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*The first cup we drink to relieve the thirst,
The second one we drink to entertain,
With the third one we have a pleasure,
And with the fourth one we are going to be mad.*
Apuleius

Statistical Estimation of the Awareness of the Working Age Population about Harmful Consumption of Alcohol as a Risk Factor of Cardiovascular Diseases

The article is devoted to the analysis of awareness of the working age population about alcohol abuse as a risk factor for cardiovascular diseases according to the results of a sociological study.

The goal is to identify and characterize the awareness of residents of the Dnipropetrovsk region about the harmful alcohol consumption, personal attitudes and practices of drinking, the possibility of minimizing its harmful effects for the prevention and treatment of cardiovascular diseases, as well as the activity to correct this risk factor.

The method of personalized formal interviews is used. The survey of a representative sample of the population of working age (N2000) was carried out according to a specially developed methodology of qualitative and quantitative research stages and data collection tools. The study was conducted in 2017 on request of the Dnipropetrovsk Regional State Administration with the financial support of the World Bank.

The gap between the almost complete awareness of the respondents (95.1%) and the harmful effects of alcohol abuse on existing cardiovascular disease or its possible future occurrence and actual practice of use was revealed. The majority of respondents reported that they drank alcohol (57.6%) now or had consumed it before (15%).

It was shown that men prevailed in the group of those who consumed alcohol almost daily or several times a week (33.3% of those who consumed alcohol, versus 9.5% among women). The most common portion of alcohol among respondents (51.1%), consumed in one take, did not exceed three standard drinks. The main reasons that prompted alcohol consumption were unwillingness to "fall out" from the team (more than 75% of respondents); national traditions (40%); way to relieve stress (25%).

The expediency of studying changes in the situation regarding the prevalence of harmful use of alcohol, habitual practices of its use, activity to minimize harmful effects from the review of prevention and treatment of cardiovascular diseases in particular and adherence to a healthy lifestyle as a whole, after a certain time interval according to a similar methodology has been proved. The results of the survey can be used to assess the effectiveness of measures to improve the health literacy of the population, increase the motivation to change behavior in favor of health, building composite indicators.

Key words: *harmful alcohol consumption, risk factor, working age population, cardiovascular disease, high blood pressure (hypertension), sociological study.*

Problem setting. The harmful consumption of alcohol has great effects for the human health, being a main factor causing premature deaths, morbidity and disability across the world. The term "harmful" covers several aspects of alcohol consumption: the amounts of an alcoholic drink consumed in a certain period of time; alcohol consumption practices (incidental, episodic or regular, the one leading to the state of drunkenness or heavy intoxication); the alcohol consumption context, when it increases the risks for public health
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(not only for a drinking person, but for people around), environment, security, public and private property etc.; and the quality and safety of alcoholic drinks.

As estimated by the World Health Organization (WHO, 2018), the harmful consumption of alcohol caused death of more than 3 million people in the world, or each of the twenty deaths was related with alcohol [1], with men accounting for the three thirds of the deaths. More than 5% of the Global Burden of Disease is attributed to this factor. It is estimated that 237 million of males and 46 million of females

in the world suffer from various failures related with alcohol consumption, and their highest incidence is recorded in the European region (14.8% and 3.5% respectively). While in 2002 this factor had the fifth rank by the significance in Global Burden of Disease (with cardiovascular deceases accounting for 10% in Global Burden of Disease related with alcohol), by now it has gone up to the third rank [2].

According to WHO experts, considering the current upward tendencies in per capita alcohol consumption in the world, in the next decade it will be very difficult to reach the WHO target of 10 percent reduction in the harmful consumption of alcohol compared to 2010–2025 [1]. Capable of affecting virtually each organ or system of the body and causing more than 60 deceases and conditions, alcohol is first and foremost a heavy factor of cardiovascular risks. In spite of the evidence of protective effects from light and sporadic alcohol consumption for pathologies like coronary heart decease, coronary stroke and diabetes, negative effects of alcohol consumption prevail [3]. The deaths caused by failure of heart and vessels are increasing: each of the five deaths caused by the harmful alcohol consumption was related with cardiovascular decease amounting to half million deaths each year [4].

