

Undergraduate Education in Addictology of Students of General Medicine: Study Protocol of a Pilot Research Study in the Czech and Slovak Republics

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BACKGROUND: The current practice of undergraduate education in addictology for medical students at medical faculties both in and outside Europe does not meet the requirements and needs of practice. The rise in problems with legally prescribed opioids in the United States has highlighted this long-overlooked problem and has been reflected in factual debate. The opiate crisis in Europe then led to the formulation of the WHO's priority to revise and support the teaching of addictology at medical faculties and to improve its quality. The basic problem of the present time is the question of the amount of addiction specific education in the medical curricula and their capacity. **METHODS:** The aim of the study is to map the scope and content of addictology education in the undergraduate education of students of general medicine at medical faculties in the Czech and Slovak Republics. A total of 12 medical faculties will

be contacted. For data collection a questionnaire was conducted. The research file consists of text sources describing the characteristics of addictology education in the study programmes of general medicine. These are the study curricula themselves and the syllabi of the given subjects or any other relevant information. The documents will be subjected to content analysis.

DISCUSSION: The study should have the following main implications. First, it should provide a consistent description of the situation in addictology education in medical faculties in the Czech and Slovak Republics. On the basis of the new picture, we can suggest an improvement of medical education which will lead to an increase in the competencies of physicians in the area of addiction. The research plan is supported by the student medical organization IFMSA.

Keywords | Addictology – Addiction Education – Medical Students – General Medicine – Curricula – Undergraduate Education – Teaching Addictology

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● 1 BACKGROUND

Addiction is a phenomenon that significantly affects a person's health at the physical, psychological, social, and spiritual levels (West, 2016). According to the international classifications of diseases, it is a disease with clear diagnostic criteria (ICD-10, WHO, 2015; DSM-V, APA, 2013), which can lead to death if left untreated. The prevalence of harmful substance use, including addiction, is estimated at 35 million people worldwide (UNODC, 2019). In the Czech Republic, there are 1.5 million people at risk of alcohol use, over a fifth of the population are daily smokers, 43,000 people have problem use of illegal addictive substances, and 10–13% of people have used medicaments with the potential for addiction acquired without prescription and without a doctor's recommendation (Mravčík et al., 2019). The unavailability of treatment is a worldwide problem (UNODC, 2019); in the Czech Republic there are almost 300 programmes providing some type of addictology services, of which at least one was visited in 2018 by only 88,000 clients (Mravčík et al., 2019).

The field of addictology is a transdisciplinary field dealing with the prevention and treatment of addictions and combines various professions that have an irreplaceable role in providing care to the addictology patient. Other professions are key in the field of addiction prevention. Despite the establishment of a specialized field called addictology, the physician is a key worker in the process of prevention and the recovery of patients with problems with addictive substances. Physicians with various specializations encounter patients who present with difficulties, the onset or worsening of which may be associated with the use of addictive substances. One of the basic tools of assistance is the implementation of orientation diagnostics and brief interventions, which is a legal obligation of healthcare workers (according to Act No. 65/2017 Coll., on the protection of health from the harmful effects of addictive substances, §26). In 2018, half of physicians did not perform such an intervention (Mravčík et al., 2019). Foreign literature points to the limits of brief interventions, including improper implementation or total non-implementation (Heather, 2012; Bradley et al., 2011; Williams et al., 2012; van Beurden et al., 2012). Visiting a physician for problems other than substance abuse is a gateway to help with harmful use or addiction if it appears and the patient is questioned.

