



**Management of Anti-alcohol Prevention
among Elderly People – Challenges and Current State
Based on Alcohol Consumption Model
Presented in WOBASZ
(Multicenter Population Health State Study) and
WOBASZ II Projects**

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Abstract

In this study, changes in the model of alcohol consumption by the elderly people aged 65 years or more, based on two projects conducted in łódzkie and lubelskie voivodeships with 10 years' interval – WOBASZ (Multicenter Population Health State Study) and WOBASZ II – have been presented. The percentage of elderly people who have declared alcohol consumption during the last 12 months preceding the study was 64.5% in the Study I, and 52.3% in the Study II ($p < 0.02$). The most popular behavioral pattern regarding alcohol consumption among senior citizens was drinking vodka and beer, the second favorite was consumption of vodka only (in the Study I; in the Study II it was quite the opposite – vodka alone was preferred to drinking both vodka and beer). Assessing the quantity of alcohol consumed at one time by elderly people, we may state that the type of alcohol differentiates the amount of alcohol consumption. The vast majority of respondents consuming alcohol has been drinking relatively low amounts of alcohol on typical occasions. In the considered period the percentage of respondents consuming 5 beer portions on a single occasion has significantly increased (6 times, from 1.8% to 10.8%; $p < 0.05$). Circa 20% elderly respondents have declared that while drinking vodka and other spirit-based alcohols, they are consuming amounts exceeding 6 standard portions, both in Study I and Study II (19.3% and 22.6%, respectively; $p > 0.05$). Obtained results may be treated as the basis for discussion on the necessity to implement the consistent and effectively managed anti-alcohol policy in Poland.

Key words: alcohol, ageing, preventive.

Background

In 2018 elderly people (aged 65 years or more) comprised 17.5% of total population in Poland. As prognoses indicate, this percentage will grow in the upcoming years [1]. Until now, prevention concerning leading chronic noncommunicable diseases (CNCDs) risk factors aimed mostly at working age population due to high treatment costs as well as social costs (i.e. decreased work productivity). Alongside with the increase of elderly people's proportion, their lifestyle, alcohol intake included, has become a subject of research interest. Prior to this, as cited by Habrat, "it has been silently anticipated that due to the fact that excessive alcohol consumption contributes to shorter life expectancy, the problem is 'resolving itself in a natural way', and those few alcoholics who have made it to the old age are not causing any significant issue for the public health" [2]. Therefore, it was only the extremely advanced ageing process of Polish society which has ultimately changed the approach to the alcohol-related issues' identification and assessment among elderly people. Frequency and intensity of alcohol consumption naturally decreases within age, however it is estimated that among people over 60 years of age, alcohol-related issues concern circa 2–5% of them [2]. In the lodzkie voivodeship, percentage of people aged 65 and more is high and equals to 19.5% and 18%, respectively (data from 2018). Therefore, alcohol-related issues may regard, only in those two voivodeships, around 4 thousands people.

The other subject for discussion is the number of factual interventions in this age group. Until recently it has been doubted that prophylactic measures aimed at senior citizens are efficient – taking both all-purpose and indicative prophylaxis into consideration (short interventions as well as long-lasting rehab programs). Yet, however, the only common initial step among all actions taken in the public health, is factual diagnosis of the existing problem. These two observations, conducted with 10 year interval as a part of WOBASZ project allow for precise diagnosis definition.

Objectives

The aim of this publication is to present the model of alcohol consumption by people aged 65 years or more, as well as to show changes of this model throughout the years 2003–2005 and 2013–2014. The other goal is also to determine the final conclusions which would allow for the future proper management of anti-alcohol preventive actions in this specific group.

Materials and Methods

The study comprised of respondents of 65 years of age and more, citizens of łódzkie and lubelskie voivodeships, who have participated in WOBASZ project – Multicenter Population Health State Study (2003–2005) and WOBASZ II (2013–2014). Both studies have been carried out on representative samples of Polish population. In the first WOBASZ project 296 people were incorporated into the analysis (46.6% men, 53.4% women); in WOBASZ II – 128 (32.8% men, 67.2% women). Average age of respondents was 69.5 ± 3.00 years and 73.1 ± 6.53 years ($p < 0.001$), respectively.

