

Adiktologie

PROFESSIONAL
JOURNAL FOR
THE PREVENTION,
TREATMENT OF,
AND RESEARCH
INTO ADDICTION

ORIGINAL ARTICLE

Preventable Mortality Caused by the Use of Alcohol in Slovakia from the Regional and Socio- economic Perspective

Gavurová, B. – Tóth, P. – Barták, M. –
Petruželka, B.

REVIEW ARTICLE

HIV/AIDS Epidemic in the Czech Republic and Related Factors: Comparison of Key Populations of People who Inject Drugs and Men who Have Sex with Men

Mravčík, V. – Pitoňák, M. – Hejzák, R. –
Janíková, B. – Procházka, I.



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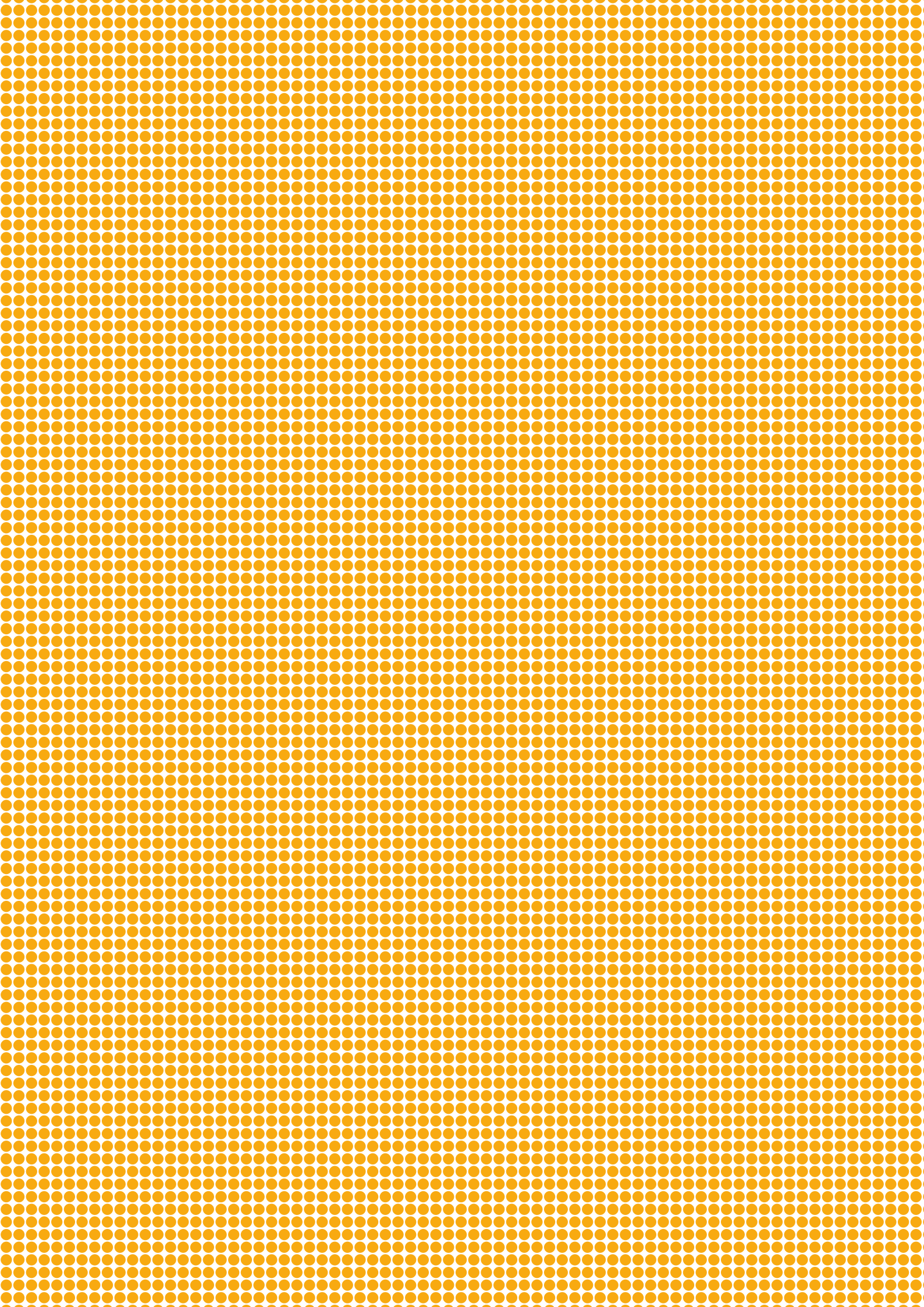
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Original research, scholarly reviews, policy analyses, editorials, commentaries, and book reviews aim to stimulate and support internationally relevant and quality communication between science and prevention, clinical, and decision making practices. Journal continually supports translation of science to practice and policy.

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PAVLOVSKÁ, A.

There is no safe level of alcohol consumption – the Lancet 2018 late summer update

When the prestigious journal *The Lancet* published the paper *Alcohol use and burden for 195 countries and territories, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016* this summer, many addiction researchers were enjoying their well deserved summer holiday.

The paper¹ almost immediately attracted a wave of attention from both researchers and the wider addiction science public as attested by an instant spike in citations in research databases as well as numerous newspaper articles, social network posts, and expert blog pieces. Although most of the findings discussed in the study have long been well known to the addiction science community, this paper marks a certain breaking point in the way findings are presented and published in research studies, including those published in *Adiktologie*.

The reason for this is the conclusion that alcohol-related harm can be minimised only at a zero level of consumption, a statement which confirms and builds on research presented in many studies in the past, including, for example, the 2005 work by Rehm, Babor and Room. The fact that there is no such thing as a safe level of alcohol consumption has long been established and declared, for example, in recommendations published by the WHO and other expert authorities including international bodies.

International organisations that bring together academia and providers of addiction services have started to respond to this “new” information. In real life, the dissemination of scientific findings to other academicians and people in professional practice is often far from being straightforward and simple. The fact that any consumption has/may have negative health consequences meets with a degree of opposition not only in the general public but, sadly, among addictology circles including some people in the academia. The resistance is understandable. The target groups and unfortunately some addiction specialists as well may not find this conclusion attractive on a personal level. It goes against our personal beliefs, individual life experience and even some attitudes that we see in real-life prevention efforts despite efficiency studies on various approaches and interventions published by professional publications such as *Adiktologie*. After all, the critics say, these findings, especially in the absence of a deeper interpretation, are little more than “scare tactics” that (many believe) cannot work.

So what is new about *The Lancet* paper? The authors claim there is a close link between alcohol and health. Scientists

consider alcohol one of the main contributing factors of the burden of diseases, and research studies have shown that alcohol plays a role in 60 different acute and chronic diseases. On the other hand, authors of other studies point out that at low levels, alcohol consumption might have a positive effect on coronary artery disease, diabetes and other diseases. However, this conclusion is not generally accepted and several recent studies have criticised it. Research of the alcohol consumption negative impact is further complicated by the fact that alcohol affects health through a number of mechanisms: cumulative consumption damages internal organs and tissues; acute intoxication leads to injuries and poisoning; alcohol addiction may result in poor health, potential self-harm or violence. In all these cases, the amount of alcohol consumed and drinking patterns are also important. When measuring the health consequences of alcohol consumption, all these factors must be carefully taken into consideration. The total burden attributable to alcohol is greater than indicated by previous findings and it grows with higher consumption. Based on weighted curves of the relative risk of different health outcomes related to alcohol, the authors of the paper concluded that alcohol-related health problems can be minimised only at a zero consumption level. These findings clearly indicate that alcohol control policies should aim at reducing consumption in the population. It is important to mention once again that alcohol is one of the major global risk factors of the burden of diseases, being responsible for nearly 10% of all deaths in the population aged 15–49 worldwide, and it has caused and without political decisions will continue to cause serious health problems for the global population. In order to lower the impact of alcohol on health in the future, states will need to revise their alcohol policies. The tools to achieve this goal are well known; however, the question is whether there is still time for more scientific research, or whether the time has (finally) come for an evidence-based political action.

High-quality research unquestionably has and will always have its place in this effort. It is up to the members of the global academic community to present undeniable evidence of the harmful consequences of alcohol use in their research and publications. There is still plenty of space for international, national as well as regional and local research. There is still room for original communications and summaries of established findings. There is also a huge role to be played by the “translation science”, the efforts to translate scientific findings into real-life practice.

To conclude, one can only agree with the authors of the paper on the crucial importance of changing the generally accepted view that alcohol may have some positive effects. More and more accurate methods and analyses continue to generate evidence showing the extent to which alcohol consumption contributes to mortality and disability. Knowl-

1 | Griswold, M. G., Fullman, N., Hawley, C., Arian, N., Zimsen, S. R., Tymeson, H. D., ... & Abate, K. H. (2018). Alcohol use and burden for 195 countries and territories, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *The Lancet*, 392(10152), 1015-1035.

edge in the addictology field is continuously evolving, and recent years have brought an immensely dynamic development of our knowledge. We hope that *Adiktologie* has played and will continue to play its role in this effort.

Prague 2 December 2018

Miroslav Barták, PhD.

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The editorial has been written as a part of the project “Rozvoj aktivit Centra veřejného zdraví se zaměřením na alkohol” of the Department of Addictology, First Faculty of Medicine, Charles University and General University Hospital in Prague and SZÚ. (Decision to grant a special purpose non-investment contribution from the state budget of the Czech Republic for 2018 to directly managed organization of the Ministry of Health of the Czech Republic No. OZS/45/4141/2018).

Supporting Research in non-English speaking countries

We live in an increasingly global economy, with products conceptualized in one country, parts sourced from many countries, production in another country and distribution globally. Services are also often provided across national boundaries with expertise obtained internationally. Higher education and research are behind the curve when it comes to globalization. While students travel internationally for higher education and some universities have international programs or locations in multiple countries, for the most part the development of educational programs and the conduct of research remains localized within countries or even regions within countries. There is little sharing of educational materials across borders. Research in non-English speaking countries rarely receives widespread dissemination.

This lack of transmission of knowledge between countries is a particular problem for health services research. The problem of long lag between research findings and widespread use of evidence based care is well documented, but solutions are still lacking. International conferences can link researchers and educators to each other but without ongoing contact little change can occur.

Enter the International Consortium of Universities for Drug Demand Reduction (ICUDDR). This newly formed organization is designed to fill the gap in the globalization of research and education in drug demand education and research. ICUDDR is a global membership organization of universities that have education and/or research programs in drug demand reduction or addiction studies. Its goal is to improve the use of scientific evidence in the provision of

substance use prevention and treatment through improving the education of the many people employed in health, social welfare and criminal justice fields. It provides links to recent scientific research, curricula on prevention and treatment developed by scientists from many countries that can be freely used by members, program implementation support and connections to faculty in other countries that are interested in the same topics of study for partnership on research projects, and student and faculty exchange. There are currently 150 members from all regions of the world.

Adiktologie's change in direction to support international exchange of ideas and experience with addiction education and applied research provides a supportive platform for ICUDDR members to share their experience and knowledge with each other and the rest of the field. We look forward to future collaboration where cross-country, cross-cultural applied research and implementation studies help us to better understand the fundamental elements of change at the patient, practitioner, provider organization and governmental levels. We hope that these partnerships between universities will lead to a better informed work force, more rapid dissemination and uptake of science and the development of a learning health system that is global.

Tampa, Florida, 2 October 2018

Kimberly Johnson, PhD MBA,

*Research Associate Professor at University of South Florida
and Executive Director ICUDDR*

Preventable Mortality Caused by the Use of Alcohol in Slovakia – a Regional and Socio-economic Perspective

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BACKGROUND: The purpose of the paper was to identify the impact of socio-economic conditions on the number of deaths caused by alcohol in Slovakia.

METHODS: We used the dataset of all the deaths in the Slovak Republic from 2001 to 2015 and data about selected socio-economic indicators in Slovak regions. We calculated the potential gain in life expectancy and subsequently estimated a linear panel model. The analysis was performed in the R Software environment.

RESULTS: The analysis showed that alcohol-related behavioural disorders affect men more than women.

The rising trend for both sexes is significant. There are also marked regional differences among Slovak regions, to the detriment of structurally affected regions. On the basis of the estimated model, only the average nominal monthly wage has a statistically significant impact on the potential gain in life expectancy in cases of alcohol behavioural disorders. **CONCLUSIONS:** The results confirm the importance of the social and economic determinants of health and the importance of the study from the regional perspective.

Keywords | Preventable mortality – Potential gain in life expectancy – Alcohol – Slovakia

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● 1 INTRODUCTION

Preventable mortality related to alcohol use disorders is an important aspect of public health and health policy (see Room, Babor, & Rehm, 2005). Most deaths caused by addictive substances are generally related to smoking; however, the number of deaths caused directly by alcohol (in this article without external causes) is also relatively high. From the point of view of public health, these deaths are preventable and, in many cases, also premature (Detels et al., 2015).

Examining preventable mortality in individual diagnoses is a methodologically complex process, which is one of the reasons why these concepts do not appear in many analytical epidemiological studies. Substance dependence is an important risk factor for various diseases, which should be taken into account in addressing preventable mortality. Given the possibility of explicitly defining these diagnoses, we have decided to examine their impact on life expectancy through the potential gains in life expectancy concept (PGL), which eliminates the causes of death for defined diagnoses. These facts formed a platform for defining the main goal of the paper, which is to examine the impact of selected socio-economic factors on the potential gain in life expectancy when the causes of death associated with the use of alcohol are excluded.

Knowledge of the extent of (preventable) mortality and its regional distribution (e.g. Piontek & Kraus, 2018) is a prerequisite for the development of effective public policies at the regional, national, and international levels. Likewise, this problem presents a challenge for addictological services, both residential and outpatient, for the health and social systems, and the management of the interface between these systems.

In the international context, there are a number of studies that deal with this issue. In summary, the topic is dealt with by Rehm et al. (2006), Martins et al. (2015), and, in a regional context, by Onyeka et al. (2015) and Rehm and Probst (2018), for example. Studies are usually conducted at the national level in relation to a particular addictive substance or in relation to a specific risk group. Alcohol use is one of the most common causes of death among adolescents (see e.g. Johnston et al., 2018; Leal & Jackson, 2018).

A recent article by Imtiaz, Probst, and Rehm (2018) shows that while mortality rates for the major causes in the US are declining, the rate of substance abuse-related deaths is rising. The use of alcohol, certain drugs, and illegal addictive substances plays a major role in the development of life expectancy. Authors who are concerned with this health crisis point out that this phenomenon is disproportionately present in people with a lower socio-economic status.

A study from Canada (Rehm et al., 2007) shows that 40,000 people died in Canada in 2002 as a result of substance abuse, with a considerable number of such deaths (4,258) being attributed to smoking and alcohol consumption. A smaller, but still significant, part of the total (1,695) was

associated with the use of illicit drugs. It was also found that addiction can be attributed to the use of addictive substances for 3.8 million nursing days in hospitals, again in connection with the use of tobacco. Specifically for alcohol, see e.g. Rehm et al. (2009).

The situation in Australia is documented by Loxley et al. (2004). From a long-term perspective, the issue of preventable alcohol mortality in Italy was dealt with by Corrao et al. (2002). They found that about 68,000 and 42,000 deaths were attributed to alcohol consumption in 1983 and 1996 respectively, mostly from haemorrhagic stroke, liver cirrhosis, cancer, and injuries. The situation in the Scandinavian countries is described in papers by Westman et al. (2015) and/or Koch et al. (2015). Khaltourina and Korotayev (2008) dealt with the situation in the Russian Federation on the basis of the assumption that a reduction of alcohol-related problems in Russia may have strong effects on the decline in mortality. Ikeda et al. (2012) addressed preventable mortality in Japan and concluded that smoking and alcohol were responsible for a significant part of preventable mortality there.

● 2 DATA AND METHODOLOGY

Our database consists of three datasets. The mortality dataset in the Slovak Republic is provided by the National Health Information Centre (*Národné centrum zdravotníckych informácií*) of the Slovak Republic. In order to quantify preventable mortality caused by the use of alcohol and illegal drugs, we used a dataset of the population data from the Statistical Office of the Slovak Republic (*Štatistický úrad Slovenskej republiky*). The socio-economic factor dataset comes from Eurostat. We analysed the time period from 2001 to 2015.

The concept of avoidable mortality is an indicator of the health status of the population. It measures the quality and efficiency of the healthcare system and public health. Avoidable mortality provides a specific and comprehensive view of the quality of healthcare. Our research is based on avoidable mortality as defined by the European Commission. According to this study, avoidable mortality consists of two sub-groups: amenable mortality and preventable mortality.

Behavioural disorders resulting from drug use relate to preventable mortality. There are two groups of behavioural disorders (Office for National Statistics, 2012). The first comprises diseases associated with alcohol use, excluding external causes, and the second group consists of disorders associated with the use of illegal drugs. Alcohol use disorders consist of the following diagnoses: F10 – Mental and behavioural disorders due to use of alcohol, G31.2 – Degeneration of nervous system due to alcohol, G62.1 – Alcoholic polyneuropathy, I42.6 – Alcoholic cardiomyopathy, K29.2 – Alcoholic gastritis, K70 – Alcoholic liver disease, K73 – Chronic hepatitis, not elsewhere classified, K74.0 – Hepatic fibrosis, K74.1 – Hepatic sclerosis, K74.2 – Hepatic fibrosis

with hepatic sclerosis, K74.6 – Other and unspecified cirrhosis of liver, and K86.0 – Alcohol-induced chronic pancreatitis. Our dataset of the deaths in the Slovak Republic consists only of the codes of three-character categories; we omitted four-character diagnoses. Therefore, in the case of alcohol use disorders, we analysed only the following three diagnoses: F10, K70, and K73. As for the behavioural disorders linked to illegal drug use, they are all three-character diagnoses, so we analysed all of them.

To fulfil the objective of the paper, we estimated a linear panel model with a dependent variable of the potential gain in life expectancy (PGLE) and socio-economic factors as explanatory variables. We analysed the impact of four socio-economic factors: Gross Domestic Product per capita (GDP), the average nominal monthly wage, the unemployment rate, and the level of education in the region, which is given as the percentage of employees with tertiary education.

The PGLE is calculated as the difference between life expectancy with cause i eliminated and life expectancy for all causes. It is given by equation (1), where $PGLE^{-1}$ means the potential gain in life expectancy with the cause of death i eliminated, e_x is the life expectancy for all causes of death, and e_x^{-i} denotes life expectancy with the cause of death i eliminated (Arias et al., 2013).

$$PGLE^{-i} = e_x^{-i} - e_x \quad (1)$$

Life expectancy e_x is derived from abridged life tables for all causes of death for five-year age groups x , $x \in 0, 1, 5, 10, \dots, 90, 95$. The group probability of death ${}_nq_x$ for age group x with the length of the age group being n is computed by equation (2), where ${}_na_x$ represents the distribution of deaths, which is set at ${}_na_x = 2.5$, on the basis of the assumption of random distribution of deaths in the age group (Jones et al., 2007). The variable ${}_nm_x$ is the observed death rate given as ${}_nm_x = {}_nD_x / {}_nK_x$, where ${}_nD_x$ is the number of deaths and ${}_nK_x$ is the mid-year population size.

$${}_nq_x = \frac{{}_nm_x}{1 + {}_nm_x(n - a_x)} \quad (2)$$

Using the group probability of death ${}_nq_x$ in equation (3), the number of survivors l_x is calculated. The number of survivors l_x expresses the number of persons who survive the beginning of the next age interval. The original population l_0 is set as $l_0 = 100,000$ (Greville, 1977). Then the proportion of deaths in the age group (${}_nd_x$) is computed with equation (4).

$$l_{x+n} = l_x \cdot (1 - {}_nq_x) \quad (3)$$

$${}_nd_x = l_x - l_{x+n} \quad (3)$$

In the next step, we calculate the total time in years lived between two indicated birthdays, called person-years lived ${}_nL_x$, explained by equation (4).

$${}_nL_x = (l_x + l_{x+n}) / 2 \quad (4)$$

The sum of all the person-years lived ${}_nL_x$ represents the person-years of remaining life T_x , mathematically expressed by equation (5).

$$T_x = L_x + L_{x+1} + \dots + L_{95} \quad (5)$$

Finally, on the basis of equation (6) the life expectancy e_x is calculated as the ratio of the person-years of remaining life T_x and the number of survivors l_x .

$$e_x = T_x / l_x \quad (6)$$

To calculate the life expectancy with the cause of death eliminated i , we need to build abridged life tables by eliminating the cause of death i . The process is similar to that in the case of the abridged life table for all causes of death, with several exceptions. The probability of death for the age group x with the length of the age group n with the cause of death eliminated i (${}_nq_x^{-i}$) is given by equation (7) (Tsai et al., 1978).

$${}_nq_x^{-i} = 1 - {}_np_x \frac{{}_nD_x - {}_nD_x^i}{{}_nD_x} \quad (7)$$

Other exceptions are presented in equations (8), (9), and (10).

$${}_nL_{95}^{-i} = l_{95}^{-i} + l_{95}^{-i} \cdot {}_nq_{95}^{-i} / 2 \quad (8)$$

$${}_nT_{95}^{-i} = \alpha \cdot {}_nL_{95}^{-i} \quad (9)$$

$$\alpha = \frac{e_{95} \cdot l_{95}}{{}_nL_{95}} \quad (10)$$

The effects of socio-economic factors on the potential gain in life expectancy by eliminating alcohol-related behavioural disorders are estimated using a linear panel model expressed by equation (11), where y_{it} is a dependent variable, α_{it} and β_{it} are regression coefficients, and u_{it} denotes a random disturbance term with a mean of 0. The index $i = 1, \dots, n$ marks an individual index, in our case regions in the Slovak Republic and $t = 1, \dots, T$ represents the time index (Croissant & Millo, 2008). We did not look into the impact of socio-economic factors on the potential gain in life expectancy through the elimination of disorders associated with the use of illegal drugs because of the lack of deaths caused by these disorders.

$$y_i = \alpha_i + \beta_i^T \mathbf{x}_i + u_i \quad (11)$$

We estimated three linear panel models Model, a Fixed Effects Model, and a Random Effects Model. To decide which model is the most appropriate, we applied tests commonly used in the linear: a Pooling panel model estimation process. The analysis and all the outputs are produced in the R Software environment (R Core Team, 2017).

3 RESULTS AND DISCUSSION

The analysis consists of three parts. In the first part, we provide an overview of the diseases associated with alcohol use in Slovak districts. Second, we analyse the impact of these disorders on the expected life length in Slovak regions. The third part addresses the effects of socio-economic factors on the PGLE by complete elimination of the diseases associated with alcohol use.

3.1 Situation in Slovak districts

The development of deaths caused by diseases associated with alcohol use shows a growing trend for both sexes. In 2001, more than 20 men in 100,000 died of diseases connected with alcohol use. The number of men who died had increased to more than 28 in 2015. The numbers of women who died were significantly lower. In 2001, there were only about five women in 100,000 who died of diseases associated with alcohol use. This figure grew to almost eight in 2007. Then it dropped slightly, to less than six in 2013. In 2015 it rose again, to eight women in 100,000. The development of the number of deaths caused by the diseases associated with alcohol use is shown in *Figure 1*.

The regional distribution of deaths caused by the disorders associated with alcohol use among men in 2001 is depicted

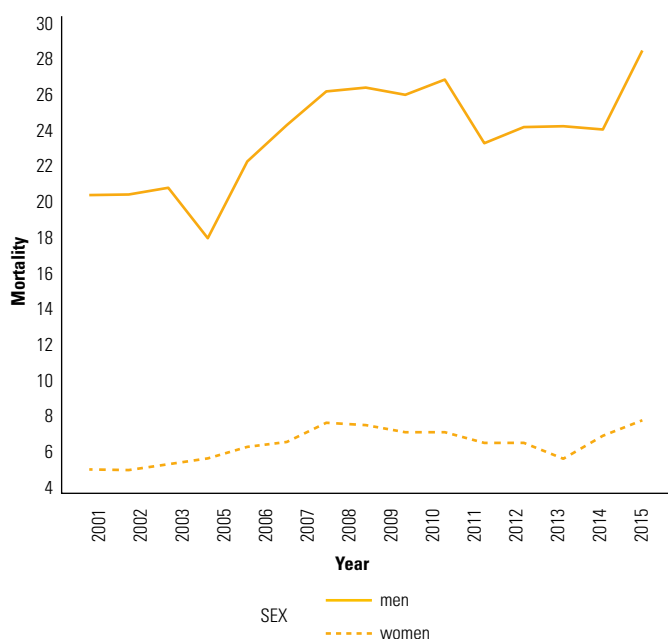


Figure 1 | The number of deaths caused by alcohol use disorders

in *Figure 2*. The area that was most affected was the southern part of the Slovak Republic. There are three regions with a standardised death rate of over 50. The lowest number of deaths caused by alcohol use disorders was in the central and southeastern parts of the Slovak Republic. In these regions, the standardised mortality rate was below ten in 2001.

In 2015, the standardised mortality rate increased in almost all districts. The highest figure was recorded in the Myjava district in the western part of the Slovak Republic, followed by other districts situated mainly in the southern part. The lowest standardised mortality rate was in districts in the north, in what is called the Orava region. The 2015 situation for men is presented in *Figure 3*.

The highest number of women who died of diseases caused by alcohol use disorders was reported in the Cadca district, in the northern part of the country, in 2001. It was almost 25 women in 100,000. The second highest mortality was in the Detva district in the central part, followed by the Stara Lubovna district in the northeastern part of the Slovak Republic. In nearly half of all the districts, the standardised mortality rate was close to zero. These regions are mainly situated in the eastern and northern parts of the country. This is shown in *Figure 4*.

The standardised mortality rate caused by diseases associated with alcohol use has grown for women, too. It is visible in *Figure 5*, where the number of districts with a standardised mortality rate close to zero decreased in 2015. In the same year, the highest mortality rate was in the Puchov district in the north. Three groups of districts with high levels of the standardised mortality rate caused by alcohol use disorders can be identified. The first group consists of districts in the northern part of the Slovak Republic, while the second comprises districts in the southwest. The last group involves districts in what is known as the Gemer region in the east of the central part of the country. A high mortality rate is also observed in the Trebisov district in the southeast.

3.2 Life expectancy

There are also major disparities among the regions in the Slovak Republic as regards life expectancy. Life expectancy with the complete elimination of alcohol use disorders in the more developed regions in the western part is higher than in the less developed regions in the east. This applies to all the years under study – see *Table 1*. A positive aspect of the analysis is that life expectancy with the complete elimination of alcohol use disorders increased during the study period.

The growth of life expectancy with the complete elimination of alcohol use disorders may result from two facts. The first fact is an increasing life expectancy for all causes of death which is the consequence of a healthier lifestyle, better healthcare, etc. The second effect may be an increasing number of deaths caused by the disorders associated with alcohol use, the elimination of which leads to an increase in

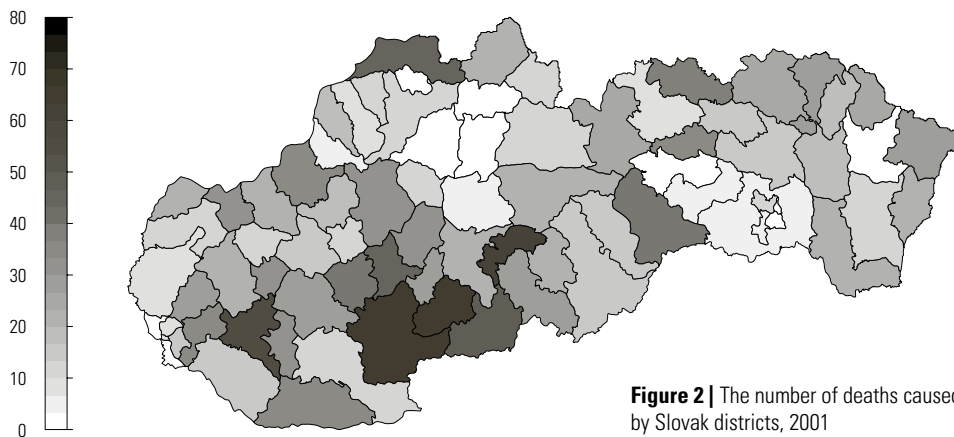


Figure 2 | The number of deaths caused by alcohol use disorders in men, by Slovak districts, 2001

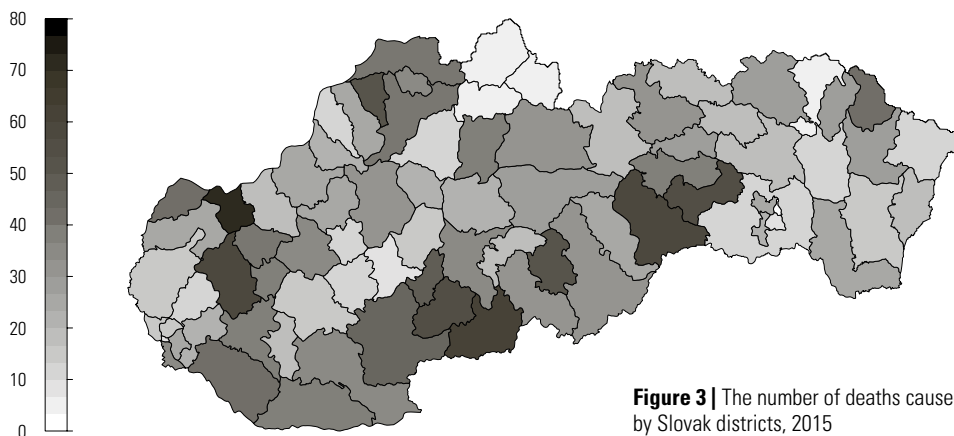


Figure 3 | The number of deaths caused by alcohol use disorders in men, by Slovak districts, 2015

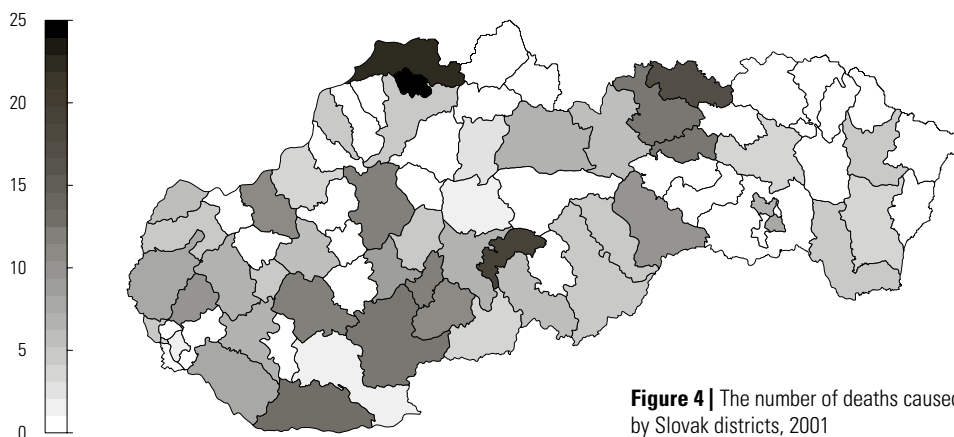


Figure 4 | The number of deaths caused by alcohol use disorders in women, by Slovak districts, 2001

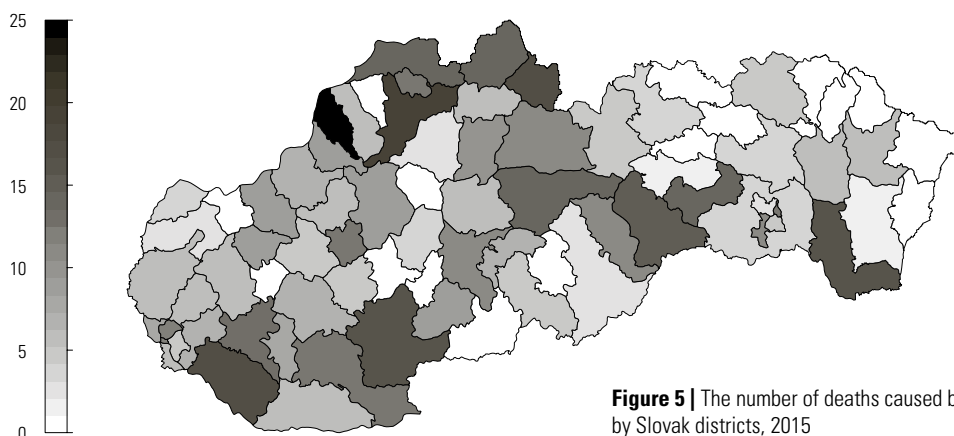


Figure 5 | The number of deaths caused by alcohol use disorders in women, by Slovak districts, 2015

Year	Regions							
	ba	tt	tn	nr	za	bb	po	ke
2001	75.193	73.811	75.043	73.442	73.804	72.825	73.968	72.977
2002	75.547	73.743	74.979	73.853	73.971	73.167	74.321	72.965
2003	75.633	74.099	74.711	73.758	74.215	73.260	74.267	72.885
2004	75.768	74.260	75.532	74.378	74.439	73.555	74.702	73.252
2005	75.764	74.779	75.089	74.140	74.256	73.545	74.557	73.579
2006	76.167	74.719	75.744	74.236	74.586	73.906	74.846	73.695
2007	76.824	74.898	75.477	74.435	74.568	73.956	74.795	73.857
2008	77.055	75.441	75.972	74.562	74.594	74.585	75.190	74.305
2009	77.227	75.728	76.068	75.061	75.119	74.777	75.776	74.483
2010	77.262	75.937	76.669	75.453	75.663	74.892	75.784	74.704
2011	77.866	76.245	77.192	75.638	76.160	75.701	76.457	75.191
2012	78.065	76.758	77.367	75.722	76.273	75.688	76.575	75.528
2013	78.178	76.747	77.869	76.428	76.514	76.241	76.759	75.777
2014	78.714	77.035	78.078	76.226	77.165	76.737	77.136	76.326
2015	78.573	77.027	78.202	76.316	76.835	76.225	76.507	76.319

Table 1 | Life expectancy (in years) at birth (age 0) with the complete elimination of alcohol use disorders, by Slovak regions

Note: ba – Bratislava region, tt – Trnava region, tn – Trenčín region, nr – Nitra region, bb – Banská Bystrica region, po – Prešov region, ke – Košice region

Year	Regions							
	ba	tt	tn	nr	za	bb	po	ke
2001	0.093	0.193	0.202	0.234	0.139	0.233	0.177	0.108
2002	0.087	0.175	0.193	0.312	0.124	0.177	0.157	0.123
2003	0.152	0.180	0.146	0.222	0.162	0.233	0.154	0.120
2004	0.176	0.159	0.133	0.217	0.145	0.178	0.124	0.147
2005	0.224	0.218	0.187	0.211	0.150	0.222	0.154	0.130
2006	0.247	0.272	0.198	0.260	0.149	0.190	0.160	0.191
2007	0.267	0.222	0.229	0.277	0.223	0.263	0.189	0.220
2008	0.254	0.262	0.212	0.262	0.273	0.272	0.179	0.233
2009	0.265	0.270	0.216	0.318	0.252	0.230	0.157	0.186
2010	0.294	0.263	0.188	0.236	0.264	0.241	0.187	0.239
2011	0.215	0.304	0.245	0.235	0.235	0.198	0.137	0.230
2012	0.276	0.272	0.197	0.238	0.229	0.260	0.194	0.185
2013	0.192	0.261	0.199	0.219	0.279	0.227	0.178	0.245
2014	0.180	0.259	0.202	0.219	0.343	0.273	0.218	0.244
2015	0.211	0.389	0.273	0.283	0.327	0.274	0.192	0.265

Table 2 | Potential gain in life expectancy (in years) at birth (age 0) with the complete elimination of alcohol use disorders, by Slovak regions

Note: ba – Bratislava region, tt – Trnava region, tn – Trenčín region, nr – Nitra region, bb – Banská Bystrica region, po – Prešov region, ke – Košice region

life expectancy with the complete elimination of alcohol use disorders. This can be measured by the PGLE as shown in *Table 2*. It is obvious that the PGLE with the complete elimination of alcohol use disorders grew in all the regions during the time period under consideration. It means that all the regions are burdened by alcohol use disorders to a greater degree than in the past. In 2015, the most affected regions were the Trnava region, the Zilina region, and the Nitra re-

gion. These regions belong among the more developed regions in the Slovak Republic. The lowest PGLE was in 2015 in the Prešov region, which is one of the least developed regions. On the other hand, the second lowest PGLE was in the Bratislava region, which is the most developed one. It is necessary to add that there are several national health institutions in Bratislava, which implies better availability of specialised healthcare for people who live there.

