)	21 (32.3)	15 (23.1)	9 (13.8)	
	Female	38 (7.5)	79 (15.7)	161 (31.9)	143 (28.3)	84 (16.6)	
	Total	46 (8.1)	91 (16.0)	182 (31.9)	158 (27.7)	93 (16.3)	p=0.598
Milk and dairy products[2]	Male	28 (43.0)	25 (38.5)	10 (15.4)	2 (3.1)	0 (0.0)	
	Female	259 (51.3)	115 (22.8)	93 (18.4)	31 (6.1)	7 (1.4)	
	Total	287 (50.4)	140 (24.5)	103 (18.1)	33 (5.8)	7 (1.2)	p=0.070
Legumes and pulses	Male	3 (4.6)	11 (17.0)	26 (40.0)	19 (29.2)	6 (9.2)	
	Female	17 (3.4)	80 (15.8)	188 (37.2)	186 (36.9)	34 (6.7)	
	Total	20 (3.5)	91 (16.0)	214 (37.5)	205 (36.0)	40 (7.0)	p=0.806
White bread	Male	17 (26.2)	8 (12.3)	11 (16.9)	15 (23.1)	14 (21.5)	
	Female	134 (26.5)	60 (11.9)	100 (19.8)	89 (17.6)	122 (24.2)	
	Total	151 (26.5)	68 (11.9)	111 (19.5)	104 (18.2)	136 (23.9)	p=0.851
Whole wheat bread	Male	12 (18.5)	10 (15.4)	12 (18.5)	14 (21.5)	17 (26.1)	
	Female	88 (17.4)	80 (15.8)	125 (24.8)	102 (20.2)	110 (21.8)	
	Total	100 (17.5)	90 (15.8)	137 (24.0)	116 (20.4)	127 (22.3)	p=0.820
Bakeries	Male	3 (4.6)	6 (9.2)	18 (27.7)	23 (35.4)	15 (23.1)	
	Female	29 (5.7)	71 (14.1)	135 (26.7)	175 (34.7)	95 (18.8)	
	Total	32 (5.6)	77 (13.5)	153 (26.8)	198 (26.8)	110 (19.3)	p=0.791
Chips, pretzels, crackers	Male	3 (4.6)	7 (10.9)	14 (21.5)	27 (41.5)	14 (21.5)	
	Female	50 (9.9)	62 (12.3)	139 (27.5)	174 (34.5)	80 (15.8)	
	Total	53 (9.3)	69 (12.1)	153 (26.8)	201 (35.3)	94 (16.5)	p=0.336
Confectionery[3]	Male	15 (23.1)	11 (16.9)	20 (30.8)	14 (21.5)	5 (7.7)	
	Female	155 (30.7)	106 (21.0)	122 (24.2)	98 (19.4)	24 (4.7)	
	Total	170 (29.8)	117 (20.5)	142 (25.0)	112 (19.6)	29 (5.1)	p=0.447

[1] inclusive ham, salami, sausage, etc.

[2] inclusive fresh and yogurt milk, cheese, yellow cheese, cottage cheese, etc.

[3] inclusive candies, pastries, chocolate, cakes, biscuits, etc.

Half of the participants, 50.4% (n=287) each day consumed milk and dairy products.

Sweets, such as: candy, chocolate, pastries, cakes, etc. consume a third of the 29.8% respondents (n=170). The relative proportion of women reporting for everyday use (30.7%) was higher than for men (23.1%), but there was no statistically significant difference (χ^2=3.706, p=0.447).

More than half of respondents (65.4%) drink coffee every day (Table 15). Women more often drink coffee than men (χ^2=10.153, p=0.038). A third of the students (31.1%) consumed energy drinks, but with a low frequency - from 1 to 4 times a month (12.6%). Daily users of this group of beverages have the lowest relative share (3.5%). Fresh juices daily consume 13.5 % of students. Twice as many women (14.5%) as men (6.2%) drink fresh juice daily (χ^2=9.298, p=0.054).

Carbonated and artificially sweetened non-alcoholic drink 59.3% (n=338) by students, with their irregular consumption of 1-4 times a month (25.4%) predominate. More men than women use artificially sweetened soft drinks (χ^2=14.183, p=0.007).