In the European region, alcohol is a cause of nearly 15% of deaths [5], which confirms the gap between what is known about this risk factor and actions to minimize its effects.

The Ashkhabad Declaration (2014) puts emphasis on the prevention of the harmful alcohol consumption, which is one of the four factors of non-infectious deceases that make humans suffer and hamper social and economic development of countries. These deceases can be to a large extent prevented, even at the latest phases of human life [6].

An instrument recommended by WHO and used to collect information and assess the factors for chronic decease development (STEPS) includes a special module “Alcohol consumption”, a questionnaire of ten questions [7]. Also, this topic (as a principal one or a component, in short or extended options, covering all the population or selected groups) is presented in various studies at international, national and regional level.

The importance of the study arises mainly from the need to clarify the population’s awareness

of the dangers associated with the alcohol abuse, the realization of risks for life and health and the capabilities for prevention and treatment of cardiovascular deceases by use of risk correction. Traditions and practices related with alcohol consumption, and the factors impeding the removal the harmful effects from alcohol need to be known, understood and taken into consideration. This information is extremely valuable and necessary for elaborating and implementing educational and preventive work among the population, to enhance their awareness of health issues, form their responsible behavior and inclination to fulfill doctor’s recommendations etc. Taking account of variations by gender, age or place of residence allows for focusing ways of forms of this work on specific groups.

Literature review. Europe has the highest incidence of alcohol consumption and burden of disease related with alcohol. Therefore, in 2011, the countries that are members of the European regions of WHO approved the European Action Plan to reduce the harmful alcohol consumption, for 2012–2020 (EAPA), which provided a number of sound and evidence-based policy options to mitigate the alcohol-specific problems [8]. To assess to what extent the member countries have taken account of the recommended policy standards and adapted them to their policies, the European Regional Office of WHO elaborated 10 composite indicators, one for each of the ten activity segments of the Plan. Apart from measuring the availability of alcohol policies, the composite indicators describe its strictness by highlighting the comprehensiveness of results from country actions to implement EAPA. The EAPA indicators are used to compare the efficiency of monitoring in time, policy options and communications with stakeholders or broader public.

Alcoholic drinks are easily accessible in nearly all the parts of the world and all the countries, in spite of certain limitations (religious, legal, institutional etc.), but the significance of alcohol as a risk factor largely depends on the way of its consumption. Two indicators with special importance for the public (for the public health, for the economy, and for the national security) are adult per capita consumption and pattern of drinking score (PDS) (see Table 1, constructed by data from [9]).

Table 1

Indicators for the assessment of damage associated with alcohol

Indicator	Definition
APC	The total volume (in liters) of pure alcohol consumed per capita in the age of 15 and older.
PDS	Indicator of how dangerous is the practice of alcohol consumption by the population, measured by the scale from 1 (the least risky behavior) to 5 (the most risky behavior). It is computed by use of the data: <ul style="list-style-type: none"> – the ordinary amount of alcohol in one take; – the incidence and frequency of consumption “on holidays”; – the share of occurrences of alcoholic drunkenness in the total alcohol consumption; – the share of those drinking every day or nearly every day, in the total number of person drinking alcohol; – the incidence of the habit to drink alcohol in time of eating; – the incidence of the practice of drinking alcohol in public places.

For the territories with equal per capita consumption 15+ (APC), a more dangerous behavior (high PDS) is associated with less favorable effects for health [10]. Note that in the European regions of WHO the lowest levels of PDS occur only in several countries of South and West Europe, whereas the most risky alcohol consumption is registered in the Russian Federation and Ukraine [11].

The composite indicators determining quantitatively the comprehensiveness of national strategies and plans on prevention of the harmful alcohol consumption (i. e. the number of policies that exist, and the extent to which each policy corresponds to the set standards) are constructed using the indicators that can be derived and qualitatively assessed only by the results of sociological studies (in particular for the assessment of PDS).