	Fixed Effects Model (1)	Random Effects Model (2)	Pooling Model (3)
	Estimate	Estimate	Estimate
Intercept	-	-10.22742 ***	-10.64882 ***
Log(GDP)	0.07792	0.08248	0.13411
Log(WAGE)	0.74102 *	1.01634 ***	0.97894 ***
Log(UNEM)	-0.10942	0.05288	0.08280
Log(EDU)	-0.31559	-0.62436 ***	-0.65754 ***
R-Squared	0.43672	0.41011	0.39543

Table 3 | Estimated coefficients of linear panel models for alcohol-related diseases

Note: ***, **, and * denote significance levels of 1, 5, and 10 per cent respectively. GDP denotes gross domestic product per capita, WAGE is the average wage, UNEM represents the unemployment rate, and EDU is the percentage of employees with tertiary education. The Poolability test for individual cross-sectional effects showed that all coefficients, excluding intercepts, are not equal for individual effects ($F = 3.152^{***}$) or for time effects ($F = 2.639^{***}$). On the basis of the F test, both individual effects ($F = 6.998^{***}$) and time effects ($F = 2.233^{**}$) are statistically significant. The Pesaran CD test confirmed that our model is not affected by the cross-sectional dependence ($Z = 1.0116$). Wooldridge's test for unobserved individual effects did not indicate any existence of serial correlation ($Z = 1.581$). In compliance with the Hausman test, the fixed effects model (1) should be preferred (Chi-squared = 5.175).

3.3 Impact of socio-economic conditions

We estimated a linear panel model to quantify the impact of socio-economic conditions on the PGLE with the complete elimination of alcohol use disorders. We analysed the effects of four socio-economic factors: GDP per capita, the average nominal monthly wage, the unemployment rate, and the level of education measured by the share of employees with tertiary education.

We built three models: (1) a Fixed Effects Model, (2) a Random Effects Model, and (3) a Pooling Model. The tests that were performed suggest that the Fixed Effects Model (1) is the most appropriate one. In that model, only the average nominal monthly wage is statistically significant. The estimated coefficient is positive, which means that an increase in the average nominal monthly wage in the region leads to an increase in the PGLE with the complete elimination of alcohol use disorders. The impact of other socio-economic factors is not statistically significant. (Table 3.)

● 4 CONCLUSION

As shown by both our study and several international studies, preventing alcohol-related mortality is an important public health issue. The main aim of this paper was to analyse the impact of socio-economic conditions on the potential gain in life expectancy in the event of the complete elimination of disorders associated with alcohol. We also conducted an analysis of regional disparities.

The analysis of regional differences provides us with much valuable information and unfortunately confirms the concentration of health problems in regions that can be described as structurally disadvantaged. The diagnosis examines their social gradient, whereby an increase in the average nominal wages in the region leads to an increase in the PGLE by eliminating alcohol use disorders, which in turn promotes health inequalities between population groups and regions. In 2001, the lowest PGLE was 0.093, in the Bratislava region. The highest PGLE was in the Nitra region. The situation changed in 2015, when the Prešov region was the region with the lowest PGLE. The highest PGLE was 0.389, in the Trnava region.

This confirms the importance of the study of the social and economic determinants of health and the importance of the study from the regional perspective. Therefore, solving these problems cannot be viewed only from a national perspective or from the view of international policy documents. Emphasis must be given to the regional as well as socio-economic conditions.

Authors' contribution: BG and PT designed the study. PT performed the statistical analysis and, together with BG, MB, and BP, participated in the interpretation of the data and the preparation of the manuscript. BG drew up the initial version of the manuscript. MB and BP conducted the literature review and summarised related work. BG also supervised the statistical analysis. All the authors contributed to the article and approved the final version of the manuscript.

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REFERENCES

- Arias, E., Heron, M., & Tejada-Vera, B. (2013). United States life tables eliminating certain causes of death, 1999-2001. *National vital statistics reports: from the Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System*, 61(9), 1-128.
- Corrao, G., Rubbiati, L., Zambon, A., & Aricò, S. (2002). Alcohol attributable and alcohol preventable mortality in Italy: a balance in 1983 and 1996. *The European Journal of Public Health*, 12(3), 214-223.
- Croissant, Y., & Millo G. (2008). Panel data econometrics in R: The plm package. *Journal of Statistical Software*, 27(2), 1-43.
- Detels, R., Gulliford, M., Karim, Q. A., & Tan, C., C. (Eds.). (2015). *Oxford Textbook of Global Public Health, 6th edition*. Oxford: Oxford University Press.
- Greville, T. N. E. (1977). *Short Methods of Constructing Abridged Life Tables. Mathematical Demography*. Berlin, Heidelberg: Springer, 53-60.
- Ikeda, N., Inoue, M., Iso, H., Ikeda, S., Satoh, T., Noda, M., ... & Sobue, T. (2012). Adult mortality attributable to preventable risk factors for non-communicable diseases and injuries in Japan: a comparative risk assessment. *PLoS Medicine*, 9(1), e1001160.
- Imtiaz, S., Probst, C., & Rehm, J. (2018). Substance use and population life expectancy in the USA: Interactions with health inequalities and implications for policy. *Drug and Alcohol Review*, 37, S263-S267.
- Johnston, L. D., Miech, R. A., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2018). *Monitoring the Future national survey results on drug use, 1975-2017: Overview, key findings on adolescent drug use*. Available from: <https://deepblue.lib.umich.edu/bitstream/handle/2027.42/142406/Overview%202017%20FINAL.pdf?sequence=1&isAllowed=y>
- Jones, J. H., et al. (2007). demogR: A Package for the Construction and Analysis of Age-structured Demographic Models in R. *Journal of Statistical Software*, 22(10), 1-28.
- Khaltourina, D. A., & Korotayev, A. V. (2008). Potential for alcohol policy to decrease the mortality crisis in Russia. *Evaluation & the Health Professions*, 31(3), 272-281.
- Koch, M. B., Diderichsen, F., Grønbaek, M., & Juel, K. (2015). What is the association of smoking and alcohol use with the increase in social inequality in mortality in Denmark? A nationwide register-based study. *BMJ open*, 5(5), e006588.
- Leal, W. E., & Jackson, D. B. (2018). Energy drinks and escalation in drug use severity: An emergent hazard to adolescent health. *Preventive Medicine*, 111, 391-396.
- Loxley, W., Toumbourou, J., Stockwell, T., Haines, B., Scott, K., Godfrey, C., ... & Marshall, J. (2004). *The prevention of substance use, risk and harm in Australia: a review of the evidence*. Commonwealth of Australia.
- Martins, S. S., Sampson, L., Cerdá, M., & Galea, S. (2015). Worldwide prevalence and trends in unintentional drug overdose: a systematic review of the literature. *American Journal of Public Health*, 105(11), e29-e49.
- Office for National Statistics (2012). Definition of avoidable mortality. Available from <https://www.ons.gov.uk/ons/about-ons/consultations/closed-consultations/2011/definitions-of-avoidable-mortality/definition-of-avoidable-mortality.pdf>. [cited 27. 4. 2018]
- Onyeka, I. N., Beynon, C. M., Vohlonen, I., Tiihonen, J., Föhr, J., Ronkainen, K., & Kauhanen, J. (2015). Potential years of life lost due to premature mortality among treatment-seeking illicit drug users in Finland. *Journal of Community Health*, 40(6), 1099-1106.
- Piontek, D., & Kraus, L. (2018). Trends in alcohol related mortality in East and West Germany, 1980-2014: age, period and cohort variations. *Addiction*, 113(5), 836-844.
- Rehm, J., Taylor, B., & Room, R. (2006). Global burden of disease from alcohol, illicit drugs and tobacco, *Drug and Alcohol Review*, 25:6, 503-513.
- Rehm, J., Gnam, W., Popova, S., Baliunas, D., Brochu, S., Fischer, B., ... & Taylor, B. (2007). The costs of alcohol, illegal drugs, and tobacco in Canada, 2002. *Journal of Studies on Alcohol and Drugs*, 68(6), 886-895.
- Rehm, J., Mathers, C., Popova, S., Thavorncharoensap, M., Teerawattananon, Y., & Patra, J. (2009). Global burden of disease and injury and economic cost attributable to alcohol use and alcohol-use disorders. *The Lancet*, 373(9682), 2223-2233.
- Rehm, J., & Probst, C. (2018). What about drinking is associated with shorter life in poorer people? *PLoS Medicine*, 15(1), e1002477.
- R Core Team. (2017). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria.
- Room, R., Babor, T., & Rehm, J. (2005). Alcohol and public health. *The Lancet*, 365(9458), 519-530.
- Tsai, S. P., Lee, E. S., & Hardy, R. J. (1978). The effect of a reduction in leading causes of death: potential gains in life expectancy. *American Journal of Public Health*, 68(10), 966-971.
- Westman, J., Wahlbeck, K., Laursen, T. M., Gissler, M., Nordentoft, M., Hällgren, J., ... & Ösby, U. (2015). Mortality and life expectancy of people with alcohol use disorder in Denmark, Finland and Sweden. *Acta Psychiatrica Scandinavica*, 131(4), 297-306.

eHealth Intervention for Smoking Cessation for Czech Tobacco Smokers: Pilot Study of User Acceptance

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BACKGROUND: The development of information and communication technologies is bringing new therapeutic options, including behavioural changes in the area of health promotion. The eHealth interventions also offer new options in efforts to stop smoking. **AIM:** A pilot study aimed at the assessment of the functionality aspects and user acceptance of an eHealth application for quitting smoking. **METHODS:** The study used a mixed-methods design and was conducted from July 2016 to February 2017. We recruited 34 tobacco users (solely cigarette smokers). Thirty respondents tested the eHealth application on their own mobile devices for a predefined period of time (up to one month). Quantitative data was collected with a data management system of the eHealth program. User acceptance was surveyed through structured telephone interviews. Feedback from the users was collected via qualitative focus groups. Quantitative

analysis was performed using descriptive statistics; qualitative data was analysed with the cluster analysis method. **RESULTS:** The respondents completed 10 days of the pre-quitting phase on average and three weeks of the quitting phase, with a total of 19 delivered and completed online sessions. Overall, the therapeutic aspects of the eHealth intervention were seen as positive. Nearly 75% of all the actively participating respondents (n=30) preferred the eHealth intervention to seeking other professional services during the quitting phase. The study confirmed the acceptance of the new treatment modality from the point of view of the target group of tobacco smokers, despite some technical issues accompanying the pilot launch of the intervention. The eHealth application that was evaluated constitutes a promising and innovative direction in addiction treatment.

Keywords | eHEALTH – Tobacco – Smoking – Smartphone – Online intervention – Dependence

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● 1 INTRODUCTION

Tobacco smoking is among the most serious public health issues contributing to increased morbidity and mortality (WHO, 2017). The rapid development of information and communication technologies is introducing new options and applications in addiction treatment practice (Kulhánek, 2017). Smartphones and internet connectivity are becoming increasingly globally accessible, which enables therapeutic practitioners to deliver interventions focused on a change of lifestyle to a high number of end users (Webb, Joseph, Yardley, & Michie, 2010). Unlike face-to-face guidance, online interventions overcome the barriers of time and location, and they can be used in real time (Shiffman, Stone, & Hufford, 2008). A significant advantage of web-based and mobile-based programs is that they can be adapted to individual users on the basis of the diagnosis, age, sex, and other characteristics (Etter, 2006; Oliver et al., 2017).

Several studies suggest that patients perceive eHealth solutions to be acceptable to use (Blitchtein-Winicki et al., 2017; Currie, Philip, & Roberts, 2015; Duplaga, 2013; Wentink, Prieto, de Kloet, Vliet Vlieland, & Meesters, 2017). Systematic reviews testify to the efficacy of personalised online smoking cessation interventions (Civljak, Stead, Hartmann-Boyce, Sheikh, & Car, 2013; Graham et al., 2016; Whittaker, McRobbie, Bullen, Rodgers, & Gu, 2016). For example, in one randomised trial of such a smoking cessation intervention (“Happy Ending”), Brendryen, Drozd, and Kraft (2008) reported that receiving the eHealth intervention tripled the odds of quitting compared to receiving a self-help booklet (20% versus 7% repeated point abstinence; odds ratio = 3.43, 95% CI = 1.60-7.34, N = 290, P = .002). On the basis of the experience with Happy Ending (Brendryen, Kraft, & Schaalma, 2010), and other comprehensive eHealth interventions that provide extensive follow-up (Brendryen, Johansen, Nesvag, Kok, & Duckert, 2013; Drozd, Haga, Brendryen, & Slinning, 2015) a more flexible second-generation intervention named “Endre” was developed. Endre is a fully automated program providing extensive therapeutic support to smokers in the process of quitting smoking (Holter, Johansen, & Brendryen, 2016).

Despite the high prevalence of tobacco smoking (Váňová, Skývová, & Csémy, 2017) and the high internet and smartphone penetration in the Czech population (Czech Statistical Office, 2017), systematic research on eHealth approaches to addiction treatment has not yet been fully adopted in the Czech Republic. Except for a few commercial applications, of which the effectiveness has never been evaluated, Czech smokers have no opportunity to use state-of-the-art online support for their efforts to quit in their mobile devices. The response to this drawback consisted of adapting the Endre eHealth intervention to the Czech environment. The content of the eHealth intervention has been translated, localised, and customised to the Czech environment (i.e. text translation including idiomatic expressions, adaptation of the therapeutic language, graphic modification, etc.) to support adherence and the therapeutic relationship among Czech tobacco smokers. The aim of the current study was

to assess the feasibility and user acceptance of an eHealth application for quitting smoking among Czech smokers.

● 2 METHODS

The pilot study used a mixed-methods design and was conducted in 2016 and 2017.

2.1 Participants and Recruitment

Smokers were recruited through digital advertising (social networks and selected websites focused on quitting smoking and tobacco dependence-related topics). The inclusion criteria for participation in the study were: an age of 18 years and older, current use of tobacco products (including combustible and smokeless tobacco and e-cigarettes), and having their own smartphone with an everyday internet connection and an active SIM card. A total of 34 persons (solely cigarette smokers) volunteered to participate (16 women, average age 34 years, the youngest aged 21, the oldest aged 53). Regarding occupational status, the majority of the respondents were employed (n = 20), but the sample also included five self-employed people, five students, three unemployed people, and one retired person.

2.2 Intervention

The basic idea of the intervention is to simulate a series of counselling sessions about quitting smoking based on the motivational interviewing approach. In a separate paper, Holter, Johansen, and Brendryen (2016) describe how “a counselor’s support of a working alliance, internal motivation, and lapse preparation and management are simulated in Endre”. These therapeutic processes are simulated using individually tailored web sessions consisting of multiple brief web pages, where each text is written in such a way as to be similar to how a counsellor would address a client. For example, the program refers to itself using the personal pronoun “I”, addresses the user by his/her first name, asks questions and reflects answers empathically, uses greetings and farewells, uses humour, and refers to previous interaction to demonstrate that “I” remember what “we” talked about. Throughout each session, the client provides multiple inputs in the form of multiple-choice answers or free text. Moreover, all users are offered the same set of sessions, but the path through each session will differ as it is based on previous and current user input. Thus, Endre can be considered a non-embodied conversational agent similar to a chatbot.

In addition to web pages, the intervention also uses emails and text messages to communicate with the user. The web pages are designed with the small screens of smartphones or tablets in mind, but can also be accessed on computers. The user interface of the eHealth application is simple, intuitive, and user-friendly. The programme is divided into two basic phases: the preparation phase that leads up to the quit

date, and the follow-up phase that comes after the quit date. The standard length of the intervention phase is six weeks, but this can vary on the basis of the responses of individual users, the fulfilment of the individual quitting plan, motivation, and recorded relapses. An important feature is the lapse management system, an intrinsic part of the quitting phase. The purpose of the lapse management system is help users to manage a lapse constructively and to avoid a full-blown relapse. Each evening during the follow-up phase the user receives a text message asking whether he/she has been smoke-free that day. If the user replies “no”, he/she will receive another text message that refers him/her to a web-based therapy session aimed at influencing how he/she thinks and feels about the lapse and to take the decision to continue the attempt to quit (instead of starting to smoke again). For more details on the content and rationale of the intervention, see Holter, Johansen, and Brendryen (2016).

2.3 Data collection

We collected sociodemographic data (sex, age, education, occupational status, etc.). Input data from users (type of electronic device, operating system, the time and frequency of each log-in, the number of completed sessions, the duration of the pre-quitting and quitting phases, and the number of text messages received/sent) was collected automatically by a data management system as part of the eHealth program. The Fagerström Test for Nicotine Dependence (FTND) was used to determine users’ nicotine dependence (Heatherton, Kozlowski, Frecker, & Fagerstrom, 1991).

Structured telephone interviews (at least two with each respondent, a total of 60) were used to monitor user acceptance of the application. The aim was to determine the user-friendliness of the application and the evaluation of the therapeutic relationship on a five-point scale, as well as the type of therapy preferred. Qualitative feedback was collected within two focus groups with selected respondents (five respondents per focus group, each respondent remunerated with ~20 Euros). The authors inquired about specific user experience gained with the application, situational variables, the level of adherence, suggestions for improvement, etc.

All the respondents in the pilot study were assigned unique, fully anonymous codes; they were also informed about the conditions governing their participation in the programme, and they signed informed consents. All the input data was stored on a secure server and archived on password-protected backup storage media. The contact data of the respondents (email address and telephone number) was stored separately and with no possibility of being matched with specific respondents in order to increase security further. The study was approved by the Ethics Commission of the Government Council for Drug Policy Coordination.

2.4 Data analysis

The numeric data was evaluated with descriptive statistics. The qualitative data was sorted and analysed using qualitative cluster analysis (Miovský, 2006).

3 RESULTS

A total of 34 persons volunteered to participate. Two persons never started testing the eHealth intervention, and another two persons stopped using the intervention before they could provide any data. The final sample consisted of 30 respondents. The FTND test determined at least medium (5 points) and higher (6–7 points) nicotine dependence in all the respondents. Two-thirds of the respondents reported a higher degree of nicotine dependence.

The pre-quitting phase lasted 10 days on average. The quitting phase lasted three weeks. Each respondent received and completed an average of 19 online sessions altogether. All of the 30 respondents finished the entire pre-quitting phase. However, they only finished less than a half of the standard one-month quitting phase.

In *Table 1*, we present a list of the most frequently reported benefits according to the respondents’ answers.

Technological Aspects	Therapeutic Aspects	Other
Simple control	Continuous everyday support	Flexibility of intervention time
Intuitive user interface	Respect-based and partnership-based approach	Availability in one’s own device
Attractive form	Authentic dialogue simulation	
	Support and appreciation	
	Strengthening motivation	

Table 1 | The most frequently reported benefits of the eHealth intervention for smoking cessation from the perspective of respondents (n=30)

Three-quarters of the sample would prefer to quit with the support of the eHealth application that was tested rather than seeking a conservative professional service (a physician, addiction specialist, pharmacist, or other professional). If the eHealth intervention were commercially available, nearly 60% of the respondents would seriously consider a purchase, and nearly half of them would use it for their next attempt to quit smoking. No significant correlation between the user acceptance rate and socio-demographic status was found. As this pilot study was the first test of the Czech version of the eHealth intervention, quite a few technical difficulties and program errors were encountered (i.e. occasional system downtimes, limited functionality of the text messaging system, and several other problems). The majority of the negative feedback

from the users was related to these technical difficulties. Other recommendations made by the respondents were improving the language of the textual content and updating the graphic content of the intervention.

Eight respondents reported being abstinent for seven days or longer following the end of the intervention; six respondents reported a reduction in the number of cigarettes smoked per day.

● 4 DISCUSSION

Despite the technical difficulties, negative feedback on the language, and treatment dropout, the study demonstrates a fairly high level of user acceptance of this new treatment modality. The prevalence of positive feedback regarding the therapeutic functionalities of the intervention confirmed our presumption that the eHealth intervention is capable of strengthening user adherence and compliance.

Although the evaluation of the efficiency of the eHealth intervention was not among the objectives of the pilot study, telephone interviews determined that eight respondents confirmed continuing abstinence of seven days and longer following the end of the programme, and six respondents confirmed that they were smoking a reduced number of cigarettes per day, despite the technical issues accompanying the program.

The pilot study proved the basic technological functionalities of the eHealth intervention, as well as positive acceptance of this new treatment modality from the view of real end users. The therapeutic functionalities (i.e. personalised content, the simulation of a therapeutic relationship, increasing motivation, and strengthening self-efficacy), combined with the benefits of online technology (availability, flexibility in time, real-time operation), are viewed by users as being the key treatment factors for any fully automated program. These findings are in accordance with the experiences of Norwegian research studies (Brendryen & Kraft, 2008; Holter et al., 2016). The launch of a fully-fledged eHealth intervention placed heavy demands on a multidisciplinary team of experts on IT, clinical addiction specialists, and eHealth professionals. The provision of continuous financial support and evaluation in the form of an effectiveness study are basic requirements for the practical implementation of this innovative treatment option. Two respondents out of the total of 34 persons did not possess devices fulfilling the minimum technical requirements and/or internet connection requirements, and thus never started testing the application. These technological limits are

among the real-world obstacles that prevent eHealth interventions from greater expansion in addiction treatment. Despite the increasing availability of modern technologies, some population groups may need to overcome other obstacles (Oliver et al., 2017), such as insufficient digital literacy, limited coverage of mobile data networks, paying for an application fee, and/or the strictly limited data plans offered by mobile providers. These factors need to be considered in the planning and implementation of eHealth technologies. Two persons quit the programme within the course of testing, following disrupted program continuity caused by technical issues with the implementing party.

This study had many limitations, such as the instability of the eHealth intervention, stylistic and language flaws, the limited testing period of the eHealth intervention resulting from limited funding, and the fact that the data was not complete for some of the respondents. This study also had strengths, i.e. the mixed-methods design used, the various groups of participants recruited on the basis of socio-economic criteria, and international research collaboration.

The eHealth application for the prevention of relapse in tobacco users that was evaluated constitutes a promising and innovative direction in addiction treatment.

Authors' contribution: The study protocol was designed by AK and RG. The data analyses were conducted and the manuscript was drafted by AK. The literature review and summary of related work were conducted by AK and RG. DN, VB and HB contributed to the writing of additional sections of the

manuscript. The final version of the manuscript was contributed to and approved by all the authors.

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REFERENCES

- Blitchtein-Winicki, D., Zevallos, K., Samolski, M. R., Requena, D., Velarde, C., Briceño, P., . . . Ybarra, M. L. (2017). Feasibility and Acceptability of a Text Message-Based Smoking Cessation Program for Young Adults in Lima, Peru: Pilot Study. *JMIR Mhealth Uhealth*, 5(8), e116. doi:10.2196/mhealth.7532
- Brendryen, H., Johansen, A., Nesvag, S., Kok, G., & Duckert, F. (2013). Constructing a Theory- and Evidence-Based Treatment Rationale for Complex eHealth Interventions: Development of an Online Alcohol Intervention Using an Intervention Mapping Approach. *JMIR Res Protoc*, 2(1), e6. doi:10.2196/resprot.2371
- Brendryen, H., & Kraft, P. (2008). Happy ending: a randomized controlled trial of a digital multi-media smoking cessation intervention. *Addiction*, 103(3), 478-484; discussion 485-476. doi:10.1111/j.1360-0443.2007.02119.x
- Brendryen, H., Kraft, P., & Schaalma, H. (2010). Looking Inside the Black Box: Using Intervention Mapping to Describe the Development of the Automated Smoking Cessation Intervention 'Happy Ending'. *Journal of Smoking Cessation*, 5(1), 29-56. doi:10.1375/jsc.5.1.29
- Civiljak, M., Stead, L. F., Hartmann-Boyce, J., Sheikh, A., & Car, J. (2013). Internet-based interventions for smoking cessation. *Cochrane Database Syst Rev*(7), Cd007078. doi:10.1002/14651858.CD007078.pub4
- Currie, M., Philip, L. J., & Roberts, A. (2015). Attitudes towards the use and acceptance of eHealth technologies: a case study of older adults living with chronic pain and implications for rural healthcare. *BMC Health Serv Res*, 15, 162. doi:10.1186/s12913-015-0825-0
- Czech Statistical Office. (2017). Využívání informačních a komunikačních technologií v domácnostech a mezi jednotlivci - 2017. Retrieved from: <https://www.czso.cz/documents/10180/46014700/06200417.pdf/a0bd4497-d2b6-450b-95f0-2f70c50786d5?version=1.1>
- Drozdz, F., Haga, S. M., Brendryen, H., & Slinning, K. (2015). An Internet-Based Intervention (Mamma Mia) for Postpartum Depression: Mapping the Development from Theory to Practice. *JMIR Res Protoc*, 4(4), e120. doi:10.2196/resprot.4858
- Duplaga, M. (2013). The Acceptance of e-Health Solutions Among Patients with Chronic Respiratory Conditions. *Telemedicine Journal and e-Health*, 19(9), 683-691. doi:10.1089/tmj.2012.0306
- Etter, J. F. (2006). The internet and the industrial revolution in smoking cessation counselling. *Drug Alcohol Rev*, 25(1), 79-84. doi:10.1080/09595230500459545
- Graham, A. L., Carpenter, K. M., Cha, S., Cole, S., Jacobs, M. A., Raskob, M., & Cole-Lewis, H. (2016). Systematic review and meta-analysis of Internet interventions for smoking cessation among adults. *Subst Abuse Rehabil*, 7, 55-69. doi:10.2147/sar.s101660
- Heatherton, T. F., Kozlowski, L. T., Frecker, R. C., & Fagerstrom, K. O. (1991). The Fagerstrom Test for Nicotine Dependence: a revision of the Fagerstrom Tolerance Questionnaire. *Br J Addict*, 86(9), 1119-1127.
- Holter, M. T., Johansen, A., & Brendryen, H. (2016). How a Fully Automated eHealth Program Simulates Three Therapeutic Processes: A Case Study. *J Med Internet Res*, 18(6), e176. doi:10.2196/jmir.5415
- Kulhánek, A. (2017). Nahradí adiktology roboti? *Adiktologie*, 17(4), 246-247.
- Miovský, M. (2006). *Kvalitativní přístup a metody v psychologickém výzkumu* (1 ed.). Praha: Grada Publishing.
- Oliver, J. A., Hallyburton, M. B., Páček, L. R., Mitchell, J. T., Vilardaga, R., Fuemmeler, B. F., & Joseph McClernon, F. (2017). What Do Smokers Want in A Smartphone-Based Cessation Application? *Nicotine Tob Res*. doi:10.1093/ntr/ntx171
- Shiffman, S., Stone, A. A., & Hufford, M. R. (2008). Ecological momentary assessment. *Annu Rev Clin Psychol*, 4, 1-32.
- Váňová, A., Skývová, M., & Csémy, M. (2017). Užívání tabáku a alkoholu v České republice 2016. Retrieved from http://www.szu.cz/uploads/documents/szu/aktual/uzivani_tabaku_2016_konecny_17_7.pdf
- Webb, T. L., Joseph, J., Yardley, L., & Michie, S. (2010). Using the internet to promote health behavior change: a systematic review and meta-analysis of the impact of theoretical basis, use of behavior change techniques, and mode of delivery on efficacy. *J Med Internet Res*, 12(1), e4. doi:10.2196/jmir.1376
- Wentink, M. M., Prieto, E., de Kloet, A. J., Vliet Vlieland, T. P. M., & Meesters, J. J. L. (2017). The patient perspective on the use of information and communication technologies and e-health in rehabilitation. *Disabil Rehabil Assist Technol*, 1-6. doi:10.1080/17483107.2017.1358302
- Whittaker, R., McRobbie, H., Bullen, C., Rodgers, A., & Gu, Y. (2016). Mobile phone-based interventions for smoking cessation. *Cochrane Database Syst Rev*, 4, Cd006611. doi:10.1002/14651858.CD006611.pub4
- WHO. (2017). WHO report on the global tobacco epidemic, 2017: Monitoring tobacco use and prevention policies. Retrieved from: http://www.who.int/tobacco/global_report/2017/en/

University Education of Social Workers in Addictological Issues in Europe and the USA: a review

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BACKGROUND: Academic training of social work students is fundamental to the development of a quality workforce. Historically, social workers have always worked with drug users. **AIM:** To provide an overview of evidence reported by research studies dealing with the university education of social workers in the field of substance use in Europe and the USA. **METHODS:** The search returned a total of 552 studies on the addiction-specific university education of social workers. Following information analysis using PRISMA, 19 articles were finally included in the study sample. The resulting product is a systematic review. **RESULTS:** More than half of the social work students have never received any specific training in addiction science, with only about one-third of them having received at least some form of education in the field. There is a lack of content consistency in addiction-specific courses taught within the social work study programmes. Less than half

of the programmes under analysis offer elective courses covering addictological topics; and only in limited extent. Studying links between education, knowledge, and attitudes is important to gaining an understanding of the capabilities of social workers in addictological practice. Studies of the implementation of training approaches with addictological content are beneficial for improving knowledge and skills. **CONCLUSIONS:** Many social work students' preparedness for work with addiction clients is inadequate. There should be a focus on the innovation of the curricula in social work, an emphasis on interdisciplinary cooperation, the inclusion of addiction issues in the curricula, and the promotion of a national platform for the accreditation and licencing of addiction study programmes and evidence-based approaches, and the dissemination of research results across academic institutions should be encouraged.

Keywords | Social work education – Substance (ab)use/addiction – Specialisation – Training

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● 1 INTRODUCTION

Historically, social workers have always engaged in working with substance users and people with addiction issues (Conley, Schantz, Shea & Vaillancourt, 2006). A survey among the members of the National Association of Social Workers in 2001 showed that 71% of social workers had worked with substance users in the last month (Smith, Whitaker, & Weismiller, 2006). According to another U.S. survey of 44 drug treatment centres (Sun, 2014), 11.6% of clinicians were graduates of bachelor's programmes (B.A.) in social work, with masters' degrees (M.A.) in social work accounting for only 3.6%. In addition, approximately one-third of all the practitioners with a B.A. had received a degree in social work, with only 8% of the practitioners with an M.A. degree being social work graduates. Academic professional training is essential for the development of a quality workforce and the provision of high-standard care. The number of accredited study programmes in social work is increasing every year. In June 2016 there were 758 social work programmes – 51 at the bachelor's level and 247 at the master's – in the USA (Council on Social Work Education [CSWE], 2016). The number of social work students had increased by 23.4% in the last five years. Annually, 45,000 students receive a higher education degree in the USA. It is estimated that this number will continue to grow and that there will be even more social work programmes in the future (Robbins, Regan, Williams, Smyth, & Bogo, 2016).

Notwithstanding this development, different branches of social work fail to pay sufficient attention to potential addiction-related issues in general social work practice, despite the high level of prevalence of substance use among social workers' clients (Hall, Amodeo, Shaffer, & Vander Bilt, 2000; Whitter et al., 2006). Although academic standards for study programmes have improved to give more consideration to addiction clients, social workers lack appropriate training in dealing with substance use issues (Bliss & Pecukonis, 2009). In Dillonardo (2011), 81% of social workers reported having received some kind of education/training in substance use disorders at some point in their lifetime. 68% reported having received such training outside their studies, for example in the context of their clinical practice. Slightly more than one-third indicated having received such training as part of their academic programme and the majority of the total number of respondents through clinical supervision. Only 1% of the participants in this survey indicated that they had completed a specific certified substance use programme.

Both social workers engaged with addiction clients and students admit that addictological “know-how” is not sufficiently articulated and call for better education in this area (Collins & Keene, 2000, Galvani & Forrester, 2011; Hall et al., 2000; Warren, Weatherford, Zakaria, & Syamilah, 2013).

Despite the attention focused by the US and UK national authorities on social workers' capacities to intervene in relation to clients with substance use and the new certification, accreditation, and standardisation schemes being introduced, work with substance users is not incorporated

into the curricula as a practice requirement; it remains at the level of recommendations (CSWE, 2008; Galvani, 2012).

● 2 METHODOLOGY

2.1 Aims and research questions

The main objective was to provide a systematic review of evidence published in scholarly papers dealing with higher education in substance use for social workers in Europe and the USA.

Research questions:

1. How common is it for addiction-specific courses to be included in the curricula of social work programmes at US and European universities?
2. What is the structure, content, and duration of addiction-specific courses included in the curricula of social work programmes at US and European universities?
3. How do social work students at US and European universities feel about work with clients using drugs, what do they know about it, and how well do they consider themselves to be prepared for working with such clients?
4. In what way can the implementation of new teaching approaches focusing on addiction-related issues influence the attitudes and knowledge of social work students at US and European universities?

2.2 Sample and data collection methods

Systematic analysis of scientific literature was conducted. The international databases EBSCO, MEDLINE/PubMed, Web of Science, and ERA (Educational Research Abstracts Online by Routledge and Taylor & Francis), were searched for the following key words: “social work education”, “substance (ab)use/addiction”, “specialisation”, and “training”. The Boolean operators AND and OR were used. Combinations of the terms were looked for (social work education AND addiction) OR substance abuse) AND training) OR specialisation.

The target group consisted of studies addressing the addiction-specific university education of social workers. The following inclusion criteria were defined: full-text scientific papers published from 2001 to 2016 in English. European and US studies with a clearly described methodology were selected.

The content of the articles had to pertain to addictology as a part of the higher education curricula for social work study programmes addressing substance use among the general population.

The analysis did not include articles dealing with programmes and courses which addressed only non-substance addictions and did not cover substance addictions – e.g. courses covering exclusively eating disorders or pathological gambling. Articles with a particularly nar-

row focus on education pertaining to very specific target groups in terms of addictology were also excluded. These included papers on substance use among the elderly population or pregnant women.

Where the study sample comprised respondents, studies focusing on university social work students were included. The data was collected from September to November 2016.

