

Engagement in risky behaviours by 15-19-year-olds from Polish urban and rural areas

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Abstract

Introduction. Anti-health behaviours pose a threat to the health status of the adolescent population in Poland. Among other things, the use and abuse of tobacco, alcohol and psychoactive substances are very dangerous as they may give rise to further health inequalities in young people. The aim of the research was to compare scopes of anti-health behaviours of adolescents in rural and urban areas in Poland.

Material and methods. The study consisted of 1,580 adolescents (aged 15-19 years) – 596 from urban areas and 984 from rural areas of the Zachodniopomorskie Province in Poland.

Results. 25.61% of 15-19-year-old city dwellers and 30.57% of their rural peers are active tobacco smokers. The smoking habit is more popular among female adolescents than among their male peers.

4.64% of rural 15-19-year-olds, and 4.52% of their city peers, are addicted to narcotics, 11.16% of the surveyed rural adolescents and 6.7% of their peers living in urban areas are addicted to alcohol. More than 50% of adolescents drink alcohol occasionally.

Conclusions. A significant number of young people in both rural and urban areas are engaged in risky health behaviours. The frequency of such behaviours depends on the age, gender and place of residence. These disproportions may contribute to future health inequalities in rural and urban areas.

Key words

health inequality, stimulants, tobacco, alcohol, narcotics, adolescents, anti-health behaviours, rural areas, urban areas

INTRODUCTION

Lifestyle, which includes pro-health activities as well as anti-health behaviours (also risky healthy behaviours), plays an important role in the functioning of the human genome. Risky behaviours, such as smoking, drinking alcohol, narcotic abuse, and the like, may have an impact on the genome, affect DNA methylation, modify genes' expression [1] and – as a result – they may have a health-compromising effect.

The list of reasons for health inequalities includes such factors as a considerable diversity of the 'health potential' which depends on the gender, place of living, residential area, as well as social status. The said health inequalities bring about such phenomena as male over-mortality and differences in the life expectancy of people who are members of communities of different material and cultural living standards. In many developed countries, the death rate for males aged 60 and over is higher in the urban areas than in the rural areas [2]. In those countries the differences between the overall death rates may differ widely – even by 20%. In particular, in the developed countries, there are noticeable diversifications of the health state of people of different social backgrounds [3].

Inequalities in health arise also from different proportions of pro-health activities as well as from anti-health activities practised by different people [4]. These behaviours, practised over a long period of time, can lead to modifications of genes' activities and, consequently, to transmission of changed genetic information to the offspring. The frequency and pattern of risky behaviours may vary in different groups of people. They usually depend on social and environmental factors, as well as on the age, gender and educational status of individuals [2].

The phenomenon of behaviours that put adolescents at risk for compromising their health may be observed both in the rural and urban areas [5]. The incidence of such activities among adolescents increases with age. They can affect not only the lives of the young ones engaged in them, but also of the people around them. Adolescents may start experimenting with risky behaviours in occasional unhealthy episodes, then intensify unhealthy activities, and next consolidate engagement in such behaviours.

The most common risky behaviours are: smoking, drinking alcohol and alcoholic beverages, as well as the use of other psychoactive substances (among others, so called club drugs, psychedelics and stimulants) [6].

The World Health Organization experts consider smoking as one of the most dangerous risk factors affecting health. It is the main cause of early deaths, both in the developed

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and developing countries. The potential health risks posed by the use of nicotine are being underestimated and often not taken seriously by children and adolescents. Almost 50% of young people who start smoking as teenagers will become adult heavy smokers, and continue smoking for at least 16-20 years [7].

Numerous studies suggest that the first alcohol experiences take place during adolescence. According to the data published by several authors [4, 8, 9], alcohol use has become a social behaviour [8]. Regular and excessive alcohol consumptions by adolescents pose problems, both to them and to society. Negative consequences of alcohol use and abuse include health and psychological problems and lead to injuries, accidents, violence, crime, early sexual experiments, and so on.