In addition to expertise to recognise problems with addictive substances, the doctor is also a carrier of access to addictive substances, primarily drugs, which carries certain risks. A major example is what has been called the opioid crisis in the USA (Brand, 2018), where the number of overdoses has increased in the last two decades (up to four times higher overdose mortality since 1999), as have cases of overuse and opioid dependence (Guardia Serecigni, 2018). This crisis is complex in its causes; however, one of the main factors is the emergence of iatrogenic dependence on opioid analgesics used to alleviate chronic pain, leading to the prescription of huge amounts of drugs; according to Guardia Serecigni (2018) there has been a 300% increase in prescriptions. It is for these reasons that one of the responses to the crisis is the creation of guidelines and manuals on how to proceed when prescribing opioid drugs and what risks a physician should be aware of (Gostin, Hodge,

& Noe, 2017). Another example is the hitherto little-mapped iatrogenic dependence on drugs, especially anxiolytics such as benzodiazepines or sedative drugs, even though expert information on this phenomenon has been recorded since the 1980s (Musto, 1985). The estimated number of people in the population over 65 abusing drugs in the Czech Republic is 15–30% (Konečný, 2017); in the last year 10–13% of respondents have used these drugs without a doctor's recommendation (Mravčík et al., 2019).

It follows from the above that the system of education of physicians in the field of addictology needs already to be mapped in more detail at the undergraduate level. General Medicine is a six-year programme which is very demanding in its scope and content. At the same time, it prepares students for a responsible profession and there is a need to find a suitable way to support future physicians in the field of addiction prevention and treatment, to gain confidence in their abilities, and practise evidence-based procedures in the first line of contact with addicts.

1.1 Literature review

In the field of the education of future physicians, we most often encounter the term “addiction medicine” in the literature. There are two ways to understand this term. In a broader sense, it is a general term for the topic of addiction in medical practice or education. In a narrower sense, it is a specialization of general practitioners that emerged in the 1990s in the USA. The development of the perception of the field of addiction in the practice of physicians dates back to the end of the first half of the last century and is described by O'Connor et al. (2014). These authors originally describe the emergence of a psychiatric subdiscipline in the field of addiction (addiction psychiatry) in the 1990s, which, however, did not saturate the social need for addiction professionals. On this basis, there is cooperation between professional companies that issue certificates after the completion of a year of internship or an internship and 50 hours of education in the field of addiction for general practitioners. Professional societies also strive to recognize addiction medicine as an independent medical discipline, which was confirmed in 2016 by the Organization for Medical Disciplines (ABMS). The number of doctors specializing in addiction is increasing and thus the availability of quality care for patients is doing so too. At the same time, Soyka and Gorelick (2008) discuss the unattractiveness of a specialization in addictions for medical graduates. They state that about one third of graduates of this specialization do not work in psychiatric or addiction-oriented facilities. A specific model of specialization education in the field of addiction for general practitioners is described by De Jong et al. (2011). In the Netherlands, a Master in Addiction Medicine specialization has been created. This is a two-year course of study based on training competencies in relation to addiction treatment. Again, however, this is further education that prepares specialists, not an extension of basic competencies for general practitioners, regardless of their further specialization.

Wood et al. (2013) provide a summary commentary describing the reasons for the need to educate physicians in addictology. They point to the ever-increasing moralizing approach to ad-

dicted patients and the lack of expertise on the part of physicians. This supports the expansion of educational opportunities in addiction medicine but also draws attention to the need to educate general practitioners in early diagnosis and case reporting, especially at the undergraduate level. The model of further specialization education leads to lower availability of education in this area and thus to lower availability of adequate care.

Ayu et al. (2015) conducted an extensive search mapping the effectiveness and organization of programmes providing addiction medicine training. Out of the total number of 29 relevant studies, nine described the lack of education in addictology for physicians, especially at the undergraduate level. Other studies have addressed this limit in relation to other levels of education. Finally, the authors summarize the clear need to develop and implement addictology in medical education at all levels of education, as the blind spot in this area is evident across different countries.

Midmer et al. (2008) prepared a questionnaire study monitoring the experience of general medicine students with addicted patients during their internships. The results show in particular the prevailing moralizing approach to people with addiction and at the same time the lack of space for discussion and information regarding the psychosocial component of addiction. The authors recommend strengthening undergraduate medical education in the field of addiction treatment.

In the field of specific models, mention may be made, for example, of Klimase et al. (2017). These authors describe a specific model for expanding knowledge and skills among medical students in Canada. They carry out a two-to-12-week internship in a clinical facility with a focus on addiction issues under the supervision of physicians specializing in addictology. This is an optional module for students. The authors evaluated the course and found a significant improvement in students' knowledge of addiction issues. In their research Ayu et al. (2015) found other examples of studies describing specific models of the implementation of addictology in medical education and noted the growing interest in this topic resulting from the number of publications. Wilson et al. (2016) found the available information on curricula at medical schools in Ireland, but unfortunately did not find any relevant information.