Materials and methods. The sociological study was performed in 2017 and commissioned by the Department for Health Protection at the Dnipropetrovsk Regional Public Administration Office, with the World Bank sponsorship. The study is fulfilled by the consortium consisting of Public Joint-Stock Company "Statinformconsulting" and the Public Organization "Ukrainian Center for Social Reforms" on line of the project "Improving Health at the People's Service". The agreement for participation in the interview had been received from each respondent prior to the interview.

The population's awareness of the basics of healthy way of life, preventive work and treatment of cardiovascular decease as a whole, and a factor

like harmful alcohol consumption in particular was explored in two phases: the qualitative phase and the quantitative phase. This article shows the results from the second phase by selected risk factor. On the basis of a sample survey of households, by face-to-face interview, 200 respondents of working age (18 to 60 years) were questioned. Nearly 80% of respondents were city residents, with the rest being rural ones; the respective shares of females and males were 67.1% and 32.9%.

In accordance with the study, 800 respondents included in the sample (2/5 of the interviewed) had the diagnosis "hypertonic decease" / "arterial hypertension" (diagnosed or confirmed over twelve previous months).

Results and discussion. The sociological study allowed for obtaining statistically reliable data about the awareness and inclinations of the population in Dnipropetrovsk region of a risk factor like the harmful alcohol consumptions (alcohol abuse), the possibilities to minimize its effects for prevention and treatment of cardiovascular decease, and to describe the actions in this area.

Results of the interview show that nearly all the respondents (95.1%) are aware of the effects from alcohol abuse for the existing cardiovascular decease or its possible occurrence in future. More than half of the respondents reported that they consumed alcohol now, and nearly 15% said that they had consumed it earlier but abstained from it in time of the survey (Figure 1). One percent of the respondents could not give a clear response.

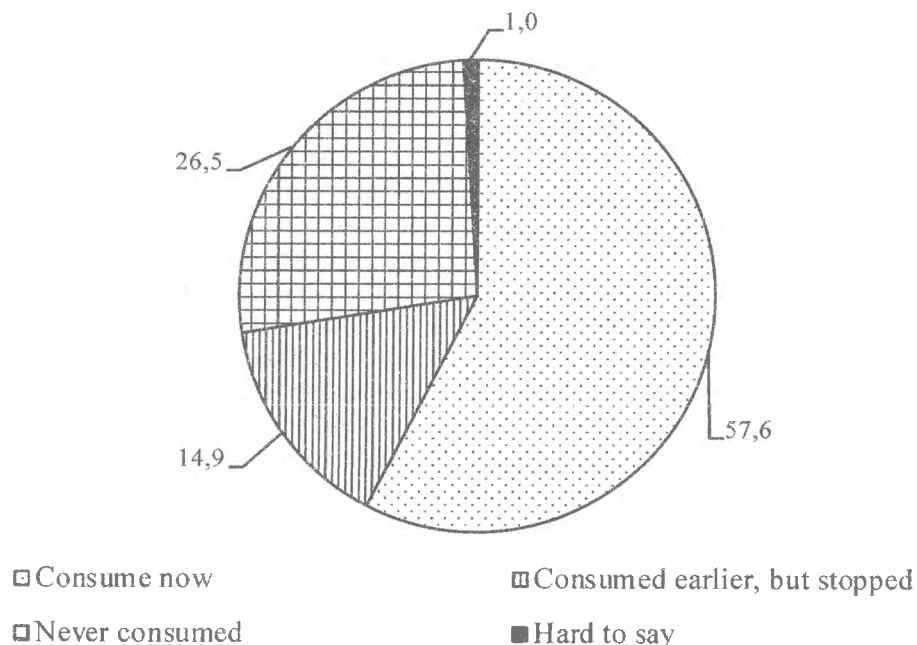


Figure 1. The distribution of respondents by alcohol consumption in time of the survey, %

As regards the frequency of alcohol consumption, the most common response was "Episodically (less than once a month)", which was given by one of

the two respondents (Figure 2). One of the three respondents used to drink alcohol one to three times a month.