In 2002, nearly 29% of 15-year-olds (34% of boys and 23% of girls) confessed to having been drunk at least once [10]. Everyday observations prove that the problem of alcohol use and abuse among adolescents is still present and serious.

Nowadays, the use of psychoactive substances (drugs, club drugs, psychedelics and stimulants) by youngsters and teenagers is a massively growing problem. This phenomenon is observed not only in Poland but in other, both developed and developing, countries [11].

A review of the literature makes it clear that there are significant differences between risky behaviours affecting the youth from urban and rural environments. Taking into consideration some of the activities of the young ones, it becomes evident that the situation observed among the youth living in urban areas is much worse than in rural environments [12].

Suggestions concerning the afore-mentioned differences in the risky health behaviours practised by teenagers living in different areas, as well as the fact that these behaviours may affect the population's health state and bring about health inequalities in the future adult populations, have given grounds for launching this research.

The aim of the research was to compare the scopes of anti-health behaviours of adolescents in the rural and urban areas in Poland.

MATERIAL AND METHODS

The study comprised 1,580 adolescents (15-19-year-olds) – 596 from the urban areas and 984 from the rural areas, secondary school students from a randomly selected county of the Zachodniopomorskie Province in Poland.

The selected county has a population structure (including the proportion of urban and rural inhabitants and age structure) representative of the Zachodniopomorskie Province population. Two rural districts and 2 municipal districts were then randomly selected. In the 2 groups of districts selected, the age and gender structures of inhabitants were much the same. The next step of selection consisted in the random selection of 8 secondary schools (2 schools in each district). Then, all school students aged 15-19 and attending the selected secondary schools were asked to fill in a questionnaire. A special original inquiry questionnaire addressed to 15-to19-year-olds was used. A pilot study was previously conducted in order to determine reliability of the questionnaire. The subsequent survey research was then conducted in 2009.

The majority of the surveyed individuals (both in the rural and urban areas) were adolescents aged 15 - 17. They constituted 78.09% of the polled urban adolescents and 85.16% of the polled individuals living in the rural environments (the difference was not statistically significant; $p=0.134$). Most of the polled subjects were female teenagers: 58.23% of them were city dwellers and 55.20% of the respondents were living in the rural areas – (the difference was not statistically significant; $p=0.441$).

The obtained data were coded and then analysed with the use of statistical methods including Chi-square and Cramer's V tests. Significance was accepted as a p-value of less than 0.05.

RESULTS

1. Use of alcohol, tobacco and other psychoactive substances.

According to the obtained data, the highest rates of those who abstained from smoking (i.e. people who have never smoked) were observed among respondents living in the urban areas (53.13%) in comparison to those living in rural regions (45.27%). The difference was statistically significant ($p=0.031$). 30.57% of rural adolescents and 25.61% of their urban peers were active tobacco smokers (Figure 1. Added-up data from bars 'actually' and 'addiction'). Of these, 26.26% of the rural adolescents and 21.18% of young city dwellers declared themselves to be occasional smokers (the difference was statistically significant; $p=0.047$) (Figure 1).

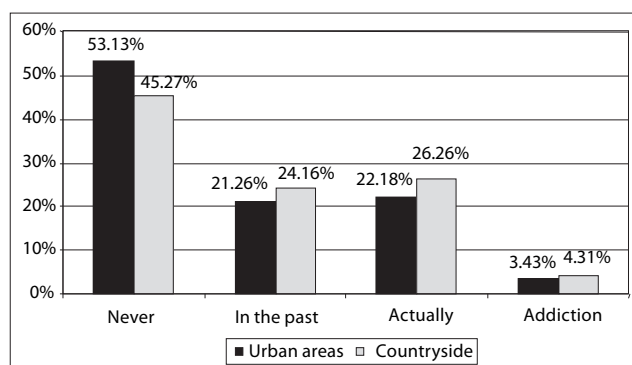


Figure 1. Smoking habit among adolescents and young adults from urban and rural areas