2.3 Data analysis

The data was analysed and processed using the EndNote reference management tool. The PRISMA method and a flow diagram (Higgins & Green, 2008) were used to structure and categorise the data (Figure 1).

The search of databases returned a total of 552 scientific papers for the combinations of the above key words. Fifty two articles were assessed as eligible and subjected to full-text analysis. The final inclusion criteria were met by 19 studies which were subsequently subjected to information analysis.

All the operations were performed in compliance with ethical standards.

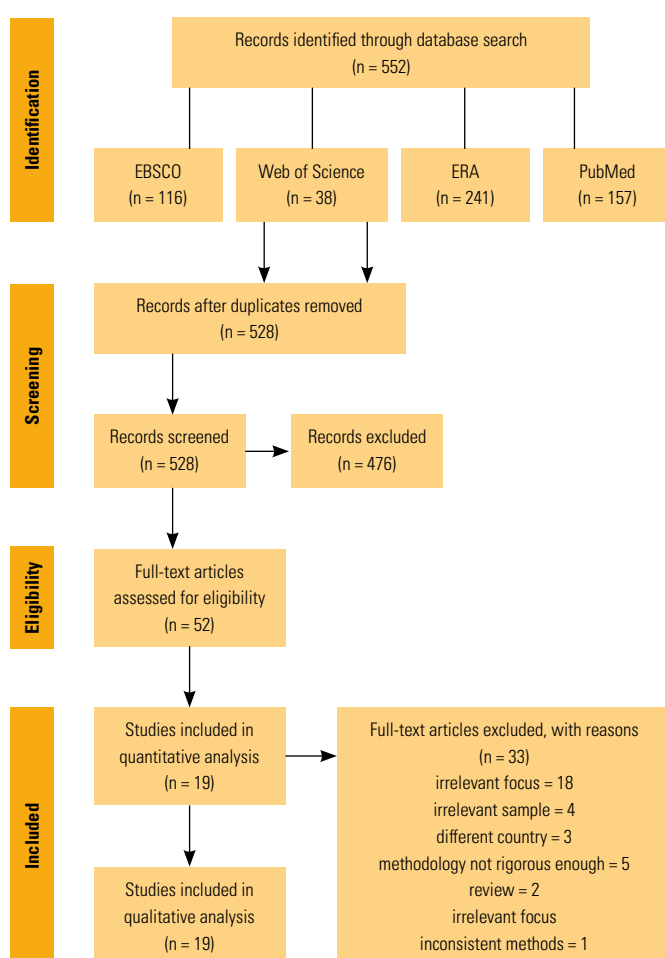


Figure 1 | Prisma diagram

3 RESULTS

3.1 General provision of addiction-specific courses

A study conducted by Decker, Brenner, and Murtagh (2005) showed that out of 426 programmes under scrutiny, 88 (27%) offered 117 courses in addictions and only 25% of all of the programmes (n=107) offered at least one addiction-related course. Jani et al. (2008) reported that 35% of their respondents had received at least some formal academic training in addictions, while 36% had received no professional training in this respect. Senreich and Straussner (2013a) found that addiction-related courses were mentioned as being incorporated in their master's of social work programmes by approximately one-third of the students included in their survey (Senreich & Straussner, 2013a). The same was reported by approximately a quarter of the respondents enrolled in the bachelor's-level social work programme (Senreich & Straussner, 2013b). Richardson (2008) noted that only 29.5% of the sample under study had completed at least one course related to addictions.

According to Quinn (2010), 98% of the programmes did not provide addiction-related training to all the students. Wilkey, Lundgren, & Amodeo (2013) found that only 4.7% of accredited schools had at least one required course. Galvani and Allnock (2014) reported that 94% of the responding schools provided some form of education in alcohol and other drug use. A study carried out by Galvani and Forrester (2011) three years earlier concluded that no training in substance use issues had been received by approximately one-third (30.4%) of the participants.

3.2 Structure, content, duration

3.2.1 Inclusion of practical training

Senreich and Straussner (2013a) reported that an internship in a drug treatment facility was completed by 17% of the respondents in master's-level social work programmes, while in bachelor's-level programmes the figure was only 8% (Senreich & Straussner, 2013b). Quinn (2010) found that out of the total of 216 schools under analysis, 11.6% had provided certified addiction-specific programmes, including field practice; nine schools highlighted addiction issues as the main focus of the study programme.

3.2.2 Elective and required addiction-related courses

Analysing a total of 58 master's-level social work programmes, Russett & Williams (2015) found that only one incorporated at least one required course in substance use and 37 provided at least one elective. Out of 89 bachelor's programmes under study, three required at least one course in substance use and 40 programmes offered at least one optional one. Richardson (2008) showed that 89% of the higher education institutions providing social work programmes in the State of New York did not require the completion of

a substance use-related course and 42% offered such courses as electives. Similarly, Quinn (2010) found that 46 schools under scrutiny (21.3%) provided no education in addictions or offered it on an elective basis only. Nine schools (4.6%) addressed substance use as part of other social issues. Out of all the accredited programmes, only four (1.9%) involved required courses in addictions. Twenty schools (9.3%) had included substance use issues as a required component of their curricula, including 14 (6.5%) which identified them in the curricula as the main focus of their academic programme. A national study (Wilkey et al., 2013) revealed that a specialisation in addiction which allowed students to pursue intensive training in the field was offered by 14.3% of accredited schools. Only 10 (4.7%) out of the total of 210 programmes under scrutiny required at least one or more addiction-specific courses as part of their curricula. 135 (64.2%) schools provided substance use courses as electives.

3.2.3 Duration

Galvani and Allnock (2014) reported that the majority of the students received less than five hours of specialist lessons ($n=39/47$). As regards semestral modules, four out of 13 dedicated less than six hours to addictions, while eight programmes involved more than 10 hours. On average, four hours were dedicated to specialist lessons, with the average number of topics covered within this period being 9.5 out of 19. Looking into the time dedicated to different areas of the curricula of the programmes under study, Galvani and Forrester (2011) found that out of those who had completed any training in substance use (i.e. 30, or 4%), 38.7% received a day or less of such instruction in duration. Only 18.3% of the respondents were provided with more than three days of addiction-related training. A comparative study by Lemieux and Schroeder (2004) concluded that 28.6% of the respondents from one group and 35.6% of the second group received less than 10 hours' worth of training in substance use-related issues.

3.2.4 Content and style of teaching

Galvani and Allnock (2014) noted differences between the content and the depth of the topics. Positive outcomes, however, seem to be achieved by the recognition of the need for addiction-specific topics to be given a greater priority in the curricula. 31% ($n=21$) were taught on an integrative basis, with the topics being included in other courses. More than half of the respondents seemed to apply the combination of integrative techniques and independent lessons ($n = 36$). The most common areas covered as part of the instruction included attitudes and values and the consequences of drug use for physical and mental health. The findings of Decker et al. (2005) suggest that the most commonly covered areas include an introduction to the field, case management models, drug-related problems, and treatment options.

3.3 Knowledge, attitudes, preparedness

Examining master's-level social work programmes, Bina et al. (2008), Lemieux and Schroeder (2004), Richardson

(2008), and Jani et al. (2008) found that the levels of preparedness, knowledge, and attitudes in relation to working with drug users were lower among students who had not completed any specialised substance use courses or internships in a drug treatment facility.

Senreich and Straussner (2013a, 2013b) showed that required courses in substance use appear to predict students' generally more positive attitudes and perceptions of their roles as adequate and legitimate in relation to working with substance users. Having an internship in a drug treatment setting or completing substance use-related courses in an academic setting were found to be effective in improving students' attitudes towards working with substance-using clients. Baez (2005) demonstrated that students achieved significantly better scores in a test of their knowledge of substance addictions following their completion of a training programme in substance use-related skills.

The association between substance use-related courses and professional attitudes was demonstrated by Richardson (2008). His findings also suggested a gap between what students were taught and what they should know for their work with substance users. The results indicated that 53.9% of the respondents had completed no courses dedicated to substance use during their studies, while less than half of them (30.3%) reported having completed at least one addiction-specific course. The more substance use education and training the students received as part of their social work academic programme, the better their knowledge and abilities to identify clients with substance use problems and the greater their willingness to work with this target group. Links between formal academic training and better knowledge of substance use concepts on the one hand and greater perceived preparedness for work with substance users on the other hand were supported by Jani et al. (2008).

While Stein (2003) found no major relationship between a short-term programme aimed at the area under consideration and students' attitudes towards substance-using clients, Wilkey et al. (2013) ascertained that students provided with a nine-month programme displayed higher confidence and competences in relation to the addiction field.

3.4 Description and implementation of addictological content

Some study programmes integrated certain addiction-specific strategies or teaching methods into their social work curricula. Whether such efforts involved the implementation of a curriculum described by Corrigan, Bill, & Slater (2009), the DECLARE and SCARS models described by McCarthy and Galvani (2004), SBIRT as described by Ogden, Vinjamuri, & Kahn (2016) and Pugatch et al. (2015), the OSCE method introduced by Baez (2005), or the application of Bronstein's teaching model (Linley, Mendoza, & Resko, 2014), the most common and beneficial techniques included role playing, analysis of a video recording made of students, motivational interviewing, and skills needed

to work with clients and their families in the field or to teach them relapse prevention strategies. Curricula underpinned by an evidence-based approach focused on social workers' key competences in relation to substance use and addiction. Their goal was to teach them the skills needed to perform screening and assessment, identify problems, carry out interventions targeted at substance users, and draw up sensible plans. A strong emphasis was also placed on interdisciplinary work and supervision (Corrigan et al., 2009; Linley et al., 2014).

● 4 DISCUSSION

While rather limited, e.g. Senreich & Straussner (2013a); Richardson (2008); Decker et al. (2005); Quinn (2010); Jani et al. (2008); Wilkey et al. (2013), research into the general provision of substance use education as part of social work curricula is consistent in concluding that addiction-related issues are not addressed to a sufficient extent.

Social workers comprise the largest group of mental health professionals. According to the US Bureau of Labor Statistics, the number of social workers specialising in the addiction field grew by 30% between 2006 and 2016 and demand for them is also increasing (SAMHSA, 2006).

The formal education in addictions received by social workers is limited (Wilkey et al., 2013; Senreich & Straussner, 2013a; 2013b; Jani et al., 2008; Jani et al., 2009; Decker et al., 2005; Galvani & Forrester, 2011; Richardson, 2008; Russett & Williams 2015; Quinn, 2010). Social workers' training in addiction-specific areas is addressed by master's- rather than bachelor's-level programmes (Baez, 2005; Pugatch et al., 2015; Richardson, 2008; Senreich & Straussner, 2013a; Slater et al., 2009; Stein, 2003; Wilkey et al., 2013). Quinn (2010), Russett & Williams (2015), Jani et al. (2008), Senreich and Straussner (2013a; 2013b), and Wilkey et al. (2013) suggest that greater attention should be focused on the incorporation of addiction-specific courses into social work programmes on both the bachelor's and master's levels. The same applies to practical placements (Quinn, 2010; Senreich & Straussner, 2013a). If the majority of social work students have the opportunity to meet substance-using clients in their natural environment, they will be more effective in employing interventions for them.

In general, very little time is assigned to elective substance use-specific courses in social work curricula (e.g. Wilkey et al., 2003). The majority of the articles under study reported that optional courses covering substance use issues were offered by less than half of the programmes or universities under scrutiny. Moreover, selecting and signing up for a course is no guarantee of its completion. It is sometimes also difficult for students to choose an optional course which fits into their timetable and does not overlap with other courses. A possible solution might be to include such courses as required ones. This is not very common; a number of programmes reports providing at least one addiction-related course as part of their curricula (Russett &

Williams, 2015; Richardson, 2010; Wilkey et al., 2013). The idea of education in addictions being incorporated into social work programmes as a required component is supported by Senreich and Straussner (2013b), Jani et al. (2008), and Russett & Williams (2015).

Rather positive findings were reported by Quinn (2010). It was found that approximately one-tenth of the total number of programmes under analysis (11.6%) included certified programmes addressing addiction issues, with 4.1% of the total number, i.e. almost half of the certified programmes, featuring drug-related topics as the main focus of the curriculum. It is one of the studies which implies a relationship between certification, programme quality, and the inclusion of education in substance use as a compulsory component. On the basis of the above evidence, it appears advisable for the future to focus on this area in the Czech Republic, too. Miovský, Kalina, Libra, Popov, & Pavlovská (2014) noted that it may also be sensible to consider similar activities in relation to other specialisations.

Wilkey et al. (2013), Galvani and Allnock (2014), Galvani and Forrester (2011), and Lemieux and Schroeder (2004) also identified a relationship between the duration of the course and its being elective or required. The greater the number of hours dedicated to the subject matter, the more robust the content. However, the time assigned to the courses was totally insufficient to cover the relevant areas. As suggested by Senreich and Straussner (2013a), Galvani and Forrester (2011), Bina et al. (2008), Lemieux and Schroeder (2004), Jani et al. (2008), and Richardson (2008), for example, it appears to hold that the more content there is, the more positive students' perceptions of their preparedness for working with addiction clients in the future are. A possible way, or good practice, of dealing with insufficient time being dedicated to addiction-specific courses as regards practical skills at least could be a requirement for students to complete qualification training in clinical practice after they have acquired their master's degree (Galvani, 2012).

The studies under review suggest that there are differences between what is taught and to what depth. In addition to the lack of time, this also involves the content being inconsistent across programmes (Galvani & Allnock, 2014). Positive findings concerning content were noted by Galvani and Allnock (2014), Decker et al. (2005), and Gibbons and Grey (2002). They found an integrative method to be the most effective. It may therefore be worthwhile to consider its incorporation into other similar programmes.

The majority of the respondents believed that the curricula of social work programmes did not prepare them for working with drug-dependent clients, and their attitudes and beliefs seem to prevent them from working effectively with this target group in practice (Galvani & Forrester, 2011; Senreich & Straussner, 2013a; 2013b; Lemieux & Schroeder, 2004). The results of the studies by Senreich and Straussner (2013a; 2013b), Lemieux and Schroeder (2004), Jani et al. (2008), Baez (2005), Ogned et al. (2016), Pugatch et al. (2015), and Wilkey et al. (2013) highlight the need to incor-

porate addiction education into core social work curricula. This may lead to social work students changing their attitudes towards clients with substance use issues.

Richardson (2008) suggested that students who had completed addiction-specific courses showed greater willingness to work with substance-using clients. However, Senreich and Straussner (2013a) arrived at opposite conclusions. The students in their sample did show a higher level of knowledge about addictological issues after completing the programme, but they were by no means more positively inclined and willing to work with drug users. A possible explanation, supported by Galvani and Forrester (2011), is that the respondents understood the possible motives for substance use, but failed to reach the desired score in areas requiring a greater amount of practical experience. In this respect, it can be argued that the problem of negative attitudes towards work with drug users may be due to social workers not being sufficiently prepared for practice. The students' lack of practical training in addictology was mentioned earlier (see Quinn, 2010; Senreich & Straussner, 2013 a; 2013b).

Useful points were made by Galvani (2012) in this respect. Specifically, she noted that some of the aforementioned biases and attitudes may be communicated through institutions such as social work schools on various levels rather than being a result of the shortage of substance use-related topics in the curricula. Gaps in social workers' preparedness for working with substance-using clients have long been overlooked (e.g. Home Office, 2002; Hall et al., 2000; Hall, 2008; Dillonardo, 2011; Bliss & Pecukonis, 2009; Whitter et al., 2006).

4.1 Implications for future research and practice

Addiction-related issues should be included in the curricula of education programmes for social workers and other professions who encounter drug users in their practice. While a large number of clinical social workers are able to work with substance-using clients, they may be lacking specialist training which could help them improve their effectiveness in this respect. It should be noted that university-level education is not the only way of providing social workers with relevant training. According to the National Association of Social Workers (NASW, 2007), the majority (85%) of social workers have attained some type of substance use training by other means. This makes postgraduate lifelong learning an area which could be explored by further research (Galvani, Dance, & Hutchinson, 2013; Straussner & Vairo, 2008; Scotch, Fleger-Berman, & Shaffer, 1997).

In the light of the results of the studies, schools of social work should take steps to provide more addiction-specific education, offer and demand consistent elective and required courses concerning substance use, and work with the community of addiction experts in order to improve the content of such courses and increase demand for them. It would be useful for the representatives of the relevant professions to

discuss the importance of the innovation of the curricula at conferences and workshops. This would raise awareness of the issue among the broader professional community and the public. Higher education schools of social work could refer in their instruction to the latest evidence-based knowledge from the field of addictology. It should also be pointed out that it is important to encourage both students and clinicians to develop interest in the addiction field in their free time (self-education, extracurricular activities, participation in conferences and workshops, etc.), as they are the ones to constitute the workforce responsible for the field under consideration.

A question which remains open is what bachelors and masters of social work, respectively, should be able to do and whether it is appropriate that bachelor's-level programmes are designed to provide rather general education and that social workers do not become specialised until they enter the master's level or even clinical practice. The idea of general social work curricula with no specialisation until the master's programme was supported by Baez (2005), Richardson (2008), and Senreich & Straussner (2013a), for example.

Accreditation and certification bodies should be supported in their efforts to devise sensible concepts aimed at facilitating the implementation of an integrated policy to address education in addictology. Educational curricula should be based on robust evidence and unified key competences and in line with uniform standards developed with support from experts in addictology. The evidence-based key competences supported by Corrigan et al. (2009), Lemieux & Schroeder (2004), Pugatch et al. (2015), Baez (2005), and Linley et al. (2014) could be used as the foundation for addiction-specific curricula. Cooperation between both private and public entities at all levels should be promoted in order to provide prospective social workers with proper training for work with drug-using clients. In addition to unifying the curricula and training prospective social workers, accreditation programmes should define the criteria for evaluating such programmes, with quality being the main focus.

In the Czech Republic, the examples of good practice include the *Standards of professional competency of facilities and programmes providing professional addiction treatment services in the Czech Republic (Standards of services for drug users, dependent users, and pathological gamblers)* (Libra et al., 2015), *The system of specialised addiction treatment services in the Czech Republic: a policy document* (Miovský, 2013), or the promotion of addictology as an independent discipline (Pavlovská et al., 2017). Another good practice is the UK educational system using accreditation standards (CACREP). This model seems to work as an exemplary model for other European universities which are developing similar documents. Miovský et al. (2015) hold that the sharing of innovative techniques and approaches could improve the reputation of the field of addictology.

It is also important to create sustained opportunities for students to complete field training in addictology. In the

United Kingdom, after finishing their academic education and before starting work, students have the opportunity to pursue one-year specialist training in the field of their professional orientation. This evidence-based approach to education appears very effective. This may be one of the reasons why UK studies have reported relatively positive results (Galvani & Allnock, 2014; Galvani & Forrester, 2011; McCarthy & Galvani, 2004).

A major limitation of this study is the language barrier; only articles written in English were included in the analysis. This is closely linked to the issue of the representativeness of the results, as for some countries only papers in the local languages may be available. The studies did not employ consistent methodologies. Steps were taken to minimise the effects of all the limitations and account for them in the methodology used in the present study.

● 5 CONCLUSION

Social workers lack academic professional training in empirically-based methods of work with substance users. This raises questions about the provision of the best-quality care for addiction patients.

The inconsistency of content across programmes was pointed out as an issue. Elective courses covering addiction-related topics were offered by less than half of the higher education institutions included in the analysis. Little time is dedicated to these courses. The analysis showed differences in the content and the thoroughness with which the topics were covered, with the duration of the programme being positively correlated with the depth of the coverage.

The results of the studies looking into social work students' attitudes and preparedness in relation to work with substance-using clients suggest that a higher level of understanding of substance-using clients may reflect positive attitudes towards substance-related problems.

Brief workshops and intensive educational programmes involving evidence-based and interdisciplinary approaches are feasible and acceptable methods which may be a valuable complement to programmes managed in a more rigorous manner.

It is essential to promote the innovation of social work curricula. The quality and unification of the curricula are closely linked to the focus on standards and their implementation. On the basis of the evidence provided by the studies under review, it is recommended that in the future substance use

issues should be incorporated into the curricula of educational programmes for social workers and other professionals whose practice may involve working with drug users. This topic should also be explored by further research. Students' expertise should be enhanced by both theoretical knowledge and practical skills. In connection with a change towards more consistent curricula, it is also important to promote national platforms for the accreditation, licensing, and unification of addictology programmes and facilitate systematic dissemination of research evidence across academic institutions.

Authors' contribution: The paper is based on the diploma thesis of the first author, who conducted the complete literature search. The second author supervised the work and provided consultation about the study design, the formulation of the aims, the methodology, and the processing of the results. The study was conceived as a systematic review.

The first author drafted the initial version of the manuscript. Both authors worked together on the subsequent revisions of the text. Both authors contributed to the article and approved the final version of the manuscript.

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REFERENCES

- Baez, A. (2005). Development of an Objective Structured Clinical Examination (OSCE) for Practicing Substance Abuse Intervention Competencies: An Application in Social Work Education. *Journal of Social Work Practice in the Addictions*, 5(3), 3-20. doi: 10.1300/J160v05n03_02
- Bina, R., Harnek Hall, D. M., Mollette, A., Smith-Osborne, A., Yum, J., Sowbel, L., & Jani, J. (2008). Substance abuse training and perceived knowledge: Predictors of perceived preparedness to work in substance abuse. *Journal of Social Work Education*, 44, 7-20. doi:10.5175/JSWE.2008.200600046
- Bliss, L. D., & Pecukonis, E. (2009). Screening and Brief Intervention Practice Model for Social Workers in Non-Substance-Abuse Practice Settings. *Journal of Social Work Practice in the Addictions*, 9(1), 21-40. doi: 10.1080/15332560802646604
- Collins, S., & Keene, J. (2000). *Alcohol, Social Work and Community Care*. Birmingham: Venture Press.
- Conley, T. B., Schantz, D. L., Shea, S., & Vaillancourt, M. (2006). Meeting the Addiction Education and Training Needs of Rural Master's Level Social Workers. *Professional Development: The International Journal of Continuing Social Work Education*, 9(1), 24-33.
- Corrigan, M. J., Bill, M. L., & Slater, J. R. (2009). Teaching note: the development of a substance abuse curriculum in a master's of social work program. *Journal of Social Work Education*, 45(3), 513-520. doi:10.5175/JSWE.2009.200700120
- Council on Social Work Education, Inc. (CSWE) (2008). Educational Policy and Accreditation Standards. Alexandria, VA: CSWE; 2008. Available from <http://www.cswe.org/File.aspx?id=41861>.
- Council on Social Work Education (2016). Accreditation. Available from <http://cswe.org/Accreditation.aspx>, CSWE Commission on Research. A retrospective look at CSWE's doctoral program data, 2006-2014: A report to GADE and NADD by the Commission on Research. Alexandria, VA: CSWE Department of Educational Initiatives and Research.
- Decker, J. T., Brenner, M., & Murtagh, M. (2005). Are Baccalaureate Level Social Workers Who Graduate from Accredited BSW Programs Prepared to Enter into Positions Working in Alcohol and Other Drug Treatment Programs? *Journal of Social Work in Disability & Rehabilitation*, 4(3), 25-38. doi: 10.1300/J198v04n03_04
- Dillonardo, J. (2011). Workforce Issues Related to: Physical and Behavioral Healthcare Integration. Specifically Substance Use Disorders and Primary Care. A Framework. Workforce Issues: Integrating Substance Use Services into Primary Care Conference. Hyatt Regency Washington Hotel on Capitol Hill, Washington, DC. Retrieved 2016/12/06 from https://www.samhsa.gov/sites/default/files/programs_campaigns/samhsa_hrsa/integrate-substance-use-primary-care.pdf
- Galvani, S., & Forrester, D. (2011). How Well Prepared are Newly Qualified Social Workers for Working with Substance Use Issues? Findings from a National Survey in England. *Social Work Education*, 30(04), 422-439. doi: 10.1080/02615479.2010.504981
- Galvani, S. (2012). Curriculum Guide—Substance Use, The College of Social Work, London.
- Galvani, S., Dance, C., & Hutchinson, A. (2013). Substance Use Training Experiences and Needs: Findings From a National Survey of Social Care Professionals in England. *Social Work Education*, 32(7), 888-905. doi: 10.1080/02615479.2012.719493
- Galvani, S., & Allnock, D. (2014). The Nature and Extent of Substance Use Education in Qualifying Social Work Programmes in England. *Social Work Education*, 33(5), 573-588. doi: 10.1080/02615479.2014.919067
- Gibbons, J., & Gray, M. (2002). An integrated and experience-based approach to social work 10.1080/0261547022000015221
- Hall, R. (2008). The evolution of social work practice: implications for the generalist approach. *International Journal of Social Welfare*, 17, 390-395. doi: 10.1111/j.1468-2397.2008.00558.x
- Hall, M. N., Amodeo, M., Shaffer, H. J., & Vander Bilt, J. (2000). Social workers employed in substance abuse treatment agencies: a training needs assessment. *Social Work*, 45(2), 141-155.
- Higgins, J. P. T., & Green, S. (2008). *Cochrane Handbook for Systematic Reviews of Interventions Version 5.0.1*. [online] The Cochrane Collaboration. Available from www.cochrane-handbook.org.
- Home Office. (2002). Updated Drugs Strategy 2002. London: Home Office. Retrieved 2017/02/11 from http://webarchive.nationalarchives.gov.uk/20130323061340/https://www.education.gov.uk/publications/eOrderingDownload/Drug_Strategy_2002-pt1.pdf
- Jani, J., Sowbel, L., Yum, J., Smith-Osborne, A., Mollette, A., Harnek H. D. M., & Bina, R. (2008). Substance Abuse Training and Perceived Knowledge: Predictors of Perceived Preparedness to Work in Substance Abuse. *Journal of Social Work Education*, 44(3), 7-20. doi: 10.3109/10826084.2014.891615
- Jani, J. S., Sowbel, L., A., Yum, Smith-Osborne, J., Mollette, A., Hall, D., & Bina, R. (2009). Perceived Preparedness and Knowledge of Substance Abuse Among Recent MSW Graduates: Advanced Standing Revisited. *Journal of Social Work Practice in the Addictions*, 9(4), 381-399. doi: 10.1080/15332560903284487
- Lemieux, C. M., & Schroeder, J. (2004). Seminar on Addictive Disorders: An Exploration of Students' Knowledge, Attitudes, and Behavior. *Journal of Social Work Practice in the Addictions*, 4(1), 3-21. doi: 10.1300/J160v04n01_02
- Libra, J., Adameček, D., Herzog, A., Krutilová, D., Randák, D., Sklenář, V., et al. (2015). Inovované Standardy odborné způsobilosti pro zařízení a programy poskytující adiktologické odborné služby (Standardy služeb pro uživatele drog, závislé a patologické hráče) [Standards of professional competency of facilities and programmes providing professional addiction treatment services in the Czech Republic (Standards of services for drug users, dependent users, and pathological gamblers)]. Rada vlády pro koordinaci protidrogové politiky.
- Linley, J. V., Mendoza, N. S., & Resko, S. M. (2014). Working on Treatment Teams: Educating Social Work Students to Function as Addiction Specialists within Interdisciplinary Groups. *Social Work Education*, 33(5), 642-655. doi: 10.1080/02615479.2014.919095
- McCarthy, T., & Galvani, S. (2004). SCARS: A New Model for Social Work with Substance Users. *Practice*, 16(2), 85-97. doi: 10.1080/09503150412331313060
- Miovský, M. (Ed.) (2013). *Koncepce sítě specializovaných adiktologických služeb v České republice [The System of Specialised Addiction Treatment Services in the Czech Republic: a policy document]*. Praha: Klinika adiktologie 1. LF UK a VFN v Praze.
- Miovský, M., Kalina, K., Libra, J., Popov, P., & Pavlovská, A. (2014). Education in Addictology in the Czech Republic: the Scope and Role of the Proposed System [Rámec a role Koncepce vzdělávání v oboru adiktologie v České republice]. *Adiktologie*, 14(3), 310-328.
- Miovský, M., Miller, P., Grund, J.P., Běláčková, V., Gabrhelík, R., & Libra, J. (2015). Academic education in addictology (addiction science) in the Czech Republic: Analysis of the (pre- 1989) historical origins. *Nordic Studies on Alcohol and Drugs*, 32, 527-538. doi: 10.1515/nsad-2015-0050
- National Association of Social Workers, NASW Credentials and Specialty Certifications (2007). Certified clinical alcohol, tobacco, and other drugs social worker (C-CATODSW). Available from <http://www.socialworkers.org/credentials/specialty/c-catodsw.asp>
- Ogden, L. P., Vinjamuri, M., & Kahn, J. M. (2016). A Model for Implementing an Evidence-Based Practice in Student Fieldwork Placements: Barriers and Facilitators to the Use of "SBIRT". *Journal of Social Service Research*, 42(4), 425-441. doi: 10.1080/01488376.2016.1182097
- Pavlovská, A., Miovský, M., Babor, T. F., & Gabrhelík, R. (2017). Overview of the European university-based study programmes in the addictions field. *Drugs: Education, Prevention and Policy*, 24:6, 485-491. doi: 10.1080/09687637.2016.1223603

- Pugatch, M., Putney, J., O'Brien, K., Rabinow, L., Weitzman, E., & Levy, S. (2015). Integrating substance use training into social work education. *Addiction Science & Clinical Practice*, 10(Suppl 1), A49. doi: 10.1186/1940-0640-10-S1-A49
- Quinn, G. (2010). Institutional denial or minimization: substance abuse training in social work education. *Substance Abuse*, 31(1), 8-11. doi: 10.1080/08897070903442475
- Richardson, M. A. (2008). Social Work Education: The Availability of Alcohol-Related Course Curriculum and Social Workers' Ability to Work with Problem Drinkers. *Journal of Social Work Practice*, 22(1), 119-128. doi: 10.1080/02650530701872470
- Robbins, S.P., Regan, J., Williams, J.H., Smyth, N. J. & Bogo, M. (2016): From the Editor - The Future of Social Work Education, *Journal of Social Work Education*, 52(4), 387-397. doi: 10.1080/10437797.2016.1218222
- Russett, J. L., & Williams, A. (2015). An exploration of substance abuse course offerings for students in counseling and social work programs. *Substance Abuse*, 36(1), 51-58. doi: 10.1080/08897077.2014.933153
- SAMHSA (2006). United States Department of Labor; Bureau of Labor Statistics (BLS): Washington DC. Available from <http://data.bls.gov/oep/servlet/oep.noeted.servlet.ActionServlet>
- Scotch, F. L., Fleger-Berman, L., & Shaffer, H. J. (1997). Evaluating the Impact of a Clinical Training Program in the Addictions. *Substance Use & Misuse*, 32:10, 1331-1348. doi: 10.3109/10826089709039381
- Senreich, E., & Straussner, S. L. A. (2013a). The Effect of MSW Education on Students' Knowledge and Attitudes Regarding Substance Abusing Clients. *Journal of Social Work Education*, 49(2), 321-336. doi: 10.1080/10437797.2013.768485
- Senreich, E., & Straussner, S. L. A. (2013b). Does Bachelor's-Level Social Work Education Impact Students' Knowledge and Attitudes Regarding Substance-Abusing Clients? *Journal of Teaching in Social Work*, 33(1), 87-103. doi: 10.1080/08841233.2012.751083
- Smith, M. J. W., Whitaker, T., & Weismiller T. (2006). Social workers in the substance abuse treatment field: A snapshot of service activities. *Health and Social Work*, 31, 109-115.
- Stein, J. B. (2003). Attitudes of Social Work Students About Substance Abuse: Can a Brief Educational Program Make a Difference?. *Journal of Social Work Practice in the Addictions*, 3(1), 77-9. doi: 10.1300/J160v03n01_06
- Straussner, S. L. A., & Vairo, E. (2008). The Impact of a Post-Master's Program in Substance Abuse on Social Work and Other Health Professionals. *Journal of Teaching in Social Work*, 27(1-2), 105-123. doi: 10.1300/J067v27n01_07
- Sun, A. (2001). Systemic barriers to the employment of social workers in alcohol and other drug treatment agencies: A statewide survey. *Journal of Social Work practise in the Addictions*, 1, 11-24. doi: 10.1300/J160v01n01_03
- Warren, J. C., Weatherford, A., Zakaria, J., Syamilah, N. (2013). Assessing the impact of addictions education on attitudes of students: a preliminary investigation. *Journal of Alcohol & Drug Education*.
- Whitter, M., Bell, E. L., Gammond, P., Gwaltney, M., Magana, C. A., & Moreaux, M. (2006). *Strengthening professional identity: Challenges of the addictions treatment workforce*. Bethesda, MD: Abt Associates Incorporated.
- Wilkey, C., Lundgren, L., & Amodeo, M. (2013). Addiction Training in Social Work Schools: A Nationwide Analysis. *Journal of Social Work Practice in the Addictions*, 13(2), 192-210. doi: 10.1080/1533256X.2013.785872

The First Inpatient Alcohol Treatment Facility in the Czech Republic: case study of the Tuchlov institution (1923–1938)

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BACKGROUND: A continuous tradition of institutional inpatient alcohol treatment in what is now the Czech Republic dates back to 1948. At present this type of treatment generally involves what is known as the “Apolinar Addiction Treatment Model”, the origin of which is associated with the person of Jaroslav Skála and the Apolinar centre. Prior to the establishment of this treatment system, there were three institutional inpatient facilities specialising in the treatment of alcohol dependency in what was then, or was later to become, Czechoslovakia. They were located respectively in Velké Kunčice (1911 to 1915), Tuchlov (1923–1939), and Istebné nad Oravou (1937–1939).

AIMS: Using a case study, to explore the origin, operation, and dissolution of the specialised inpatient alcohol treatment facility in Tuchlov, the first establishment of its kind in what is now the Czech Republic, and to discuss its role in the development of the treatment system which came into being after World War II.

METHODS: Qualitative content analysis of available historical documents was used to collect the data. The subject matter of the documents was categorised with respect to their association with the commencement and development of the phenomenon of institutional inpatient treatment. **RESULTS:** Through the agency of the Czechoslovak Temperance Association, the Ministry of Public Health and Physical Education operated the first specialised alcohol treatment institution in the Czechoslovak Republic from 1923 to 1938. Qualitative analysis of historical documents confirmed the existence and efficiency of a fully-fledged institutional treatment facility, which from 1923 to 1938 provided alcohol treatment to male patients in Tuchlov. Its treatment model built upon that applied by the institution in Velké Kunčice. Partly funded from the national budget, the Tuchlov institution was a unique facility of its kind in the era of what is known as the “First Republic”.