Table 15. Frequency of consumption of some beverage groups

		Every day n (%)	4-6 times a week n (%)	2-3 times a week n (%)	1-4 times a month n (%)	Never n (%)	p value
Coffee	Male	36 (55.4)	5 (7.7)	3 (4.6)	10 (15.4)	11 (16.9)	
	Female	337 (66.7)	36 (7.1)	25 (5.1)	27 (5.3)	80 (15.8)	
	Total	373 (65.4)	41 (7.2)	28 (4.9)	37 (6.5)	91 (16.0)	p=0.038
Tea	Male	14 (21.5)	10 (15.4)	15 (23.1)	14 (21.5)	12 (18.5)	
	Female	143 (28.3)	97 (19.2)	112 (22.2)	109 (21.6)	44 (8.7)	
	Total	157 (27.5)	107 (18.8)	127 (22.3)	123 (21.6)	56 (9.8)	p=0.136
Energy drinks	Male	2 (3.1)	4 (6.2)	9 (13.8)	8 (12.3)	42 (64.6)	
	Female	18 (3.6)	18 (3.6)	54 (10.7)	64 (12.7)	351 (69.5)	
	Total	20 (3.5)	22 (3.9)	63 (11.1)	72 (12.6)	393 (68.9)	p=0.779
Fruit and vegetable juices - fresh	Male	4 (6.2)	9 (13.8)	14 (21.5)	24 (36.9)	14 (21.5)	
	Female	73 (14.5)	82 (16.2)	120 (23.8)	177 (35.0)	53 (10.5)	
	Total	77 (13.5)	91 (16.0)	134 (23.5)	201 (35.3)	67 (11.8)	p=0.054
Carbonated soft drinks	Male	4 (6.2)	6 (9.2)	13 (20.0)	27 (41.5)	15 (23.1)	
	Female	42 (8.3)	50 (9.9)	78 (15.4)	118 (23.4)	217 (43.0)	
	Total	46 (8.1)	56 (9.8)	91 (16.0)	145 (25.4)	232 (40.7)	p=0.007

Analyzing the relationships between healthy eating of students to other characteristics of their healthy behavior highlighted a statistically significant relationship between smoking and healthy eating. Non-smokers are more likely to have a healthy diet, OR=0.68 (CI 95%) (Fig. 4).

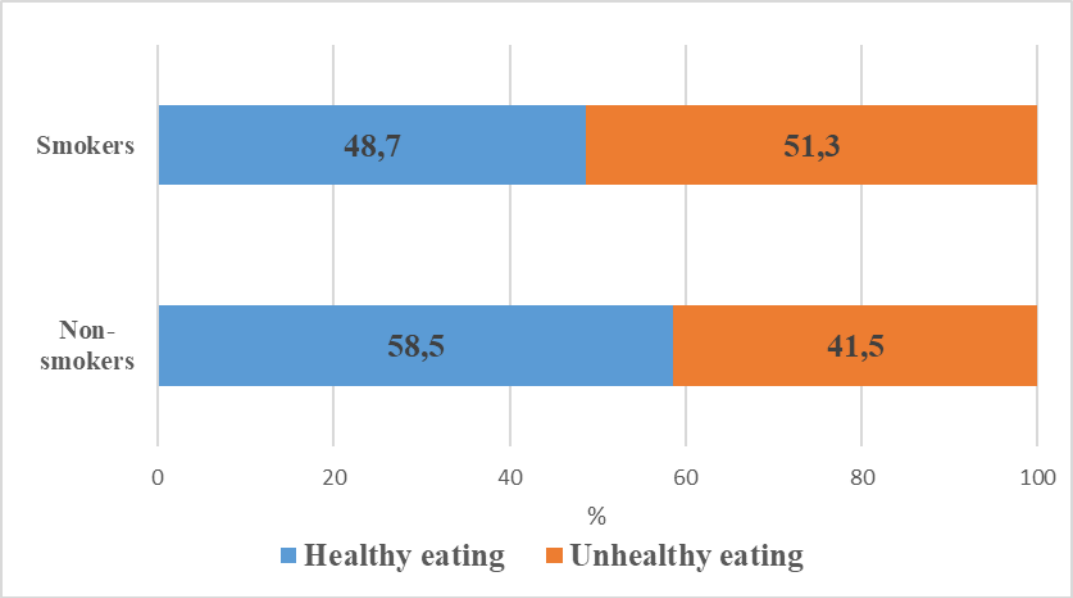

Figure 4. Healthy and unhealthy eating and smoking among students

Physical activity

A third of the respondents 31.1% exercised physical activity 30 minutes or more at least 5 times a week. In this group, the relative share of men (43.1%) was greater than that of women (29.5%). Of all students 33.9% do not exercise, with women prevailing (35.2% of all women) (Figure 5). Men had higher physical activity than women (χ^2=4.906, p=0.027).