More than a half of the respondents (54.79%) from the rural areas drank alcohol occasionally, 11.16% of them drank regularly (Figure 2). The situation seemed to be better in the urban areas, where 52.09 per cent of the adolescent population drank occasionally and 6.7% of 15-19-year-old adolescents were addicted to alcohol. The difference between the fractions of occasional drinkers was insignificant ($p=0.465$), while it was significant between young people addicted to alcohol ($p=0.039$).

The study results make it clear that the use of narcotics and other drugs takes place in both the urban and rural areas. In the group of respondents from the rural environment, 61.13% of adolescents had never used such substances, 17.05% of the surveyed subjects ticked the answer suggesting occasional contacts, 4.64% indicated narcotic abuse (regular users). The situation seems to be similar in the urban areas. Over a half of the respondents living in the urban areas (65.15%

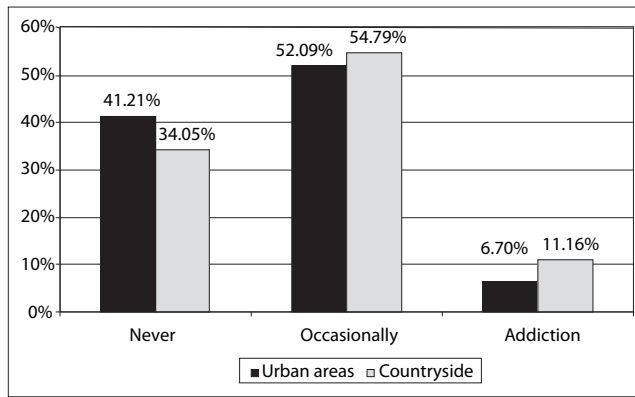


Figure 2. Alcohol use by teenagers living in rural and urban regions

of the surveyed) denied contacts with narcotics, 14.15% of them owned up to occasional narcotic and other drug use, 4.52% of the respondents admitted to being regular users (the difference between the fractions of adolescents who denied using any drugs is not statistically significant ($p=0.341$) (Figure 3).

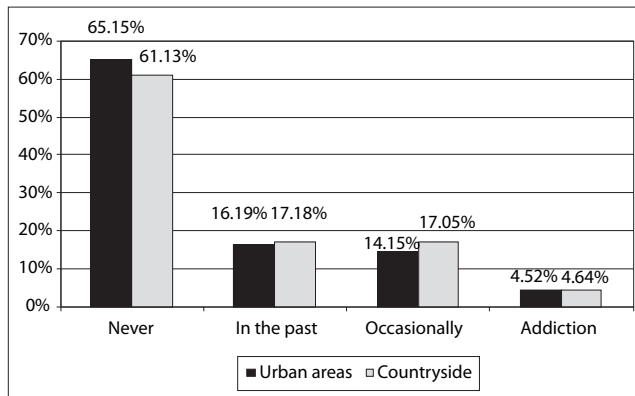


Figure 3. Narcotic use by teenagers living in rural and urban regions

2. Relationships between the occurrence of risky behaviours and selected descriptive variables.

A. Age and place of living.

Many adolescents under 18 take up the smoking habit even though they know it is illegal. The percentage of non-smokers decreases with age. This phenomenon may be observed among residents of both urban and rural areas. 61.6% of adolescents aged 15-16 living in urban regions consider themselves as non-smokers, while only 44.45% of urban dwellers aged 18-19 had never smoked cigarettes. The percentages concerning the rural dwellers are equal to 58.37 and 31.30, respectively (Figure 4). The percentage of nicotine addicts also increases with age, although this tendency is more evident among the city dwellers (Figure 4).