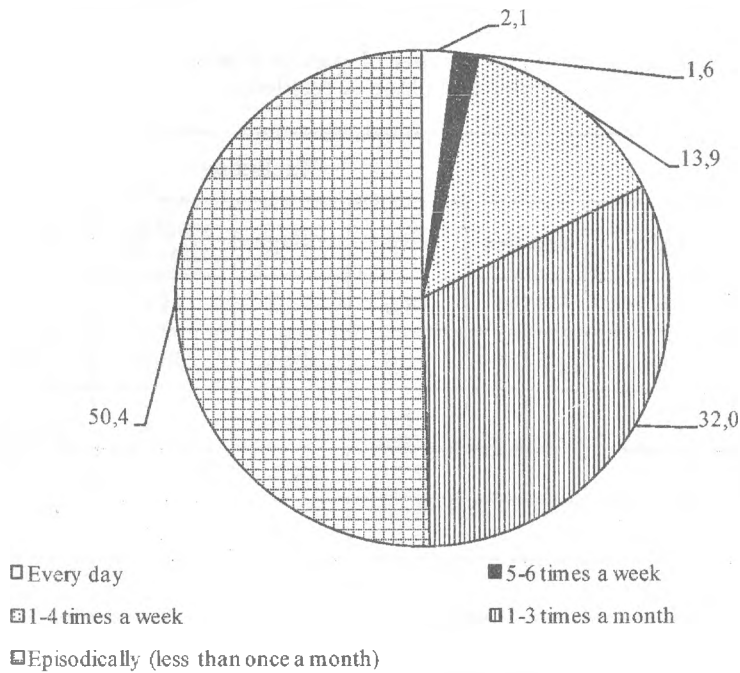


Figure 2. The frequency of alcohol consumption by respondents, %

As expected, males predominated in the group of persons drinking alcohol nearly every day or several times a week (among those drinking alcohol, the sum of the first three positions made 33.3% for males, against 9.5% for females). So, the maximal number of females fell in the range of episodic consumption (less than once a month) one to three times a

week. The largest share of those reporting on the consumption one to three times a month was found in the age category 30 to 50 years. An essential gap in the frequency of alcohol consumption by place of residence was not found, except for twice higher share of city residents among the persons with everyday alcohol consumption (see Table 2).

The distribution of respondents by frequency of alcohol consumption, by gender, age and place of residence

Table 2

Frequency of consumption	Gender		Age group			Place of residence	
	males	females	younger than 30	30-49	older than 50	city	village
Every day	4.0	0.9	2.7	1.4	3.0	2.4	1.0
5-6 times a week	3.2	0.6	2.3	1.4	1.5	1.7	1.1
1-4 times a week	23.1	8.0	15.3	16.4	8.3	14.3	12.3
1-3 times a week	34.8	30.3	28.1	34.2	30.8	32.2	31.2
Episodically (less than once a week)	34.9	60.2	51.6	46.6	56.4	49.4	54.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The harmful effect of alcohol depends on not only the consumption frequency, but on the consumed amount. The distribution of respondents by amount of drunken standard doses of alcohol is shown in Table 3. As can be seen, the most common one is the portion of alcohol not exceeding three doses (standard drink, or an amount of any alcohol drink (a glass of wine, a can of beer or a shot of vodka), containing nearly the

same amount (approx. 12 grams) of ethanol). Females tended to report more frequently about smaller amounts of alcohol drunken at a time than males. For comparison: in the national STEPS study performed in the neighboring Belarus, 20.3% of the respondents aged 18-69 reported that they had consumed six or more doses at a time during 30 days before the interview [12].

The distribution of respondents by number of standard doses consumed at a time, by gender and place of residence

(%)

I consume at a time	Total	Including:						
		males	females	city	village	younger than 30	30-49	older than 50
One dose	19.7	10.2	25.8	18.5	24.3	21.9	16.1	24.5
No more than 2-3 doses	51.1	48.0	53.0	51.6	49.3	48.0	52.0	51.4
No more than 5 doses	16.5	21.0	13.7	17.0	14.7	17.2	18.6	12.4
5-9 doses	6.4	11.3	3.2	5.9	8.3	6.8	6.5	5.9
10 doses and more	2.6	5.5	0.7	2.5	2.8	2.3	2.4	3.1
I do not count doses	3.5	4.0	3.2	4.3	0.3	3.8	4.0	2.5
Other	0.2	0.0	0.4	0.2	0.3	0.0	0.4	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