Keywords | P. Bedřich Konařík-Bečvan – Tuchlov – Alcohol addiction – History of treatment – Treatment programme – Institutional treatment – Qualitative content analysis of documents

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● 1 ALCOHOL DEPENDENCY IN WHAT IS NOW THE CZECH REPUBLIC IN THE EARLY 20TH CENTURY

The origins of the first self-help associations (Miovský et al., 2015, pp. 527-538), alcohol treatment facilities,¹ and other abstinence-oriented organisations date back to the first half of the 19th century, when the temperance movement developed across Europe. In a sense, these early initiatives laid the foundations for the tradition which underpins modern addicology in the Czech Republic. These facilities were intended to provide specific institutional treatment aimed at meeting the individual needs of alcohol-dependent patients and supporting them in their recovery process following the treatment intervention. In addition, their mission was to raise awareness about the health, social, and economic harm caused by alcohol and thus fulfil their preventive role – to delay the onset of alcohol use as much as possible (e.g. Písecký, 1913, pp. 75-77; Foerster, 1913, pp. 110-112). These activities in what was later to become Czechoslovakia were generally based on research evidence adopted from foreign treatment facilities (such as those in Sweden, Switzerland, and the German Reich), the experience of which was presented at international anti-alcohol congresses, held especially in Vienna (1901), Stockholm (1907), London (1909), the Hague (1911), Milan (1913), and Copenhagen (1923). *“While the consumption of alcoholic beverages saw a dramatic decline during World War I, it rose again rapidly in the post-war years. The prohibition measures adopted by the Russian Empire and the USA at the beginning and at the end of the war, respectively, showed profound effects in their early stages, but turned out to be problematic and eventually counterproductive”* (Skála, 1957, p. 95).

25,585,740 hl of beer, 6,200,000 hl of wine, and 2,971,781 hl of pure alcohol were produced in Austria-Hungary in 1911 to 1912, with pure alcohol being used both for immediate consumption and for the manufacturing of other alcoholic beverages. In Bohemia and Moravia, 12,221,823 hl of beer and 376,000 hl of pure alcohol were produced (Beneš, 1947, pp. 23-25). In 1912 the government collected 62,835,986 crowns from the spirits tax, 62,062,889 crowns from the beer tax, and 8,561,323 crowns from the wine tax; the expenses incurred in relation to the operation of hospitals, lunatic asylums, prisons, and poorhouses where the victims of alcohol were placed and the law enforcement and judicial costs are not known (multiple authors, 1913, p. 47).

The issue of alcohol use was dealt with by a great number of scholarly publications which also addressed the social and medical aspects of the phenomenon. In 1912 the first edition of “On Ethics and Alcoholism” by Masaryk² was published. In this treatise, Masaryk presented alcoholism as *“a chronic degenerative process involving the entire mental life which*

is apparently subethical, unethical, and anti-ethical in terms of the overall condition of an individual and society” (Masaryk, 1920, p. 7). Initiatives promoting the idea of establishing an addiction treatment institution reflected the social demand for such a facility. In 1911 the first specialised treatment institution was opened in Velké Kunčice (Šejvl & Miovský, 2017, pp. 134-146). Founded by Father Bedřich Konařík, the facility was in operation until 1915, when it discontinued its activities because of World War I (Šejvl, 2017, pp. 173-176).

The notion of the systematic treatment of alcoholism began to be considered by the Ministry of Public Health and Physical Education in 1919. The initial idea involved the establishment of three independent state-run treatment facilities: for men, women, and incurable alcoholics, respectively. Because of the frequent staff turnover at the ministry, however, any major decisions were postponed (Konařík, 1934, p. 47). Finally, the Czechoslovak Temperance Association (CTA) was commissioned to establish a treatment institution. The CTA was founded in 1922; its statutes were approved by an edict of the Minister of the Interior, No 75844/22-6, dated 12 October 1922. The CTA was an umbrella organisation for all³ the temperance and teetotal associations and clubs in the then Czechoslovak Republic. The main activities of the CTA included: i) educational, awareness-raising, and cultural events (hosting lectures, educational meetings, and courses for both the general public and the scientific community, education and publication of materials on tackling alcoholism and on alcohol treatment, and medical training); ii) social and hygienic activities (the establishment and management of treatment institutions and counselling centres based on the principles of abstinence, the establishment of inexpensive diners, restaurants, and hotels where no alcohol was served, the establishment of shops selling milk and fruit, and support for the manufacture and distribution of soft drinks); iii) social activities in general (involvement in the improvement of the situation in society and support for institutions advocating temperance), and iv) legal activities (promotion of the adoption of anti-alcohol laws and regulations that varied in their legal strength, the legal protection of adolescents and labourers, and the regulation and reduction of the production and sale of spirits in relation to local customers – the “local option”), and organisational activities (the establishment of anti-alcohol and teetotal organisations) (SÚA, 1922).

It is without doubt that the development of the temperance activities was contributed to by changes in the national legislation. Act No. 86/1922 Coll., adopted on 17 February 1922, restricted the serving of alcoholic beverages. For the first time ever, this piece of legislation included a detailed inventory of alcoholic beverages and the determination of the age limit below which it was illegal to use alcohol. The law was implemented by means of Regulation No. 174/1922 Coll. of the Government of the Czechoslovak Republic, dated 13 June 1922. Originally, it was planned that the first treatment institution would be established in the town of Šumperk, but the Ministry of Public Health and Physical Educa-

1 | The first alcohol treatment facility was established in Lintorf, near Düsseldorf, in 1850 (Skála, 1957a, p. 93).

2 | Tomáš Garrigue Masaryk (1850-1937) was the first Czechoslovak president and a statesman, sociologist, and philosopher.

3 | Regional, district, and local organisations.

tion eventually decided to situate it in Tuchlov. On the basis of this decision, it made the amount of 500,000 crowns available for the purchase of Ledebur's Tuchlov hunting lodge in Křemýž, near the town of Teplice-Šanov. The Czech Temperance Association, through the agency of which the ministry operated the alcohol treatment facility, became the new owner of the place on 1 January 1923.

● 2 CASE STUDY METHODOLOGY

Having retrieved the relevant historical sources, the authors subjected them to content analysis (Miovský, 2006). The sources were arranged according to their dates and content relative to the Tuchlov treatment facility and the institutional treatment of alcohol dependency in general. The initial stage involved the identification of historical documents which then needed to be sorted, described, and categorised (Miovský, 2006, pp. 98-103). The next stage involved the definition of basic units and the creation of a system of categories with corresponding codes being assigned to each of them. The content analysis followed the approach reported by Plichtová (1996, pp. 311-313), where individual procedures were divided into mutually interlinked phases. Various simple methods described by Miles and Huberman (1994), including the pattern recognition method, were used as part of the content analysis.

● 3 TUCHLOV ALCOHOL TREATMENT PHILOSOPHY

Drawing on his theoretical knowledge of alcohol addiction and long-term work experience, based on his practical work at the Velké Kunčice treatment facility, Konařík⁴ described a treatment philosophy underpinned by four domains – **punishment** (jurisprudence, law), **conversion** (theology), **education** (pedagogy), and **treatment** (medicine) (Konařík, 1934, pp. 9-11). According to Konařík (1934, p. 10), the judicial approach was based on the principle that a human who found himself or herself in conflict with the law and the interests of society because of his or her alcohol use must be punished. In general terms, this notion can be considered as corresponding to the “moral model of addiction” as we know it today (see, for example, Miller, 2013). The punishment that is imposed, however, hardly leads per se to the desired goal unless there is an educational element involved. The theological segment of the treatment drew on the notion of a human being who can only be saved with the help of God. Such an intervention appears sensible in a stage where it is necessary to “bring the drinker back to life”. Konařík quotes Forel⁵ (of the Hague institution), who made the following point as regards the issue of religion in an alcohol treatment facility:

“I need to express my strong objection to a formulaic approach to drinkers and therefore to religious proselytism in treatment facilities. For those of a religious nature, a religious influence is certainly very good. Others, though, are deterred by the intrusion of religion and pressure. We therefore need treatment facilities and associations which are religiously neutral. Religious institutions are justified for believers, not universally” (Konařík, 1934, p. 26). In this sense, Konařík's view followed up on the existing tradition of the engagement of some of the clergy, reported by Karel Adámek as early as 1884 (Adámek, 1884), and bore general similarities to what was later articulated as the spiritual model of addiction (Kalina, 2015, pp. 101-124). Educational intervention was found particularly significant in relation to patients who were not religious or “not responsive to religious education” and could be persuaded about alcohol-related harm by rational arguments. Such an intervention is impossible without an alcohol-free environment (Konařík, 1934, p. 10). Konařík found it important that in addition to religious appeal there was systematic cultivation of the patient's personality and a regular division of work and rest according to strict rules. *“Work was considered an important factor, which laid the foundations for work therapy (Arbeitstherapie), supported by religious and ethical aspects”* (Konařík, 1934, p. 11). The patient's education was believed to be based on four key attributes: i) arousing their conscience, ii) disseminating knowledge, iii) raising their feelings, iv) and empowering their will (Konařík, 1934, p. 24).

Subjected to initial testing in the 1920s and 1930s, the use of medication in treating alcohol dependency constituted a part of the emerging biological model of addiction (see Miller, 2013). A major figure in this respect was the founder of the Vita Nova sanatorium, Jan Šimsa, MD, who was also the first attending physician in Tuchlov (Popov, 2017, pp. 169-170). What were termed “miraculous agents” were rejected. These included “zinc preparations, auric bichloride, and strychnine. Some success was achieved with veratrine, especially as an agent to treat drinkers' tremens” (Konařík, 1934, pp. 11–12). As early as 1925 a Slovak physician, Dr. Svítok-Spitzer, reported the application of an apomorphine-based addiction treatment drawing on Pavlov's theory of conditioned reflexes (Skála, 1957a, p. 96). In 1933 Bodart used specific properties of emetine to perform “disintoxication treatment” which was intended to provoke disgust for alcohol. This treatment did not make patients vomit (Skála, 1957b, p. 52).

● 4 ESTABLISHMENT OF THE TREATMENT FACILITY

The Tuchlov institution was established by Edict No. 42710/III ai 1923, issued by the Ministry of Public Health and Physical Education on 31 December 1923.⁷ The main co-found-

4 | P. Bedřich Konařík (1878-1944) was a Catholic priest, anti-alcohol activist, and co-founder of the first institutional alcoholic treatment centre, in Velké Kunčice, in 1911.

5 | Auguste (Henri) Forel (1848-1931) was a Swiss psychiatrist, eugenicist, and neuroanatomist, and co-founder of the Ellikon alcoholic treatment institution.

6 | Konařík pointed out Dr. Andersen's request articulated at a congress in Milan (1913): “... to refer to alcohol-affected individuals as patients rather than inmates” (Konařík, 1934, p. 14).

7 | Edict of the Prague Regional Authority, No. 22714 ai 1924/22 D – 144/10 ai 23, dated 9 January 1924.

ers were Břetislav Foustka and Bedřich Konařík. Other distinguished personalities who helped establish the treatment facility included Hynek Fügner (Tuchlov's patron) and the aforementioned doctor Jan Šimsa (the first attending physician there). In addition to being appointed as the manager of the treatment institution,⁸ P. Bedřich Konařík also worked as an educator there; the first patient entered treatment on 1 November 1923. As regards its capacity, the institution was intended for 50 patients.

The early stages of the operation of the treatment facility were marked by difficulties. Before reaching full occupancy in the 1930s, the institution faced financial problems. As late as 1926 not all the conditions set in the provisional final building approval from 1923⁹ had been met, and the management of the alcohol treatment institution were advised that the authorisation to operate the institution was provisional/temporary. The full approval of the treatment facility for use was granted on 18 January 1936.¹⁰

● 5 TREATMENT REGIMEN

Prior to being admitted to the institution, patients underwent entrance medical examinations. In the first years of its operation, medical care was provided by Jan Šimsa, MD, and Emil Sachs, MD. Šimsa, in particular, found this arrangement difficult at times, given his medical practice in Prague. In addition, Šimsa had a number of other professional commitments (Popov, 2017, pp. 168-172) which effectively limited his engagement as a physician in the Tuchlov institution. Therefore, in 1933 the medical care of the patients was taken over by Jan Hroch, MD, who practised as a spa physician in Teplice-Šanov.

The examinations had to be thorough, assessing both mental and physical health. *“Psychiatric examination is needed to identify psychopaths and diagnose different signs of disease, chronic alcoholism with its pathological inebriation, befuddled mental states, alcoholic epilepsy, delirium, hallucinations, Korsakov's psychosis, and circular mental disorders of a changeable nature.”* A physician also determined the patients' dietary regimens and suitable types of hydrotherapy (Konařík, 1936, pp. 16, 67). The admission rules did not allow patients with mental illness to be accepted.

When admitted to treatment, patients had to begin abstaining immediately, despite the subjectively unpleasant sensations they may have felt. Difficulties were experienced especially by those patients who *“in the days just before entering the institution had drunk strong, concentrated spirits. There is the typical alcoholic vomiting, some stomach and gut issues, aggravated trembling of the hands, sometimes even a hallucinatory state. These do not last more than three days. Then appetite and zest for life slowly return and the trembling of the extremities also dimin-*

ishes, disappearing without a trace within the next two weeks.” In the cases where a patient was in delirium, or delirium was imminent, intravenous Devenan, up to 4 g per day for severe states, was administered. In the event of insomnia, a Priessnitz compress was applied in the late afternoon and only if insomnia persisted did a physician opt for pharmacological therapy. As the treatment facility was dedicated to treating alcohol dependency, tobacco use was permitted there, although to a limited extent. When the staff of the institution tried to ban smoking, patients failed to abstain from both substances and tended to relapse. There were restrictions on patients smoking during their stay: they had their tobacco deposited with the manager of the institution and it was only made available to them upon request (Konařík, 1936, pp. 65-66).

Throughout the patients' stay in the institution, the emphasis was placed on ensuring that the house rules were observed and that the patients were kept busy. Those able to work engaged in gardening in the grounds, in the field, and in the vegetable garden from spring to autumn. Joinery, locksmithery, and bookbinding were available for those interested in these kinds of work. Thanks to the patients' skills, the institution enjoyed a certain level of independence: the patients maintained and repaired the buildings and renovated the greenhouse, hotbeds, and fences. Those patients who were not able to engage in manual labour participated in physical exercise in the morning and studied, learnt foreign languages, or pursued other intellectual activities during the day (Foustka, 1935). In this respect, Konařík harmonised with the opinions of Stein by referring to the latter's paper presented in the Hague in 1911: *“The most powerful support for any psychological treatment is systematic and uncompromising work. Work is the pivotal element of self-discipline. Our efforts to educate patients towards abstinence, whether by means of self-exploration and hypnotic suggestion, psychoanalysis, or other techniques and methods, can only be successful if we bring the patients back to systematic work, make them feel good about what they have accomplished during the day, and replace the false overestimation caused by alcohol with healthy confidence”* (Konařík, 1934, p. 20).

The treatment process also incorporated relaxation and physical exercise. In addition to the manual work and morning exercises, there was hydrotherapy (put into operation in 1929), massages (three times per week), packs, baths, showers, sprays (both warm and cold water was used), Priessnitz compresses, and warm and hot-air baths. Sun baths were set up between the roofs of the building. Steam baths equipped with a high-frequency apparatus and a basin for conifer and carbonic acid baths became available in 1931.

As indicated by the annual report for 1935, the institution maintained its own library and applied “bibliotherapy”; the management of the institution made a point of providing each patient with a selection of books that corresponded to their education, character, and moods. The management also hosted scholarly lectures on alcohol treatment and travel. In order to support their social reintegration and of-

8 | As of 1 October 1923.

9 | See Edict of the Regional Authority No. 36280 ai 1926/22 D - 303/23 ai 25, dated 23 March 1926.

10 | Advice No. 4526/4 of the Ministry of Health, dated 18 January 1936.

fer them suitable recreational activities, the patients had the opportunity to visit the theatre and cinema in Teplice and in the evening they could also play billiards or participate in other recreational social activities. The treatment programme included physical exercise. Konařík took the patients to the Středohoří and Rudohoří mountains for both short walks and longer hikes – their destinations included Dubí (12 km), Cinnvald (20 km), Komáří vížka (20 km), Nakléřov (26 km), and Bouřňák (19 km). He would also take trips with his patients to Czech towns and once per year they set out on a bus tour to Dresden. They also visited the areas near the border with Saxony, Dubicko, the mountain of Milešovka (18 km), and the hill of Střekov (28 km).

Konařík regarded the food and drink that the patients were served during their stay in the institution as a factor of major importance. The diet was to be “*mild and bland in consideration of the damage to the nervous system, the gastrointestinal tract, and the glands. Salty and spicy dishes should be avoided. Any immoderate consumption of meat should be reduced and the patients should become accustomed to a simple and modest way of life. Individuals suffering from Basedow’s disease and severe gastroenteric ailments should not be served any meat for as long as needed. The meals should be prepared in such a way as to be appetising and served in sufficient quantity. Thirst should be quenched by good fresh water. Fruit juices and carbonated drinks can also be used occasionally*” (Konařík, 1934, p. 22).

Given the pharmacological state of the art of the times as regards alcohol treatment, medication played a supplementary role in the therapeutic process. If restless or insomniac, patients were given chloral hydrate, bromine, or hyoscine. No medicines with alcoholic extracts were used and neither were any rubbing agents containing alcohol applied.

While in office, Konařík maintained statistics on the patients in treatment. In the first three years the number of patients remained low (less than 11), especially because of the relative lack of interest on the part of society. In 1926 the number of resident patients dropped to three and the institution found itself on the verge of being closed down. The Ministry of Public Health and Physical Education established an endowment fund used to cover the institutional treatment of destitute patients. By 1927 the number of patients had risen to 18, in 1928 it oscillated between six and 25 during the year, in the period 1929–1930 there were eight to 26 patients, in 1931 eight to 30, and after 1932 the number stabilised at 20–22 resident patients (Konařík, 1934, pp. 48–49). According to Konařík, the low occupancy of the institution in the first years of its operation was due to several rational reasons:

1. “*First and foremost, the Czechoslovak legislation provided no grounds on which to intern alcoholics in Tuchlov, ...*
2. *... neither was there any legal basis for reimbursement for the institutional treatment ...,*
3. *... there was no law requiring a patient to stay in the institution for the six-month period needed for recovery...,*
4. *... the ministerial support was far from being enough to endow all the less well-off applicants ...,*

5. *... the patient’s medical condition, which required that he was quickly taken from Tuchlov to the Teplice hospital or home ...”* (Konařík, n.d., pp. 1–4).

The statistical data is available for the period from 1923 to 1930. It is noteworthy that Konařík did not keep records on his patients in religious terms. He held that this disease could affect anyone, irrespective of their religious belief, and that no religion had the power to treat alcoholism.

The period of treatment was set at six months. Any shorter period was considered ineffective and was viewed as conducive to relapse. While no maximum duration of the treatment was determined, it was recommended that the residential treatment should not exceed 12 months, although any such longer treatment episodes were very rare. Given the voluntary basis of treatment, the treatment facility faced the problem of patients leaving prematurely. The main reasons for the early termination of the treatment included “*insufficient support from a relevant institution, greatly heightened sexuality, unreasonable letters from women, excessive self-confidence, and financial complications*” (Konařík, 1934, pp. 51–52). Some patients were also discharged from the institution for gross violations of the house rules. These included bringing spirits into the facility, night escapes resulting in relapse, and major violations of the treatment regimen, especially those involving the disruption of the therapeutic process.

The financial cover of the stay in the institution depended on the type of payer. The Ministry of Public Health and Physical Education reimbursed the Tuchlov institution for the treatment of those with no insurance (poor patients). It had reserved the use of a maximum of 2,000 treatment days annually at a daily rate of 25 crowns. In the event that a subsidy was provided to fund the institutional treatment for less well-off patients, the donor(s) decided which patient(s) would be admitted. There were also differences in the length of the stay. The Ministry typically provided impecunious patients with funding for a three-month treatment programme; if longer residential treatment was required, reasonable grounds for such prolongation had to be presented (MZ, 1928). The price for treatment charged to self-payers (Class II) was determined at a rate of 32 crowns per day.

The daily expenses for meals increased over time. While in 1923 they amounted to 8.18 crowns, in 1936 they were 9.18 crowns. (Table 1–4.)

Ser. No.	Nationality ¹¹	Number of patients
1	Czechoslovak	151
2	German	44
3	Russian	4
4	Slovenian	1
Total		200

Table 1 | Number of patients by nationality, 1923–1930 (Konařík, n.d.)

11 | Nationality in the sense of ethnicity, not of citizenship.

Ser. No.	Sex	Number
1	Women	7
2	Men	193

Table 2 | Structure of patients by sex, 1923–1930 (Konařík, n.d.)

Ser. No.	Occupation	Number of patients
1	Officials	49
2	Tradesmen	31
3	Businessmen	29
4	Teachers	16
5	Workers	11
6	Farmers	11
7	Engineers	9
8	Medical doctors	5
9	Military	5
10	Builders	3
11	Attorneys	2
12	Clergy	1
13	Others	28
Total		200

Table 3 | Structure of patients by occupation, 1923–1930 (Konařík, n.d.)

Ser. No.	Method of funding	Number of patients
1	Ministry of Public Health – partly	19
2	Ministry of Public Health – fully	41
3	Treatment endowment	10
4	Private Officials' General Pension and Sickness Fund	7
5	Other insurers	11
6	Individually, relatives, employers	112

Table 4 | Number of patients by the method of funding of their residential treatment, 1923–1930 (Konařík, n.d.)

Patients admitted to the institution displayed no major medical problems. Between 1923 and 1934 there was one patient with delirium “of a severe course”, there were three cases of alcoholic epilepsy which faded away after two days, and two patients displayed hallucinatory states which lasted for three days. Patients diagnosed with dipsomania were recommended to seek treatment in mental hospitals. Relapse was recorded in 31 patients. These underwent another treatment episode (Konařík, 1934, p. 57).

Konařík also maintained records concerning the lives of the patients following their discharge from the institution. Thirty patients died soon “after discharge”. They were patients whose conditions were not apparent and failed to be diagnosed on their admission or during their stay in the institution. The causes of death included kidney and liver diseases,

es, hydropsy, arteriosclerosis, strokes, and two suicides “out of mental derangement” (Konařík, 1934, p. 57).

The institution admitted patients who had relapsed during the treatment or after its completion and also patients who were regarded as incurable.

The former concerned especially those patients who would obtain alcohol while still institutionalised in the treatment facility. In this respect, Feldmann noted that “... when the patients find that one of them procures and drinks spirits, and the management of the institution does not have the knowledge of it yet ... this leads to a conflict between solidarity with a friend and shared responsibility for a fellow-patient doing a wrong thing, especially if he is indifferent to friendly suasion. For such instances, we have established an auxiliary commission consisting of senior patients who are primarily responsible for preventing any misuse of the freedom that is granted” (Konařík, 1934, p. 36).

Cases of relapse occurring after the completion of the treatment regimen were not necessarily seen as leading to hopelessness. They might even be beneficial and work as a significant motivation for further treatment. On this issue, Konařík cites Danič's contribution from a congress in Milan (1913): “When, as a result of his weakened willpower or irresistible environmental cues, a patient resumes drinking and slips back to his previous serious condition, the sad perspective of his life appears before him in vivid contours in a lucid interval and he is seized by depression so strong that he summons all his willpower to resist his weakness. In all the cases where recidivous patients voluntarily subjected themselves to new treatment, I observed them generate such energy of will that permanent recovery was achieved. However, I am not referring here to cases where severe moral degeneration is the cause or effect of alcoholism” (Konařík, 1934, p. 36).

Even then, patients regarded as incurable presented a rather complex issue. If alcoholism was a secondary symptom, the chance of recovery was not considered realistic. Danič, again, made the following note on this topic in the Hague: “A drinker should always be seen as ill and we should bear this in our minds when trying to help him. Any other approach is false and fails to lead to a good outcome, however hard one may try. We should not forget, however, that there are drinkers who cannot be cured even by rigorously applied abstinence and the most elaborate psychotherapy. There are cases where profound degeneration has become so deeply rooted that any help is beyond consideration” (Konařík, 1934, p. 37). Finally, there were patients who had been ordered to undergo treatment by a court. “Even such involuntary wards are not lost. It all depends on the patient's nature and sound judgement. If he forgets all the bitterness which he felt when entering the institution, if he can size up all the consequences, what would have followed if he had stayed at home while carrying on drinking the way he used to, if he is well-oriented in all respects, then he can be saved. However, many complain bitterly about the way in which they ended up in the institution, their grumbling poisoning the air throughout their institutional treatment, and the final result is – relapse within the shortest time possible” (Konařík, 1934, p. 37). At a congress in Vienna, Tienken noted on the incurable: “Special institutions must be established for the incur-

able where these could find a safe home for the rest of their lives” (Konařík, 1934, p. 38).

The main factor which predetermined the risk of relapse was the patient’s internal motivation. *“The best outcomes were achieved in individuals who had come to the institution with a belief that it was truly necessary for them to abandon their drinking habit and to do so for good, without any compromises involving considerations of one glass or utmost moderation. Besides this genuine determination and willingness, sustained success is hardly possible without an unimpaired mental state and orderly family circumstances. Where these three conditions were met, and the time needed to complete treatment was kept, sustained 70% success was achieved”* (Konařík, 1934, p. 57).

● 6 AFTERCARE

The patient’s discharge from the treatment facility was not considered the end of the treatment process and the patient was not considered fully recovered. For a patient to stay sober, it was considered useful that he would join a teetotal organisation. Furthermore, Konařík tried to maintain contacts with all the patients who had left the institution. Where patients lived not far away from the treatment facility, he tried to visit them in person. A significant, and highly risky, factor was the patient’s return to work. In the event that a patient acquired a new professional qualification during his stay in the institution, it was suitable to choose employment involving a minimal risk of relapse. The risk of relapse was seen as higher in those cases where a patient returned to his original employment.

● 7 CLOSE-DOWN

On 23 September 1938 at 10.20 p.m., by virtue of a Government Decree,¹² the president of the republic declared mobilisation in accordance with Section 23 of the Military Service Act. On the same day Czechoslovakia entered a national state of alert. On the basis of the Munich Agreement parts of Czech territory were devolved to the German Reich. On 1 October 1938 the Sudetenland began to be invaded by German armed forces. The Tuchlov residence¹³ was located in the area conceded to the German Reich. There is no relevant and valid source and information on when and exactly how the facility was closed. Neither is it known when exactly Konařík left Tuchlov. Nevertheless, he made a brief mention of his departure in a letter to Prof. Svozil dated 17 December 1938: *“I forgot to notify you of the change of my address following my flight from the institution”* (SOA Opava, 2017). In another letter to Svozil, he indicated that his departure from Tuchlov was not so easy: *“Please have ten copies sent to me, as the rest of the edition got burned up back in Tuchlov and I do not have a single copy left¹⁴ in remembrance”* (SOA Opava, 2017). Konařík’s deputy stayed in Tuchlov until 10 October 1938, when he

was forced out by soldiers (ČAS, 2017). The Sudetenland was occupied from 1 October 1938 up to 9 May 1945, when the Red Army passed through Tuchlov. The Tuchlov alcohol treatment facility was never reopened after World War II; its co-founder and manager, F. Bedřich Konařík, died in Prague on 22 February 1944.

● 8 CONCLUSION

The first alcohol treatment facility in the Czech Republic was established at the initiative of the Ministry of Public Health and Physical Education. It was operated through the agency of the Czechoslovak Temperance Association, founded in 1922, in the activities of which all the distinguished personalities in the field participated. A former hunting lodge in Tuchlov, Northern Bohemia, was selected to house the treatment facility. The financial resources needed to purchase the property for the CTA were made available by the Ministry, which also made financial contributions throughout the existence of the institution to cover its economic needs and paid for patients who could not otherwise afford to undergo treatment there. Throughout the 15 years of its existence, the institution never became totally independent in economic terms. In general, only motivated patients were admitted to enter treatment; the course of treatment was voluntary. Each patient could freely terminate their treatment at any time. In the event of relapse, patients could return to the institution and undergo the entire treatment process anew.

The treatment of alcohol dependency was based on complete abstinence, which was both the therapeutic means and the ultimate objective of treatment. The treatment approach did not allow for any controlled alcohol consumption after discharge. Other resources used in the institution included education, training in working skills, social reintegration, observation of house rules, relaxation and physical exercise, and medication, if applicable.

The close-down of the institution in 1938 was coerced by the cession of the Sudetenland to the German Reich and the arrival of the German army. With the exception of a short period between 1937 and 1939, when a similar institution was in operation in Istebné nad Oravou, Tuchlov was the only facility of its kind in Czechoslovakia. Considering its approach and the services offered to its patients, this fully-fledged treatment facility equalled the standards of alcohol treatment institutions that operated in Western Europe, particularly in Switzerland and Germany.

12 | Government Decree No. 183/1938 Coll., on the national state of alert.

13 | Coordinates 50.6039542N, 13.8136814E

14 | A reference to *The Letters of Hildegard of Bingen*.

Authors' contribution: Jaroslav Šejvl designed the research, analysed the relevant documents, and drafted the pre-final version of the manuscript. Michal Miovský designed the methodological procedure and finalised the text in terms of its content and format.

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REFERENCES

- Adámek, K. (1884). *Kořaleční mor [The Liquor Plague]. 2nd Edition*. Roudnice: Mareš Bookseller's.
- Beněš, E. (1947). *Problém alkoholové výroby a abstinence [The Issue of Alcohol Production and Abstinence]*. Praha: Čsl. Abstinentský Svaz v Praze.
- CTA (2017). File: CTA, Ref. No. 399, Card No.: 5: Praha: Národní muzeum.
- Foerster, V. Mládež, lihoviny, character [Youth, Spirits, Character]. In: Barth, J. et al. *Nová kultura s protialkoholní přílohou „Ostřízlivění“*. Praha: Nová kultura. (1912-1913).
- Foustka, B. (1931). *The minutes of the meeting of the Board of the Tuchlov Temperance Boarding Establishment dated 20 February 1931*. Praha: National Museum Archives.
- Foustka, B., Hroch, J., & Konařík, B. (1935). *Výroční zpráva za rok 1935 [1935 Annual Report]*. Praha: National Museum Archives.
- Kalina, K. et al. (2015). *Klinická Adiktologie [Clinical Addictology]*. Praha: Grada.
- Kolektiv autorů (1913). Stát a alkoholická daň [The State and the Alcohol Tax]. *Ostřízlivění*, 1 (5-6), 47.
- Konařík, B. (1925). Zpráva o Tuchlově [A Report on Tuchlov]. *Vyšší národ*, 5(9-10), 75.
- Konařík, B. (1934). *Léčení alkoholismu v cizině a u nás [Treatment of Alcoholism Abroad and Home]*. Praha: Československý abstinentský svaz.
- Konařík, B. (1936). Jak odvykáme pítí lihovin [Giving up Drinking]. *Zdraví lidu*, 17(5), 65-68.
- Konařík, B. (n.d.). *Proč nebyl vždy Tuchlov plně obsazen [Why Tuchlov Did Not Always Reach Full Occupancy]*. Praha: National Museum Archives.
- Masaryk, T. G. (1920). *O ethice a alkoholismu [On Ethics and Alcoholism], 2nd Edition*. Brno: Studentská klinika v Brně.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. London: Thousand Oaks, New Delhi: SAGE Publications.
- Miller(ová), G. (2011). *Adiktologické poradenství [Addiction Counselling]*. Praha: Galén.
- Miovský, M. (2006). *Kvalitativní přístup a metody v psychologickém výzkumu [Qualitative Approach and Methods in Psychological Research]*. Praha: Grada a.s.
- Miovský, M., Miller, P., Grund, J.P., Belackova, V., Gabrhelík, R., & Libra, J. (2015). Academic education in addictology (addiction science) in the Czech Republic: Analysis of the (pre-1989) historical origins. *Nordic Studies on Alcohol and Drugs* 32, (5), 527-538.
- Ministry of Health (1928). *Zabezpečení provozu ústavu tuchlovského po stránce hospodářské pro rok 1928 [Report on the Economic Operation of the Tuchlov Institution for 1928]*, dated 24 January 1928, published under Ref No. 336. Praha.
- National Central Archives (1922). CTA. *Statutes of the Czech Temperance Association*. Ref. No. 367, Sg. 1367.
- Písecký, F. Abstinentsství na středních [Teetotalism at Secondary Schools]. In: Barth, J. et al. *Nová kultura s protialkoholní přílohou „Ostřízlivění“*. Praha: Nová kultura. (1912-1913).
- Plichtová, J. (1996). Obsahová analýza a jej možnosti využitia v psychológii [Content Analysis and the Possibilities of Its Use in Psychology]. *Čs. psychologie* 4(40), 304-314.
- Popov, P. (2017). MUDr. Jan Šimsa – průkopník léčby závislostí a psychoterapie v Čechách [Jan Šimsa, MD – A Pioneer of Addiction Treatment and Psychotherapy in Bohemia]. *Adiktologie*, 17(2), 168-172.
- Skála, J. (1957a). *Alkoholismus – terminologie, diagnostika, léčba a prevence [Alcoholism – Terminology, Diagnosis, Treatment, and Prevention]*. Praha: SZN.
- Skála, J., Jandourková, Z., Mečír, J., Mařová, A., Černý, L., Vámoši, M., et al. (1957b). *Organisace a metodika boje proti alkoholismu [Tackling Alcoholism – Organisation and Methodology]*. Praha: SZN.
- SOA Opava (2017). File: Oldřich Svozil, Ref. No.: 63: Bedřich Konařík, years 1937-1944, Card No.: 3. Janovice u Rýmařova Office.
- Šejvl, J. (2017). Fluctuat, non mergitur: Bedřich Konařík. *Adiktologie*, 17(2), 173-176.
- Šejvl, J., & Miovský, M. (2017). Nejstarší specializované lůžkové zařízení pro léčbu závislosti na alkoholu na historickém území Čech a Moravy: případová studie protialkoholní léčebny ve Velkých Kunčicích (1911–1915) [The first specialised residential treatment institution and programme for alcohol-related problems in the historical area of Bohemia and Moravia: case study of the residential alcohol programme in Velke Kuncice]. *Adiktologie*, 17 (2), 134-146.

Predictors of the Successful Treatment of Addiction to Heroin and Other Illicit Opioids. Systematic review

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BACKGROUND: Dependence on heroin (and other illicit opioids) is a serious health and social problem. In the Czech Republic, there are an estimated 4,500 problem heroin users and 7,100 users of diverted buprenorphine (especially Subutex®). Users of heroin and other opioids are the second largest group of drug users in treatment. The treatment of opioid dependence involves psychosocial (abstinence-based) and/or pharmacological (substitution treatment) interventions.

METHODS: Systematic review. Specialised databases (ScienceDirect, Scopus, Cochrane Database) and other sources (Medvik) were searched for both international and Czech scientific literature on the treatment of addiction to heroin (or other illegal opiates) and factors influencing its outcomes (published between 2000 and 2017). **CONCLUSIONS:** The basic positive predictors are the length of treatment and specific

sociodemographic (such as age at entry to treatment) and psychological characteristics. Psychiatric comorbidity is generally a risk factor. The pressure of the client's conflicts with the law also improves retention in treatment and its overall outcome. Another positive predictor is a family situation with no major conflicts and the absence of addiction issues among client's family members. Substitution treatment was found to show higher treatment retention rates than abstinence-based psychosocial therapy. The success of substitution treatment is associated with higher doses of substitution medicines, psychosocial support during treatment and good relationships with the service staff. Taking other drugs during treatment was found to cause a deterioration of the outcomes. Users of opioids other than heroin and non-injecting users seem to achieve better treatment outcomes.