Ayu et al. (2017) found out among members of the International Society of Addiction Medicine (ISAM) what competencies should be included in curricula at various levels of the education of physicians. For the undergraduate level they recognized the following: basic knowledge in the field of addiction, i.e. a description of the biopsychosocial model of addiction and neurobiology of addiction (anatomy and physiology), clinical skills, i.e. the acquisition of communication skills and attitudes, implementation of screening methods, brief interventions, and the ability to refer to other facilities and prevention services and skills.

In summary, the topic of educating physicians in addictology is a topic that appeared in the middle of the last century and yet, in the last 20 years, there is still a lack of competencies of physicians in this field. At the same time, we perceive the in-

terest of the professional community in the effort to map this situation and present quality models of education at the undergraduate level of medical education.

1.2 Dissertation project framework

The dissertation project itself consists of a broader range of aims and linked activities. The first step is to map the current form of the addictology curriculum at medical faculties in selected countries and to compare it in terms of its basic parameters; this is described in this pilot study. The second activity is to map, on the basis of internet research, the availability and content of international addictology curricula for medical education. In the third step, we would like to focus on making a simple comparison and design parameters of addictology education for medical faculties in the Czech Republic, including the design and formulation of output knowledge, skills, and competencies. The last step is to carry out a simple assessment of the domestic situation in the field of the further education of physicians in addictology in the context of undergraduate teaching.

1.3 Terminology

The terminology related to the topic of addictology is complicated and inconsistent throughout the world. It is important to use terminology that is used in the given country and region for the purpose of mapping curricula. In this text the word *addiction* is most often used as a synonym for the words *dependence*, *substance use disorder*, *substance abuse*, and *behavioural addiction*. To describe the scope of undergraduate medical education in addiction, the terms *addictological topics* or *addictology education* are used and are meant as all-embracing terms for addiction-related education. We are aware that addictology usually describes a separate field dealing with the treatment and prevention of substance use disorders and is called addiction studies or science. In this study we use it as explained above.

● 2 METHODS

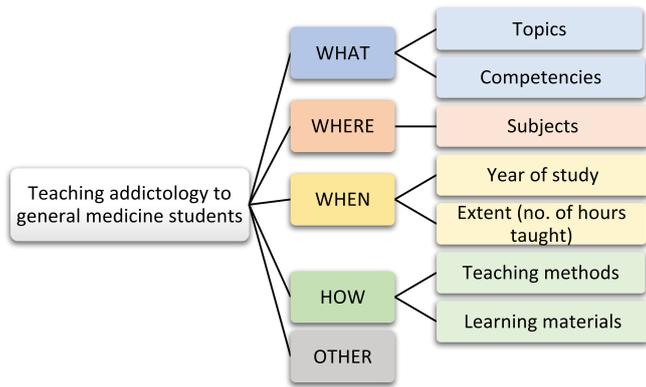
The aim of the research is to map and describe the form of teaching addictological topics in undergraduate general medicine study programmes at medical faculties in the Czech Republic and Slovakia.

The basic research question is:

What does the undergraduate education in addictology of general medicine students look like?

A basic map has been created to help in the description of the reality in the teaching of addictology at medical faculties. Within the qualitative design of the study, the partial research questions are shown in *Figure 1* and are described below. In this framework, four general categories are named and should lead to the desired answers.

Figure 1 | Partial research questions



The basic category is WHAT in terms of seeking the topics relating to substance use, addiction, treatment, prevention, etc. that are taught, i.e. the phrase “addictology topics or addictology” is used, and also seeking the competencies that are formulated in terms of desirable knowledge, skills, and attitudes.

The WHERE category refers to the names of subjects in which we can find the topics that are taught. We are focusing on both specific addictology subjects and more general subjects only partly connected to the topic of addiction.