The WOBASZ questionnaire (identical in both studies) consisted of inter alia questions regarding alcohol consumption, especially concerning: type of alcohol (beer, wine and other alcohol-based drinks), frequency of drinking and amount of consumed alcohol [3,4]. This in turn allowed to estimate the model of alcohol consumption. To enable comparability, the declared amount of consumed alcohol has been recalculated for standard portions according to the unified AUDIT Questionnaire definition, modified for Europe [5]. It has been agreed for the purposes of this study, accordingly with the recommendation of the State Agency for the Prevention of Alcohol Related Problems (PARPA), that the standard portion accounts for about 250 ml of 5% beer or 100 ml of 12% wine or 30 ml of 40% vodka [6]. Regarding all types of alcohol, if consumed amount was assessed by respondents as a range (i.e. from 0.5 to 1 liter), then the upper limit was taken into consideration for conversion purposes. People

who were not drinking alcohol within the last 12 months prior to the study were classified as abstinent. Excessive drinking (getting drunk occasionally) was defined as a single (on one occasion) consumption of 6 or more standard portions [5,6].

In the following part of this publication, WOBASZ 2003–2005 study will be called 'Study I' and WOBASZ II 2013-2014 – 'Study II'. While using the term 'drinking vodka' or 'vodka consumption' the authors relate to the consumption of not only vodka itself, but also to other alcohol-based drinks such as whisky, brandy, gin.

Statistical analysis: To assess the frequency of the qualitative features' occurrence in the studied groups, either chi-square independence test or chi-square independence test with Yates's correction was implemented, depending on the group size. To compare the average values of the respondents' age Cochrane-Cox test was used, after prior assessment of normal distribution using Shapiro-Wilk test. In all analyses, statistical significance on the level of $\alpha=0.05$ was used, and the differences and dependencies were assessed as statistically significant for $p<\alpha$.

Results

The percentage of elderly people who have declared alcohol consumption during the last 12 months preceding the study was 64.5% in the Study I, and 52.3% in the Study II ($p<0.02$). Similarly, the percentage of abstinent has significantly increased (from 35.5% to 47.7%; $p<0.02$). Alcohol consumption patterns presented by respondents are shown in Table 1.

The most popular behavioral pattern regarding alcohol consumption among senior citizens was drinking vodka and beer, the second favorite was consumption of vodka only (in the Study I; in the Study II it was quite the opposite – vodka alone was preferred to drinking both vodka and beer). Those behaviors regarded *circa* every 4th among all respondents. In both studies, the declaration of drinking all alcohol types came third – "I drink vodka and beer and wine" response was given by 23% seniors in the Study I and *circa* 18% in the Study II. The least popular behavioral

pattern regarding alcohol consumption was in both projects “drinking beer and wine” (Table 1).

Table 1. Patterns of drinking alcohol for people aged 65 and over in WOBASZ and WOBASZ II

Drinking pattern	WOBASZ 2003–2005	WOBASZ II 2013–2014*	Statistical significance
Drink:	%		
only vodka	24,1	25,4	p>0,05
only beer	7,8	9,0	p>0,05
only wine	9,9	6,0	p>0,05
vodka and beer and wine	23,0	17,9	p>0,05
vodka and beer (I don't drink wine)	25,1	23,9	p>0,05
vodka and wine (I don't drink beer)	6,3	11,9	p>0,05
wine and beer (I don't drink vodka)	3,1	6,0	p>0,05
abstinent	35,5	47,7	p<0,02

* to compare the results of WOBASZ and WOBASZ II in the second study frequency shown in percentage (instead of fractions)

The second component of the alcohol consumption model is alcohol intake frequency. Senior respondents have declared that they would mostly drink alcohol less frequently than once per month, taking all types of alcohol into consideration (beer, wine, vodka). Almost 50% respondents have declared that he/she is drinking vodka less frequently than once per month. The identical frequency with regards to beer was observed in every 5th senior, and when it comes to wine – in nearly 30% of all respondents. The alcohol type consumed usually a few times per week was beer, however the type consumed everyday was vodka and beer together. It has to be emphasized that although the percentage of respondents with daily vodka intake was not excessive, it has increased three times between the Study I and Study II (from 0.5% to 1.5%). None of the respondents has declared daily beer consumption. Nearly 60% of respondents have declared that they do not drink wine at all, 40% have

declared zero beer intake, and only 20% have admitted that they never drink vodka (Table 2).