A statistically significant relationship ($p=0.039$) between the age of the respondents and alcohol consumption was observed. As many as 45.58% of 15-17-year-old adolescents living in the urban areas and 50.00% of their peers from rural areas drank alcohol or alcohol beverages occasionally. The percentages concerning 18-19-year-olds were equal to 58.62 and 59.37, respectively. The problem of alcohol addiction was more evident among younger (15-17-year-old) rural dwellers than among their peers living in towns. Considering the data

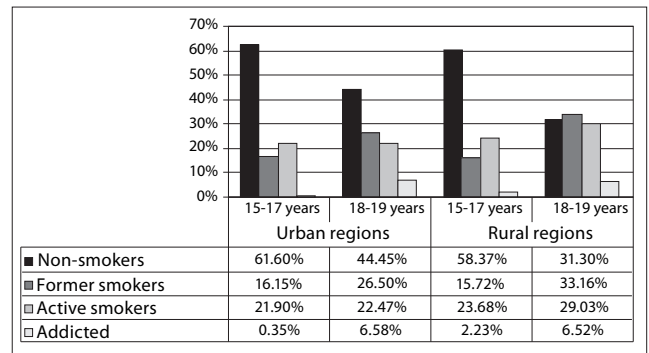


Figure 4. Smoking habit in relation to age in urban and rural regions

presented (Table attached to Figure 5), one can see that as many as 4.22% of the 15-17-year-old city dwellers reported symptoms of alcohol abuse (regular drinkers, who drank alcohol 3 or more times a week), while in rural areas this percentage was much higher and equal to 10.63.

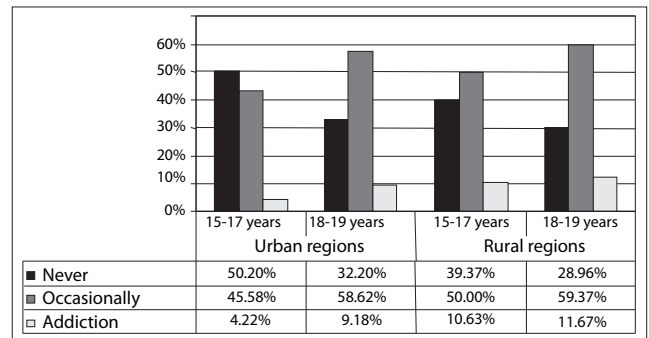


Figure 5. Alcohol use in relation to age in urban and rural areas

A correlation was observed between drug use (occasional use as well as drug addiction) and the age of respondents (rural regions: $p=0.007$; city regions $p<0.001$).

2.02% of the rural adolescents aged 15-17 and 3.56% of their city peers used drugs regularly, while the percentages concerning 18-19-year-olds are equal to 8.84 and 5.78, respectively (Figure 6).

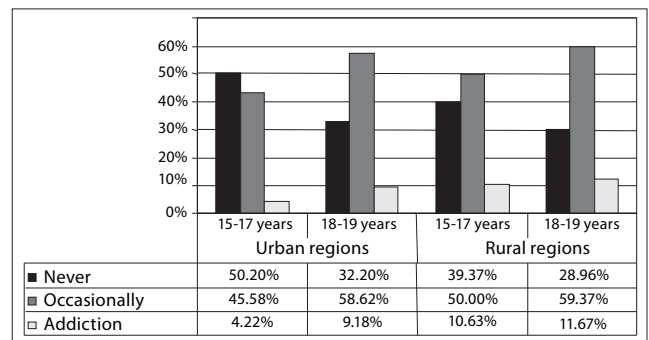


Figure 6. Drug use in relation to age in urban and rural areas

The problem of occasional drug use concerns 11.63% of the rural 15-17-year-olds, 10.89% of their city peers (the difference was statistically significant - $p<0.006$), 22.77% of 18-19-year-old rural dwellers, as well as 18.39% of their urban peers (difference insignificant - $p=0.397$).