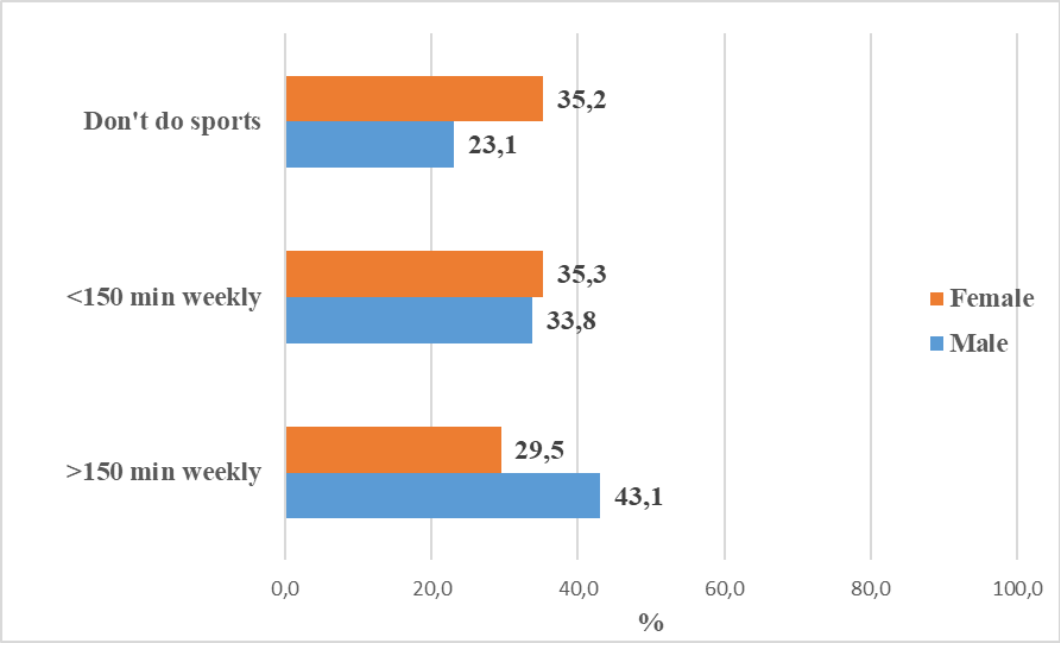

Figure 5. Physical activity of the students

Duration of sleep

More than half of the participants, 61.1% slept 6 to 8 hours a day. A fifth (21.9%) reported less than six hours of sleep. There was no difference in this characteristic by gender (χ^2=0.980, p=0.613) and by a course of study (χ^2=13.023, p=0.222).

Stress

When asked "How do you rate your stress level?" a quarter of students (25.4%) define it as high, without distinction by gender (χ^2=1.942, p=0.379).

Statistically significant is the difference between the share of self-assessing with a high level of stress and the specialty they study (χ^2=2.983, p<0.001), as well as a course of study (χ^2=35.845, p<0.001). Students in dentistry and medicine experience a higher level of stress than students of other specialties. Stress among students increases with increasing the course of study at the university (Table 16).

Table 16. Allocation of the level of stress among students in gender, specialty and training course.

How do you rate your level of psycho-emotional stress?				
	Low n (%)	**Average n (%)**	**High n (%)**	**p value**
Gender				
Male	12 (18,5)	41 (63,1)	12 (18,5)	
Female	79 (15,6)	293 (58,0)	133 (26,3)	
Total	91 (16,0)	334 (61,7)	145 (25,4)	p=0,379
Specialty				
Medicine	20 (13,5)	75 (50,7)	53 (35,8)	
Dental medicine	0 (0,0)	16 (57,1)	12 (42,9)	
All others	71 (18,0)	243 (61,7)	80 (20,3)	p<0,001
Course of study				
First	37 (19,8)	116 (62,0)	34 (18,2)	
Second	40 (19,4)	118 (57,3)	48 (23,3)	
Third	9 (8,5)	68 (64,2)	29 (27,4)	
Fourth	3 (7,9)	16 (42,1)	19 (50,0)	
≥Fifth	2 (6,0)	16 (48,5)	15 (45,5)	p<0,001

There was no statistically significant difference between the level of stress and the incidence of alcohol use (χ^2=0.996, p=0.061) and between stress and smoking (χ^2=0.253, p=0.881).

Attitudes of the students towards participating in health promoting initiatives organized by the University.

The attitudes of respondents to participate in health promoting activities are assessed through the question: "Are you interested and would you get involved in health-improving initiatives that are organized at the university?" (Table 17). In addition to these topics, students are given the opportunity in free text to express their preferences for organizing initiatives on other, significant health problems for them.