When giving main reasons pushing one to consume alcohol, three quarters of the respondents gave preference to the unwillingness to "fall out" of a collective: they say that people usually drink "for the company". The wrong ideas of friendly relations or collectivism quite often push people to consume alcohol reluctantly. For 40% of the respondents drinking alcohol means to honor national traditions (taking off the responsibility for their behavior), and for one quarter of the respondents alcohol is a relief from stress. 11.0% of respondents say that they cannot imagine rest time without alcohol, and only one of the hundred respondents (1%) recognized that justified reasons for drinking alcohol did not exist.

Quite interesting are the responses of those falling in the category of "Other": three respondents practice wine therapy with Cahors or read wine; somebody (eight respondents) just likes the taste of certain kinds of alcoholic drinks; 50 persons cannot see any sense in non-alcoholic festivities; one respondent referred to the need to get warm when working in the conditions of low temperatures, another one mentioned the need to calm the pain.

Only 11.1% of the respondents reported they would like to stop drinking alcohol (it, of course, referred to the excessive rather than moderate consumption). Of the reasons preventing one from abstaining from alcohol, the most frequent one

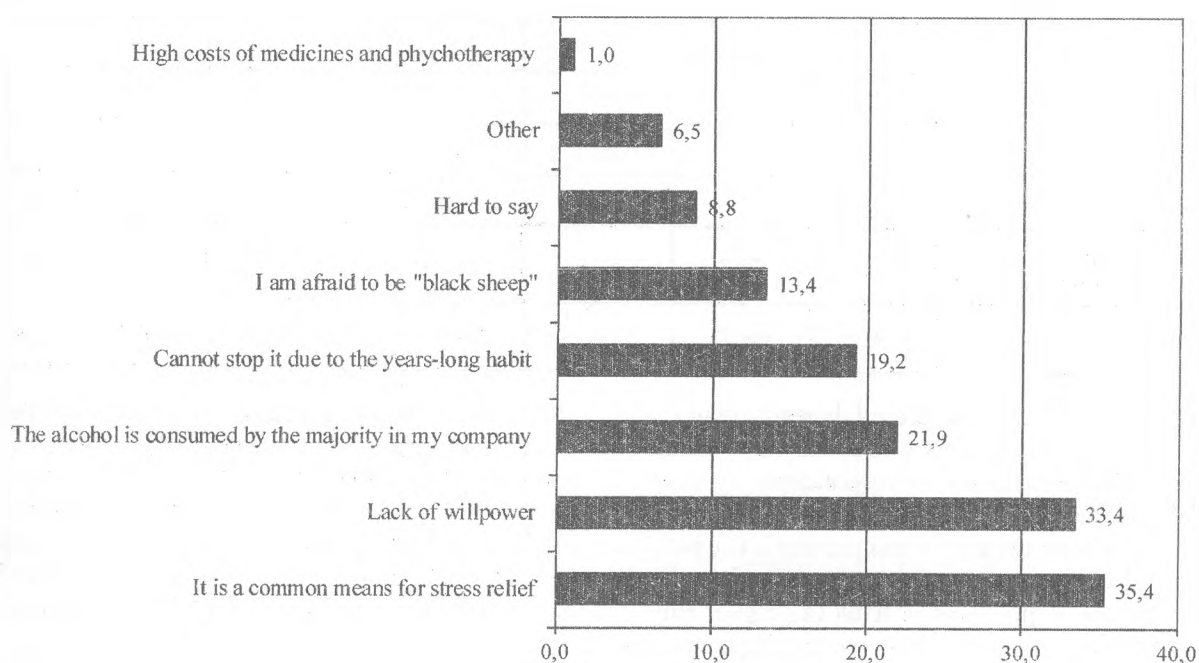


Figure 3. Main reasons preventing respondents from abstaining from alcohol, %

is that alcohol is a means to relieve stress (34.5% of respondents), or lack of willpower (33.4%). Quite essential de-motivator is one's desire to be like everybody else: the cumulative share of those recognizing that the barrier is that the majority in their company drinks alcohol and the apprehension of being black sheep made 35.3%. Besides that, a large share (nearly one of the five) cannot refuse from this years-long habit (Figure 3).