Keywords | Heroin – Addiction – Treatment – Substitution treatment – Opiates – Predictors – Treatment outcomes

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● 1 INTRODUCTION

The aim of drug treatment is to bring about a change which improves health and quality of life to the greatest extent possible. These objectives are achievable and measurable but may not be achieved at all times and with each client under the same circumstances and conditions (Kalina, 2015). Retention in treatment, its successful completion, and its positive outcomes being sustained depend on a range of circumstances. In addition to factors on the part on the individual entering treatment, there are factors related to service provision (Mounteney & Baker, 1999), i.e. those which can be shaped by professionals to improve the effectiveness of the change processes (Kalina, 2015). Understanding of these factors (predictors) enhances the potential of the services to engage “difficult” clients in treatment and help them overcome barriers to entering and being retained in treatment (Kalina, 2015).

The text below summarises both international and Czech evidence concerning predictors of successful treatment outcomes in users of heroin and other illicit opioids. Given that opioid dependence treatment may involve both abstinence-oriented psychosocial approaches and pharmacological substitution treatment, the paper discusses evidence pertaining to both of these types of treatment interventions. Despite some enduring controversies, in Czech conditions substitution treatment is considered to be a key and fully-fledged way of treating addiction (Pavlovská & Minařík, 2015).

1.1 Use of heroin and other illicit opioids in the Czech Republic and internationally

Conducted by the National Monitoring Centre for Drugs and Addictions (the National Focal Point) and MindBridge Consulting, the 2016 National Survey on Substance Abuse found that one or more of the illicit drugs under study had been used at some point in their lifetime by a total of 30.5% of the general population aged 15-64, with men and women accounting for 38.8% and 22.7% respectively. Lifetime heroin use was reported by 0.7% of the respondents (1.2% of the men and 0.3% of the women), with 0.2% of the respondents having used the drug in the last year. The survey also looked into the use of opioid analgesics. Data on their use in the last 12 months and last 30 days is available. Within the last-year time frame, opioid-based medication had been used to relieve pain by 8.1% of the respondents (6.1% of the men and 10.1% of the women), with 53.4% of them obtaining these medicines without a prescription. According to a 2016 survey of the prevalence of drug use among the population of the Czech Republic, 1.1% of those in the 15-64 age category had used heroin at least once in their lifetime, while the figure was 1.3% among the group of young adults (aged 15-34) (Mravčík et al., 2017). The European School Survey on Alcohol and Other Drugs (ESPAD), carried out in the Czech Republic in 2015 among 16-year-old students, identified a 0.7% lifetime prevalence of the use of heroin and other opiates (Chomynová et al., 2016).

In 2016 there were estimated to be 46,800 problem (high-risk) users of methamphetamine (pervitin) and opioids, specifically 34,300 methamphetamine users, 3,400 heroin users, and 7,300 buprenorphine users. While still limited, the misuse of opioid analgesics appears to be on the rise among problem drug users. The number of problem users of other opioids was estimated at 1,700. Overall, the estimated number of opioid users was thus 12,500 (Mravčík et al., 2017).

In early 2015 the National Drug Demand Register (NRLUD) was put into operation, integrating two previously independent information systems: the Treatment Demand Register managed by the Public Health Service and the National Register of Users of Medically Indicated Substitution Substances (the Substitution Treatment Register). Because of changes in the reporting system and also some technical difficulties, the register probably lacks data from a significant segment of the treatment network for both 2015 and 2016. Until (and including) 2014 approximately 10,000 cases were reported to the Treatment Demand Register. In the long term, users of methamphetamine as the primary drug accounted for about 70% of all treatment demands and their number grew continuously, while the number of users of opioids (particularly heroin) was declining in the long term. In 2015 and 2016, the NRLUD register contained over 7,000 clients, including the newly reported users of alcohol and tobacco as the primary drugs and pathological gamblers, none of whom were subject to reporting until 2014. Alcohol users account for about a quarter of all the reported clients, while illicit drug users almost 70% (opioid users and methamphetamine users represent approximately one-third and one-fifth of all the clients respectively). The difference in the proportions of opioid and methamphetamine users in comparison to the former register administered by the Public Health Service and the NRLUD is mainly due to the fact that the NRLUD covers substitution treatment much more than it does low-threshold and counselling services. In 2016 the NRLUD registered a total of 2,266 patients in substitution treatment. Nevertheless, not all the patients are entered into the NRLUD register; the actual number of patients in substitution treatment is estimated at some 3,800 (Mravčík et al., 2016). In 2016 five preparations intended for substitution treatment were available in the Czech Republic, namely methadone, Subutex®, Buprenorphine Alkaloid®, Ravata® (the last three featuring buprenorphine as the active ingredient), and Suboxone® (a composite agent with buprenorphine and naloxone as the active substances) (Mravčík et al., 2017).

As regards opioid use in Europe and the rest of the world, the European Drug Report (EMCDDA, 2017) provides an expert estimate of 1.3 million problem (high-risk) opioid users. Opioids are reported as the primary drug by 38% of all the individuals demanding treatment in the EU. In 2015 substitution treatment was received by 630,000 opioid users. The World Drug Report (UNODC, 2017) indicates an estimate of 35.1 million opioid users, of whom 17.7 million are opiate users.

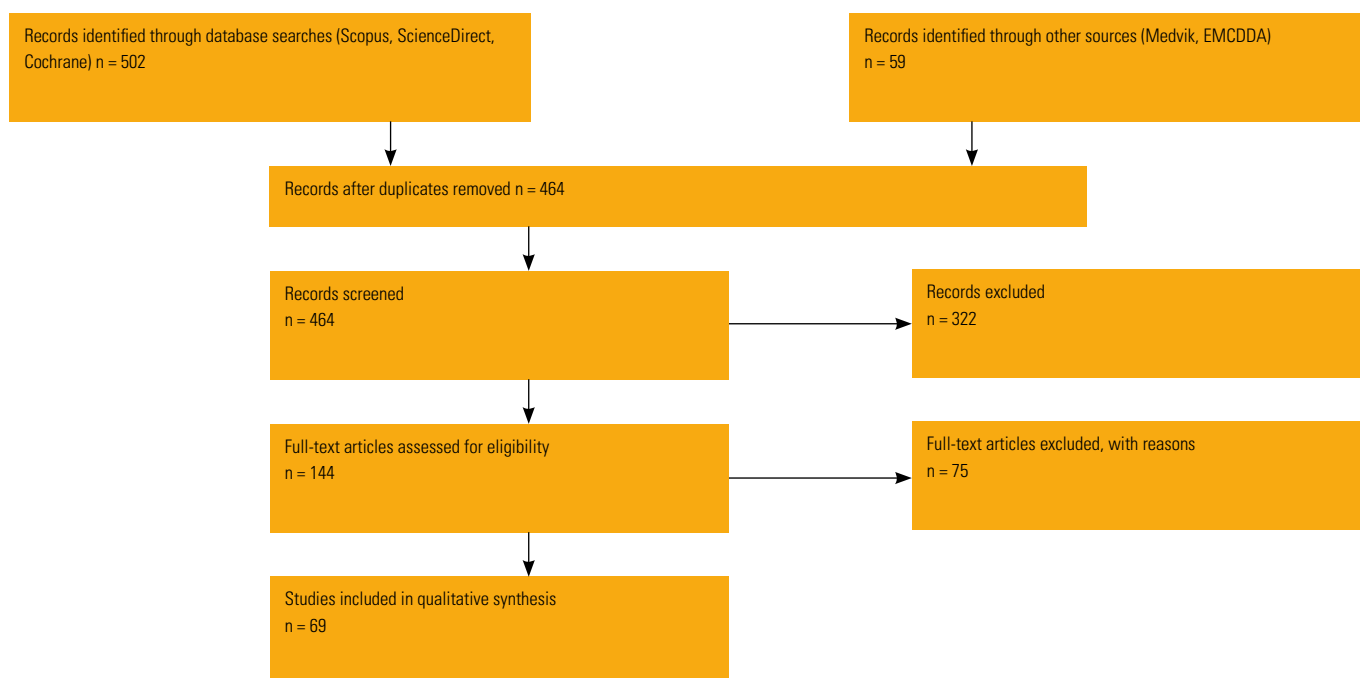


Figure 1 | 69 publications were included in the systematic review.

2 METHODOLOGY

Using the words “heroin”/“illicit (illegal) opiates” AND “treatment” AND “predictor”/“outcome”, the ScienceDirect and Scopus databases were searched for relevant international scientific articles containing such words in their title, abstract, or key words. The search was limited to papers published in English from 2000 to 2017. The main criterion was the focus of the article on the treatment of addiction to heroin or other illicit opiates. A total of 502 scientific papers were identified, 351 in the Scopus database and 151 in ScienceDirect. Other sources included Czech professional papers contained in the Medvik database, which was searched using the key words “heroin” OR “opiáty”/“opiates”. This search was limited to papers written in Czech, Slovak, or English and published in scientific journals between 2000 and 2017. The above sources were extended to include a few other texts dealing with dependence on heroin and other illicit opioids produced by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). A total of 59 publications were retrieved from other sources than international databases of scholarly papers.

After the removal of duplicates, 464 publications were selected for further screening. 322 of these records were excluded on the basis of the information provided in their abstracts – these were articles which concerned (a) the treatment of other conditions of drug users rather than addiction treatment, (b) individuals prior to their entering treatment and treatment entry predictors, (c) pre-clinical and neurobiological research, (d) in-treatment or post-treatment mortality, (e) the effects of the substitution treatment of pregnant women on unborn children, (f) dependence on prescription opioids, (g) diversion of substitution treatment preparations, and (h) only epidemiologi-

cal data and characteristics of people in treatment without exploring the effects of such factors on treatment. After these texts had been excluded, 144 publications remained for further consideration.

After the full texts of the 144 publications had been assessed, 75 of them were excluded on the following grounds: a) the publication meets any of the aforementioned exclusion criteria, b) although the publication describes a study including individuals in treatment, no specific distinction is made between the category of users of heroin and other illicit opioids on the one hand and users of other substances on the other hand (e.g. general inpatient treatment outcomes are reported where both heroin and cocaine users are included), c) the publication describes a treatment strategy but little information is provided about predictors of successful treatment and other factors influencing its outcome, d) the publication reflects a significantly different sociocultural setting (this particularly refers to the exclusion of studies performed in Asia and a preference for the inclusion of those conducted in Europe, Australia, and North America), and e) studies which investigate treatment outcomes in the prison setting or among a narrowly defined group (e.g. the Native American community).

3 TREATMENT OUTCOME PREDICTORS

3.1 Length of treatment

One of the most important factors in the prediction of successful treatment is the time spent in treatment. The longer a client/patient can remain in treatment, the better the overall results (Corsi et al., 2009). Naturally, this factor is interconnected with other influences – some patients/clients

tend to drop out of treatment more often than others, and the examination of the underlying factors and their mitigation should then help in ensuring their better retention in treatment and improving their general outcome.

The length of treatment as a predictive factor was also pointed out by an Italian study of heroin-addicted patients (Salamina et al., 2010) and other studies concerned with the effectiveness of opiate dependence treatment (Bell et al., 2006; Eastwood et al., 2017; Peles et al., 2008). This factor was also ascertained in young people undergoing treatment for heroin dependence, irrespective of the type of therapy, i.e. maintenance or abstinence-oriented. The metaanalysis showed that adolescents in methadone-based substitution treatment displayed higher retention rates. However, those juvenile patients who stayed in drug-free treatment for at least six months showed better results than patients on methadone maintenance (Hopfer et al., 2002).

3.2 Client/patient characteristics

3.2.1 Psychological characteristics and psychiatric comorbidity

One of the factors which is generally assumed to predict a poor treatment outcome for clients/patients is psychiatric comorbidity. Some of the studies provide more detailed evidence on this topic. The Australian Treatment Outcome Study (ATOS), involving an 11-year follow-up, found major depression to be one of the strongest predictors of the participants' continuing to use heroin (Teesson et al., 2015). However, another research study, focusing on a substitution treatment modality, did not find differences in treatment outcomes in relation to baseline depressive symptoms or the length and severity of drug use. Surprisingly, it found tobacco use to be associated with poorer treatment outcomes. It was also reported that severe baseline anxiety symptoms had doubled the success of treatment (Ziedonis et al., 2009).

The prevalence of psychiatric dual diagnoses in heroin users and the effect of psychiatric comorbidity on repeated entry to treatment following methadone maintenance or naltrexone implant treatment were also investigated. It was found that 32% of the heroin-addicted patients had a dual psychiatric diagnosis. These had undergone significantly more treatment episodes than non-psychiatric comorbidity patients. However, the authors of the study recommended that this should be subjected to further research, as a psychiatric dual diagnosis may not predict poor treatment outcomes at all times (Ngo et al., 2011). Another research study focused on clients with a long history of heroin who were assigned to a buprenorphine maintenance programme. 68.4% of them were found to be affected by psychiatric comorbidity (major depression 29.6%, generalised anxiety disorder 11.2%, personality disorders 21.8%, and schizophrenia 6.3%). The major depression group showed a significantly higher treatment retention rate and were less likely to use illicit drugs while in treatment (and had better treatment outcomes than the non-comorbidity group). The

lowest treatment retention rate was found among patients with schizophrenia and personality disorders. It was concluded that better treatment outcomes in major depression patients may be attributed to the effect of buprenorphine, which seems to be more effective, particularly in this type of psychiatric comorbidity (Gerra et al., 2004; Gerra et al., 2006). According to Maremmani et al. (2008), clients with psychiatric comorbidity in methadone maintenance therapy whose psychiatric problems preceded the onset of their heroin use were more likely to remain in treatment.

A Czech study of retention in buprenorphine maintenance treatment suggested that psychosocial factors which may predict successful outcomes include the absence of any severe psychiatric disorder, a low score on the neuroticism scale (i.e. psychological stability), and a low level of craving (Večeřová-Procházková et al., 2007). There are other studies which mention psychiatric comorbidity as a risk factor in terms of the early termination of treatment (Clark et al., 2015; Michelazzi et al., 2008; Salamina et al., 2010). Subjects diagnosed with a concurrent addiction to alcohol or other substances in addition to their opioid dependence were also found to be dramatically more prone to relapse (Clark et al., 2015).

Marissen et al. (2006) examined the effect of attentional bias (AB) on patients in treatment for heroin dependence. Nešpor (2013) defines AB as a preferential perception of cues associated with addictive behaviour to the exclusion of other cues (or as distraction) which impairs effective decision making and the use of one's own experience or relevant ambient information. A higher level of AB at follow-up measurements was found to be associated with relapsing into heroin use. Abramsohn et al. (2009) studied the stability of a sense of coherence (SOC) on a sample of former heroin addicts in an Israeli methadone programme. The construct of the sense of coherence refers to a global orientation that expresses the extent to which the world is perceived as comprehensible, manageable, and meaningful and is associated with psychological resilience and the ability to make use of one's inner survival resources. The methadone programme patients were contacted at the beginning of the treatment and after one year. The SOC scores obtained at baseline and the one-year follow-up were similar, although they were generally lower among those patients who continued using drugs. Patients with higher SOC scores showed longer retention in treatment. It was concluded that SOC was a stable parameter and a predictor of successful methadone maintenance, in terms of both treatment retention and abstinence.

A U.S. study explored the influence of novelty-seeking on treatment retention among heroin-dependent cocaine users, who were treated with buprenorphine and contingency management. The Novelty Seeking scale from the TPQ personality questionnaire was used to conduct this research. The results showed that the users scoring high on the Novelty Seeking scale were more likely to drop out by the end of treatment but had higher retention rates in its early stages in comparison to those with lower scores. The authors of the study suggested that the high-novelty seek-

ers had viewed contingency management as a novel treatment modality. The inclusion of new treatment methods and approaches should thus be considered a factor which may foster treatment retention among this group of clients/patients (Helmus et al., 2001). The level of confidence and self-efficacy also appears to predict the outcome of treatment: it was found that clients with higher pre-treatment confidence scores were more likely to abstain from heroin after being discharged (Murphy et al., 2003). According to a British study, neuropsychological characteristics, particularly those linked to decision-making processes, predict treatment outcomes. It was found that the respondents from a community treatment programme with poorer performance on decision-making tests (*the Cambridge Gamble Task and the Iowa Gambling Task*) were much less likely to abstain from illicit drugs after three months into their treatment (Passeti et al., 2008). The results only applied to community-based (outpatient) treatment rather than residential settings, as was demonstrated by subsequent research (Passeti et al., 2011).

3.2.2 Sociodemographic characteristics

The studies generally look into respondents' sociodemographic characteristics, such as gender, age, level of education, socioeconomic level, marital status, and legal situation. Some of them draw conclusions about any of these characteristics having effects (whether positive or negative) on treatment outcomes.

A Slovak prospective study with 351 participants entering opiate dependence treatment pointed out that significantly better outcomes at the three-year follow-up were observed among those who had been employed or at school at the time of their admission to treatment (Okruhlica et al., 2002). Unemployment as a predictor of dropping out of treatment was also reported by an Irish study focusing on heroin users in a three-week buprenorphine-based detoxification programme (Williams et al., 2002). While the effect of employment status on retention in treatment and abstinence was brought up by a number of other studies (Eastwood et al., 2017; Kenne et al., 2010; Nosyk et al., 2013; Stein et al., 2005), there are some which failed to demonstrate such a relationship (Ziedonis et al., 2009).

An Australian study looked into factors predicting retention in treatment on the basis of data from health databases concerning patients in methadone treatment (sociodemographic characteristics, dropping out of treatment, re-entry to treatment). At the six-month follow-up, 51% of the patients remained in treatment, which corresponds to the results of other (not only) Australian studies. Two-thirds of those who had dropped out subsequently re-entered treatment, with multiple episodes of being in and out of treatment. The significant predictors of re-entry to treatment were age and the length of the first treatment episode. Those who were older and had undergone longer continuous treatment were less likely to re-enter. It was noted that the common phenomenon of client's cycling in and out of treatment may well be linked to methadone maintenance

becoming more available and accessible (Bell et al., 2006). A recent UK study also reported that older patients were more likely to complete treatment and less likely to re-enter after dropping out (Eastwood et al., 2017). Older age was a predictor of better treatment outcomes in other studies, too (Anderson & Warren, 2004; Backmund et al., 2001; Weinstein et al., 2017). Some studies, on the other hand, did not support the predictive value of age (Nosyk et al., 2013).

Research has yielded inconsistent results concerning the effect of education on treatment outcomes. Some studies did not find education to be a predictor of success, e.g. Ziedonis et al. (2009), while others concluded that the level of education may predict treatment outcomes (Avants et al., 2000; Backmund et al., 2001; Večeřová-Procházková et al., 2007).

Equally, there is inconsistent evidence about the effects of a history of offending and previous convictions. Some research suggests that previous imprisonment and current probation supervision may predict better retention in treatment (Backmund et al., 2001), while other studies demonstrated better outcomes for respondents who had not engaged in criminal activities prior to treatment (Darke et al., 2007; Hellemann et al., 2009). There are studies which found neither a positive nor a negative relationship between legal issues and the success of treatment (Ziedonis et al., 2009).

Evidence about the predictive value of gender in terms of treatment outcomes is also inconclusive. Ziedonis et al. (2009), for example, did not find that gender predicted the success of treatment. Data from a Prague-based methadone programme showed, however, that women sought methadone maintenance to the same extent as men, but displayed better abilities to adhere to treatment and perceived the rules as not being so strict. They were also more likely to progress towards complete abstinence by having their doses tapered and subsequently predominated among those who positively remained abstinent, according to the information available to the programme staff (Bečka, 2007).

As part of a national research project that investigated treatment outcomes (ATOS), an Australian study followed up heroin users for 36 months. No significant gender differences were found in terms of reporting sustained abstinence from heroin over 36 months. Women, however, were more likely to have abstained over the last 12 months. Nevertheless, only 8% of the respondents had sustained continuous abstinence for the whole of three years since baseline. While the vast majority of the respondents failed to maintain abstinence throughout the study period, 40% of them reported abstinence over the 12 months preceding the end of the study. The results suggest a long-term effect of treatment on a drug-free lifestyle (Darke et al., 2007). This "cumulative treatment effect" (including episodes of non-treatment-induced abstinence) has been confirmed by other authors (e.g. Nosyk et al., 2013).

In general, young adults (aged 18-25) show poorer treatment outcomes. A study which evaluated the outcomes of buprenorphine treatment for young adults and older pa-

tients demonstrated that, in comparison to older patients, younger patients showed a significantly lower rate of remaining in treatment and were more likely to test positive for illicit opioids (Schuman-Olivier et al., 2014). Similar findings were produced by other studies concerned with the treatment of adolescents and young adults (Warden et al., 2012), as well as other research (Burns et al., 2009; Hellemann et al., 2009; Kenne et al., 2010).

A number of studies refer to factors related to the respondents' race, but their results are also inconclusive. There are studies which do not prove any association between treatment outcomes and sociodemographic characteristics, including race (Ziedonis et al., 2009). Some American studies suggest lower success rates among respondents of Afro-American and Hispanic descent (Weinstein et al., 2017).

3.2.3 Family and social environment

An important factor which determines the success of treatment is the client's/patient's social environment, especially their family. The Drug Abuse Treatment Outcome Studies (DATOS), a U.S. research project, also included heroin-addicted respondents entering a methadone maintenance programme. Five years into the programme 27% of them had maintained abstinence. These respondents reported fewer family conflicts, had friends who did not use drugs or alcohol, and were supported by their family in their effort to achieve abstinence (Flynn et al., 2003). Having two or more friends who are drug-dependent people is regarded as a predictor of dropping out of treatment (Hellemann et al., 2009).

A person living with his/her family is more likely to retain in treatment. Salamina et al. (2010) reported a higher risk of dropping out of treatment for respondents who had lived alone prior to treatment. Similarly, this factor is upheld by a study focusing on marriage and a close relationship with one's spouse as a predictor of refraining from using non-prescription psychoactive substances during methadone maintenance (Heinz et al., 2009).

Exploring the influence of family factors on the outcome of methadone maintenance therapy, Pickens et al. (2001) found that patients whose parents were dependent on alcohol or other substances were more likely to show a greater level of severity of opiate dependence. Although they reduced their illicit opiate use while in treatment (receiving identical doses of methadone to patients with a negative family history of dependence), they used cocaine more while on substitution medication. It was concluded that genetic factors may play a role in both susceptibility to heroin dependence and response to methadone treatment. In addition to no family history of addiction, Poirier et al. (2004) also identified a negative family history of mood disorder as a predictor of success. It is hardly surprising that a study examining the use of other opioids among individuals in methadone maintenance therapy identified living with a heroin-using partner as one of the predictors of the continued use of non-prescribed substances (Lions et

al., 2014). The same finding was reported by other authors (Hser, 2007; Michelazzi et al., 2008).

One of the objectives of an Irish national study of treatment outcomes was to assess the effects of having children in the client's custodial care on their opiate dependence treatment. The respondents with children in their care were found to have reduced their heroin use significantly, but the frequency of their use of other opiates and alcohol increased. The respondents with no children in their care were more likely to use heroin, marijuana, and benzodiazepines. While those who had children in their care tended to reduce their use of illicit substances, they also showed a tendency towards the use of heroin substitutes associated with less social stigma (Comiskey, 2013).

A unique research project exploring the role of external factors and social context was undertaken in Australia. Its objective was to study the relationship between a sudden dramatic decrease in the availability of heroin and a major increase in its price (accompanied by the deterioration of its quality) on the Australian market on the one hand and entry and adherence to treatment for heroin dependence on the other hand. A drop in the number of young people entering substitution treatment and a dramatic decline in the number of treatment episodes involving detoxification only were observed. Some improvements in adherence to treatment and retention were found among heroin-dependent individuals during the period when the heroin supply was reduced. However, this complementary effect requires a balanced drug policy and good availability of treatment services (Degenhardt et al., 2005).

3.2.4 Substance use before and during treatment

Treatment retention and outcomes appear to be influenced by patterns of substance use before entering treatment (such as injecting use, polydrug use, and concurrent drug and alcohol dependence) and during treatment (such as illicit drug use while in substitution therapy). While this applies to both substitution and abstinence-oriented approaches, a larger body of evidence is available with respect to the former.

Patients' continued illicit drug use while in substitution treatment is a serious problem which undermines the goal of methadone maintenance and increases the risk of HIV infection for injecting drug users (Avants et al., 2000). Studies examining predictors of success and risk factors in relation to substitution treatment identify continued illicit drug use during treatment as a major risk factor.

Avants et al. (2000) examined drug use during the first three months of methadone maintenance treatment and the effects of cognitive, affective, and behavioural predictors of treatment outcomes. Continued heroin use was found to be associated with the severity of the pre-treatment addiction and strong self-identity as an addict ("addicted self-schema"). In addition to the severity of the pre-treatment addiction and addicted self-schema, co-

caine use during methadone maintenance treatment was predicted by low self-efficacy and the absence of negative cocaine-related experiences.

A study of heroin users entering treatment (as part of the ATOS project) looked into the effects of baseline cocaine use on treatment outcomes over a two-year period. Baseline interviews revealed that in addition to their primary drug two-fifths of 615 heroin-dependent participants had also used cocaine. Subsequent follow-ups (at three, 12, and 24 months) showed a decrease in cocaine use among the respondents. However, baseline cocaine use proved to be a significant predictor of poorer treatment outcomes after 24 months. Those who reported cocaine use at the baseline assessment showed higher levels of heroin use, unemployment, needle sharing, criminal activity, and incarceration over the two-year study period (Williamson et al., 2007). Franklyn et al. (2017) arrived at similar conclusions: patients who were found cocaine-positive on admission to substitution treatment were more likely to drop out of treatment and showed a generally lower treatment retention rate than patients who had tested negative for cocaine. The more intensive the cocaine use during treatment, the higher the risk of dropping out of treatment. Cocaine use during substitution treatment was also found to be a major risk factor for dropping out of treatment by Salamina et al. (2010). Such conclusions were supported by a German study involving patients maintained on buprenorphine/naloxone, which extended the predictors of early termination of treatment to include positive tests for benzodiazepines and opiates other than buprenorphine (Apelt et al., 2014). Similarly, Peles et al. (2008) reported a negative effect of cocaine and amphetamine use on retention in methadone maintenance among respondents in a U.S. clinic and of benzodiazepines and continued opiate use among patients at an Israeli methadone maintenance treatment clinic.

The authors of a U.S. study investigating marijuana use during methadone maintenance (Ghitza et al., 2007) focused on the relationship between the non-reporting of marijuana use during methadone treatment and treatment outcomes (with cannabis use not being the reason for exclusion from treatment). The respondents who failed to admit THC use were more likely also to use cocaine and heroin while in treatment. It was concluded, however, that the treatment outcome was affected by the non-reporting phenomenon rather than the actual use of cannabis. Looking for a possible association between opiate treatment outcomes and marijuana use among participants aged 15-21, Hill et al. (2013) identified no relationship between poorer treatment outcomes and cannabis use. Half of the clients in buprenorphine-based substitution treatment reported occasional marijuana use and one-sixth of the sample had smoked marijuana on a daily basis. The authors concluded that while cannabis use may be harmful, their study did not demonstrate its effect on the outcome of buprenorphine treatment in the age category under study.

Lions et al. (2014) examined the use of other opioids among subjects on methadone maintenance. 12 months into treat-

ment, 32% of the patients were found to have used non-prescribed opioids in the last month. Major risk factors included cocaine use during methadone maintenance and hazardous alcohol consumption. The role of the severity of alcohol use was supported by Abrahamsson et al. (2016). The AUDIT test result proved to be the key predictor of retention in treatment: the lower the score, the higher the chance of the client remaining in the substitution programme and advancing to the next (higher-threshold) treatment phase. Studying a sample of opiate-dependent adolescents and young adults (aged 15-21), Warden et al. (2012) found those respondents testing positive for opiates in the first two weeks of treatment to be at risk of dropping out.

A Canadian study of substitution treatment based on the administration of heroin and methadone investigated predictors of non-use of illicit heroin among patients on maintenance (the baseline assessment was performed on admission to treatment, with subsequent follow-ups after three, six, nine, and 12 months). The subjects who had not used illicit heroin in the last month also showed fewer days of cocaine use and criminal activities in the last month. In addition, lower levels of illicit heroin use were predicted by regular treatment attendance (fewer days of not showing up) and the total quantity of the substitution agent used in the previous month (Oviedo-Joekes et al., 2015). Patients who had had experience with diverted buprenorphine were found to show higher levels of retention in buprenorphine maintenance treatment than those without previous experience with buprenorphine (Monico et al., 2015).

Predictors of buprenorphine-based treatment outcomes for heroin-dependent individuals were examined by Woodcock et al. (2015). Predictors of better success in maintaining abstinence from heroin that were identified included older age at the onset of heroin use, fewer days of heroin use in the last month preceding entry to treatment (lower levels of heroin use prior to treatment), and a history of multiple attempts to abstain from heroin. Those who stayed heroin-free early in their treatment were more likely to remain abstinent towards the end of treatment and following the withdrawal of buprenorphine. Soyka et al. (2008), too, found age at the onset of regular opiate use to be one of the predictive factors: the younger the age at the onset of a drug career, the lower the retention in substitution treatment. Another major factor was the severity of withdrawal symptoms experienced at the beginning of treatment (the higher the Opiate Withdrawal Scale score, the higher the risk of dropping out). Finally, injecting drug use in the last month before entry to treatment appears to be a significant predictor of its early termination (Dayal & Balhara, 2017).

3.3 Service provision factors

These factors involve the configuration of the treatment strategy, type of treatment and treatment facility, the staff's attitude to clients, and, last but not least, the type of medication used (especially the type of substitution agent under maintenance therapy) and the offer of psychosocial/

psychotherapeutic support. They have an impact on client's satisfaction and engagement with treatment and determine treatment retention and outcomes.

3.3.1 Maintenance substances and their dosage

A number of studies compared the efficacy of different agents used for the substitution treatment of opiate dependence and the outcomes of maintenance treatment with respect to the level of doses of substitution preparations.

Systematic reviews suggest that methadone maintenance therapy is the most effective in retaining patients in treatment and suppressing heroin use, with higher doses of methadone being associated with better treatment outcomes (Amato et al., 2005). A recent systematic survey compared the effectiveness of methadone, buprenorphine, and a placebo (Mattick et al., 2014). Buprenorphine was found to be more effective than the placebo as regards retention in treatment. It appears to suppress illicit opioid use during treatment at higher doses only, while at lower doses its effect was similar to that of the placebo. Buprenorphine was further found to be less effective than methadone in terms of retaining patients in treatment. No differences were found between buprenorphine and methadone when administered in medium and high doses (Mattick et al., 2014). Other studies comparing the effectiveness of different substitution agents suggested that heroin may be a useful maintenance option for those clients who do not seem to profit from standard substitution therapies and have a history of multiple unsuccessful treatment episodes. In comparison to standard substitution treatment, heroin-assisted therapy can lead to better adherence, particularly among those who are less motivated to seek help (Bascaran et al., 2014; Nosyk et al., 2010; Oviedo-Joekes et al., 2009).

A German retrospective study, for example, compared patients undergoing substitution treatment with codeine and methadone and illicit heroin users in terms of their completion of residential abstinence-oriented detoxification. Patients who had undergone methadone substitution treatment were more successful in completing detoxification than codeine-substituted patients and both groups on substitution drugs were significantly more likely to complete detoxification than heroin users (Backmund et al., 2001). Another study which also looked into the type of medication used during the 14-day detoxification confirmed better outcomes for patients treated with buprenorphine and naloxone than for those patients receiving clonidine (Ziedonis et al., 2009). These conclusions were supported by research into the differences between treatment outcomes among patients treated with buprenorphine or clonidine (Marsch et al., 2005).

A study comparing the efficacy of buprenorphine and methadone for opioid maintenance treatment found that higher doses of substitution agents, both methadone and buprenorphine, were predictive of better outcomes (fewer positive urine tests for illicit drugs). The efficacy of both substances was demonstrated to a comparable degree, with buprenorphine showing higher efficacy in patients

with depressive symptoms (Gerra et al., 2004). Higher doses of a substitution agent as a predictor of better treatment outcomes are reported by other authors (Michelazzi et al., 2008; Peles et al., 2008; Villafranca et al., 2006), although such conclusions were not supported by Soyka et al. (2008), whose study did not demonstrate any relationship between retention in substitution treatment and the size of the dose. In their retrospective cohort study, Dayal and Balhara (2017) assessed the level of retention in buprenorphine maintenance treatment among young adults and looked for retention-relevant factors. The daily doses of buprenorphine were found to be an important predictor. Lower doses were likely to result in the termination of treatment. A 1-mg increase in the dose reduced the probability of dropping out by 14%.

Studying the effectiveness of substitution treatment, Clark et al. (2015) noted that patients treated with buprenorphine or methadone showed a lower risk of relapsing into illicit drug use than patients who had undergone abstinence-based therapy. They also found an association between the length of treatment and the risk of relapse.

3.3.2 Other treatment characteristics

Conducted as part of the NTORS, a substudy with opiate-dependent patients in methadone maintenance treatment assessed pre-treatment motivation, the frequency and content of counselling services, perceptions of the programme, and the level of methadone doses in terms of the association of such parameters with treatment outcomes at one- and six-month follow-ups. Several relationships were identified: perceptions of the programme and methadone doses were associated with reduced heroin use after one month. The use of counselling services was related to reduced heroin use at the six-month follow-up. Heroin use one month into treatment predicted heroin use at six months. Although treatment factors appear to have important effects, especially in the early stages of treatment, they can also have an impact on long-term outcomes and successful treatment (Gossop et al., 2003). Satisfaction with treatment was also pointed out as one of the strongest predictors of retention in methadone maintenance therapy in a study involving opioid-dependent veterans (Villafranca et al., 2006).

The importance of the psychosocial components of substitution treatment and their effects on treatment outcomes were also noted in a Czech study by Kostínková (2008). In line with her findings, Salamina et al. (2010) found that psychotherapeutic support during treatment reduced the risk of dropout by half. The use of social and psychological services during substitution therapy as a factor which improves treatment outcomes was supported by other studies (Amato et al., 2008; Avants et al., 2000; Oviedo-Joekes et al., 2015; Stein et al., 2005). The quality of the contact with counsellors (Backmund et al., 2001) and regular attendance (Oviedo-Joekes et al., 2015) were also reported as predictors of success.

In a study that looked into the characteristics of treatment facilities and their effect on treatment outcomes, other fac-

tors that may affect retention in methadone treatment were identified. The retention of patients in the methadone programme was higher if the focus of the programme placed less emphasis on changing the lifestyle of the patient and less pressure on learning new skills. Additionally, the programmes were more successful if there was a low proportion of former drug users among the staff members (Hser et al., 2001).

The provision of buprenorphine maintenance treatment in the Czech Republic was examined by Večeřová-Procházková et al. (2007). Their study, with the respondents being recruited from three types of substitution settings (a specialised centre, a specialised centre in combination with a general practitioner, and a general practitioner), indicated that the form in which treatment was provided did not have an influence on patients' retention in the programme (at a three-month follow-up). Similarly, Comiskey and Cox (2010) reported no association between the outcomes of methadone treatment and the type of setting where it was provided.

Ziedonis et al. (2009) studied predictors of successful withdrawal management among opiate-dependent patients in a 14-day detoxification programme. They noted that the type of therapy was predictive of successful completion of detoxification and abstinence from drugs during the programme. Inpatient treatment was found to be more successful than outpatient detoxification (Ziedonis et al., 2009).