The third category, WHEN, focuses on describing the location of the subjects that are taught in terms of the year of study, and possibly their linkage to other subjects. The second characteristic we seek is the extent of the subject, i.e. the number of lessons/time allowance.

The last category, HOW, focuses on teaching methods. The form of teaching is questioned in terms of using frontal lectures, interactive methods such as seminars and workshops, e-learning, contact with patients, etc. Another subcategory is learning materials. We are interested in the types of textbooks and literature used and recommended and all other learning sources.

As we search for characteristics and identify the image of the teaching of addictology at medical faculties, we may find other important characteristics and components not listed above. If it is relevant, the categories will be expanded or supplemented.

For data collection a questionnaire was employed.

2.1 Description of the research set and data collection

The research set is represented by relevant documents of the institutions containing information about the teaching of addictology in medical faculties. The research file consists of available data collected from two main sources. The open access sources are the web pages of medical faculties offering texts or documents such as accreditation files, syllabi, lists of subjects, and other characteristics. The second source is the study departments of the medical faculties, where study officers can provide these documents or provide contact details for relevant persons. Study department officers will be contacted by email and phone communication. Relevant persons include employees of medical faculties, course supervisors, or study officers themselves. If needed, the data will be supplemented by information from interviews with relevant persons. For data collection a questionnaire was employed. The data collection process is shown in *Figure 2*.

First, the medical faculties of universities providing education in the field of general medicine were filtered through the internet portal of the Ministries of Education in the given country.

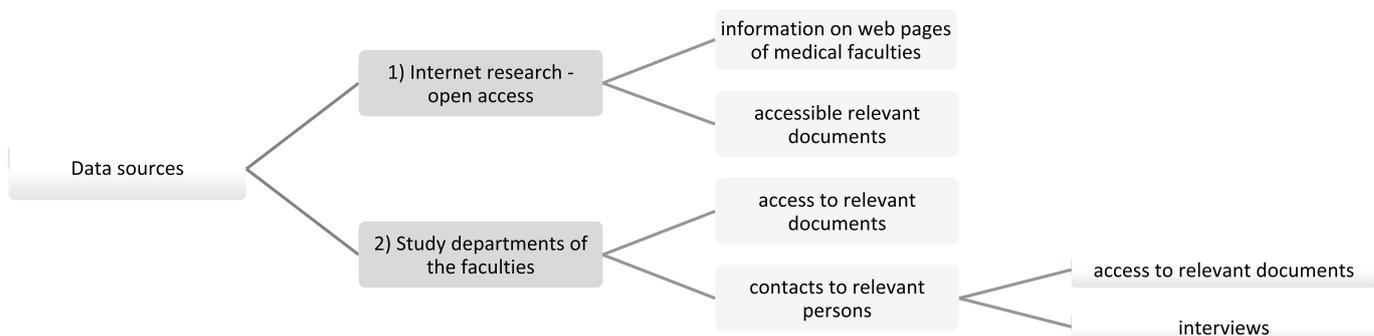
The Czech Republic

In the public internet portal of the Ministry of Education, Youth, and Sports (MŠMT) Register of Universities and implemented study programmes <https://regvssp.msmt.cz/> the criterion study program – general medicine was entered. A total of 17 results were displayed, of which 14 met the criteria of the general medicine study programme (13 study programmes in General Medicine, two study programmes in Military General Medicine, one study programme in Military Health Care for General Medicine and a study programme in General Medicine in Cardiology). Cardiology was excluded from the group because it was a postgraduate study programme.

In total, the programmes implemented at four universities were found, at a total of eight medical faculties listed below.

- Masaryk University – Medical Faculty
- University of Ostrava – Medical Faculty
- Palacky University in Olomouc – Medical Faculty

Figure 2 | Process of collecting data



- Charles University
 - 1st Faculty of Medicine
 - 2nd Faculty of Medicine
 - 3rd Faculty of Medicine
- Medical Faculty in Hradec Králové
- Medical Faculty in Plzeň

The Slovak Republic

The keyword general medicine was entered in the public internet portal www.portalvs.sk, to which the Ministry of Education, Science, Research and Sports of Slovakia is linked. In Slovakia, general medicine study programmes are taught at four universities (each has one medical faculty).