Table 2. Frequency of drinking alcohol by type in WOBASZ and WOBASZ II

The frequency of drinking vodka	WOBASZ 2003– 2005	WOBASZ II 2013–2014*	Statistical significance
	%		
every day	0,5	1,5	p>0,05
3–4 times a week	1,6	3,0	p>0,05
1–2 times a week	5,2	9,0	p>0,05
1–2 times a month	23,6	14,9	p>0,05
Less than once a month	47,6	50,7	p>0,05
I don't drink vodka	21,5	20,9	p>0,05
The frequency of drinking beer			
every day	4,2	4,5	p>0,05
3–4 times a week	5,2	1,5	p>0,05
1–2 times a week	14,1	16,4	p>0,05
1–2 times a month	15,2	14,9	p>0,05
Less than once a month	20,4	19,4	p>0,05
I don't drink beer	40,8	43,3	p>0,05
The frequency of drinking wine			
every day	0	0	
3–4 times a week	0,5	1,5	p>0,05
1–2 times a week	3,1	7,5	p>0,05
1–2 times a month	11,0	1,5	p<0,04
Less than once a month	27,7	31,3	p>0,05
I don't drink wine	57,8	58,2	p>0,05

* as in Table 1

Assessing the quantity of alcohol consumed at one time by elderly people we may state that the type of alcohol differentiates the amount of alcohol consumption. The vast majority of respondents consuming alcohol has been drinking relatively low amounts of alcohol on typical occasions. In case of vodka and wine this was usually one standard portion, especially in over 75% respondents drinking wine, but only in 28–35% respondents drinking vodka (both studies). Almost half of the senior citizens declaring beer consumption has been usually drinking 2.5 portions

at one time, which accounts for 25 g pure ethyl alcohol and equals to 0.6 l 5% beer. These drinking patterns have not significantly changed over 10 years.

In the considered period the percentage of respondents consuming 5 beer portions on a single occasion has significantly increased (6 times, from 1.8% to 10.8%; $p < 0.05$). Regarding wine intake, during 10 analyzed years a significant increase of the percentage of people drinking 4-8 portions was observed (nearly 7-fold). Yet however, most of the single occasion alcohol consumption behaviors have not significantly changed, especially when drinking vodka was taken into consideration (Table 3).

Table 3. Typical amount of alcohol drunk on one occasion (in standard portions) in WOBASZ and WOBASZ II

The amount of alcohol consumed	WOBASZ 2003–2005	WOBASZ II 2013–2014*	Statistical significance
Vodka (standard portions)	%		
1	35,3	28,3	$p > 0,05$
2	28,0	26,4	$p > 0,05$
3–4	18,7	22,6	$p > 0,05$
5–7	15,3	18,9	$p > 0,05$
8–20	2,7	3,8	$p > 0,05$
Beer (standard portions)			
1	10,6	0	$p > 0,05$
1,5	38,9	37,8	$p > 0,05$
2,5	48,7	51,4	$p > 0,05$
5	1,8	10,8	$p < 0,05$
Wine (standard portions)			
1	78,7	75,0	$p > 0,05$
2–3	13,7	0	$p > 0,05$
4–8	3,7	25,0	$p < 0,004$
8–16	3,7	0	$p > 0,05$

* as in Table 1

One time consumption of 6 or more alcohol portions (excessive drinking) was mostly connected with drinking vodka. Circa 20% elderly respondents have declared that while drinking vodka and other

spirit-based alcohols, they are consuming amounts exceeding 6 standard portions, both in Study I and Study II (19.3% and 22.6%, respectively; $p > 0.05$). While a so-called *heavy episodic drinking* in the Study I concerned only a few percent of seniors (3.7% wine, 1.8% beer), in the Study II none of the respondents has declared excessive intake of those alcohol types.