Salamina et al. (2010) studied heroin-dependent clients/patients receiving treatment in different settings (methadone maintenance therapy, a therapeutic community, and other residential abstinence-oriented treatment facilities). The type of therapy was found to be the strongest predictor of retention in treatment. Inpatient abstinence-oriented settings other than therapeutic communities showed the lowest retention rate, while with methadone treatment, the retention depended on the dose. In an Australian study of heroin users (ATOS), respondents from four types of facilities were assessed in terms of their success in abstaining over a period of 36 months. Respondents from residential abstinence-oriented treatment showed the highest rates of abstinence from heroin over the entire 36 months. Those in substitution treatment also showed relatively high abstinence rates during the study period. Respondents who completed detox only were less likely to abstain, and none of the respondents contacted in low-threshold facilities succeeded in abstaining from heroin over the 36 months (Darke et al., 2007).

Lions et al. (2014) noted a good patient-physician relationship as a predictor of non-use of non-prescribed opioids during methadone maintenance. They suggested that more attention should be paid to patients' relationships with service staff and issues related to the former's partner relationships and social network as a way of improving the outcomes of methadone treatment. In an abstinence-oriented treatment setting, too, predictors of successful treatment outcomes included a good relationship with service staff,

a sense of security, and a non-discriminating attitude to clients (Brener et al., 2010).

Parmenter et al. (2013) assessed patients in primary care substitution treatment one, five, and eleven years after their entry to treatment. Continuous treatment was found to be the strongest predictor of positive outcomes.

● 4 SUMMARY

Although the studies vary in their definition of "treatment success" and the indicators under scrutiny, it is possible to summarise the key factors that seem to determine positive outcomes. The following are the key client/patient predictors which appear to have a positive effect on treatment outcomes and which are consistently identified as such by the authors of the studies addressing the treatment of addiction to heroin and illicit opiates:

- duration of treatment (the longer the treatment, the better the outcome),
- certain sociodemographic characteristics (especially older age on entry to treatment),
- certain psychological characteristics (e.g. higher levels of sense of coherence and self-efficacy) and psychiatric comorbidity; while some studies suggest that clients/patients with psychiatric diagnoses (particularly depressive disorders) may, surprisingly, show higher retention in treatment, a psychiatric dual diagnosis is generally considered a risk factor,
- a family situation involving no major conflicts and addiction issues among family members and partners and a social network providing support for recovery efforts,
- the use of illicit/non-prescribed substances during treatment results in poorer outcomes, especially when relapse occurs at the beginning of the treatment process.

As regards treatment-related factors, there are differences between abstinence-based (psychosocial) treatment and substitution therapy, with the substitution modality showing higher retention rates. Successful outcomes of substitution treatment are associated with higher doses (whether with methadone or buprenorphine as the most common substitution agents), psychosocial support during treatment, and good relationships with service staff. On the other hand, unreasonable pressure on clients to change their lifestyle should be avoided.

● 5 CONCLUSION

The outcomes of the treatment of addiction to heroin and other illicit opioids are influenced by a number of factors. Studies are not always consistent in their findings, however, particularly as regards the effects of individual sociodemographic and psychological factors. Generally, it can be concluded that predictors of positive treatment outcomes include the client's being of a higher age, stable family and social support, and a social network. On the other hand, the

use of non-prescribed substances during treatment, severe psychiatric comorbidity, and unstable family circumstances usually predict poorer outcomes. It should be noted that clients/patients in treatment should be dealt with individually and that treatment provision factors (such as good relationships with service staff, appropriate configuration of treatment, including dosage, and psychosocial and psychotherapeutic support) should be given particular attention as a way of providing effective assistance to clients/patients who may experience adverse baseline conditions.

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REFERENCES

- Abrahamsson, T., Widinghoff, C., Lilliebladh, A., Gedeon, C., Nilvall, K., & Hakansson, A. (2016). Interim buprenorphine treatment in opiate dependence: A pilot effectiveness study. *Substance Abuse, 37*(1), 104-109.
- Abramsohn, Y., Peles, E., Potik, D., Schreiber, S., & Adelson, M. (2009). Sense of coherence as a stable predictor for methadone maintenance treatment (MMT) outcome. *J Psychoactive Drugs, 41*(3), 249-253.
- Amato, L., Davoli, M., Perucci, C. A., Ferri, M., Faggiano, F., & Mattick, R. P. (2005). An overview of systematic reviews of the effectiveness of opiate maintenance therapies: available evidence to inform clinical practice and research. *J Subst Abuse Treat, 28*(4), 321-329.
- Amato, L., Minozzi, S., Davoli, M., Vecchi, S., Ferri, M. M. F., & Mayet, S. (2008). Psychosocial and pharmacological treatments versus pharmacological treatments for opioid detoxification. *Cochrane Database of Systematic Reviews*(4).
- Anderson, J. F., & Warren, L. D. (2004). Client retention in the British Columbia methadone program, 1996-1999. *Canadian Journal of Public Health, 95*(2), 104-109.
- Apelt, S. M., Scherbaum, N., & Soyka, M. (2014). Induction and switch to buprenorphine-naloxone in opioid dependence treatment: Predictive value of the first four weeks. *Heroin Addiction and Related Clinical Problems, 16*(3), 87-98.
- Avants, S. K., Margolin, A., & McKee, S. (2000). A Path Analysis of Cognitive, Affective, and Behavioral Predictors of Treatment Response in a Methadone Maintenance Program. *Journal of Substance Abuse, 11*(3), 215-230.
- Backmund, M., Meyer, K., Eichenlaub, D., & Schütz, C. G. (2001). Predictors for completing an inpatient detoxification program among intravenous heroin users, methadone substituted and codeine substituted patients. *Drug and Alcohol Dependence, 64*(2), 173-180.
- Bascaran, M. T., Garcia-Portilla, M. P., Bobes-Bascaran, M. T., Saiz, P. A., & Bobes, J. (2014). Long term outcomes of pharmacological treatments for opioid dependence: Does methadone still lead the pack? *British Journal of Clinical Pharmacology, 77*(2), 272-284.
- Bečka, J. (2007). Ženy v metadonovém programu Apolinář [Women as patients of the "Apolinar" methadone clinic]. *Adiktologie, 7*(3), 369-377.
- Bell, J., Burrell, T., Indig, D., & Gilmour, S. (2006). Cycling in and out of treatment; participation in methadone treatment in NSW, 1990-2002. *Drug and Alcohol Dependence, 81*(1), 55-61.
- Brener, L., von Hippel, W., von Hippel, C., Resnick, I., & Treloar, C. (2010). Perceptions of discriminatory treatment by staff as predictors of drug treatment completion: Utility of a mixed methods approach. *Drug and Alcohol Review, 29*(5), 491-497.
- Burns, L., Randall, D., Hall, W. D., Law, M., Butler, T., Bell, J., & Degenhardt, L. (2009). Opioid agonist pharmacotherapy in New South Wales from 1985 to 2006: Patient characteristics and patterns and predictors of treatment retention. *Addiction, 104*(8), 1363-1372.
- Chomynová, P., Csémy, L., & Mravčík, V. (2016). Evropská školní studie o alkoholu a jiných drogách (ESPAD) 2015 [The European School Survey Project on Alcohol and Other Drugs (ESPAD) 2015]. *Zaostřeno, 2016*(5), 1-16.
- Clark, R. E., Baxter, J. D., Aweh, G., O'Connell, E., Fisher, W. H., & Barton, B. A. (2015). Risk Factors for Relapse and Higher Costs Among Medicaid Members with Opioid Dependence or Abuse: Opioid Agonists, Comorbidities, and Treatment History. *J Subst Abuse Treat, 57*, 75-80.
- Comiskey, C. M. (2013). A 3 year national longitudinal study comparing drug treatment outcomes for opioid users with and without children in their custodial care at intake. *Journal of Substance Abuse Treatment, 44*(1), 90-96.
- Comiskey, C. M., & Cox, G. (2010). Analysis of the impact of treatment setting on outcomes from methadone treatment. *Journal of Substance Abuse Treatment, 39*(3), 195-201.
- Corsi, K. F., Lehman, W. K., & Booth, R. E. (2009). The effect of methadone maintenance on positive outcomes for opiate injection drug users. *Journal of Substance Abuse Treatment, 37*(2), 120-126.
- Darke, S., Ross, J., Mills, K. L., Williamson, A., Havard, A., & Teesson, M. (2007). Patterns of sustained heroin abstinence amongst long-term, dependent heroin users: 36 months findings from the Australian Treatment Outcome Study (ATOS). *Addictive Behaviors, 32*(9), 1897-1906.
- Dayal, P., & Balhara, Y. P. S. (2017). A naturalistic study of predictors of retention in treatment among emerging adults entering first buprenorphine maintenance treatment for opioid use disorders. *J Subst Abuse Treat, 80*, 1-5.
- Degenhardt, L., Conroy, E., Day, C., Gilmour, S., & Hall, W. (2005). The impact of a reduction in drug supply on demand for and compliance with treatment for drug dependence. *Drug Alcohol Depend, 79*(2), 129-135.
- Eastwood, B., Strang, J., & Marsden, J. (2017). Effectiveness of treatment for opioid use disorder: A national, five-year, prospective, observational study in England. *Drug and Alcohol Dependence, 176*, 139-147.
- EMCDDA (2017). *European Drug Report 2017: Trends and Developments*. Luxembourg: Publications Office of the European Union.
- Flynn, P. M., Joe, G. W., Broome, K. M., Simpson, D. D., & Brown, B. S. (2003). Recovery from opioid addiction in DATOS. *Journal of Substance Abuse Treatment, 25*(3), 177-186.
- Franklyn, A. M., Eibl, J. K., Gauthier, G. J., Pellegrini, D., Lightfoot, N. E., & Marsh, D. C. (2017). The impact of cocaine use in patients enrolled in opioid

- agonist therapy in Ontario, Canada. *International Journal of Drug Policy*, 48(Supplement C), 1-8.
- Gerra, G., Borella, F., Zaimovic, A., Moi, G., Bussandri, M., Bubici, C., & Bertacca, S. (2004). Buprenorphine versus methadone for opioid dependence: Predictor variables for treatment outcome. *Drug and Alcohol Dependence*, 75(1), 37-45.
- Gerra, G., Leonardi, C., D'Amore, A., Strepparola, G., Fagetti, R., Assi, C., . . . Lucchini, A. (2006). Buprenorphine treatment outcome in dually diagnosed heroin dependent patients: A retrospective study. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 30(2), 265-272.
- Ghitza, U. E., Epstein, D. H., & Preston, K. L. (2007). Nonreporting of cannabis use: Predictors and relationship to treatment outcome in methadone maintained patients. *Addictive Behaviors*, 32(5), 938-949.
- Gossop, M., Stewart, D., & Marsden, J. (2003). Treatment process components and heroin use outcome among methadone patients. *Drug and Alcohol Dependence*, 71(1), 93-102.
- Heinz, A. J., Wu, J., Witkiewitz, K., Epstein, D. H., & Preston, K. L. (2009). Marriage and relationship closeness as predictors of cocaine and heroin use. *Addictive Behaviors*, 34(3), 258-263.
- Helleman, G., Conner, B. T., Anglin, M. D., & Longshore, D. (2009). Seeing the trees despite the forest: applying recursive partitioning to the evaluation of drug treatment retention. *J Subst Abuse Treat*, 36(1), 59-64.
- Helmus, T. C., Downey, K. K., Arfken, C. L., Henderson, M. J., & Schuster, C. R. (2001). Novelty seeking as a predictor of treatment retention for heroin dependent cocaine users. *Drug and Alcohol Dependence*, 61(3), 287-295.
- Hill, K. P., Bennett, H. E., Griffin, M. L., Connery, H. S., Fitzmaurice, G. M., Subramaniam, G., . . . Weiss, R. D. (2013). Association of cannabis use with opioid outcomes among opioid-dependent youth. *Drug and Alcohol Dependence*, 132(1-2), 342-345.
- Hopfer, C. J., Khuri, E., Crowley, T. J., & Hooks, S. (2002). Adolescent heroin use: a review of the descriptive and treatment literature. *Journal of Substance Abuse Treatment*, 23(3), 231-237.
- Hser, Y., Joshi, V., Maglione, M., Chou, C., & Anglin, M. (2001). Effects of program and patient characteristics on retention of drug treatment patients. *Evaluation and Program Planning*, 24, 331-341.
- Hser, Y. I. (2007). Predicting long-term stable recovery from heroin addiction: Findings from a 33-year follow-up study. *Journal of Addictive Diseases*, 26(1), 51-60.
- Kalina, K. (2015). Faktory významné pro léčbu, změnu a úzdravu [Factors relevant to treatment, change, and recovery]. In K. Kalina (Ed.), *Klinická adiktologie*. Praha: Grada Publishing.
- Kenne, D. R., Boros, A. P., & Fischbein, R. L. (2010). Characteristics of opiate users leaving detoxification treatment against medical advice. *Journal of Addictive Diseases*, 29(3), 383-394.
- Kostínková, L. (2008). Psychosociální podpora v substituční léčbě [Psychosocial interventions in substitution treatment]. *Adiktologie*, 8(1), 64-72.
- Lions, C., Carrieri, M. P., Michel, L., Mora, M., Marcellin, F., Morel, A., . . . Roux, P. (2014). Predictors of non-prescribed opioid use after one year of methadone treatment: An attributable-risk approach (ANRS-Methaville trial). *Drug and Alcohol Dependence*, 135, 1-8.
- Maremmani, I., Pacini, M., Lamanna, F., Pani, P. P., Trogu, M., Perugi, G., . . . Gerra, G. (2008). Predictors for non-relapsing status in methadone-maintained heroin addicts. A long-term perspective study. *Heroin Addiction and Related Clinical Problems*, 10(4), 19-28.
- Marissen, M. A., Franken, I. H., Waters, A. J., Blanken, P., van den Brink, W., & Hendriks, V. M. (2006). Attentional bias predicts heroin relapse following treatment. *Addiction*, 101(9), 1306-1312.
- Marsch, L. A., Bickel, W. K., Badger, G. J., Stothart, M. E., Quesnel, K. J., Stanger, C., & Brooklyn, J. (2005). Comparison of pharmacological treatments for opioid-dependent adolescents: A randomized controlled trial. *Archives of General Psychiatry*, 62(10), 1157-1164.
- Mattick, R. P., Breen, C., Kimber, J., & Davoli, M. (2014). Buprenorphine maintenance versus placebo or methadone maintenance for opioid dependence. *Cochrane Database Syst Rev*, 2, Cd002207.
- Michelazzi, A., Vecchiet, F., Leprini, R., Popovic, D., Deltito, J., & Maremmani, I. (2008). GPs' office based methadone maintenance treatment in Trieste, Italy. Therapeutic efficacy and predictors of clinical response. *Heroin Addiction and Related Clinical Problems*, 10(2), 27-38.
- Monico, L. B., Mitchell, S. G., Gryczynski, J., Schwartz, R. P., O'Grady, K. E., Olsen, Y. K., & Jaffe, J. H. (2015). Prior Experience with Non-Prescribed Buprenorphine: Role in Treatment Entry and Retention. *Journal of Substance Abuse Treatment*, 57, 57-62.
- Mounteney, J., & Baker, O. (1999). *Evaluating the treatment of drug abuse in the European Union*. Luxembourg: European Monitoring Centre for Drugs and Drug Addiction.
- Mravčík, V., Chomynová, P., Grohmannová, K., Janíková, B., Leštinová, Z. T., Rous, Z., . . . Vopravil, J. (2016). *Výroční zpráva o stavu ve věcech drog v České republice v roce 2015 [National Report: The Czech Republic – 2015 Drug Situation]* (V. Mravčík, Ed.). Praha: Úřad vlády ČR.
- Mravčík, V., Chomynová, P., Grohmannová, K., Janíková, B., Tion Leštinová, Z., Rous, Z., . . . Vopravil, J. (2017). *Výroční zpráva o stavu ve věcech drog v České republice v roce 2016 [National Report: The Czech Republic – 2016 Drug Situation]* (V. Mravčík, Ed.). Praha: Úřad vlády ČR.
- Murphy, P. N., Bentall, R. P., Ryley, L. D., & Ralley, R. (2003). Predicting postdischarge opiate abstinence from admission measures of motivation and confidence. *Psychology of Addictive Behaviors*, 17(2), 167-170.
- Nešpor, K. (2013). *Sebeovládání. Stres, rizikové emoce a bažení lze zvládat*. [Self-control. Stress, risky emotions, and craving can be managed] Praha: Portál.
- Ngo, H. T., Tait, R. J., & Hulse, G. K. (2011). Hospital psychiatric comorbidity and its role in heroin dependence treatment outcomes using naltrexone implant or methadone maintenance. *J Psychopharmacol*, 25(6), 774-782.
- Nosyk, B., Anglin, M. D., Brecht, M. L., Lima, V. D., & Hser, Y. I. (2013). Characterizing durations of heroin abstinence in the California civil addict program: Results from a 33-year observational cohort study. *American Journal of Epidemiology*, 177(7), 675-682.
- Nosyk, B., Geller, J., Guh, D. P., Oviedo-Joekes, E., Brissette, S., Marsh, D. C., . . . Anis, A. H. (2010). The effect of motivational status on treatment outcome in the North American Opiate Medication Initiative (NAOMI) study. *Drug and Alcohol Dependence*, 111(1), 161-165.
- Okruhlica, L., Mihalkova, A., Klempova, D., & Skovayova, L. (2002). Three-year follow-up study of heroin users in Bratislava. *Eur Addict Res*, 8(2), 103-106.
- Oviedo-Joekes, E., Brissette, S., Marsh, D. C., Lauzon, P., Guh, D., Anis, A., & Schechter, M. T. (2009). Diacetylmorphine versus methadone for the treatment of opioid addiction. *New England Journal of Medicine*, 361(8), 777-786.
- Oviedo-Joekes, E., Sordo, L., Guh, D., Marsh, D. C., Lock, K., Brissette, S., . . . Schechter, M. T. (2015). Predictors of non-use of illicit heroin in opioid injection maintenance treatment of long-term heroin dependence. *Addictive Behaviors*, 41, 81-86.
- Parmenter, J., Mitchell, C., Keen, J., Oliver, P., Rowse, G., Neligan, I., . . . Mathers, N. (2013). Predicting biopsychosocial outcomes for heroin users in primary care treatment: a prospective longitudinal cohort study. *Br J Gen Pract*, 63(612), e499-505.
- Passetti, F., Clark, L., Davis, P., Mehta, M. A., White, S., Checinski, K., . . . Abou-Saleh, M. (2011). Risky decision-making predicts short-term outcome of community but not residential treatment for opiate addiction. Implications for case management. *Drug and Alcohol Dependence*, 118(1), 12-18.
- Passetti, F., Clark, L., Mehta, M. A., Joyce, E., & King, M. (2008). Neuropsychological predictors of clinical outcome in opiate addiction. *Drug and Alcohol Dependence*, 94(1), 82-91.
- Pavlovská, A., & Minařík, J. (2015). *Substituční léčba závislosti [Substitution addiction treatment]*. In K. Kalina (Ed.), *Klinická adiktologie*. Praha: Grada Publishing.

- Peles, E., Linzy, S., Kreek, M. J., & Adelson, M. (2008). One-year and cumulative retention as predictors of success in methadone maintenance treatment: A comparison of two clinics in the United States and Israel. *Journal of Addictive Diseases, 27*(4), 11-25.
- Pickens, R. W., Preston, K. L., Miles, D. R., Gupman, A. E., Johnson, E. O., Newlin, D. B., . . . Umbricht, A. (2001). Family history influence on drug abuse severity and treatment outcome. *Drug and Alcohol Dependence, 61*(3), 261-270.
- Poirier, M.-F., Laqueille, X., Jalfre, V., Willard, D., Bourdel, M. C., Fermanian, J., & Olié, J. P. (2004). Clinical profile of responders to buprenorphine as a substitution treatment in heroin addicts: results of a multicenter study of 73 patients. *Progress in Neuro-Psychopharmacology and Biological Psychiatry, 28*(2), 267-272.
- Salamina, G., Diecidue, R., Vigna-Taglianti, F., Jarre, P., Schifano, P., Bargagli, A. M., . . . Faggiano, F. (2010). Effectiveness of therapies for heroin addiction in retaining patients in treatment: results from the VEdeTTE study. *Subst Use Misuse, 45*(12), 2076-2092.
- Schuman-Olivier, Z., Weiss, R. D., Hoepfner, B. B., Borodovsky, J., & Albanese, M. J. (2014). Emerging adult age status predicts poor buprenorphine treatment retention. *Journal of Substance Abuse Treatment, 47*(3), 202-212.
- Soyka, M., Zingg, C., Koller, G., & Kuefner, H. (2008). Retention rate and substance use in methadone and buprenorphine maintenance therapy and predictors of outcome: Results from a randomized study. *International Journal of Neuropsychopharmacology, 11*(5), 641-653.
- Stein, M. D., Cloe, P., & Friedmann, P. D. (2005). Brief report: Buprenorphine retention in primary care. *Journal of General Internal Medicine, 20*(11), 1038-1041.
- Teesson, M., Marel, C., Darke, S., Ross, J., Slade, T., Burns, L., . . . Mills, K. L. (2015). Long-term mortality, remission, criminality and psychiatric comorbidity of heroin dependence: 11-year findings from the Australian treatment outcome study. *Addiction, 110*(6), 986-993.
- UNODC. (2017). *World Drug Report*. New York: United Nations.
- Večerková-Procházková, A., Csémy, L., Stařková, Z., Molnárová, M., Jacobs Exnerová, P., Kořený, J., . . . Peláková, K. (2007). Retence v substitučním programu buprenorfinem [Retention in buprenorphine maintenance therapy]. *Čes a slov Psychiatr, 103*(7): 329-335.
- Villafranca, S. W., McKellar, J. D., Trafton, J. A., & Humphreys, K. (2006). Predictors of retention in methadone programs: A signal detection analysis. *Drug and Alcohol Dependence, 83*(3), 218-224.
- Warden, D., Subramaniam, G. A., Carmody, T., Woody, G. E., Minhajuddin, A., Poole, S. A., . . . Trivedi, M. H. (2012). Predictors of attrition with buprenorphine/naloxone treatment in opioid dependent youth. *Addict Behav, 37*(9), 1046-1053.
- Weinstein, Z. M., Kim, H. W., Cheng, D. M., Quinn, E., Hui, D., Labelle, C. T., . . . Samet, J. H. (2017). Long-term retention in Office Based Opioid Treatment with buprenorphine. *Journal of Substance Abuse Treatment, 74*, 65-70.
- Williams, H., Remedios, A., Oyefeso, A., & Bennet, J. (2002). Buprenorphine detoxification treatment for heroin dependence: A preliminary experience in an outpatient setting. *Irish Journal of Psychological Medicine, 19*(3), 80-83.
- Williamson, A., Darke, S., Ross, J., & Teesson, M. (2007). The effect of baseline cocaine use on treatment outcomes for heroin dependence over 24 months: Findings from the Australian Treatment Outcome Study. *Journal of Substance Abuse Treatment, 33*(3), 287-293.
- Woodcock, E. A., Greenwald, M. K., & Lundahl, L. H. (2015). Predictors of sublingual buprenorphine induction and detoxification response among heroin-dependent adults. *Drug and Alcohol Dependence, 146*, e25-e26.
- Ziedonis, D. M., Amass, L., Steinberg, M., Woody, G., Krejci, J., Annon, J. J., . . . Ling, W. (2009). Predictors of outcome for short-term medically supervised opioid withdrawal during a randomized, multicenter trial of buprenorphine-naloxone and clonidine in the NIDA clinical trials network drug and alcohol dependence. *Drug and Alcohol Dependence, 99*(1-3), 28-36.

HIV/AIDS Epidemic in the Czech Republic and Related Factors: Comparison of Key Populations of People who Inject Drugs and Men who Have Sex with Men

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BACKGROUND: The HIV epidemiological situation has worsened in the past decade in the Czech Republic. This paper analyses relevant factors from the perspective of two key populations – men who have sex with men (MSM) and people who inject drugs (PWID). **METHODS:** A non-systematic literature review comparing relevant factors such as risk behaviours, preventive measures, and stigma in both populations. **RESULTS:** A total of 286 newly diagnosed HIV cases were reported in 2016. Sex between men accounted for 74.5% (and has been rising recently), the proportion of PWID was only 2.4%. HIV prevalence among MSM exceeds 5% regionally (in Prague), while among PWID it is close to zero. Sharing of injecting equipment

among PWID seems to be decreasing, the trend in high-risk sexual behaviour among MSM is unknown. There is significantly higher coverage and provision of preventive measures in PWIDs as compared to MSM. There is a lack of support for effective interventions such as post- or pre-exposure prophylaxis (PEP and PrEP). Destigmatisation of drug use has been a part of the drug policy for a long time, the destigmatisation of MSM has not been incorporated into the HIV prevention strategy yet. **CONCLUSION:** HIV prevention in MSM should be scaled up and include state-of-the-art strategies such as PrEP and target the stigma attached to HIV and MSM.

Keywords | HIV/AIDS – People Who Inject Drugs (PWID) – Men Who Have Sex with Men (MSM) – Prevention – Prophylaxis – Stigma

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● 1 INTRODUCTION

People who inject drugs (PWID) and men having sex with men (MSM) represent two of five key populations at greater risk of acquiring and transmitting HIV infection as defined by international organisations (e.g. World Health Organization, 2016). This review paper analyses the current epidemiological situation in relation to HIV infection in the Czech Republic and compares specific factors which affect the situation of the PWID and MSM groups.

● 2 METHODOLOGY

A non-systematic literature review was conducted that investigated the current epidemiological situation concerning HIV/AIDS and the implementation of prevention strategies in the Czech Republic targeted at two key populations, PWID and MSM, with regard to high-risk behaviour, coverage by preventive interventions, and the level of stigma involved. Depending on the availability of relevant data, the situation concerning both populations in the Czech Republic is presented within the European or global context. A comparative analysis is also provided to the extent allowed by the character of the indicators under comparison and the available data.

Relevant publications and grey literature known to the authors were used to collect the information about PWID and MSM in the Czech Republic, as any systematic reviews of Czech sources are practically impossible, given the absence of good abstract and citation databases. Situation concerning HIV/AIDS among MSM in the Czech Republic has been recently separately reviewed elsewhere (Mravčik et al., 2017).

● 3 EPIDEMIOLOGICAL SITUATION

In 2015 there were, globally, 36.7 million people living with HIV/AIDS and 2.1 million new HIV infections were reported (Joint United Nations Programme on HIV/AIDS, 2016). Within the WHO European Region, 153,407 new HIV infections were reported in 2015, with Russia alone accounting for 98,177 cases (17.6/100,000, 7.6/100,000 excluding Russia).

Within the EU, or the European Economic Area (EU/EEA), the number of newly diagnosed HIV infections in 2015 reached 6.3/100,000, with the most common route of transmission being sex between men (42.2%). Heterosexual transmission and injecting drug use (IDU) accounted for 32.0% and 4.2% respectively. In the past decade, the majority of the EU/EEA countries have reported higher levels of incidence, particularly among men having sex with men (MSM), while both heterosexual and parenteral transmission declined (with the exception of the years 2011 and 2012, which saw IDU-related HIV epidemics in Romania and Greece) (European Centre for Disease Prevention and Control and WHO Regional Office for Europe, 2016). PWID represent a significant proportion of new cases, especially in Eastern Europe

and Central Asia. In 2015 they accounted for 51% of new HIV infection cases in this region (Joint United Nations Programme on HIV/AIDS, 2016).

In the Czech Republic, the epidemiological situation concerning HIV/AIDS has recorded a major change for the worse in the last 12 years. While in 2004 in total 72 new cases of HIV infection were identified among Czech citizens and foreign nationals with long-term residence permits (residents), the year 2016 witnessed the hitherto highest yearly number of newly diagnosed cases: 286 (2.71/100,000). The increase was particularly apparent among the MSM category; in 2016 it accounted for 74.5% of new HIV cases (213 in absolute numbers), while the proportions of PWID and the mixed PWID/MSM category were 2.4% (seven cases) and 1.4% (four cases) respectively (Státní zdravotní ústav Praha, 2017) (*Figure 1*).

An overall systematic review of the seroprevalence of HIV infection among PWID was conducted by Degenhardt et al. (2011). They collected information from a total of 61 countries covering 77% of the global population. The prevalence of HIV among PWID across countries ranged from less than 0.01% (eight countries) to 72.1% (Estonia). Extrapolation provided a global estimate of a total of 15.9 million (11.0-21.2) PWID, including 3.0 million who were HIV-positive (0.8-6.6), which means 18.9% seroprevalence. In the majority of the EU countries the prevalence of HIV among PWID is below 10% (European Monitoring Centre for Drugs and Drug Addiction, 2016b). In the Czech Republic, the seroprevalence of HIV among PWID remains very low at less than 1%. In 2015 it ranged from 0.2%, recorded on the basis of diagnostic screening in low-threshold programmes, to 0.4%, identified by (non-representative) testing in prisons (Mravčik et al., 2016).

The current prevalence rate of HIV infection among the MSM group in the Czech Republic is unknown, as bio-behavioural monitoring among MSM is not carried out on a routine basis. In a seroprevalence study conducted as part of the SIALON project from 2008 to 2009, 400 MSM in Prague were interviewed and had their saliva tested for HIV. The prevalence reached 2.6% (Mirandola et al., 2009). This rate may not necessarily reflect the dynamics of the recent epidemic in the Czech Republic.

In view of the absence of seroprevalence data, the authors of this paper attempted to provide their own educated guess estimating the prevalence rate among MSM in Prague, which is presented below. By the end of 2016 the cumulative incidence among MSM in the Czech Republic had reached some 2,000 cases (Malý et al., 2016, Státní zdravotní ústav Praha, 2017). Given the geographic distribution of the newly diagnosed cases, at least 1,000 may be attributed to Prague. Including latent cases of HIV infection with a reasonable estimate of latency at the 25% level [Němeček and Malý (2014) published an estimate of 47% proportion of undiagnosed HIV infection cases, which was recently (2017) updated to 22%; ECDC (2017) arrived at a 17% level of latency in the EU/EEA countries, although the data for the Czech Repub-

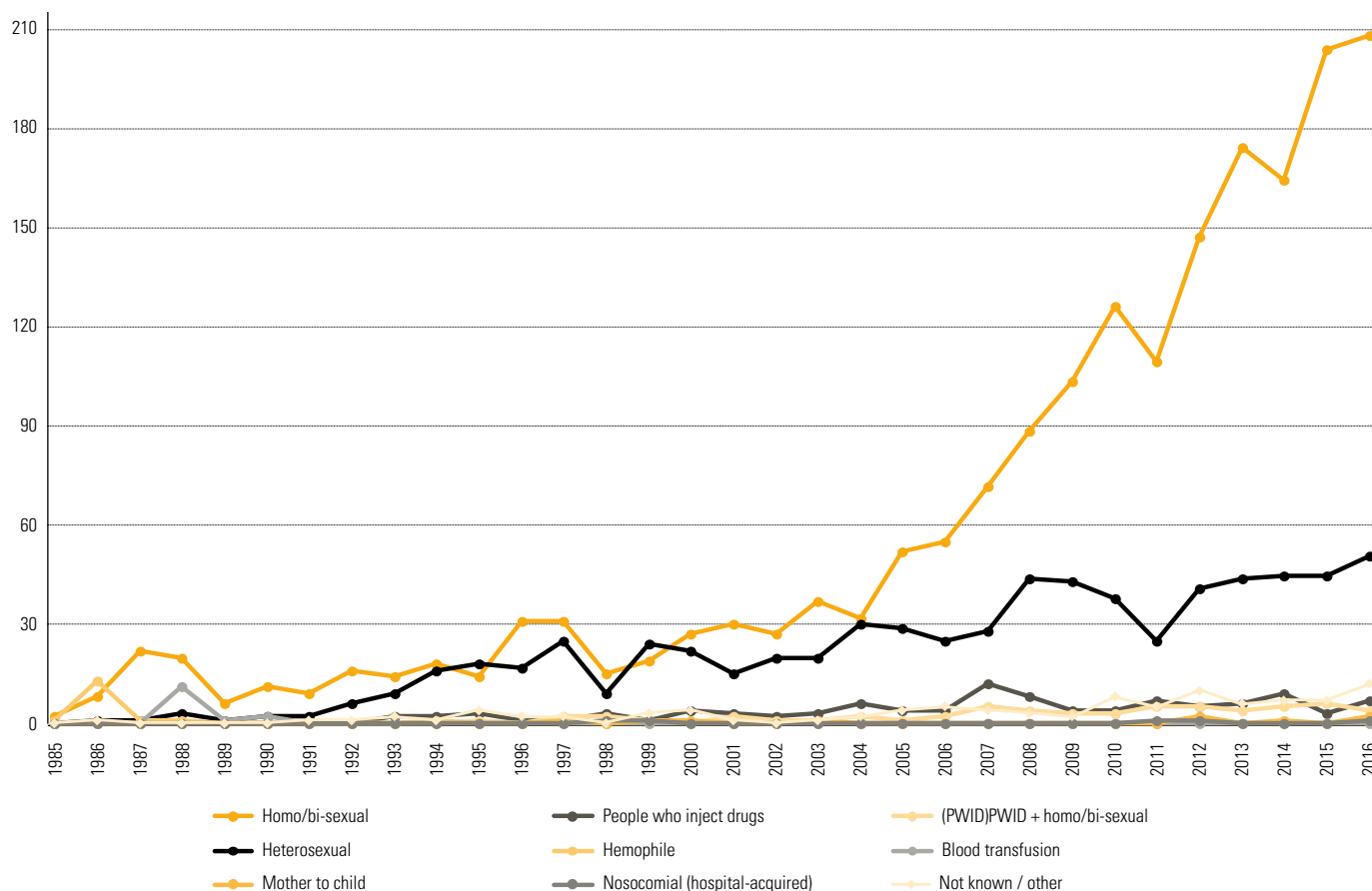


Figure 1 | Newly diagnosed cases of HIV infection in the Czech Republic (1985-2016), by route of transmission (at-risk groups)

Source: Státní zdravotní ústav Praha (2017)

lic was not available], this means some 1,350 HIV-positive MSM, including undiagnosed cases, living in Prague. Assuming that non-heterosexuals account for 5% of the adult male population in Prague (e.g. Hayes et al., 2012), at least 26,000 MSM aged 15 and above can be estimated to live in Prague. 1,350 of them are HIV-positive, which represents an estimated 5.2% seroprevalence rate. The WHO considers a 5% prevalence level as the threshold for a concentrated HIV epidemic (World Health Organisation, 2013a).

● 4 BEHAVIOURAL FACTORS AFFECTING HIV TRANSMISSION AMONG PWID AND MSM

4.1 PWID

Factors contributing to the risk of HIV transmission among PWID include a longer history and higher frequency of injecting use, sharing needles in general, sharing a needle with an HIV-positive person, risky sexual behaviour, affiliation with an ethnic minority, female gender, lower socioeconomic status, and imprisonment (např. Taran et al., 2011, El-Bassel et al., 2014, Jolley et al., 2012).