Table 17. Attitudes of the respondents for participation in health promoting activities, organized by the university

Are you interested and would you like to get involved in initiatives to improve health on campus?				
	Yes n (%)	Don't know n (%)	No n (%)	p value
Coping stress				
Male	42 (64.6)	8 (12.3)	15 (23.1)	
Female	406 (80.4)	66 (13.1)	33 (6.5)	
Total	448 (78.6)	74 (13.0)	48 (8.4)	p<0.001
Healthy nutrition				
Male	44 (67.7)	8 (12.3)	13 (20.0)	
Female	403 (79.8)	69 (13.7)	33 (6.5)	
Total	447 (78.4)	77 (13.5)	46 (8.1)	p=0.001
Physical activity, sports				
Male	43 (66.2)	8 (12.3)	14 (21.5)	
Female	355 (70.3)	96 (19.0)	54 (10.7)	
Total	398 (69.8)	104 (18.2)	54 (11.9)	p=0.027
Giving up smoking				
Male	35 (53.8)	10 (15.4)	20 (30.8)	
Female	266 (52.7)	130 (25.7)	109 (21.6)	
Total	301 (52.8)	140 (24.6)	129 (22.6)	
Smokers	78 (38.8)	71 (35.3)	52 (25.9)	
Non-smokers	223 (60.4)	69 (18.7)	77 (20.9)	p<0.001

The initiatives to cope with stress and for healthy eating have caused the greatest interest and willingness to participate among students, respectively 78.6% and 78.4%. They would be involved in activities to increase physical activity 69.8% and for quitting smoking 52.8%. There are statistically significant gender differences between attitudes to participate in stress-related initiatives (χ^2=20.564, p<0.001), healthy eating (χ^2=14.094, p=0.001), for physical activity and sport (χ^2=7.237, p=0.027). Women have more positive attitudes to participate in these

activities. A statistically significant difference also exists between the proportion of those wishing to participate in quitting smoking initiatives and smokers and non-smokers (χ^2=27.606, p<0.001). Non-smokers are more likely to engage in such activities than smokers.

In the following lines, we present the preferred by the students activities under the HP and recommendations expressed. Interest in organizing initiatives aimed at limiting smoking is prevalent in supporting mental health and physical activity.

To quit smoking: “I would participate in such an initiative to quit smoking, although I myself am not a good example for others!”; “Especially against cigarettes...I would have taken part in an organizing activity!” (the student has indicated his name, specialty and training course).

Mental health: "I would take part in an initiative to support the emotional-healthy state of students in general, in addition to coping with stress - dealing with depression, anxiety and the like"; "Mental health"; "For Mental Health".

Improving physical activity: “...encouraging the sport I would take part...”. Some of the students exercise outside the university, but for others, this is the only physical activity they get to do”.

Recommendations: “Campaigns that are in the interest of the student to be published not only on the university’s website, but also in a prominent place in any building”.

Others: “Thank you for doing such a study!”; “More people need health promotion”; “I participated in the project for the equivalent place of the Bulgarian folk dances as a discipline”, “The University created a base in the mountain, Zornitsa, which is accessible to all.”

Discussion of results of health behavior of students

According to Holt & Powell, 2017 the application of the established Self-Review Tool for self-assessment of the HPU, is necessary to be accompanied by a study of the healthy behavior of the students at the relevant university. The results will provide a basis for planning activities addressing specific health issues, in the context of the overall university approach.

In our study, students identified their health as excellent, very good and good (83.6%), and as satisfactory and poor only for 6.4%. This self-assessment is much

more positive than the self-assessment of other Bulgarian students, of which 25.6% report satisfactory and poor health (Barakova et al., 2010).

Smoking and drug abuse

Every third student at the university is a smoker (35.3%), without distinction by gender. This is a significantly higher prevalence of smoking, than reported levels among students from medical higher education institutions in other countries. Roncero et al., 2015, as a result of a systematic review of 72 studies, with 68 791 respondents - students from medical universities around the world, found an average prevalence of 17.2%, with male smokers twice as many as women. More students from medical higher education institutions in Europe are known to smoke (29.5%) than in the US (6.1%) (Armstrong et al., 2017). These results were also confirmed by La Torre et al., 2012, in study at 12 medical universities in Italy, Germany, Poland and Spain. The average prevalence of smoking among medical students was found to be 29.3%, but the most smokers were among Italian students (31.3%). Our results show a higher prevalence of smoking than international data, but they are lower than those reported by Mladenova, 2010 for smoking of 46.1% and 40% by Simeonova et al., 2013 among Bulgarian students.

Smokers in the current study reported, above all, a low rate of smoking - up to 10 cigarettes a day consumed 49.3%, between 10 and 20 35.3%, only three smoked more than 20 cigarettes every day. These results were more favorable than the findings in a study of Balogh et al., 2018 according to which more than half of the smoking students at medical universities in Germany and Hungary smoke over 10 pcs. cigarettes every day.

Our results found that smokers from the specialty “Medicine” are less than those from other specialties (p=0.002). This has been confirmed in the scientific literature by Todorovic et al., 2022 - medical students are less likely to smoke, compared to other faculties at the same university.