B. Gender and place of living.

A significant relationship was noticed between the smoking habit and gender of the respondents ($p < 0.05$). The female adolescents had higher rates of smoking than the males. In the urban environment, 24.43% of the female adolescents were active occasional smokers, and 2.5% were addicted to smoking (Figure 7). In the rural areas, such percentages are equal to 32.09 and 3.97, respectively. In the urban areas, 19.93% of the male adolescents were active occasional smokers, and 4.36% addicted to smoking. In the rural areas, 20.27% of the male adolescents were active smokers and 4.66% of them report nicotine addiction (Figure. 7).

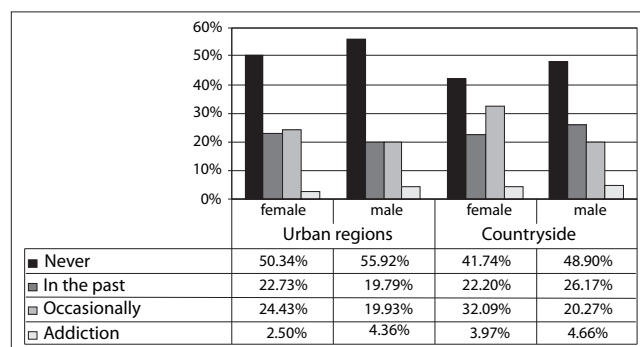


Figure 7. Smoking habit in relation to gender in rural and urban areas

A statistically significant relationship ($p=0.005$) between the gender and habitual drinking of alcoholic beverages was also noted. The male adolescents had slightly higher rates of drinking alcohol than females. 48.54% of the female adolescents living in the urban environment drank alcohol occasionally, 4.47% of them were addicted to alcohol. The percentages concerning male adolescents from the urban areas were 55.86 and 9.07, respectively. In the rural regions, 50.21% of the female adolescents drank alcohol occasionally, 10.31% of them report symptoms suggesting alcohol addiction (Figure 8). When considering the data concerning the male adolescents from the rural areas, the following conclusion must be drawn: 58.2% of them drank occasionally, and 11.91% of the males are addicted.

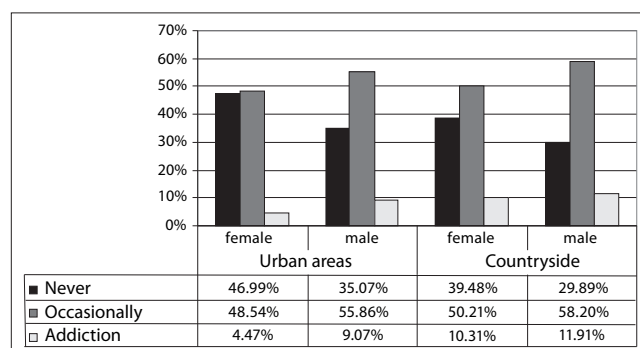


Figure 8. Alcohol use in relation to gender in rural and urban areas

There was no significant relationship between gender and drug use ($p = 0.367$). The occasional drug users make up 12.32% of the female urban adolescents, 16.76% of the urban male adolescents, 15.51% of the rural female adolescents and 18.89% of their rural female peers. The problem of drug abuse concerns 2.09% of the urban female adolescents, 4.35% of their rural female peers, 7.98% of the urban teenage males

and 4.97% of their rural male peers (Figure 9). These data suggest that the use of narcotic/psychoactive substances is a serious psychological as well as medical problem, both in the rural and urban areas.

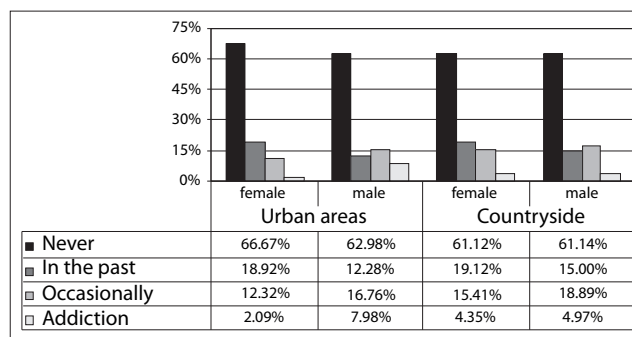


Figure 9. Drug use in relation to gender in rural and urban areas.