The level of injecting use is very high in the Czech Republic; injecting drug users accounted for 94% of all the

estimated long-term regular users of opioids and methamphetamine (locally known as pervitin) in the Czech Republic in 2015 (Mravčík et al., 2016). With 6.4 cases per 1,000 people aged 15-64, the prevalence of injecting drug use in the Czech Republic is, after Latvia with 9.2, the second highest among the EU countries which were able to provide data (European Monitoring Centre for Drugs and Drug Addiction, 2016b, European Monitoring Centre for Drugs and Drug Addiction, 2016a).

The proportion of injecting drug users demanding treatment who reported a history of sharing needles and syringes has declined in the past 15 years from about 40% to 30% (Füleová et al., 2015). The Multiplier study focusing on problem drug users in the Czech Republic also found a drop in the level of sharing needles and syringes – while in 2010 clean needles and syringes were used by 82% of PWID when they last injected drugs (567 valid responses), in 2016 the rate rose to 90% (962 valid responses). Condom use when last having sex was reported by 24.6% of the respondents in the Multiplier 2016 study; the time series is not available (Mravčík et al., 2016). The level of risky sexual behaviour among the PWID population is likely to be high and to exceed that observed among the general population. For example, in a seroprevalence study conducted in 2002-2003, 13% of PWID reported having had sex for money, services, or drugs at some point in their life, with women responding to this effect more frequently (Mravčík et al., 2009).

4.2 MSM

The risk of HIV transmission among MSM is primarily associated with condomless anal sex. Anal intercourse poses a risk of transmission that is almost 20 times higher than vaginal intercourse (e.g. Baggaley et al., 2010) which is due to the naturally higher vulnerability of rectal mucosa to HIV infection. Nevertheless, information about the behavioural risks which may have an impact on the current HIV epidemic among MSM in the Czech Republic is limited, as research studies concerned with this topic are scarce. The results of the SIALON project (Mirandola et al., 2009) indicate that MSM in the Czech Republic show a rather lower level of condom use with both steady and casual sex partners than MSM in other countries; only 29.0% of MSM in the Czech Republic reported condom use when last having anal intercourse with another man. Although recent data generated by the EMIS study suggests an increase in the level of condom use among MSM in the Czech Republic (41% during their last episode of anal sex), it is still below average in comparison with other European countries. The level of condom use during casual anal intercourse in the past 12 months among Czech men (35.8%) was comparable to the European median (39.8%). Nevertheless, Czechs tend to have sex with non-steady partners less frequently than the European average (63.2% vs. 75.1%) (The EMIS network, 2013).

The lower level of condom use among MSM in the Czech Republic may be associated with the underdeveloped community prevention network (see further below), the absence of a consistent school-based sex education policy (Jarkovská and Lišková, 2013), generally less fear of HIV/AIDS (Mor and Dan, 2012), and judgemental policies and respectability politics portraying MSM, and gays in particular, as “promiscuous individuals” with “risky lifestyles” (Hammond et al., 2016). There may also be other factors which need to be further explored.

In addition, risky sexual behaviour is linked to “serosorting”, i.e. sexual behaviour being adapted to the sex partner’s HIV status (např. Cassels and Katz, 2013). Although sex partners often assume mutual HIV negativity (negative serosorting), a high level of condomless sex is also associated with what is referred to as positive serosorting, i.e. partners assume that both are HIV-positive (Procházka, 2015). Positive serosorting is likely to be related to the rise in the occurrence of other sexually transmitted infections among HIV-positive MSM in the Czech Republic (Malý et al., 2016). As an assumption rather than an explicit statement (consent) is often the case, positive and negative serosorting may interfuse.

Internationally, chemsex, i.e. the deliberate use of drugs to enhance sexual pleasure during sexual intercourse, has also been associated recently with an increased level of high-risk behaviour among MSM and their risk of acquiring HIV (Melendez-Torres and Bourne, 2016). According to a Czech online study carried out in 2016 on a sample of 948 individuals, of whom 710 identified themselves as gay, bisexual and having sex with men (MSM), in the past 12 months, methamphetamine had been used during sex

by 14%, ecstasy by 12%, GHB/GBL by 8%, mephedrone by 3%, and any other drug (probably alcohol, marijuana, or poppers) by 15% of the respondents (Česká společnost AIDS pomoc, 2016). The results did not make it possible to determine clearly whether drug use had been primarily sexually motivated or whether drug use and subsequent sex had coincided. Neither could it be established whether there is any specific trend among Czech MSM in relation to chemsex and to what extent it may be stigmatised within the MSM community. However, chemsex, or, in other words, the degree of the current use of stimulants characteristic of chemsex, appears to be much lower among MSM in Prague than in London, Amsterdam, and Paris, for example, although it is comparable with the situation found in many other major European cities (Schmidt et al., 2016). A higher risk of the acquisition of HIV may also be related to sex tourism (např. Benotsch et al., 2011) and with the fact that Prague is a well-known and promoted sex tourism destination among the MSM community.

● 5 PREVENTIVE STRATEGIES AND PREVENTIVE INTERVENTIONS

5.1 HIV/AIDS prevention measures among PWID

Specific preventive strategies focusing on injecting drug use, or harm reduction strategies, have become an integral component of the mainstream national and international public health and drug policies. In particular, they involve needle and syringe exchange programmes (NSP) and opiate substitution treatment (OST), but also incorporate a wide range of interventions, such as counselling and awareness-raising programmes aimed at reducing risk behaviours, drug consumption rooms, heroin assisted treatment programmes, early diagnosis and availability of testing the blood borne infections, the early antiretroviral therapy of HIV-positive individuals based on the treatment-as-prevention approach, peer programmes, and outreach programmes, all these delivered both in the community and in the prison setting (Hedrich et al., 2008, Rhodes and Hedrich, 2010, WHO/UNODC/UNAIDS, 2009). Ecological studies with national data demonstrate that the availability and coverage of IDU-related harm reduction programmes are evidently effective in reducing the spread of HIV infection (Wiessing et al., 2009).

Preventive strategies aimed at eliminating the spread of infectious diseases among PWID have been incorporated into the modern Czech drug policy since its beginning in 1993. In 2001 the harm reduction strategy became explicitly one of the cornerstones of the Czech drug policy (Kiššová, 2009). The first informal needle and syringe exchange programme in what is now the Czech Republic was started in 1987 in Prague at the then Apolinar Out-Patient Drug Addiction Centre, which later became the NGO Drop-In (Kalina, 2007). In 1991, the first NSP received public funding (EMCDDA, 2002).

In 2015 there were 104 NSPs in the Czech Republic, distributing 6.4 million clean syringes altogether (Mravčík et al., 2016). Additionally, in the Czech Republic, there are programmes which distribute gelatine capsules as an oral alternative to injecting methamphetamine use (Mravčík et al., 2011) and aluminium foil for inhaling heroin. Capsules and aluminium foil are offered by over 80 and 70 low-threshold programmes, respectively (Mravčík et al., 2015, Mravčík et al., 2016). In 2015 HIV testing for PWID was offered by 67 low-threshold programmes. These facilities test approximately 3,000 PWID annually, which is no more than about 7% of all the estimated PWID in the Czech Republic. Nevertheless, many more PWID are tested in other programmes, such as in OST, detoxification units etc.: up to 55% of PWID report having been tested for HIV in the past 12 months (Mravčík et al., 2016). In the Czech Republic, opioid agonist substitution treatment (OST) is provided by several dozen physicians (more than 63 of them are listed in the Substitution Treatment Register maintained by the Institute of Health Information and Statistics of the Czech Republic), and an estimated 4,000 of the total of 12,000 estimated problem (injecting) opioid users are in OST (Mravčík et al., 2016).

In recent years, approximately 200 million CZK (approx. EUR 8 million) earmarked in the national, regional, and municipal budgets for the drug policy were provided to fund harm reduction programmes targeted at the problem/injecting drug user group; there was a total of 208 million CZK in 2015, of which 128.4 million was provided from the national budget and 44.7 and CZK 34.9 million CZK from the regional and municipal budgets, respectively; this represented 34.9% of the expenses from public budgets intended for the drug policy in 2015 after the deduction of the law enforcement-related expenditure (Mravčík et al., 2016).

Although the availability of major harm reduction strategies is relatively good in the Czech Republic, the level of coverage by some of the interventions is very low (e.g. OST in the prison setting, which is used by no more than some 70 inmates on a yearly basis) or they are completely unavailable – drug consumption rooms or NSP in prisons, for example (European Monitoring Centre for Drugs and Drug Addiction, 2017).

5.2 HIV/AIDS prevention measures among MSM

According to the international community of public health professionals, the most effective strategy to reduce the transmission of HIV infection is now what is known as *combination prevention*, i.e. a multifaceted strategy comprising behavioural, biomedical, and structural approaches. Combination prevention involves community-based testing (i.e. performed in the non-institutionalized setting among the target groups), including rapid tests and self-testing, education and counselling interventions aimed at reducing risky behaviour, condom distribution, NSP (if needed), treatment of other sexually transmitted diseases (STDs), and the administration of antiretroviral medicines in the therapeutic

(ART) and the preventive/prophylactic context (post-exposure and pre-exposure prophylaxis, PEP and PrEP) (Kurth et al., 2011, World Health Organisation, 2013b, Joint United Nations Programme on HIV/AIDS, 2015). Among the MSM group, in particular, a combined holistic approach addressing the HIV epidemic seems vital, as the spread of HIV in this respect involves a number of risk and predisposition factors with syndemic effects (Halkitis et al., 2013).

Until 2017 the general strategic document covering this area was the National Programme for HIV/AIDS in the Czech Republic for 2013-2017 (Vláda České republiky, 2013). Despite the fact that men who have sex with men are the most affected population as the epidemiological situation concerning HIV in the Czech Republic shows, this strategic document for the period 2013-2017 did not define the MSM group as a policy priority. Neither it did articulate specific activities dedicated to the MSM groups. The new policy document for 2018-2022 has already incorporated the prevention of HIV transmission among MSM as a priority and has defined a number of activities to be undertaken in this area.

The financial support for HIV is secured by means of the National HIV Programme, a grant scheme of the Ministry of Health of the Czech Republic which is provided every year. However, the grant scheme methodology remains unchanged in the long term and thus fails to respond to the latest developments and features of the HIV epidemic in the Czech Republic. For example, the guidelines governing the grant programme for 2018 announced by the Ministry of Health in July 2017 were identical to those for the previous years, despite the fact that the most recent medium-term 2018-2022 national policy had underlined new priorities. Thus, activities aimed at MSM are still not defined as a priority in the Czech HIV/AIDS grant scheme and this target group remains among many other ones envisaged in project applications (Ministerstvo zdravotnictví ČR, 2017a).

As for the amount of funds earmarked for HIV/AIDS prevention, in 2005 the budget comprised subsidies to the tune of 28.5 million CZK (approx. EUR 1 million), while in 2015 it was 5.1 million CZK (EUR 0.2 million). It needs to be noted, though, that prior to 2008 the grant scheme was also used to finance HIV/AIDS diagnostics and treatment. Though in 2016 the volume of subsidies available doubled to reach almost 10 million CZK, in the last decade paradoxically the total amount of resources earmarked for HIV/AIDS prevention declined with an increase in the reported incidence of HIV in the Czech Republic (Figure 2).

In reality, moreover, even these limited resources are not used to support projects aimed specifically at MSM. Having analysed the titles of the projects which received support in 2016 in two rounds of the National HIV/AIDS Programme Grant Scheme of the Ministry of Health (available at <http://www.mzcr.cz/>, section Subsidies, Subsection National Budget 2016), we found that out of the total of 37 projects supported by the aggregate of 9.826 million CZK, eight projects (22%), receiving funding to the total tune of 3.025 million CZK (31%), were specifically focused on MSM

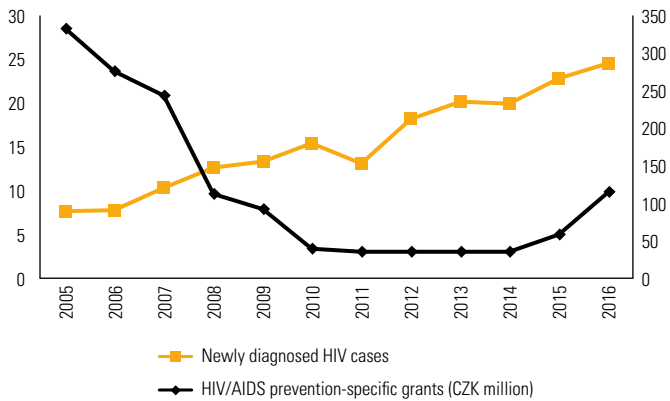


Figure 2 | Annual budgets of the National HIV/AIDS Programme Grant Scheme of the Ministry of Health and the numbers of newly diagnosed cases of HIV infection in the Czech Republic, 2005–2016

(other projects may have included MSM as one of many target groups). This implies insufficient support for community and outreach programmes, for example, which offer testing and early detection of HIV directly within the MSM community. When compared to the resources dedicated to programmes for PWID and considering that the MSM population is the most vulnerable key population in the Czech Republic, the amount of funds earmarked for the prevention of HIV infection among this group is clearly disproportionately low.

Furthermore, the situation concerning the National HIV/AIDS Programme and its funding needs to be viewed in the context of the developments in public health protection and promotion in the Czech Republic in general. According to the Chief Public Health Officer, between 2006 and 2012 the public health service was negatively affected by “transformation”, “restructuring”, and “optimisation” which resulted in the restriction and reduction of the capacities and operations of the service (e.g. a 43% cut in human resources). The network of AIDS Counselling Centres was also reduced. While in 2006 there were 54 such facilities operated by public health agencies and covering the territory of the Czech Republic evenly, in 2014 only 23 AIDS Counselling Centres were in operation in the entire country, with not more than 13 of them managed by the Public Health Service (Hlavní hygienik ČR, 2014). This has resulted in a dramatic decrease in both geographical and practical access to HIV testing, particularly self-referral testing, and the reduction of related counselling and prevention services. It should be noted that self-referral testing accounts for the highest proportion of newly detected HIV cases (Malý et al., 2015).

The available data indicate that in the Czech Republic there are only a few community-based programmes dedicated to HIV prevention and sexual health among the MSM group. Their services in 2018 include HIV testing and counselling provided by one organization in six outpatient centres (Headquarters in Prague and testing facilities in Ostrava, Olomouc, České Budějovice, Teplice, and Hradec Králové), irregular mobile HIV testing in the vicinity of places fre-

quented by the MSM population and in prisons, the distribution of condoms and lubricants in gay venues (some 80,000 items a year), and the promotion of condom use by means of one-off campaigns on gay social networks, during pre- and post-test counselling, and as part of gay streetwork. The gay streetwork programme aimed at promoting condom use and regular testing for HIV among visitors to gay venues is under way in seven Czech cities (Prague, Pilsen, Liberec, České Budějovice, Brno, Olomouc, and Ostrava), but because of the limited funding, specific activities are undertaken rather sporadically, once in three-four months at a maximum. In total, this involves 12 local community/low-threshold programmes dedicated to MSM, with the majority of them being accessible for a limited period of time only, thus providing coverage which cannot be compared with the network of programmes intended for PWID. The recent results of the HIV/AIDS programme grant scheme for 2018 reveal that a number of mobile testing projects did not receive support, which may further reduce the availability of this service (Ministerstvo zdravotnictví ČR, 2017b).

The level of uptake of testing as reported by Czech MSM is rather low – HIV testing in the past 12 months was reported by 30% of Czech MSM participating in the EMIS study. The European average was 35%, with France showing the highest rate at 47%. Czech MSM also reported very often that HIV testing was not free of charge (The EMIS network, 2013). There is some evidence that the continuing HIV/AIDS-related stigma plays a major role; to “get tested” is associated with a sense of humiliation and is not viewed by society as common (Pehe, 2017). In comparison with Western European countries, in Czech gay establishments condoms are not so readily available and lubricants are practically impossible to obtain (Procházka, 2015).

5.3 Treatment as prevention and pre-exposure prophylaxis

The risk of HIV transmission from HIV-positive individuals on antiretroviral therapy (ART) who had reached an undetectable viral load for a period of at least six months ranges from negligible to zero (Cohen et al., 2016, Rodger et al., 2016). Such treatment is thus a significant strategy to prevent the transmission of HIV (treatment as prevention, TasP). The Czech guidelines for the treatment of HIV-infected adults, too, recommend that ART should be commenced immediately after HIV positivity has been diagnosed (Snopková et al., 2016). The latest evidence on the care continuum in the Czech Republic shows that 71% of those diagnosed with HIV infection receive ART, with 85% of them achieving viral suppression, i.e. their viral load is below 200 HIV copies per 1 ml of peripheral plasma (European Centre for Disease Prevention and Control, 2017). Both professional and social recognition of *treatment as prevention* could facilitate the reduction of the stigma associated with HIV (an infected person with an undetectable viral load cannot transmit the infection) and encourage HIV-positive people to adhere to ART. The importance of treatment as prevention was also endorsed by the Czech

judicial system when the Supreme Court of the Czech Republic stated in a decision in 2016 that when considering the objective aspect of the criminal offence involving the spread of human communicable disease (HIV infection), the circumstances of the offender also need to be assessed in terms of their level of viral load (case law of the Supreme Court, 2016, File reference 8 Tdo 1163/2015b).

Pre-exposure prophylaxis (PrEP) is a particularly useful method for HIV-negative MSM and transgender individuals at high risk of HIV transmission (European AIDS Clinical Society, 2016). Both continuous and intermittent PrEP were found to be highly effective in preventing HIV seroconversion in MSM and were well tolerated, with a low level of resistance and no (compensatory) increase in risky sexual behaviour being observed (Spinner et al., 2016). As either a standard or trial intervention, PrEP is available or being planned in 20 European countries, excluding the Czech Republic, however (European Centre for Disease Prevention and Control, 2016); PrEP is not mentioned in the Czech clinical guidelines (Snopková et al., 2016) and thus if available, PrEP use remains unofficial and unaffordable for most patients. It is notable to admit, that “wild use of PrEP” outside the official networks is a side effect of its practical unavailability and existing demand (e.g. Brisson, 2018). A decline in the incidence of HIV among MSM was recently recorded in London and San Francisco. Among other factors, this development is attributed to PrEP and the high level of treatment coverage following the treatment-as-prevention approach (aidsmap.com, 2016, Brown et al., 2017). The use of PrEP appears to be linked to a higher rate of occurrence of other sexually transmitted diseases, which, however, may be due to a higher rate of tests performed on people on PrEP or selection bias caused by individuals included in PrEP studies showing elevated levels of high-risk behaviour even before the administration of PrEP. In this sense, HIV PrEP is also perceived as an opportunity to improve the early diagnosis and treatment of other sexually transmitted infections among MSM (Kojima et al., 2016, Scott and Klausner, 2016). Duly indicated and clinically monitored PrEP is cost-effective, especially in the light of cheaper generic drugs being available on the market (Hankins et al., 2015). The most common argument against the introduction of PrEP is the development of HIV resistance to ART. However, this risk is particularly imminent in HIV-positive people who are not aware of their status and self-administer PrEP without consulting their physician or proper clinical monitoring (van Tienen et al., 2017). This is just another argument in favour of advocating the formal introduction of PrEP in the Czech Republic too.

● 6 STIGMA OF HIV, DRUG USE, AND HOMOSEXUALITY

Structural stigma is defined as societal conditions, norms, and policies which constrain the opportunities, resources, and well-being of socially marginalised groups (Hatzenbuehler and Link, 2014).

As regards illicit drugs, in particular, punitive approaches to drug possession and drug users result in increased public health risks, a higher degree of conspiracy, and more drug users remaining “hidden”, and, conversely, in a lower number of drug users becoming involved with services, which leads to an elevated level of drug-related health and social harm (Maher and Dixon, 1999, Mimiaga et al., 2010, Sarang et al., 2010). It holds that the illegality of drugs increases their price, which makes users tend to inject drugs (instead of inhaling or snorting them) in order to maximise the effect of a limited supply. In addition to injecting drug use being associated with a higher health risk in itself, PWID often inject drugs in a hurry, in poor sanitary conditions, and with used or shared injecting equipment, which increases the risk of blood-borne diseases (HIV/AIDS and viral hepatitis) or the risk of overdose (Strathdee et al., 2010, Rhodes et al., 2007, Rhodes, 2009). The so-called “war on drugs” is often a war against drug users and leads to their stigmatisation, marginalisation, and social exclusion and, on the contrary, rather than reducing drug use and the related harm, it fuels the cycle of drug use and makes the entire drug problem and the environment in which it occurs more difficult (Buchanan and Young, 2000).

Along with Portugal, the Czech drug policy is often referred to as an example of a modern drug policy because of its decriminalisation of illicit drug use and possession for personal use. The Czech experience also showed that the decriminalisation of drug use does not result in an increase in the level of drug use or a worsening of the drug situation (Cervený et al., 2017, Mravčík, 2015). Efforts aimed at reducing stigma, including the use of non-labelling language in professional and strategic documents, which has recently become an ethical imperative in modern science, politics, and the media when publishing messages pertaining to substance use (Broyles et al., 2014), are an integral part of the Czech drug policy.

The effect of stigma is also a key factor for the health of the non-heterosexual population (Hatzenbuehler et al., 2014, Pitoňák, 2017). HIV positivity in combination with non-heterosexual orientation leads to multiple stigmatisation which is experienced on both the personal and group levels (Smit et al., 2012). The levels of stigma associated with non-heterosexuality and HIV positivity respectively are not among the systematically monitored indicators in the Czech Republic. It is generally recognised, however, that the Czech Republic ranks among the most tolerant countries with regard to homosexuals. While this was true to a certain extent in the early 1990s (Stehlíková et al., 1995, Takács and Szalma, 2013), at present, when compared to other European countries, the Czech Republic seems to rank among countries with “average” levels of stigma associated with sexual minorities and finds itself somewhere between the countries with a supportive environment and positive approaches towards sexual minorities, such as Sweden and Norway, and countries with hostile attitudes, such as Russia and Ukraine (ILGA-Europe, 2016, Lazarus and Matic, 2009, Pachankis et al., 2017). The Eurobarometer 77.4 survey from 2012 showed, for example, that up to 79% of Dutch people, 73% of Swedes,

and 64% of French people had acquaintances or friends who were gays, lesbians, or bisexuals, while the same was reported by only 20% of Czechs, 15% of Slovaks, 8% of both Hungarians and Bulgarians, and 2% of Romanians (European Commission et al., 2015). Another study found that while only 5% of Spaniards and 6% of each of Norwegians, Swedes, Danes, and French people “would not want homosexuals as their neighbours”, the same was indicated by no less than 23% of Czechs, 34% of Slovaks, 53% of Poles, 60% of Ukrainians, and 62% of Russians (European Values Study, 2008). Nevertheless, homophobia in the Czech Republic appears to be declining, as the number of people with non-heterosexual friends grew between 2011 and 2016 from 31.8% to 37.1% and the percentage of people who “would not want homosexuals as their neighbours” dropped from 33.7% in 2005 to 21.4% in 2016 (Centrum pro výzkum veřejného mínění, 2011, Centrum pro výzkum veřejného mínění, 2016).

Another example of social and structural effects is the widespread homophobia, especially homophobia-related bullying, in the school setting (Kosciw et al., 2011). A recent survey among Czech ninth-graders (N=1082) revealed that only half of the boys find it normal to have a “homosexual classmate”, compared to eight out of ten girls (Pitoňák and Spilková, 2016). This makes it obvious that non-heterosexuality is associated with a greater stigma among boys than among girls.

In addition to the stigmatisation of non-heterosexuality, stigma associated with HIV positivity is widespread in the Czech Republic. A qualitative content analysis of Czech media showed that HIV infection in the Czech Republic is still often presented in discriminatory terms as “punishment for abnormal behaviour, such as injecting drug use or homosexuality” (Kvášová and Nečas, 2011). The asymmetric obligation to report HIV positivity before treatment in a healthcare facility pursuant to Section 53 of Act No. 258/2000 Coll., on the protection of public health, persists, and a similar “HIV-exceptionalism” was an imminent threat at one time in relation to the uptake of social services (hiv-testování.cz, 2015). Common cases of discrimination are experienced in healthcare facilities; typically, refusal to provide medical (especially dental) treatment because of the patient’s HIV-positive status (aktuálně.cz, 2015). In the labour law domain, common forms of discrimination and stigmatisation include loss of one’s job or a failure to hire people because of their HIV positivity (ceskatelevize.cz, 2014). According to the records of the Czech AIDS Help Society available to the authors, in 2016 the organisation dealt with cases of discrimination against HIV-positive individuals in healthcare (15 cases of a failure or refusal to provide health services), social services (two cases), and stigmatisation on the part of governmental agencies or public organisations (36 cases) and employers (two cases in the healthcare sector).

Since January 2016 the level of stigma attached to HIV and MSM has risen dramatically in relation to a criminal complaint filed by the Prague Public Health Authority against 30 HIV-positive MSM suspected of spreading hu-

man communicable disease (HIV). They were believed to have done so by repeatedly contracting syphilis or other sexually transmitted diseases, despite the fact that given their HIV-positive status they were expected to refrain from risky sexual behaviour (TN.cz, 2016, HIV Justice Network and European AIDS Treatment Group, 2016). Criminalisation of gays, bisexuals, and other MSM for their natural sexual behaviour is a major element of the structural stigma gays, bisexuals and other MSM experience. There is a growing evidence, however, that the risk of HIV transmission seems to increase with criminalisation and repression, as such approaches aggravate the stigma against people living with HIV and the fear and negative emotions they feel and eventually undermine HIV prevention programmes and worsen the public health situation (Dodds and Keogh, 2006, Dodds et al., 2009, Joint United Nations Programme on HIV/AIDS, 2013). In the Czech case from early 2016, too, the initiation of a criminal investigation of a group of MSM had the adverse consequences of deepening their fear of the public healthcare system, reducing their willingness to cooperate, and their looking for alternative ways of seeking testing and treatment services – e.g. people travelled in search of service delivery to nearby Dresden, Germany (hiv-komunita.cz, 2016).

● 7 CONCLUSION

In 2014 UNAIDS announced its intention to end the AIDS epidemic by 2030 and defined the global objective of reducing the number of new infections among adults to 500,000 by 2020 and to 200,000 by 2030 (Joint United Nations Programme on HIV/AIDS, 2015), which represents a 75% and 90% decrease by 2020 and 2030, respectively. In the Czech setting, to accomplish this goal it would mean a reduction from today’s figure of approximately 300 to 75 and 30, respectively, of newly diagnosed cases per year. Such an ambitious objective requires prevention programmes to be specifically targeted at key populations. The situation and the relevant factors in the Czech Republic in relation to two key populations, i.e. MSM and PWID, are summarised in *Table 1*.

The comparison of the situations of PWID and MSM presented in this paper indicates that the coverage of the MSM group by prevention programmes is relatively very low. We recommend that any HIV/AIDS prevention programme to be implemented in the future should particularly involve the following steps:

- target activities specifically at MSM and the geographical areas of greatest concern (especially Prague);
- scale up the coverage of the MSM group by prevention activities, especially by means of outreach and activities facilitating early detection (testing), linkage to treatment, and adherence to treatment;
- introduce harm reduction services for MSM at high risk of acquiring infection (safer drug use during chemsex, distribution of supplies helping to reduce the risk of the transmission of HIV and VHC, etc.);

Factor	PWID	MSM
Number of newly diagnosed HIV infection cases in 2016 (long-term trend)	7 (stable)	209 (growing)
Share in the newly reported cases of HIV infection in 2016	2.4%	74.5%
HIV (anti-HIV) seroprevalence	< 0.5%	> 5% (in Prague)
Risky behaviour	<ul style="list-style-type: none"> – high level of injecting use in the European context – declining level of needle sharing 	<ul style="list-style-type: none"> – level of condom use among the MSM population during casual sex is slightly below the European average – absence of data about trends in risky behaviour
Public strategy/policy priority	– harm reduction strategies targeted at injecting drug use have been a long-term priority of the drug policy	– HIV prevention among MSM has not been an explicit priority of the HIV-related policy
Volume of financial resources earmarked for prevention programmes aimed at reducing the risk of HIV transmission	– harm reduction programmes as part of the drug policy programme: approx. 200 million CZK (EUR 8 million) a year	– programmes specifically targeted at MSM in the National HIV Programme Grant Scheme of the Ministry of Health: approx. 3 million CZK (EUR 0.1 million) a year
Coverage by prevention programmes in 2015	<ul style="list-style-type: none"> – 104 community low-threshold harm reduction programmes (drop-in centres and outreach programmes) in the entire Czech Republic – of which 67 offer HIV testing – 63 registered opiate substitution treatment programmes 	<ul style="list-style-type: none"> – 12 community programmes for MSM in the entire Czech Republic – 23 AIDS counselling centres in the entire Czech Republic (2014), of which 13 are managed by the Public Health Service, including four working (in 2018 six) with the Czech AIDS Help Society on programmes targeted at MSM
Stigma	<ul style="list-style-type: none"> – problem drug use is generally strongly stigmatised – activities associated with the possession and handling of drugs are criminalised – reducing stigma attached to drug users is historically a part of Czech drug policy 	<ul style="list-style-type: none"> – both non-heterosexual orientation and HIV positivity carry stigma – sexual behaviour qualified as (attempted) transmission of human communicable disease is criminalised – reducing stigma attached to MSM has not been defined as a priority of Czech public health policy

Table 1 | Comparison of the current epidemiological situation concerning HIV/AIDS and related factors in the Czech Republic for people who inject drugs (PWID) and men who have sex with men (MSM), 2016 or the most recent data available

- make use of the complete range of the “combination approach”, including PEP and PrEP for individuals at high risk;
- build a network of (low-threshold) sexual health centres for MSM providing screening tests for HIV and STIs, as well as making PrEP/PEP available to the MSM group and offering psychotherapeutic support;
- reduce the stigma against people living with HIV and MSM and empower them to participate in the implementation of preventive measures;
- in relation to the above, scale up financial resources earmarked for HIV prevention and adapt the existing configuration of priorities in the relevant grant scheme.