Smokers are more likely to drink alcohol than non-smokers (p=0.003). This result confirms what studies have been reported among adolescents, but also by another student study, that there is a correlation between the two behavioral factors. Bourbon et al. 2019 have found among 10 985 students from 35 medical universities in France that smoking is associated with high alcohol use.

Smokers eat more unhealthy (OR=0.67). The results confirm that reported by other authors (Kwan et al., 2016), according to which smokers eat fewer fruits and vegetables than non-smokers.

Our study found that smoking is linked to the success of learning. Students with excellent success are more often non-smokers ($p=0.028$). The results support the results reported by Peltzer & Pengpid, 2014 from a survey of 20 222 students and from Naeem et al., 2018, among 1 071 students from the medical university.

We found no differences in the prevalence of smoking among students in the different courses of study, unlike other study (Balogh et al., 2018), according to which, with an increase in the course of study, smokers among students at medical universities are declining.

It is necessary to note that nearly half of smokers (46.3%) in the current study started using cigarettes after the age of 18. This means that the university environment has the opportunity to influence their healthy choices regarding smoking.

Drugs do not use 98.8% of students, and only seven students (1.2%) use it. These results contrast with high average consumption internationally, found as 11.8% among 17 887 medical university students (Roncero et al., 2015).

The alcohol consumption

Alcohol consumption is one of the serious problems in the behavior of students everywhere. It is defined even as part of the life of students and as a culture of the university environment (Hallett et al., 2014).

Over half (53.2%) of the students in the survey used alcohol, without distinction by sex. Men drink more often than women ($p<0.001$) and get drunk more often ($p<0.001$), As the training rate increases, the frequency of alcohol drinking increases ($p<0.001$).

Our results do not confirm data from other studies. We find a lower prevalence of alcohol use compared to Deasy et al., 2015 93.2% among Irish students. The average consumption among students at medical universities around the world is also higher than in our research. Aggregated data from 43 studies among 28 046 student respondents from medical universities, indicate average levels of 75% for Europe and Latin America (Roncero et al., 2015). Data from studies among Bulgarian students, where alcohol consumption of 70% (Stock et al., 2009) has also been confirmed; (Barakova et al., 2010) and 75.5% (Simeonova et al., 2013). In terms of gender differences and drinking rates among men and women, our results harmonized with earlier studies (El Ansari et al., 2011).

We have not found a correlation between alcohol use and the academic performance of students, while according to other studies (El Ansari & Stock, 2010); (Peltzer & Pengpid, 2014) alcohol consumption is associated with lower academic achievements. For similar results, El Ansari et al.,2020 reported in a study of 1 177 Finnish students (El Ansari et al., 2020).

The leading causes of alcohol use among respondents in our study were for company (37.4%), for fan (34.4%) and relaxation (27.1%). The established causes of alcohol are similar to those established by other authors (Hope et al., 2005); (Barakova et al., 2010). While in our study no student has indicated that they drink alcohol to get drunk, this strongly contrasts with results obtained from Holt & Powel, 2017), where 67.7% of British students drink, with the clear goal of getting drunk.

Diet

Student's nutrition is largely determined by the various cultural, social, economic and other factors. Simultaneously, students have common unhealthy eating habits.

In our study, more than half of the students, 53.5 % reported eating healthy, and according to 43.7%, that's not the case. Our results are more positive compared to another survey among Bulgarian students, 69.6% of whom report that they have unhealthy eating habits (Barakova et al., 2010).

Students typically consume home-cooked food (88.8%), but men more than women eat outside home (p=0.001). Our results are close to those from a study by Holt & Powel, 2017 according to which the majority of students prepare their own food, but men more than women prefer fast food.

According to the sample of our study, fresh vegetables daily consumed 37.7% of the students, without distinction by gender. Our results are close to the average daily consumption among students internationally. Mello et al., 2019 conducted a systematic analysis of 71 studies on vegetable consumption among students, for the period from January 2009 until October 2018, with 65 971 respondents from 155 countries. The average daily consumption was defined as 40.2%, ranging between 11.2% to 72.4%. The highest levels of consumption of fresh vegetables are found in Finland, New Zealand, Canada and Japan – all countries with traditions in health prevention and HP, including policies and activities to validate and facilitate healthy food choices. Our results are closest to those mentioned in Greece – 39.2%. The authors reported a difference in sex – a higher proportion of

women consumed vegetables than among men (Mello et al., 2019) but we didn't find one (p=0.421).