Other impediments are the very fact of the existence of holidays (!), reported by two respondents,

one respondent did not want to refuse from the satisfaction received, and another one could not stop drinking because of the loneliness.

Those who said they had stopped drinking alcohol reported that they had been pushed to do so by motives like the awareness of harm for health (54.1%) or worsening of health (39.1%). For one of the four respondents, an economic aspect mattered, i. e. the awareness of wasting money (Figure 4, the sum of the share is higher than 100%, as each respondent could chose several options of response).

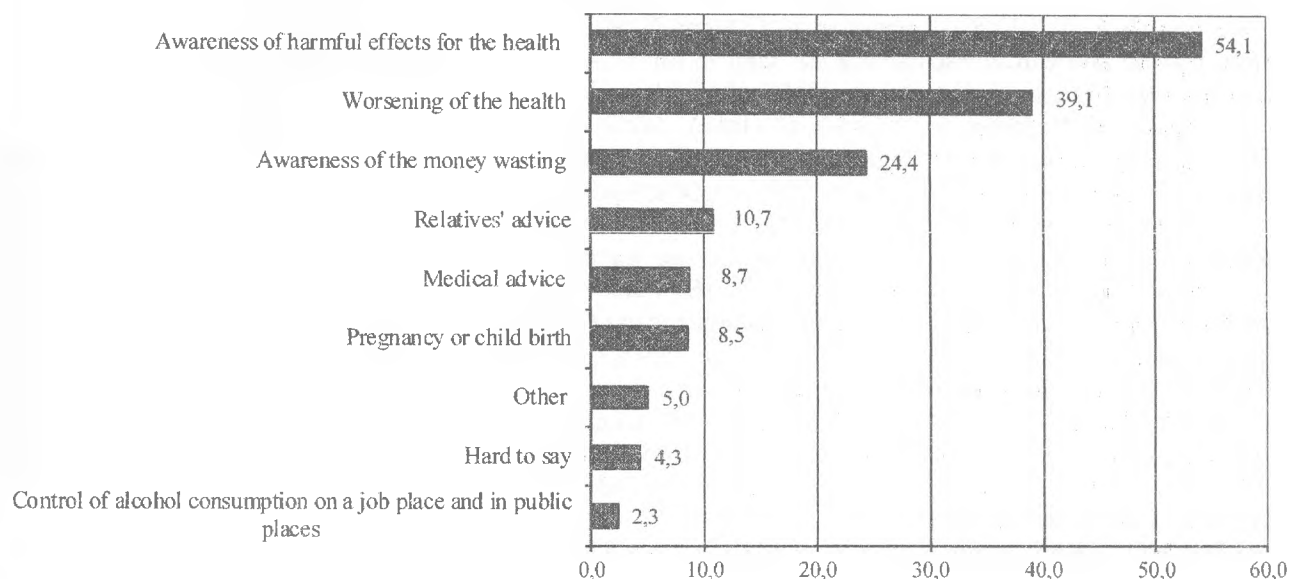


Figure 4. Main reasons that made respondents stop consuming alcohol, %

Just like in case of smoking, a medical advice was mentioned quite rarely. Of the other motives, three respondents mentioned a priest's advice. One respondent gave an amazing reason for putting an end to alcohol abuse: "I scared that I would be incapable to control my behavior".

Conclusions. The relatively good awareness of residents of Dnipropetrovsk region about the harmful alcohol consumption is paradoxically combined with the high incidence of this risk factor among the population of working age and with dangerous practices (high frequency and doses) of everyday alcohol consumption, low motivation to change the life style (which is often not influenced by the existence of cardiovascular decease).

The sociological study shows that nearly all the respondents (95.1%) are aware of cardiovascular decease and its potential occurrence in future. However, nearly half of the respondents reported that they consumed alcohol now, and nearly 15% had consumed its earlier. Males had strong dominance in the group of those consuming alcohol every day or several times a week (33.3% of those consuming alcohol, against 9.5% for females).

