Alcohol in Europe: epidemiology, policies and sustainable health targets to fill the gaps of prevention

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ABSTRACT

According to the World Health Organization (WHO), the harmful use of alcohol stands as a primary risk factor affecting the global population's health. In 2016, 5.5% of all deaths in the 30 countries of the European Union (EU) were attributed to alcohol. In the past year, 62.3% of adults in the WHO European Region consumed alcoholic beverages at least once, contributing to nearly one million deaths annually, averaging around 2,500 deaths per day.

The present paper describes the state of the art of alcohol consumption and related consequences in Europe and highlights the gaps in prevention that need to be addressed by relevant stakeholders and policymakers to achieve the WHO Sustainable Development Goal 3.5.2: to reach by 2025 the substantial reduction of 10% of harmful alcohol consumers and per capita alcohol consumption.

Effective healthcare and planning should consider a range of policy options aligned with public health interests, guided by clear objectives and the best available evidence. The focus should be on activities related to Non-Communicable Disease (NCD), Best Buys targeting chronic disease risk factors. Six priority areas are identified: alcohol pricing, availability, marketing, health information (with emphasis on alcohol labeling), health services response, and community action. These areas intersect and necessitate a comprehensive approach to achieve the greatest impact.

EPIDEMIOLOGY OF ALCOHOL CONSUMPTION IN EUROPE

Alcohol is considered the fifth global risk factor for the burden of diseases, and in 2016, 5.5% of all deaths in the 30 European Union (EU) countries were caused by alcohol, for a total of 291,100 people who died largely from cancer (29% of deaths attributable to alcohol), liver cirrhosis (20%), cardiovascular disease (19%), traffic accidents, self direct and interpersonal violence (28%)[1,2]; the highest percentage of alcohol-attributable deaths was recorded in young adults[2,3].

Within nearly 800 people who die every day in Europe from alcohol-attributable causes, a relatively high proportion of alcohol-related harm occurs in young people, where one in four deaths of 20-24-year-olds is caused by alcohol[3].

In the context of the Global strategy to reduce the harmful use of alcohol (and for the majority of the international strategic documents on alcohol) for a public

health perspective, the concept of the harmful use of alcohol encompasses the drinking that causes detrimental health and social consequences to the drinker, to the people around the drinker and to society at large, as well as patterns of drinking that are associated with increased risk of adverse health outcomes. The impact of the harmful use of alcohol on health and well-being is not limited to health consequences; it incurs significant social and economic losses relating to costs in the justice sector, costs from lost workforce productivity and unemployment, and costs assigned to pain and suffering[4].

At least 40 diseases and conditions listed in the International Classification of Diseases 10th revision (ICD-10)[5] of the World Health Organization (WHO) are totally alcohol-attributable and over 200 are partially alcohol-attributable. The disease burden derives mainly from two categories: chronic non-communicable diseases (including numerous types of cancer, cardiovascular diseases, cirrhosis and metabolic dysfunctions) and self-direct and interpersonal violence (including suicides, homicides and accidents on roads)[6-10]. According to the WHO, the harmful use of alcohol is one of the main risk factors for the health of the population worldwide and has a direct impact on many Sustainable Development Goals (SDG) of the United Nations (UN) to be achieved by 2030[11-14].

Per capita alcohol consumption in liters of pure alcohol per year is one of two indicators for the SDG 3.5 "Strengthen the prevention and treatment of substance abuse, including drug and harmful use of alcohol"[15].

Alcohol is a carcinogenic substance capable of causing addiction: any level of alcohol consumption is associated with numerous preventable diseases such as cardiovascular diseases, various types of cancer, Alcohol Use Disorders (AUDs), liver diseases, acute traumatic events such as road, domestic and work accidents, harms to people other than the drinkers, behavioral disorders and psychotic events[6-10].

Although protective associations are reported in the literature regarding occasional alcohol consumption and coronary heart disease, ischemic stroke and diabetes, according to the WHO, the net of all presumed advantages, the harmful effects of alcohol consumption on health are still predominant[16,17]. Finally, it has been demonstrated that alcohol consumption has heavy repercussions on the families of those who drink in hazardous/harmful ways and on the community in general due to the deterioration of personal and work relationships, criminal acts (such as vandalism and violence), loss of productivity and health care costs[18].

In the WHO European Region, it is estimated that 62.3% of the adult population has consumed alcoholic beverages at least once in the last year and that alcohol consumption is the cause of nearly one million deaths each year, equal to approximately 2500 deaths per day (of which one in four is a young involved or victim of a road accident caused by driving alcohol, the leading cause of premature death in Italy and in Europe, of long-term illness or disability among young males aged between 14 and 28 years of age)[3,12].