Fresh fruits in our study consumed 28.9% of students, without distinction by gender (29.1% of women and 27.7% of men, p=0.947). Steptoe et al., 2002 emphasized that fruit consumption among students in Europe, followed up for a 10-year period (1990-2000) decreased from 49% in men, respectively 64% for women to 42% and 54% respectively in 2000. Our results come close to those of El Ansari et al., 2011 reported that 27.8% of 3 706 students from 7 universities in the UK consume fresh fruit daily.

The frequency of consumption of sweet pastry is another characteristic feature of the nutrition behavior of students, commented on by the authors. Our survey shows that nearly a third, or 29.8% of students consume them daily. There was no difference in gender, but slightly more than women (30.7%) than men (23.5%) eat daily this group of foods. These results are very close and confirm that the reported in a study at British universities that 28.2% of women and 24.8% of men daily consume sweet pastry (El Ansari et al., 2011).

In our study, coffee turned out to be the most commonly and the most consumed product of all (65.4%), with a difference in the incidence of gender use – women drink coffee more often than men (p=0.038). Our results, however, almost twice exceeded the reported by Batiha, 2018 37.2% among 1180 students.

Energy drinks used 31.1% of students in our study, at least per month consuming 12.6%. Our results contrast with the reported by Visram & Ananthakkarasu, 2019 for consumption among 84% of students.

Carbonated soft drinks consumed 59.3% of respondents in our study, and did not use 40.7% at all. More men than women drink carbonated drinks (p=0.001). Our results do not correspond to the findings of El Ansari et al., 2015 78.3% and 77% reported by Batiha, 2018.

Physical activity

Only one-third (31.1%) of the students in our study, exercise adequate physical activity of at least 150 minutes (at least 5 times 30 minutes) per week. Men have more physical activity than women (p=0.027). Physical activity is insufficient at 35.1%, and 33.9% of students do not exercise at all. The results confirm those in other surveys in our country. In a survey among Bulgarian students, it was found that 68.4% had inadequate physical activity, with 30% of the students not

exercising at all and 38.4% doing it rarely – once a month (Mladenova, 2011). Our study, however, showed higher levels of insufficient physical activity, compared to the results of an international survey among medical university students - 52.4% among 4 981 students (Peltzer et al., 2016). The established low physical activity and at the same time a highly positive opinion on the provision of opportunities for sports to students in our study contradict each other. We relate this to the epidemic situation, due to the COVID-19 pandemic and the anti-epidemic measures imposed.

Stress

A number of authors emphasize that the mental health of students worldwide is deteriorating (Deasy et al., 2015); (Holt and Powell, 2017), and according to some, stress and depression in medical higher education institutions are more prevalent and with higher levels compared to non-medical students (Lei et al., 2016). According to our study, 25.4% of students experienced high levels of stress, and 61.7% self-defined it as an average level, without distinction by gender. Students studying medicine and dentistry have higher psycho-emotional stress than other specialties ($p<0.001$). Stress increases with increasing course of study ($p<0.001$). These results are close to those cited by Rotenstein et al., 2016 for distribution of 27.2%, as a result of a systematic analysis of 195 publications involving 12 9123 medical students from 47 countries.

The health awareness of medical students has been proven to be better compared to that of students of non-medical majors (Peltzer et al., 2016). In our study, 96.5% of students knew and agreed that behaviors such as smoking, alcohol and substance use, unhealthy eating and low physical activity, harmed health. Nevertheless, there are some traits of their behavior that deserve attention and concern, especially in terms of smoking, low physical activity and their mental health. In addition, there is a positive attitude among students to participate in health supporting initiatives organized by the university: to cope with stress – 78.6%, for healthy eating – 78.4%, for physical activity and sports – 69.8%, for quitting smoking – 52.8%.

4. **Third Phase – final self-assessment of the institution, on the criteria for the HPU and formulation of priority areas for actions under the HP.**

In this phase of the study, five respondents took part - two representatives of the Academic Leadership and three members of the Student Council.

The respondents received the results of the survey of the opinion of students, lecturers and staff – the answers of each of the groups of the questions from the instrument, about the available conditions and health promotion activities at MU "Prof. Dr. P. Stoyanov" - Varna. The five participants in the third phase were invited to decide and propose how to complete the SRT of the HPU, on behalf of the university, after they get acquainted and comply with the results and the "voice" of the university community. The returned completed questionnaires were reviewed and summarized by the research team. A mechanism of criteria has been developed in advance to decide on individual statements. Apart from the "majority" principle, in cases of significant disagreements between the respondents, it was decided to take into account the proposal of the Student Council in the areas concerning the students; and of the Management - on issues related to strategic planning and implementation.

At this stage, the final institutional responses of MU "Prof. Dr. P. Stoyanov" - Varna of the SRT were formed.