Discussion

The alcohol consumption pattern is being affected by individual factors (i.e. age, sex, genetic factors), social factors, cultural context, norms and behaviors that are generally accepted and established in a certain community. Significant are also legal regulations applicable to a certain country, as well as the risk of social discrimination [7]. Age belongs to the main individual factors affecting risk of alcohol consumption, as well as consumption model. Elderly people with alcohol-related issues (those who drink hazardously, harmfully or addicts) can be divided into two groups. First, taking 2/3 into account, comprise of people who have been consuming alcohol over many years, who usually start to drink as youths, who, subsequently, have reached the old, sometimes senile age, despite significant health issues connected with alcohol intake. The second group, not that numerous, comprises of those who have started to drink excessively after 60–65 years of age, and their health issues do not relate to alcohol consumption [2].

Alcohol intake during senile age is a crucial, individual as well as public health problem, parallel with the increase of the percentage of senior citizens in our society.

Improper model of alcohol intake, mostly harmful drinking and addiction, is the indirect or direct cause of *circa* 200 diseases and health disorders. Moreover, it has been estimated that excessive alcohol consumption decreases life expectancy on average by 16 years [6,8]. It has to be underlined that alongside with age, alcohol tolerance decreases, both pharmacokinetics and pharmacodynamics of alcohol change as well.

Alcohol interactions with other drugs are also extremely important, since they are mostly used by elderly people [2,7].

Throughout 10 years, between WOBASZ and WOBASZ II projects, the percentage of people declaring alcohol consumption within the last 12 months has significantly decreased – among all respondents in both WOBASZ projects from 64.5% to 60.4% ($p < 0.02$), also among all respondents aged 65 years or more – from 64.3% to 60.4% ($p < 0.04$) and in the łódzkie and lubelskie voivodeship – from 64.5% to 52.3% ($p < 0.02$). The percentage of abstinent increases therefore in this age group, similarly to the whole Polish population, which is undoubtedly beneficial. Up to 47.7% seniors from the studied group according to Study II have declared that they were not drinking alcohol during the last 12 months (according to CBOS in 2019 in this age group abstinence was declared only by 28% respondents, stating that “*I never take alcohol in my mouth*”) [9]. It is however worth noticing that still more elderly people drink alcohol rather than belong to abstinent’ group.

Among all Poles, which is shown by social research mentioned above led by CBOS, the most popular and accepted alcohol type was and still is beer (in 2010 it was being consumed by 52% adult people drinking alcohol, and in 2019 39%) [9]. Also, the analysis of the alcohol drinking pattern in Poland between the years 2000 and 2018 strongly shows that the highest percentage of consumed alcohol indeed belonged and belongs to beer (51.5% and 57.9%, respectively). In WOBASZ and WOBASZ II projects, when frequency of alcohol consumption was taken into consideration, beer was the most popular – its daily intake was declared by 4% of respondents, at least once a week – by *circa* 22–23% of seniors. Identical results were obtained in Polish adults’ population – drinking beer at least once per week has been declared by 22.4% of respondents [9]. The highest number of respondents – almost 50% – have declared in both WOBASZ projects that his/her beer intake accounted for 2.5 standard portions. It is worth mentioning that over these 10 years interval a statistically significant increase (6-fold) of percentage of people consuming 5 beer portions on a single occasion was noted.

Nearly every 4th elderly person in both WOBASZ studies has declared only vodka consumption and no statistically significant differences were noted between Study I and Study II. Also, 26% of seniors included in CBOS study have declared drinking vodka [9]. However, there is a disturbing increase in the percentage of people with declared daily vodka intake, 1–2 times and 3–4 times per week ($p>0.05$). Still, after 10 years, the model of drinking exclusively vodka and beer remains popular (concerns every 4th senior).

The increase of the percentage of respondents drinking wine observed between Study I and Study II, as well as wine with vodka or beer, was not statistically significant. In both WOBASZ studies none of the seniors were drinking wine each day; mostly the consumption was less frequent than once per month, and 75% respondents have consumed 1 standard wine portion during a typical drinking occasion. However, the percentage of respondents with very high wine consumption on a single occasion (4–8 portions) has significantly increased. Throughout these 10 years the fact that nearly 60% of elderly people do not drink wine at all has not changed. It may be related to a decrease of “popularity” of wine in the Polish society (percentage in total alcohol consumption), which has been observed for almost 20 years.