Most frequently respondents reported that usual amount of alcohol in one take did not exceed a

standard dose (51.5%), with females more frequently reporting on smaller amounts of drunken alcohol in one take compared with males. However, for nearly 13% of the respondents a usual dose of taken alcohol was five or more standard doses (22% of the male respondents).

The main reasons pushing one to consume alcohol are: the reluctance of "falling out" of the collective (three quarters of the respondents); national traditions (40%); stress relief (25%). 11% recognized that they could not imagine rest time without alcohol. Only 11.1% reported they wanted to put an end to alcohol consumption, and the most frequently mentioned factors impeding this step were the need in alcohol to relieve stress (34.5%), lack of willpower (33.4%) and apprehensions to be a black sheep in one's company (35.3%).

The necessary background for the effective preventive work is the assessment of the awareness of the existing factors causing the risk of cardiovascular decease, the mechanisms of their harmful effects and the potential means for their removal or minimization, and the awareness of inclinations and practices of alcohol consumption on a given territory (country), with disaggregation by population group.

Perspectives of further studies. A study of change in the incidence of alcohol abuse, established practices of its consumption, actions to minimize the harmful effects by means of preventive work and treatment of cardiovascular disease in particular and keep with healthy ways of life in general, performed after a period of time and by the

analogous methodology, would allow for assessing the effectiveness of measures aimed to enhance the medical literacy of the population, form the attitude to one's health, increase the motivated need to change one's behavior in favor of better health. Another area of the study can be an interview, to obtain the data required to compute composite EAPA indicators.

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Статистична оцінка поінформованості населення працездатного віку щодо шкідливого вживання алкоголю як фактора ризику серцево-судинних захворювань

Стаття присвячена аналізу результатів соціологічного дослідження обізнаності населення працездатного віку щодо шкідливого вживання алкоголю як фактора ризику серцево-судинних захворювань. Мета – виявити й охарактеризувати поінформованість мешканців Дніпропетровської області щодо шкідливого вживання алкоголю, особисті установки і практики споживання населенням спиртного, можливості мінімізації його дії для профілактики та лікування серцево-судинних захворювань, а також конкретну активність з корекції цього фактора ризику.

Використано метод особистих формалізованих інтерв'ю. Опитування серед репрезентативної вибірки населення у працездатному віці (N2000) здійснено за спеціально розробленими методологією якісного і кількісного етапів дослідження та інструментарієм збирання даних. Дослідження проводилось у 2017 році на замовлення Дніпропетровської обласної державної адміністрації за фінансової підтримки Світового банку.

Виявлено розрив між практично загальною обізнаністю опитаних (95,1%) зі шкідливим впливом надмірного вживання алкоголю на наявне серцево-судинне захворювання чи на його можливе виникнення у майбутньому та реальною практикою вживання (більшість респондентів повідомили, що вживають алкоголь (57,6%) зараз або вживали раніше (15,0%).

Показано, що чоловіки переважали у групі тих, хто вживав спиртне майже щоденно або кілька разів на тиждень (33,3% тих, хто вживав алкоголь, проти 9,5% серед жінок). Найбільш розповсюджена (51,1%) серед респондентів кількість спиртного за один прийом не перевищувала трьох стандартних доз (standard drink).

Основними причинами, які спонукають вживати алкоголь, виявилися: небажання “випадати” з колективу (понад 75% опитаних); національні традиції (40%); спосіб зняття стресу (25%).

Доведено доцільність дослідження змін ситуації щодо поширеності надмірного вживання алкоголю, звичних практик його вживання, активності з мінімізації шкідливого впливу з погляду профілактики та лікування серцево-судинних захворювань зокрема та дотримання здорового способу життя в цілому через певний інтервал часу за аналогічною методологією для оцінки ефективності заходів з підвищення санітарної грамотності населення, зростання мотивації до змін поведінки на користь здоров'я, побудови комплексних показників в рамках Європейського плану дій зі зменшення шкідливого вживання алкоголю на 2012–2020 роки.

Ключові слова: шкідливе вживання алкоголю, фактор ризику, населення працездатного віку, серцево-судинні захворювання, соціологічне дослідження.

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