Following the registration on the website of the UK Network "Healthy universities", in order to use their resource, the self-assessment tool of the HPU was completed in its original form. After submission of the answers, a report is generated, accompanied by a color chart type "a traffic lights", indicating the degree of performance of the university, according to the international criteria (Table.18). For each subsection, the level of performance of the indicators in percentage and in the corresponding color is indicated. Green color means performance above 70%, yellow for results 45-69%. In the received report, in no area, were found to be values of the indicators below 45%.

As the highest met (100%) according to the criteria for HPU, in MU - Varna were established the districts: Campus and buildings; Conditions of the environment for recreation, physical and social activity; Communication; Marketing; Learning plans and programs/ Curriculum; Scientific research, initiatives and knowledge transfer. The lowest values, but at the same time in the green zone of implementation, were obtained in the areas: Engagement of stakeholders – 73% and Nutrition – 73%.

Subsection 1. was included in the yellow zone of the color chart - Institutional commitment and responsibility with 67% implementation. The result means that additional activities are needed in this area. The assessment in this field is understandable – the university has not taken action for the formal adoption of the HPU initiative.

Table 18. Report on the fulfilment of the criteria of the Self-Review Tool

Medical University \"Prof.Dr. Paraskev Stoyanov\"- Varna

Self-Review Tool

Completed On: 24-06-2022

Leadership and Governance

1) Corporate Engagement and Responsibility	67%
2) Strategic Planning and Implementation	81%
3) Stakeholder Engagement	73%

Service Provision

1) Health Services	86%
2) Wellbeing and Support Services	83%

Facilities and Enviroment

1) Campus and Buildings	100%
2) Food	73%
3) Travel	78%
4) Physical Activity, Recreational and Social Facilities	100%
5) Accommodation	83%

Communication, Information and Marketing

1) Communication	100%
2) Information	87%
3) Marketing	100%

Academic, Personal, Social and Professional Development

1) Curriculum	100%
2) Research, Enterprise and Knowledge Transfer	100%
3) Professional Development	92%

V. CONCLUSIONS

1. The HPU initiative develops an independent theoretical conceptual framework, which, in the course of its development, reaches the approval of the Okanagan Charter, 2015 a founding document for the HPU, adapting the principles of HP to the university environment. The official signing of the Charter by the University is a declaration of acceptance of the principles of HP - the most important requirement for qualifying an institution as a HPU.

2. The analysis of the practical experience in the implementation of the HPU initiative rejects the hypothesis that it is widely used only in a Western European context. The HPU initiative is well-received and successfully developed in an extremely diverse cultural and socio-economic university environments.

3. The practical experience of the long-standing, wide-ranging networks of the HPU proves the need for an easily applicable, accessible tool for initial and regular self-assessment and management of the activities of the HP, as developed and actually used in a Western European context.

4. The adapted and validated SRT, has high reliability and reproducibility and is defined as easily understandable and acceptable for an institutional assessment according to the international criteria of the HPU.

5. The results of the process of adaptation of the SRT of the HPU in Bulgarian, prove the need for cultural adaptation of related to HP documents, tools and policies, for adequate transmission of their meaning and ensuring their effective application.

6. The self-assessment study on the implementation of the HPU criteria shows a high degree of involvement of the university community in activities related to work on creating favorable environmental conditions; activities for the development of academic, personal, social, professional development; activities on curricula and programs development; research and knowledge transfer; activities on communication and dissemination of information related to health not only in the university community, but also among the general public. Progress has also been measured in providing services related to various aspects of health.

7. Despite the favorable assessment, the analysis of the students' health behavior confirms the hypothesis of the existence of adverse aspects in the health behavior of students, but also opens up additional opportunities for expanding the

range of health and personal development services towards all members of the university community:

- Unacceptably high smoking rate (35.3%) and alcohol use (53.2%);

- More than two thirds (69.0%) of respondents have insufficient physical activity, despite the favorable environment;

- A high proportion of respondents (43.7%) classified themselves as unhealthy food consumers. Only 37.7% consume fresh vegetables, 28.9% fresh fruit, which corresponds to the "traffic light" assessment that this area requires further work to facilitate healthy food choices at the university campuses;

- A quarter (25.4%) of students self-identified as experiencing a high level of stress;

- Students declared high motivation and willingness to participate in university HP initiatives.

8. The self-assessment of the university community outlined the areas in which additional work is needed for successful implement of the principles of the HPU. There is a need for:

- Formal institutional recognition of the principles of the HPU by the University leadership / Academic Council;

- Planning and provision of targeted funding for the activities of the HPU initiative;

- Establishment of organizational mechanisms for the realization of the overall university approach and active involvement of the broad university community in the HPU initiative;

- Information about the HP university initiatives and activities does not sufficiently reach the group of administrative staff, which necessitates its more active involvement, to achieve greater efficiency of actions and to implement the essence of the overall university approach.