Importantly, from point of view of the risk of addiction as well as the widely understood health consequences, a problem of a single intake of high amount of alcohol, called binge drinking or heavy episodic drinking exists. The frequency of binge drinking (excessive alcohol consumption) in Poland in 2010 in the drinking population equaled to 16.1% for men and 2.1% for women [8]. In the United States of America, in 2015, analogical percentage equaled to 31.4%, and among drinking seniors – 11.4% (where binge drinking was defined as consumption of 5 or more standard portions by men and 4 or more standard portions by women during 2 hours of drinking, alongside with the Substance Abuse and Mental Health Services Administration – SAMHSA/WHO guidelines) [10,11]. Centers for Disease Control and Prevention (CDC) has recognized such frequency of occasional getting drunk in the USA as a serious public health issue [11].

Over those 10 years (2001–2002 and 2012–2013) a significant increase of excessive alcohol consumption by elderly Americans was noted – of 65.2% (from 9.7% to 12.6%) [8]. In the presented study, in WOBASZ II project, excessive drinking concerned 22.6% elderly people (exclusively while drinking vodka), so it was 10% higher than in the American population in the same period.

The results of WOBASZ projects concerning the alcohol consumption pattern observed in elderly people, based on two voivodeships, are highly alarming. At the same time there is a lack of visible prevention and intervention strategy in Poland, both on population level, as well as regarding activities aimed at groups at high risk. Anti-alcohol prophylaxis management should comprise of whole-society education, including especially seniors, decision makers and health care professionals, but it also should include early detection of alcohol-related issues and intervention, mostly among elderly people. Until recently it was doubted that prophylaxis measures aimed at seniors are effective – from universal prophylaxis to the specialized rehab programs. Currently, it is scientifically proven that most of such actions are of high efficacy [2]. The vast majority of elderly people uses access to the primary healthcare & general practitioners. In the voivodeships included in the WOBASZ projects, it was respectively 87% in the Study I and circa 91% seniors in the Study II ($p > 0.05$). Therefore, an opportunity to conduct screening trials among seniors to seek for alcohol-related issues exists. In such studies, it is recommended to use a simple, fast (1-2 min.) tests, such as i.e. AUDIT-C or SASQ [13,14]. AUDIT-C consists of 3 questions (drinking frequency, usual amount of consumed alcohol and excessive drinking frequency) [15]. National Institute on Alcohol Abuse and Alcoholism (NIAAA) recommends that if AUDIT-C is positive, to deepen the epidemiological diagnosis, it is advised to conduct 10-questions AUDIT test in seniors [5,16,17]. SASQ (Single Alcohol Screening Question) test is in turn considerably sensitive: 0.73–0.88 (95% CI:0.65–0.89) and specific: 0.74–1.00 (95% CI:0.69–1.00) in detection of excessive drinking (consumption of 4 or more portions) on one occasion among older adults. In the US, the Department of Vete-

rans' Affairs advises to perform the annual screening test among elderly people using both AUDIT-C and SASQ tests [15]. NIAAA recommends to ask seniors additional questions not only related to their own alcohol consumption, but also their friends', which may be achieved using screening CARET (Comorbidity Alcohol Risk Evaluation Tool) test [13]. It is also worth mentioning that the well-known measurement tool in Polish conditions, CAGE, is aimed to detect initial stage of addiction, but does not show the whole spectrum of health issues related to alcohol consumption and is not recommended for elderly people.

Conclusions

WOBASZ and WOBASZ II projects show a considerable percentage of elderly people drinking alcohol, as well as adverse changes in the alcohol consumption throughout the years 2003–2013, including iterative increase in the percentage of seniors drinking beer and wine excessively, drinking vodka at least once per week and on one occasion, but in excessive amounts. This creates the environment for the increased risk of widely understood negative health, social and economic after-effects, especially in the light of the lack of accessible and effective anti-alcohol prophylaxis in this age group. There is an urgent unmet need to implement the screening tests which would detect disorders related to alcohol consumption in elderly people aged 65 years and more, by using already existing, but not popular in Poland tests: AUDIT-C and SASQ.

Alongside with the increase of the number of elderly people in the Polish society, multi-faceted preventive actions regarding alcohol consumption in elderly people are becoming more and more of high priority – *inter alia* solid education, screening trials, and the specialized rehab programs dedicated to senior addicts. Fair description, implementation and management of the entirety of anti-alcohol activities among elderly people may significantly contribute to the health state improvement, not only in this age group, but to the improvement of public health in Poland as well.

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