DISCUSSION

Regular studies on social and economic determinants of population health, while paying special attention to problems facing young people and youth development, are considered as a method of preventing future inequalities in health [13]. Such studies should be concerned with all possible environmental factors influencing young people in order to enable detection of the risks, enforce necessary changes in standards of life and improve living conditions. Lifestyle and genetic factors play key roles in keeping up the 'health potential' of a human being. So far, the inherited genetic potential may not have been freely modified, therefore, lifestyle and environmental factors seem to be crucial factors influencing the health status of individuals. From the epigenetic point of view, lifestyle and its consequences affect the mechanisms of the genes' protection, and can have an impact on the genome, modify (silence) genes' expression by (among others) affecting DNA methylation [1].

Risky behaviours are those activities that can result in unintentional negative health outcomes, such as cardiovascular diseases and cancer, and as well as many other medical problems, they may lead to inequalities among people living in quite similar environmental conditions [6,14].

The number of years of life lost due to diseases that may result from health inequalities in the EU amounts to approximately 11.4 million [2]. Good health goes hand in hand with a better education level. In the Netherlands, for example, men and women with low education levels have a life expectancy of 7 years shorter, and live in good health about 18 years less than people with higher education [15]. In the European Union, the difference in life expectancy for newborn males is equal to 13.2 years, and for newborn females – 8.2 years [3]. Such differences reflect considerable inequalities in the health situation of different European populations. They may depend, *inter alia*, on such environmental factors as place of living, education level, gender, and proffered lifestyles [4].

The health status of children and young people differ in the European countries and regions. In general, the health situation in the urban as well as rural environments are unsatisfactory [16]. Observations have been reported suggesting that many teenagers prefer risky (anti-health) behaviours to pro-health ones [10, 12, 17]. In 2005, Woynarowska [12] compared in detail risky behaviour

incidence in Poland with other European countries. The conclusions were alarming. The results of our survey study indicate that many adolescents are still engaged in many risky behaviours that may influence their state of health. Adolescents may be engaged in such activities for many reasons - in order to be accepted by their peer group, because of lack of knowledge that may be confusing for them and prevent them from understanding their emotions, because of lack of a mature hierarchy of values, or because of seeking pleasure or relief [11].

In the Polish population of children and school adolescents (about 7 million people) the main health problems include among others: accidents, injuries and poisoning, as well as the use of psychoactive substances (tobacco, alcohol, drugs) [10]. According to the WHO data, in Poland the main factors influencing health loss in the paediatric population include: smoking (16%), hypertension (10.4%), excessive alcohol consumption (9.2%), and obesity (15%) [18].

The results of the performed investigation and obtained data suggest that smoking and alcohol consumption have become very popular among young people. This may pose serious medical, social and public problems (alcohol favours the spread of crime committed by teenagers; on the other hand, alcohol use by teenagers is considered as a crime – Polish law prohibits alcohol consumption as well as smoking by younger teenagers).

The smoking habit as well as alcohol consumption are more dangerous to children and younger teens than to older people and cause more serious health problems in them. Professor Zatoński (Member of the Committee for a Tobacco Free Europe, World Health Organization) considers smoking as the most important health risk factor and the main cause of early deaths in the developed countries [19,20]. In the Polish population, such risky behaviours may be observed even in groups of children and young teenagers. Both Woynarowska's observations [13] and our own data suggest that the number of adolescents with bad habits increases with age. When considering the group of the surveyed subjects, more than 23.5% of them (21.9%-29.03% of adolescents depending on the place of residence and age) are occasional active smokers. If one adds addicted teenagers, such percentages will vary in the range from 22.25 - 35.28%.