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REFERENCES

- AIDSMAP.COM. 2016. *San Francisco reports new low in HIV infections and faster treatment, but disparities remain* [Online]. aidsmap.com. Available: <http://www.aidsmap.com/San-Francisco-reports-new-low-in-HIV-infections-and-faster-treatment-but-disparities-remain/page/3082266/> [Accessed 22 Jan 2017].
- AKTUÁLNĚ.CZ. 2015. *Plno, jděte jinam. Zubaři odmítají HIV pozitivní pacienty* [Online]. Available: <https://zpravy.aktualne.cz/domaci/plno-jdete-jinam-zubari-odmitaji-hiv-pozitivni-pacienty/r~009895e0257611e586d30025900fea04/> [Accessed 29 Dec 2016].
- BAGGALEY, R. F., WHITE, R. G. & BOILY, M. C. 2010. HIV transmission risk through anal intercourse: systematic review, meta-analysis and implications for HIV prevention. *Int J Epidemiol*, 39, 1048-63.
- BENOTSCH, E. G., MARTIN, A. M., ESPIL, F. M., NETTLES, C. D., SEAL, D. W. & PINKERTON, S. D. 2011. Internet use, recreational travel, and HIV risk behaviors in men who have sex with men. *J Community Health*, 36, 398-405.
- BRISSEAU, J. 2018. Ethical public health issues for the use of informal PrEP. *Global Public Health*, 13, 1382-1387.
- BROWN, A. E., MOHAMMED, H., OGAZ, D., KIRWAN, P. D., YUNG, M., NASH, S. G., FUREGATO, M., HUGHES, G., CONNOR, N., DELPECH, V. C. & GILL, O. N. 2017. Fall in new HIV diagnoses among men who have sex with men (MSM) at selected London sexual health clinics since early 2015: testing or treatment or pre-exposure prophylaxis (PrEP)? *Euro Surveill*, 22.
- BROYLES, L. M., BINSWANGER, I. A., JENKINS, J. A., FINNELL, D. S., FASERU, B., CAVAIOLA, A., PUGATCH, M. & GORDON, A. J. 2014. Confronting inadvertent stigma and pejorative language in addiction scholarship: a recognition and response. *Subst Abuse*, 35, 217-21.
- BUCHANAN, J. & YOUNG, L. 2000. The War on Drugs: a war on drug users? *Drugs: Education, Prevention and Policy*, 7, 409-422.
- CASSELS, S. & KATZ, D. A. 2013. Seroadaptation among men who have sex with men: emerging research themes. *Curr HIV/AIDS Rep*, 10, 305-13.
- CENTRUM PRO VÝZKUM VEŘEJNÉHO MÍNĚNÍ 2011. *Naše společnost 2011*, data. Praha: Centrum pro výzkum veřejného mínění.
- CENTRUM PRO VÝZKUM VEŘEJNÉHO MÍNĚNÍ 2016. *Naše společnost 2016*, data. Praha: Centrum pro výzkum veřejného mínění.
- CERVENY, J., CHOMYNOVA, P., MRAVCIK, V. & VAN OURS, J. C. 2017. Cannabis decriminalization and the age of onset of cannabis use. *Int J Drug Policy*, 43, 122-129.
- CESKATELEVIZE.CZ 2014. HIV pozitivním lidem zavírají zaměstnavatelé dveře. 15 Feb 2014 ed.
- COHEN, M. S., CHEN, Y. Q., MCCAULEY, M., GAMBLE, T., HOSSEINIPOUR, M. C., KUMARASAMY, N., HAKIM, J. G., KUMWENDA, J., GRINSZTEJN, B., PILOTTO, J. H., GODBOLE, S. V., CHARIYALERTSAK, S., SANTOS, B. R., MAYER, K. H., HOFFMAN, I. F., ESHLEMAN, S. H., PIWOWAR-MANNING, E., COTTLE, L., ZHANG, X. C., MAKHEMA, J., MILLS, L. A., PANCHIA, R., FAESEN, S., ERON, J., GALLANT, J., HAVLIR, D., SWINDELLS, S., ELHARRAR, V., BURNS, D., TAHA, T. E., NIELSEN-SAINES, K., CELENTANO, D. D., ESSEX, M., HUDELSON, S. E., REDD, A. D. & FLEMING, T. R. 2016. Antiretroviral Therapy for the Prevention of HIV-1 Transmission. *N Engl J Med*, 375, 830-9.
- ČESKÁ SPOLEČNOST AIDS POMOC 2016. On-line dotazníková studie - chemsex. Nepublikováno.
- DEGENHARDT, L., BUCELLO, C., MATHERS, B., BRIEGLEB, C., ALI, H., HICKMAN, M. & MCLAREN, J. 2011. Mortality among regular or dependent users of heroin and other opioids: a systematic review and meta-analysis of cohort studies. *Addiction*, 106, 32-51.
- DODDS, C., BOURNE, A. & WEAIT, M. 2009. Responses to criminal prosecutions for HIV transmission among gay men with HIV in England and Wales. *Reprod Health Matters*, 17, 135-45.
- DODDS, C. & KEOGH, P. 2006. Criminal prosecutions for HIV transmission: people living with HIV respond. *Int J STD AIDS*, 17, 315-8.
- EL-BASSEL, N., SHAW, S. A., DASGUPTA, A. & STRATHDEE, S. A. 2014. Drug use as a driver of HIV Risks: Re-emerging and emerging issues. *Current opinion in HIV and AIDS*, 9, 150-155.
- EMCDDA 2002. *Report on the Drug Situation in the Candidate CEECs*, Lisboa, Portugal, European Monitoring Centre for Drugs and drug Addiction (EMCDDA).
- EUROPEAN AIDS CLINICAL SOCIETY 2016. Guidelines, Version 8.1, October 2016. Copenhagen: European AIDS Clinical Society.
- EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL 2016. Evidence brief: Pre-exposure prophylaxis for HIV prevention in Europe. Stockholm: ECDC.
- EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL 2017. *Thematic report: Continuum of HIV care. Monitoring implementation of the Dublin Declaration on Partnership to Fight HIV/AIDS in Europe and Central Asia: 2017 progress report*, Stockholm, ECDC.
- EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL & WHO REGIONAL OFFICE FOR EUROPE 2016. *HIV/AIDS surveillance in Europe 2015*, Stockholm, ECDC.
- EUROPEAN COMMISSION, EUROPEAN PARLIAMENT & TNS OPINION & SOCIAL 2015. Eurobarometer 77.4 (2012). GESIS Data Archive, Cologne. ZA5613 Data file Version 3.0.0. Brussels.
- EUROPEAN MONITORING CENTRE FOR DRUGS AND DRUG ADDICTION 2016a. *European Drug Report 2016: Trends and developments*, Luxembourg, Publications Office of the European Union.
- EUROPEAN MONITORING CENTRE FOR DRUGS AND DRUG ADDICTION. 2016b. *Statistical bulletin 2016* [Online]. Lisbon: EMCDDA. Available: <http://www.emcdda.europa.eu/stats16>.
- EUROPEAN MONITORING CENTRE FOR DRUGS AND DRUG ADDICTION 2017. *European Drug Report 2017. Trends and development*.
- EUROPEAN VALUES STUDY 2008. *European Values Study Integrated Dataset, 4th Wave*.
- FŮLEOVÁ, A., ZÓNOVÁ, J. & PETRÁŠOVÁ, B. 2015. *Výroční zpráva: Incidence, prevalence, zdravotní dopady a trendy léčených uživatelů drog v České republice v roce 2014*, Praha, Hygienická stanice hl. m. Prahy.
- HALKITIS, P. N., WOLITSKI, R. J. & MILLETT, G. A. 2013. A holistic approach to addressing HIV infection disparities in gay, bisexual, and other men who have sex with men. *Am Psychol*, 68, 261-73.
- HAMMOND, C., HOLMES, D. & MERCIER, M. 2016. Breeding new forms of life: a critical reflection on extreme variances of bareback sex. *Nurs Inq*, 23, 267-77.
- HANKINS, C., MACKLIN, R. & WARREN, M. 2015. Translating PrEP effectiveness into public health impact: key considerations for decision-makers on cost-effectiveness, price, regulatory issues, distributive justice and advocacy for access. *J Int AIDS Soc*, 18, 19973.
- HATZENBUEHLER, M. L., BELLATORRE, A., LEE, Y., FINCH, B. K., MUENNIG, P. & FISCELLA, K. 2014. Structural stigma and all-cause mortality in sexual minority populations. *Soc Sci Med*, 103, 33-41.
- HATZENBUEHLER, M. L. & LINK, B. G. 2014. Introduction to the special issue on structural stigma and health. *Soc Sci Med*, 103, 1-6.
- HAYES, J., CHAKRABORTY, A. T., MCMANUS, S., BEBBINGTON, P., BRUGHA, T., NICHOLSON, S. & KING, M. 2012. Prevalence of same-sex behavior and orientation in England: results from a national survey. *Arch Sex Behav*, 41, 631-9.
- HEDRICH, D., PIRONA, A. & WIESSING, L. 2008. From margin to mainstream: The evolution of harm reduction responses to problem drug use in Europe. *Drugs: education, prevention and policy*, 15(6), 503-17.
- HIV-KOMUNITA.CZ. 2016. *Testování-Drazdany. Příspěvek na komunitním fóru z 12. 6. 2016* [Online]. Available: <http://www.hiv-komunita.cz/diskuzni-forum-pro-hiv-pozitivni-obcany.html> [Accessed 6 Jan 2017].
- HIV-TESTOVÁNÍ.CZ. 2015. *Povinné testování na HIV ani sdělování HIV statusu při poskytování sociálních služeb poslanci neschválili* [Online]. Available: <http://www.hiv-testovani.cz/clanky/povinne-testovani-na-hiv-ani-sdelovani-hiv>

- statusu-pri-poskytovani-socialnich-sluzeb-poslanci-neschvalili.html [Accessed 29 Dec 2016].
- HIV JUSTICE NETWORK & EUROPEAN AIDS TREATMENT GROUP. 2016. *Stop the Prague public health authority's persecution and intimidation of people living with HIV* [press release] [Online]. Available: <http://www.hivjustice.net/news/stop-the-prague-public-health-authoritys-persecution-and-intimidation-of-people-living-with-hiv-press-release/> [Accessed 28 Dec 2016].
- HLAVNÍ HYGIENIK ČR 2014. Dopady restrikce v hygienické službě v letech 2006–2012 na zajištění ochrany a podpory veřejného zdraví a primární prevence nemocí v ČR. Praha: Ministerstvo zdravotnictví ČR.
- ILGA-EUROPE 2016. Annual Review of the Human Rights Situation of Lesbian, Gay, Bisexual, Trans and Intersex People in Europe 2016. Brussels: International Lesbian, Gay, Bisexual, Trans & Intersex Association.
- JARKOVSKÁ, L. & LIŠKOVÁ, K. 2013. The demise of tradition and its salvation through sex: the discursive strategies of opponents of sex education. *Sociologický časopis - Czech sociological review*, 49, 269-290.
- JOINT UNITED NATIONS PROGRAMME ON HIV/AIDS 2013. Ending overly broad criminalization of HIV non-disclosure, exposure and transmission: Critical scientific, medical and legal considerations. Geneva: UNAIDS.
- JOINT UNITED NATIONS PROGRAMME ON HIV/AIDS 2015. Fast-tracking combination prevention: towards reducing new hiv infections to fewer than 500 000 by 2020. Geneva: UNAIDS.
- JOINT UNITED NATIONS PROGRAMME ON HIV/AIDS 2016. Global AIDS update 2016. Geneva: UNAIDS.
- JOLLEY, E., RHODES, T., PLATT, L., HOPE, V., LATYPOV, A., DONOGHOE, M. & WILSON, D. 2012. HIV among people who inject drugs in Central and Eastern Europe and Central Asia: a systematic review with implications for policy. *BMJ Open*, 2, e001465.
- KALINA, K. 2007. Developing the System of Drug Services in the Czech Republic. *Journal of Drug Issues*, 37 (1), 181-204.
- KIŠŠOVÁ, L. 2009. Česká protidrogová politika a její koordinace. Historie a současnost. *Zaostřeno na drogy*, 7 (2), 1-12.
- KOJIMA, N., DAVEY, D. J. & KLAUSNER, J. D. 2016. Pre-exposure prophylaxis for HIV infection and new sexually transmitted infections among men who have sex with men. *Aids*, 30, 2251-2.
- KOSCIW, J. G., GREYTAKE, E. A., BARTKIEWICZ, M. J., BOESEN, M. J. & PALMER, N. A. 2011. *The 2011 National School Climate Survey*.
- KURTH, A. E., CELUM, C., BAETEN, J. M., VERMUND, S. H. & WASSERHEIT, J. N. 2011. Combination HIV prevention: significance, challenges, and opportunities. *Curr HIV/AIDS Rep*, 8, 62-72.
- KVÁŠOVÁ, S. & NEČAS, V. 2011. HIV/AIDS v českých denících v proměnách času. *Adiktologie*, 11, 200-206.
- LAZARUS, J. V. & MATIC, S. 2009. Men Who Have Sex with Men in Eastern Europe: A Time to Act. *Journal of LGBT Health Research*, 5, 1-3.
- MAHER, L. & DIXON, D. 1999. Policing and public health: Law enforcement and harm minimization in a street-level drug market. *British Journal of Criminology*, 39, 488-512.
- MALÝ, M., NĚMEČEK, V. & ZÁKOUCKÁ, H. 2015. Výskyt a šíření HIV/AIDS v České republice v roce 2014 [The prevalence and spread of HIV/AIDS in the Czech Republic in 2014]. *Zprávy centra epidemiologie a mikrobiologie (SZÚ, Praha)*, 24, 294-304.
- MALÝ, M., NĚMEČEK, V. & ZÁKOUCKÁ, H. 2016. Výskyt a šíření HIV/AIDS v České republice v roce 2015. *Zprávy centra epidemiologie a mikrobiologie*, 25, 320-330.
- MELENDEZ-TORRES, G. J. & BOURNE, A. 2016. Illicit drug use and its association with sexual risk behaviour among MSM: more questions than answers? *Curr Opin Infect Dis*, 29, 58-63.
- MIMIAGA, M. J., SAFREN, S. A., DVORYAK, S., REISNER, S. L., NEEDLE, R. & WOODY, G. 2010. "We fear the police, and the police fear us": structural and individual barriers and facilitators to HIV medication adherence among injection drug users in Kiev, Ukraine. *AIDS Care*, 22, 1305-13.
- MINISTERSTVO ZDRAVOTNICTVÍ ČR. 2017a. *Metodika pro žadatele o poskytnutí státní dotace v rámci Národního programu řešení problematiky HIV/AIDS pro rok 2018* [Online]. Praha: Ministerstvo zdravotnictví ČR. Available: https://www.mzcr.cz/dokumenty/metodika-pro-zadatele-o-poskytnuti-statni-dotace-v-ramci-narodniho-programu-res_13965_1.html [Accessed 30 Jul 2017].
- MINISTERSTVO ZDRAVOTNICTVÍ ČR. 2017b. *Výsledky výběrového řízení dotačního programu MZ ČR Národní program řešení problematiky HIV/AIDS pro rok 2018* [Online]. Praha: Ministerstvo zdravotnictví ČR. Available: https://www.mzcr.cz/obsah/vysledky-dotacniho-rizeni_3800_1.html [Accessed 13 March 2018].
- MIRANDOLA, M., FOLCH TODA, C., KRAMPAC, I., NITA, I., STANEKOVA, D., STEHLIKOVA, D., TOSKIN, I., GIOS, L., FOSCHIA, J. P., BREVEGLIERI, M., FUREGATO, M., CASTELLANI, E. & BONAVINA, M. G. 2009. HIV bio-behavioural survey among men who have sex with men in Barcelona, Bratislava, Bucharest, Ljubljana, Prague and Verona, 2008-2009. *Euro Surveill*, 14.
- MOR, Z. & DAN, M. 2012. The HIV epidemic among men who have sex with men—behaviour beats science. *EMBO Reports*, 13, 948-953.
- MRAVCIK, V. 2015. (De)criminalisation of possession of drugs for personal use - A view from the Czech Republic. *Int J Drug Policy*, 26, 705-7.
- MRAVCIK, V., PITONAK, M., HEJZAK, R., JANIKOVA, B. & PROCHAZKA, I. 2017. HIV epidemic among men who have sex with men in the Czech Republic, 2016: high time for targeted action. *Euro Surveill*, 22.
- MRAVČÍK, V., CHOMYNOVÁ, P., GROHMANNOVÁ, K., JANÍKOVÁ, B., GROLMUSOVÁ, L., TION LEŠTINOVÁ, Z., ROUS, Z., KIŠŠOVÁ, L., NECHANSKÁ, B., SOPKO, B., VLACH, T., FIDESOVÁ, H., JURYSTOVÁ, L. & VOPRAVIL, J. 2015. *Výroční zpráva o stavu ve věcech drog v České republice v roce 2014*, Praha, Úřad vlády České republiky.
- MRAVČÍK, V., CHOMYNOVÁ, P., GROHMANNOVÁ, K., JANÍKOVÁ, B., TION LEŠTINOVÁ, Z., ROUS, Z., KIŠŠOVÁ, L., KOZÁK, J., NECHANSKÁ, B., VLACH, T., ČERNÍKOVÁ, T., FIDESOVÁ, H., JURYSTOVÁ, L. & VOPRAVIL, J. 2016. *Výroční zpráva o stavu ve věcech drog v České republice v roce 2015*, Praha, Úřad vlády České republiky.
- MRAVČÍK, V., PETROŠOVÁ, B., ZÁBRANSKÝ, T., COUFALOVÁ, M. & ŘEHÁK, V. 2009. *Výskyt VHC u injekčních uživatelů drog. Výsledky studie prováděné mezi klienty nízkoprahových zařízení v letech 2002-2005*, Praha, Úřad vlády ČR.
- MRAVČÍK, V., ŠKAŘUPOVÁ, K., ORLÍKOVÁ, B., ZÁBRANSKÝ, T., KARACHALIOU, K. & SCHULTE, B. 2011. Use of gelatine capsules for application of methamphetamine: A new harm reduction approach. *International Journal of Drug Policy*, 22(2), 172-73.
- NĚMEČEK, V. & MALÝ, M. 2014. Diagnostika a epidemiologie HIV. *Základy HIV poradenství dne 11. 12. 2014*. Praha: Státní zdravotní ústav.
- PACHANKIS, J. E., HATZENBUEHLER, M. L., MIRANDOLA, M., WEATHERBURN, P., BERG, R. C., MARCUS, U. & SCHMIDT, A. J. 2017. The Geography of Sexual Orientation: Structural Stigma and Sexual Attraction, Behavior, and Identity Among Men Who Have Sex with Men Across 38 European Countries. *Arch Sex Behav*, 46, 1491-1502.
- PEHE, V. 2017. *Preventivní lék proti HIV? Existuje a funguje, ale ne u nás* [Online]. a2larm.cz: a2larm.cz. Available: <http://a2larm.cz/2017/07/preventivni-lek-proti-hiv-existuje-a-funguje-ale-ne-u-nas/> [Accessed 30 July 2017].
- PITONÁK, M. 2017. Mental health in non-heterosexuals: Minority stress theory and related explanation frameworks review. *Mental Health & Prevention*, 5, 63-73.
- PITONÁK, M. & SPILKOVÁ, J. 2016. Homophobic Prejudice in Czech Youth: a Sociodemographic Analysis of Young People's Opinions on Homosexuality. *Sexuality Research & Social Policy: Journal of NSRC*, 13, 215-229.

- PROCHÁZKA, I. 2015. Příčiny nárůstu HIV v gay (MSM) komunitě. In: ŠIKOLOVÁ, V. (ed.) *Ročenka Národního programu HIV/AIDS v České republice 2013–2014*. Praha: Státní zdravotní ústav Praha.
- RHODES, T. 2009. Risk environments and drug harms: a social science for harm reduction approach. *Int J Drug Policy*, 20, 193-201.
- RHODES, T. & HEDRICH, D. 2010. Harm reduction and the mainstream. In: RHODES, T. & HEDRICH, D. (eds.) *Harm reduction: evidence, impacts and challenges. Scientific Monograph Series No. 10*. Lisbon: European monitoring centre for drugs and drug addiction.
- RHODES, T., WATTS, L., DAVIES, S., MARTIN, A., SMITH, J., CLARK, D., CRAINE, N. & LYONS, M. 2007. Risk, shame and the public injector: a qualitative study of drug injecting in South Wales. *Soc Sci Med*, 65, 572-85.
- RODGER, A. J., CAMBIANO, V., BRUUN, T., VERNAZZA, P., COLLINS, S., VAN LUNZEN, J., CORBELL, G. M., ESTRADA, V., GERETTI, A. M., BELOUKAS, A., ASBOE, D., VICIANA, P., GUTIERREZ, F., CLOTET, B., PRADIER, C., GERSTOFT, J., WEBER, R., WESTLING, K., WANDELER, G., PRINS, J. M., RIEGER, A., STOECKLE, M., KUMMERLE, T., BINI, T., AMMASSARI, A., GILSON, R., KRZNAK, I., RISTOLA, M., ZANGERLE, R., HANDBERG, P., ANTELA, A., ALLAN, S., PHILLIPS, A. N. & LUNDGREN, J. 2016. Sexual Activity Without Condoms and Risk of HIV Transmission in Serodifferent Couples When the HIV-Positive Partner Is Using Suppressive Antiretroviral Therapy. *Jama*, 316, 171-81.
- SARANG, A., RHODES, T., SHEON, N. & PAGE, K. 2010. Policing drug users in Russia: risk, fear, and structural violence. *Subst Use Misuse*, 45, 813-64.
- SCOTT, H. M. & KLAUSNER, J. D. 2016. Sexually transmitted infections and pre-exposure prophylaxis: challenges and opportunities among men who have sex with men in the US. *AIDS Res Ther*, 13, 5.
- SCHMIDT, A. J., BOURNE, A., WEATHERBURN, P., REID, D., MARCUS, U. & HICKSON, F. 2016. Illicit drug use among gay and bisexual men in 44 cities: Findings from the European MSM Internet Survey (EMIS). *Int J Drug Policy*, 38, 4-12.
- SMIT, P. J., BRADY, M., CARTER, M., FERNANDES, R., LAMORE, L., MEULBROEK, M., OHAYON, M., PLATTEAU, T., REHBERG, P., ROCKSTROH, J. K. & THOMPSON, M. 2012. HIV-related stigma within communities of gay men: a literature review. *AIDS Care*, 24, 405-12.
- SNOPKOVÁ, S., ROZSYPAL, H., ASTER, V., SEDLÁČEK, D., KAPLA, J., JERHOTOVÁ, Z., OLBRECHTOVÁ, L., ZJEVÍKOVÁ, A., DLOUHÝ, P., JILICH, D. & VESELÝ, D. 2016. Doporučený postup péče o dospělé infikované HIV a postexpoziciční profylaxe infekce HIV. *Klinická mikrobiologie a infekční lékařství*, 22, 20-38.
- SPINNER, C. D., BOESECKE, C., ZINK, A., JESSEN, H., STELLBRINK, H. J., ROCKSTROH, J. K. & ESSER, S. 2016. HIV pre-exposure prophylaxis (PrEP): a review of current knowledge of oral systemic HIV PrEP in humans. *Infection*, 44, 151-8.
- STÁTNÍ ZDRAVOTNÍ ÚSTAV PRAHA 2017. Trendy vývoje a výskyt HIV/AIDS v ČR v roce 2016. Praha: Státní zdravotní ústav Praha, NRL pro HIV/AIDS.
- STEHLÍKOVÁ, D., PROCHÁZKA, I. & HROMADA, J. 1995. *Homosexualita, společnost a AIDS v ČR*, Praha, Orbis.
- STRATHDEE, S. A., HALLETT, T. B., BOBROVA, N., RHODES, T., BOOTH, R., ABDOL, R. & HANKINS, C. A. 2010. HIV and risk environment for injecting drug users: the past, present, and future. *Lancet*, 376, 268-84.
- TAKÁCS, J. & SZALMA, I. 2013. How to measure homophobia in an international comparison? *Družboslovne razprave*, 29, 11-42.
- TARAN, Y. S., JOHNSTON, L. G., POHORILA, N. B. & SALIUK, T. O. 2011. Correlates of HIV risk among injecting drug users in sixteen Ukrainian cities. *AIDS Behav*, 15, 65-74.
- THE EMIS NETWORK 2013. *EMIS 2010: The European Men-Who-Have-Sex-With-Men Internet Survey. Findings from 38 countries*, Stockholm, European Centre for Disease Prevention and Control.
- TN.CZ. 2016. *Policie hledá 30 mužů. Měli HIV a přesto si užívali nechráněný sex!* [Online]. Available: <http://tn.nova.cz/clanek/policie-hleda-30-muzu-meli-hiv-a-presto-si-uzivali-nechranyeny-sex.html> [Accessed 28 Dec 2016].
- VAN TIENEN, C., VAN DE VIJVER, D., NOORI, T., SÖNNERBORG, A. & BOUCHER, C. 2017. Letter to the editor: Pre-exposure prophylaxis for HIV in Europe: The need for resistance surveillance. *Eurosurveillance*, 22, 30483.
- VLÁDA ČESKÉ REPUBLIKY 2013. Národní program řešení problematiky HIV/AIDS v České republice na období 2013-2017. *Věstník vlády pro orgány krajů a orgány obcí ze dne 29. ledna 2013, ročník 11, částka 1*.
- WHO/UNODC/UNAIDS 2009. Technical guide for countries to set targets for universal access to HIV prevention, treatment and care for injecting drug users. Geneva: WHO.
- WIESSING, L., LIKATAVICIUS, G., KLEMPOVA, D., HEDRICH, D., NARDONE, A. & GRIFFITHS, P. 2009. Associations Between Availability and Coverage of HIV-Prevention Measures and Subsequent Incidence of Diagnosed HIV Infection Among Injection Drug Users. *American Journal of Public Health*, 99(6), 1049-52.
- WORLD HEALTH ORGANISATION 2013a. Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection. Geneva: WHO.
- WORLD HEALTH ORGANISATION 2013b. Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: recommendations for a public health approach. Geneva: WHO.
- WORLD HEALTH ORGANIZATION 2016. Global health sector strategy on HIV 2016–2021: towards ending AIDS. Geneva: WHO.

Development of Addiction to Intranasal Fentanyl in a Cancer Patient

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SUMMARY: The following case report describes the long-term comprehensive care of a patient with metastatic diffuse gastric cancer. In addition to chemotherapy, supportive care was especially important for the treatment of chronic abdominal pain, ileus, malnutrition, and iatrogen-induced addiction to intranasal opiates. The patient was in the parallel care of an oncologist and a nutritionist. Pain management was provided by the pain management centre and a psychiatrist. Because of the lack of information about opiate addiction in cancer patients, we had

to cooperate very closely with specialists in pain management and addiction treatment. However, this intensive comprehensive care had only a partial effect. The daily dose of intranasal fentanyl in our patient was several times higher than the recommended maximum and relief from pain was only short and partial. This specific issue receives little attention in the literature. Nowadays, we have several new medication options and forms of application. Taking this into account, it will be very important to develop new recommendations for pain management in the near future.

Keywords | Palliative care – Gastric cancer – Intranasal opiates – Fentanyl – Iatrogen-induced addiction

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● CASE REPORT

A 23-year-old patient was referred to our surgical outpatient clinic in November 2015 for unspecified abdominal pain, which she had experienced since January of that year. She had undergone a laparoscopic appendectomy, which revealed chronic appendicitis. Pancolonoscopy, with a suspected IBD finding, had also been performed because of the persisting problems. Subsequent GFS revealed stenosed pylorus and ulceration in the angulus. Endosonographic examination confirmed the infiltration of the gastric antrum and pylorus, the latter being impassable for the 12-mm instrument. Because of a suspected diffuse malignant infiltration, exploratory laparotomy including representative biopsy was performed in November 2015. Histology confirmed the diagnosis of diffuse gastric cancer with metastatic infiltration of mesentery and peritoneal carcinomatosis. Therefore, neither gastroenteroanastomosis nor jejunostomy was applied. No signs of an ileus condition were present at the time. It was decided that the patient would receive palliative chemotherapy administered by means of a central venous port. Nevertheless, severe ileus, associated with pyloric stenosis, developed during the postoperative period. This was eventually dealt with conservatively by using a drainage tube and total parenteral nutrition. To manage her abdominal pain, the patient was administered transdermal fentanyl in a basic dose of 12.5 µg with good effect. After her condition stabilised, the patient began to receive systemic chemotherapy mFOLFOX6. The patient tolerated the treatment very well. In addition, there was a partial response involving the restoration of the passage of the GIT. After the NG tube was removed, the patient could manage oral intake without major problems. In February 2016, the patient's condition worsened, this time with occasional vomiting. To manage breakthrough pain, 100 µg intranasal fentanyl was administered in addition to the 25 µg transdermal doses. As oral intake was impossible, total parenteral nutrition was resumed in the home-care setting. This procedure proved to be very effective; the patient showed very few symptoms within several days. Moreover, a restaging CT scan confirmed the stabilisation of the condition. The previous systemic treatment was therefore carried on, with even parenteral nutrition not being necessary. Around that time (April 2016) the excessive use of opiates, indicated especially by the more frequent application of intranasal fentanyl, was suspected for the first time. Taking this into account, it can hardly be ruled out that the previous symptoms were not due to opiate-induced paralytic ileus.

Another restaging CT performed in June 2016 confirmed the progression of the disease. The patient reported stronger abdominal pain and reduced oral intake because of the early sense of repletion and inappetence. The patient was referred to an outpatient nutrition centre for the resumption of parenteral nutrition to supplement oral intake. Pain was managed using a 10/5 mg oxycodone/naloxone combination administered every 12 hours and sublingual 133 µg fentanyl, when necessary to alleviate breakthrough pain, with butylscopolamine tablets taken every eight hours. Transdermal opiate patches were not indicated because

of the previous passage complications. We wanted to avoid the intranasal route of administration given the suspicion of abuse. In view of the progression of the underlying disease and PS1, on 21 June 2016 the patient commenced a second-line palliative therapy involving a combination of paclitaxel and ramucirumab.

The patient tolerated the second-line treatment well. However, since August 2016 her consumption of opiates had grown. The patient refused the sublingual form of fentanyl because of its insufficient effect, despite the increase in patch doses. Although recommended to do so, she did not use the oxycodone/naloxone tablet combination on a regular basis and wanted to return to intranasal fentanyl because of the rapid onset of its effect and its very good toleration. Moreover, the patient experienced intermittent episodes of reduced oral intake, nausea, and vomiting, during which she depended on total parenteral nutrition provided in the home care setting. On other days, she managed to consume supplementary sip feeds and minced food in addition to PN. At that time her pain management was changed to the application of 25 µg transdermal opiate (fentanyl) patches, and, respecting the patient's preferences, we proceeded to use 100 µg intranasal fentanyl spray to treat breakthrough pain. However, this led to the development of the excessive use of the intranasal opiate, with the patient, despite repeated advice and an increase in the transdermal opiate dose to 50 µg, applying the spray 20 times per day (one shot each time), and the dosage tended to grow. By the end of 2016 she was consuming two vials of 200 µg fentanyl (40 doses) per day. She had been shortening the intervals between applications because of very frequent stabbing pain (VAS 7-10/10), which reached its greatest intensity during the night and met the definition of breakthrough pain. 20/10 mg oxycodone/naloxone tablets taken every 12 hours were included in the medication again, with the dosage being increased to 40/20 mg 1-0-1 to 1-0-2 because of persisting abdominal pain. We also tried buccal fentanyl tablets, again only temporarily, but with no major effect on the patient. Despite the risk of ileus, as it was not possible to reduce the dosage, we gradually increased the dose of transdermal fentanyl to 150 µg in order to reduce the number of intranasal applications. Even with the transdermal dose being heightened, no deterioration of passage problems was observed. Nevertheless, the patient still suffered from severe pain, largely localised in the epigastric and right iliac fossa areas. With her consent, the patient was referred to the inpatient psychiatric ward, where efforts were made to adjust the medication using anxiolytics and antidepressants with the purpose of limiting the application of intranasal fentanyl. The effect was short-term only; for two weeks the patient was back to 40 doses of 200 µg fentanyl, i.e. one vial per day.

In February 2017 the patient underwent another restaging CT scan, which showed a stabilisation of the disease. She continued to receive the systemic paclitaxel-plus-ramucirumab-based treatment, managed to take in orally only a very small amount of mixed food, and was provided with nutrition mainly parenterally using Smofkabiven bags (1800 ml daily). Vomiting was intermittent. The patient re-

peatedly rejected the drainage tube. Paracentesis was performed repeatedly on an outpatient basis to remove refractory ascites. A combination of 150ug transdermal fentanyl, 40/20 mg oxycodone/naloxone 1-0-2 to 2-0-2, and 200ug intranasal fentanyl in a massive quantity of 80-100 doses per day provided the patient with at least satisfactory palliative treatment for her extensive malignant disease. Additionally, a central venous access made it possible to apply 5ml metamizole infusions in the home setting once to twice daily, as needed.

In early April 2017 the patient was admitted to the inpatient oncology ward after her clinical condition worsened dramatically. Three days later, 16 months after being diagnosed with metastatic gastric cancer, the patient died.

● DISCUSSION

Out of the medication used to manage breakthrough pain, intranasal fentanyl was found to show the best outcomes as regards the speed of its onset, the duration of its effect, and the profile of its adverse effects, such as hallucinations, nausea, and confusion (Zeppetella, 2014). However, iatrogen-induced addiction and tolerance to such high doses have not been dealt with in the literature, as the development of addiction was not the issue of primary interest among patients with anticipated short-term survival. Given the increasing use of intranasal opiates, nevertheless, the above case report may not represent an isolated episode. It suggests that these aspects should be taken into consideration when choosing therapies to manage breakthrough pain.

● CONCLUSION

Finding an effective pain management regimen and iatrogen-induced addiction to intranasal fentanyl were the major complications in the treatment of this young patient. Despite maximum effort, in this particular case it was not possible to switch the patient to transdermal opiate medication in order to at least reduce the consumption of intranasal fentanyl. A combination of transdermal and intranasal fentanyl, oxycodone/naloxone tablets, intravenous metamizole, and anxiolytics and antidepressants provided at least some pain management and an improvement in the patient's quality of life, although the cost of such treatment is exorbitant. Bearing in mind the poor prognosis and expected survival, the patient's comfort and quality of life should, however, be the central consideration. Supportive treatment management was greatly facilitated by the outpatient nutrition centre, which, among other assistance, assured regular prescriptions of home parenteral nutrition. This was administered in cooperation with a home care service.

Authors' contribution: M. E.: Case report. D. B.: Discussion and Conclusion. S. D. : Consultation of a psychiatrist.

Conflict of interest: None.

REFERENCES

Zeppetella G., Davies A., Eijgelshoven I., Jansen J. P. (2014) A network meta-analysis of the efficacy of opioid analgesics for the management of breakthrough cancer pain episodes. *J Pain Symptom Manage*, 47(4):772–785.e5. Epub 2013 Aug 24.

NEWS

Two staff members and a student from the Department of Addictology participated actively in the Third Annual Conference of the International Consortium of Universities for Drug Demand Reduction 2018 in San Diego

It is becoming a tradition to hold ICUDDR conferences on the campuses of the member universities. Last year Charles University assumed the role of the host. This year its delegation (two members of staff and one student) went to San Diego, California, where the 3rd Annual ICUDDR Conference took place on the beautiful campus of the University of California San Diego (UCSD) on 4-5 June 2018. The event was organised by Dr. Igor Koutsenok and his team. It was a unique meeting, the third in a row, of the representatives of institutions connected to the topic of education and training in addiction science and drug demand reduction. In addition to delegates representing universities and other academic settings, there were also leading representatives of non-academic institutions concerned with the translation of addiction research into practice. The aim of the conference was to address the current and emerging challenges in the field of addiction studies and to discuss the worldwide development of addiction-specific study programmes. The participants discussed and shared their experience with the process involving the implementation of the Universal Treatment and Prevention Curricula (UPC and UTC) in their respective countries and institutions. The ICUDDR board members presented activities and plans developed by the Consortium and offered a platform for the discussion of limits and opportunities in different regions.

The ICUDDR is an international organisation established at its first conference held in Honolulu in 2016. It is supported by the U.S. Department of State, Bureau of International Narcotics and Law Enforcement Affairs (INL). The main goals are to develop a worldwide network of universities which provide addiction studies programmes,

ICUDDR Board



Professor Michal Miovský and his colleague, Amalie Pavlovská, and Anna Vondrová, a student, with the main organiser, Dr. Igor Koutsenok

to advance research in the addiction field, to promote career opportunities, and to enhance the community of universities. The ICUDDR provides advocacy within the universities. It currently has over 100 members and is showing a tendency to grow. Further information can be found at www.icuDDR.com.

Two staff members and a student from the Department of Addictology (Charles University), Professor Michal Miovský (the head of the department and the current ICUDDR president), Amalie Pavlovská, MA, and Anna Vondrová, BA, participated actively in the professional programme of the conference:

- Contemporary Trends in Addiction Training in Higher Education: Amalie Pavlovska, Charles University; Jinsoo Jason Kim, Sahmyook University; Fernando Salazar, Universidad Peruana Cayetano Heredia; Michal Miovsky, Charles University
- Graduates of Addiction Studies Programmes: What have we Learned? Moderators: Lianna Urada, San Diego State University; Igor Koutsenok, University of California – San Diego
- Joining the ICUDDR Network, Michal Miovsky, Charles University

For the full programme see the ICUDDR website.

The conference offered us numerous opportunities to meet our colleagues from around the world, learn about their progress with implementing the international curricula, and share valuable information about education in addictions.



Anna and Amalie in front of the Atkinson Hall, UCSD, where the conference was held

For the Czech Republic, a few questions were of particular interest in terms of further discussion: how we can attract more European universities to join the ICUDDR, what our role as the coordinating centre is, what ways can be used to implement the curricula while keeping our original Prague model of education, and how to evaluate and publish the results of what we do.

We will have the opportunity to meet again and address all these issues on the occasion of the 4th ICUDDR conference, which will take place in Cuzco, Peru, on 22–23 July 2019.

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Anna presenting the addictology education concept and the UCSD PhD students



Colleagues from Europe and the USA



European group discussion

NEWS

ABOUT LISBON ADDICTIONS 2019

Lisbon Addictions 2019, the third European Conference on Addictive Behaviours and Dependencies, is a multidisciplinary conference that provides a forum for networking across the addictions.

Lisbon Addictions 2019 will take place in the **Lisbon Congress Centre from 23–25 October 2019**.

Once again, the event will be jointly organised by the Portuguese General Directorate for Intervention on Addictive Behaviours and Dependencies (SICAD), the journal *Addiction/Society for the Study of Addiction*, the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) and the International Society of Addiction Journal Editors (ISAJE).

The overarching theme for 2019 is **The future of addictions: new frontiers for policy, practice and science**. The conference will therefore showcase cutting-edge research to help characterise, understand and respond to addiction and addictive behaviours.

Key dates:

31 May 2019: Notification to authors, **29 June 2019:** Deadline for late-breaking abstracts, **30 June 2019:** Deadline for regular registration (EUR 500), **1 July–25 October 2019:** Late registration (online and on-site – EUR 600)

Programme:

- **Futures:** identifying and meeting emerging needs; prediction, preparedness, innovations and new challenges;
- **Better practice:** improving how we respond; supporting the development and implementation of more effective prevention, treatment, and harm reduction interventions;
- **Better science:** aetiology, basic science, neuroscience and pre-clinical studies;
- **Better methods:** epidemiology, monitoring estimates and models;
- **Better society:** overcoming barriers, effective policies, regulations and laws; culture and context.

The EC co-funded project FuturiZe (FZ) will collaborate with the organisers of Lisbon Addictions 2019 by developing networking activities and a series of interactive debates which focus on key future scenarios in the field of drugs and behavioural addictions. The scenarios will be chosen and developed through a participatory process with a wide variety of stakeholders. The FZ debates will be open to all conference participants and introduced in each case by prominent thinkers from different backgrounds and perspectives. The project will also provide bursaries for around 120 multi-sectoral professionals who would otherwise not be able to attend the event.

Adapted from: <http://www.lisbonaddictions.eu/lisbon-addictions-2019>