9. The self-assessment and analysis of health needs allows the categorization of the university in the group of “emerging” HPU, characterized by a lack of official recognition by the university leadership and membership in a national/international network, but with a presence of activities respecting the principles of the HPU. A distinctive feature of the universities in this category is

that the majority of them have not performed a self-assessment, already done at the MU “Prof. Dr. P. Stoyanov” - Varna.

Strengths and limitations of the studies

As far as we know, this is the first Bulgarian study, analyzing the possibilities for application of the principles of the Health promotion in a higher education institution in Bulgaria. The research process was carried out through an internationally accepted tool for self-assessment of the activities of the HPU, following an HPU approved approach, the guidelines of the Okanagan Charter, 2015 and the principles of the HP. This is not the only tool for self-assessment – there is one developed by the Chilean network, but it is not available in English. Our study is based on the only internationally accepted tool recommended by the HPU global network.

One of the positive sides is that the tool has not been translated and directly applied, but has gone through inter-cultural adaptation and validation. The latter was implemented according to an established WHO methodology. Using the internationally accepted self-assessment tool would allow in the future compared to other HPU that use it. Efforts have been made to reach the maximum number of representatives of the target groups, as well as support from the management, was sought and achieved. Different channels for the dissemination of the instrument were used and sufficient time for successive invitations was provided. The self-assessment study covered 10% samples from the target groups, which gives us reason to believe that the results obtained are representative of the university community.

One of the limitations – this university is a regional medical university, with its specific environment and institutional culture. In this sense, it cannot be representative of higher education in general in Bulgaria, but it probably gives a good idea of the situation in other Bulgarian medical universities.

One of the unexpected positive aspects of the study, which also has its effect on the results of the study, is that the broad participation of the university community has led to a real introduction to the principles of the HPU and their activation for actions in this direction. To some extent, this also explains the institution's high positive assessment of the criteria. There were times when the respondents felt that they were involved in the activities of the HP and declared readiness to participate. This gives us confidence that the initiative is actually applicable in the specific institution, and not only in this one.

Inferences

Health promoting universities exist in many countries around the world and they have united in regional, national and global networks. By adopting and developing the principles of the HP, they develop their Charter and a framework for action. European universities, along with North American higher education institutions, are the leaders in the implementation of the initiative and are probably not by chance among the leaders in education.

Assessing the progress of higher education institutions in their HP activities is getting more and more attention from researchers because it has to prove or reject the effectiveness of these processes.

In recent decades, efforts have been put into developing not one tool for such an assessment, and in the current study this is the only internationally accepted tool by the global network. The instrument for self-assessment of the HPU is assessed to be with a high degree of validity and reproducibility and can be used by all higher education institutions in Bulgaria. Its first application in the context of a medical university in Bulgaria, proved that a large volume of HP activities in different spheres are actually carried out: improvement of the university environment – learning, living, work, and recreation, physical and social activity; providing opportunities for personal, social, academic and professional development; wide dissemination and availability of various health communication channels; provision of health-related services and better quality of life.

The instrument also shows the path towards which the institution can be accepted to become a HPU - institutional acceptance of the principles of the HPU, with the official signing of the Okanagan Charter, 2015 and building an organizational structure - engine and inspirer of future actions. With the first step, we will have the first Bulgarian HPU.

Contributions

The results of the dissertation work have contributed to the following fields:

1. A systematic study of the development and practical realization of the HPU initiative around the world has been carried out, from its origin to the present.

2. A trans-cultural adaptation has been performed and the Self-Review Tool has been validated, which can be freely used in Bulgarian universities and colleges.

3. For the first time, a self-assessment of a Bulgarian university has been made through this international instrument, as the priority areas are outlined.

4. New data on the students' health behavior are presented.

5. An adapted translation of the basic theoretical document of the HPU – the Okanagan Charter, 2015 has been proposed.

VI. Publications and participation in scientific forums related to the dissertation

Publications

Boncheva P & Dokova K, 2019. Health Promoting Universities – a review of the development and implementation of the initiative, *Social medicine*. 2019, 2,13-19

Boncheva P & Dokova K, 2020. Health Promoting Universities – practical application of the approach. *Collection of reports from the jubilee scientific conference with international participation "New approaches in public health and health policy"* Pleven, 26 – 28 November 2020, 157-162.

Boncheva P & Dokova K, 2022. A whole university approach – key to building health promoting universities. *The Black Sea Journal of Medicine and Public Health.* Volume 1, 2022 p. 23-30.

National Scientific Conferences

Boncheva P & Dokova K. Health promotion: models to support healthy behavior. *Second Scientific Conference with International Participation "Health Care - Contribution to Quality of Life*" 7-8.06.2019

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