- Faculty of Medicine, Comenius University in Bratislava
- Jessenius Faculty of Medicine, Comenius University in Martin
- Faculty of Medicine, Pavel Jozef Šafárik University in Košice
- Faculty of Medicine of the Slovak Medical University in Bratislava

A total of eight medical faculties in the Czech Republic and four medical faculties in Slovakia were identified. The individual faculties will be contacted in cooperation with the supervisor in an appropriate manner (by letter; a telephone call to the study department or faculty staff members or management).

2.2 Data analysis

The aim of the research is to obtain information about the education in the field of addiction of general medicine students. In the first phase, the data collected within the questionnaire will be statistically analysed. According to the method used for obtaining the information, an analysis of the documents will be performed. The dominant method will be quantitative content analysis according to Hendl (2016). The condition for such an analysis is the existence of research questions and the determination of text selection methods (see above). Furthermore, the definition of coding units, which will be a search for keywords, topics, or paragraphs on the topic of addictology, will be done. As part of the analysis, we determine qualities such as the presence of the topic, its scope, and the method used for its teaching. We then focus more deeply on the content of the given taught unit. There is not sufficient justification for using the qualitative method of grounded theory (Strauss & Corbin, 1999), as we are not creating a new theory, but examining the current situation and asking about its qualities and parameters. For this reason, choosing the content analysis method seems more relevant.

2.3 Ethics

The drawback is the availability of the required data and the possibility that some institutions will not provide the data. These are official documents and information of the given medical faculties, which are not necessarily publicly accessible. It is necessary to define the needs in relation to this research with

the contact persons clearly – anonymization of faculties in relation to the content of syllabi. The data obtained will be used only in relation to the analysis of the current situation and to design a model that will lead to a better anchoring of the issue of addiction in the teaching of medics.

The study protocol was approved by the ethics committee of the National Monitoring Centre for Drugs and Drug Addictions of the Czech Republic under reference number EKNMS-7/2021.

● 3 DISCUSSION

The basic education of physicians is included in the six-year full-time undergraduate study programme and how to increase the competencies of physicians in specific areas is a sensitive question. In the field of undergraduate education, we also contribute to the development of the relationship of students to certain areas of interest. If undergraduate education lacks addictology or addictology and its sub-topics are taught unsystematically and without context, then it could be difficult for practice to meet the demand for physicians interested in deepening their competencies in the area of addiction.

It is important to mention that the rise of what has been called the opioid crisis in Europe led to the formulation and approval of the WHO's priority to revise and support the teaching of addictology at medical faculties and to increase its quality. This initiative was very well connected with the almost two-decades-old initiative of several medical faculties in Europe, which compiled what is known as the European curriculum of addictology for medical students. This project was then successfully followed by an initiative around the established Association of Universities, ICUDDR, promoting a new international curriculum, UPC/UTC/URC, also for medical faculties. The question remains of how to connect the quickly developing field of addictology with the growing demands placed on physicians during their studies. It seems to be accepted that developing an addiction professional is a consistent and meaningful step to strengthening the workforce. But we must not forget that physicians' visits are a powerful gateway to and from addiction.

The study that is conducted should have these main implications. First, it should provide a consistent description of the situation in addictology education in medical faculties in the Czech and Slovak Republics. On the basis of the new picture, we can suggest an improvement in medical education which will lead to increasing the competencies in addiction of physicians. This pilot study should serve as an example of practice to collaborate with other countries to exchange experience in filling in the white spaces of addictology education in other professions focused on medical students. The study protocol and research plan were discussed and supported by the Czech chapter of the International Federation of Medical Students' Associations (IFMSA).

Authors' contributions:

AV prepared the manuscript, conducted the literature review, and prepared the summary of related work. MM supervised the process and proposed the initial idea and frame. AV and MM elaborated the design of the study and methods. Both authors contributed to the emergence of the article and approved the final version of the manuscript.

Declaration of interest:

The authors declare that they have no competing interests.

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