Panasiuk et al. [5] estimate that the percentages of smokers among 15-year-olds are close to 31 in Hungary, 21 in Norway and 20 in Poland. Woynarowska (2002) published data assessing the percentage of smoking teens as 43 per 100 of 11 - 15-year-olds [20]. The differences between these data and our observations may suggest different materials and/or the influence of the passage of time on the socio-cultural situation in Poland. The issue requires further investigations.

Our conclusions suggesting that female adolescents have higher rates of the smoking habit than the males, as well as the finding that the smoking habit is more popular among older adolescents (18- 19-year-olds) coincide with the findings of Mazur and Woynarowska B. [20, 21].

Smoking habit occurrence is conditioned by the psychosocial circumstances [22], among them the living conditions. This is clearly described by Jodkowska [23] who carried out a study which focused on one of sub-populations of the Polish adolescents. In this sub-population, the male adolescents and those who lived in the rural areas constituted the majority of the polled group. The results of our study indicate similar dependences concerning the place of residence and smoking

habit occurrence, but quite different relationships between the gender and attitudes towards smoking (our data points out the majority of female adolescents among all the smokers).

Our data suggest that both alcohol use and abuse are more evident in the rural regions. Considering the data presented (Table attached to Figure 5), one can see that 10.63% of 15-17-year-olds and 11.67% 18-19-year-olds, the rural dwellers, reported symptoms of alcohol abuse (regular drinkers who drank alcohol 3 or more times each week). In the urban regions, these percentages are equal to 4.22 and 9.18, respectively. The results of previous investigations published by Sygit [10], suggest that only 3.9% of school adolescents were dependent on alcohol [10].

The presented study makes it possible to draw the conclusion that the problem of occasional contacts with alcohol concerns 45.58% of city dwellers aged 15-17, and 50% of their peers from rural areas. Other authors have published observations suggesting that 40-76% of Polish 11-15-year-old teenagers (and 90% of 15-year-olds) have had an occasional contact with alcohol [9, 20, 24]. Szymborski et al. [17] considered the number of active drinkers (everyone who has drunk alcohol in the past 12 months) to be 40% of Polish adolescents.

As numerous studies show, the vast majority of young people consider themselves free of addiction. This is probably due to the fact that they do not know the mechanisms of addiction. Many of them are unaware of the fact that they are already heavy smokers and/or alcohol addicts, and do not see anything wrong in smoking cigarettes, drinking and drug use [4, 25]. Such risky behaviours pose a potential threat to the future state of health of society, they may have an impact on the future increase in cancer and cardiovascular disease rates [16] and bring about further inequalities in young people's health.

The presented study results prove that engagement in risky behaviours by adolescents aged 15-19 differed among those living in rural and urban areas. Of course, analysis of the obtained data did not determine the reasons. It is obvious that tendencies towards the occurrence of 'risky behaviours' may arise from socio-economical factors, including not only place of residence, but also from the material conditions of households and educational status of the parents, as well as from such factors as cultural traditions and the mental state of adolescents and their parents.

Such detailed types of analyses require the use of larger groups of respondents and are scheduled to be performed in the future.

CONCLUSIONS

On the basis of the results of the studies concerning the environmental diversity of the youth risk behaviours in the urban and rural areas, the following conclusions may be drawn:

1. A significant number of young people, from both the urban and rural areas, smoke cigarettes and use alcohol as well as other psychoactive substances.
2. The obtained data confirm the existing hypotheses about the environmental diversity of occurrence of risky behaviours in the youth.
3. There are significant differences in the incidence of risky behaviours among young people from the urban and rural areas.

4. The incidence of such behaviours depends on age and gender. Tobacco smoking, as well as alcohol consumption and drug use, are more popular among older adolescents.
5. These disproportions may influence the future health inequality in the rural and urban areas.

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