Alcohol has been shown to cause more than 200 conditions and diseases recognized in the International Classification of Diseases of the WHO, and about 40 of these are totally attributable to alcohol consumption[3]. Two broad categories of alcohol-attributable diseases have been identified: chronic non-communicable diseases (neurological disorders, cancer, cardiovascular disease, cirrhosis of the liver) and unintentional and intentional injuries[19,20]. The WHO has estimated that 29% of alcohol-related deaths occurred due to oncological diseases, 20% due to liver cirrhosis, 19% due to cardiovascular diseases and 18% to accidents. It is also estimated that, in the same year, 7.6 million years were lost prematurely due to alcohol consumption[2].

The data on alcohol consumption and alcohol-attributable diseases included in this chapter are extracted from the Report of the Minister of Health to the Parliament on the interventions carried out to implement of the national frame law on alcohol 30.3.2001 n. 125 and from the ISTISAN Report on alcohol-related monitoring in Italy of the Istituto Superiore di Sanità[21-24].

THE RECORDED ALCOHOL PER CAPITA CONSUMPTION IN EUROPE

Epidemiological evidence from national and international studies confirms the correlation between population high alcohol consumption and the increased risk of morbidity and mortality from some specific causes of death. Generally, morbidity risk increases with the amount of alcohol consumed[2,3,11,20-21,24]. The frequency and intensity of acute poisoning especially increases the risk of road accidents and cardiovascular diseases such as heart attack and coronary heart disease[1,2].

The recorded alcohol per capita consumption (rAPC) is part of a core set of indicators, whose purpose is to monitor the magnitude, pattern and trends of alcohol consumption in the adult population (15 years of age and older). The rAPC is defined at the global level by WHO and United Nations as the recorded amount of alcohol consumed per capita (15+ years) over a calendar year in a country, in litres of pure alcohol, and the indicator only takes into account the consumption, which is recorded from production, import, export, and sales data often via taxation[15,25].
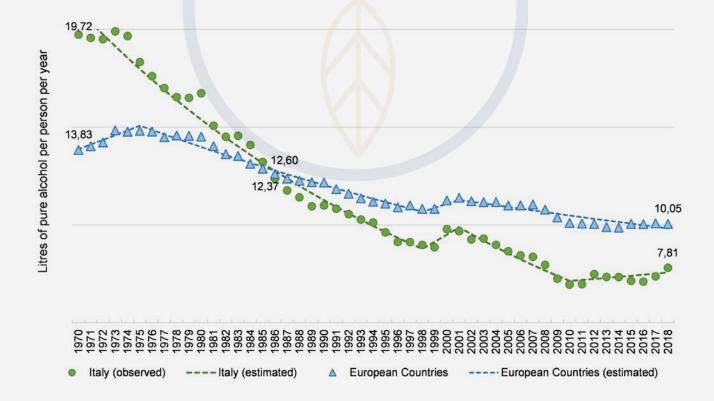
The WHO Regional Office for Europe has developed a joint monitoring framework for Health 2020, the Sustainable Development Goals and the NCD indicators to facilitate reporting in Member States and to enable consistent and timely ways to measure progress in agreement with the global indicators framework of the United Nations Economic and Social Council (ECOSOC). The joint monitoring framework indicator for alcohol in the European Region[12] has been agreed as the "Total per capita alcohol consumption among people aged 15+ years within a calendar year" (Health 2020).

The monitoring of the NCD global strategy, including alcohol-related targets and indicators, is specifically aimed at reaching within the year 2025 "at least 10% relative reduction in the harmful use of alcohol, as appropriate, within the national context" as measured by the reduction in total APC, in age-standardized prevalence of heavy episodic drinking among adolescents and adults and, last but not least, in the reduction of alcohol-related morbidity and mortality among adolescents and adults.

In European Union (EU) countries, between 1970 and the end of the 1990s, a prolonged decrease was observed following an initial annual increase in APC. Although apparently a 10% reduction in APC over an acceptable time frame appears to represent a feasible prevention goal, data shows that even for countries with a lower baseline APC and a consistent and substantial reduction experienced in recent three decades (such as Italy), a slight increase is being observed in recent years (Figure 1).

The Italian case study could act as an example of the difficulties that have to be overcome to reach a sustainable health goal. In 1970, the rAPC in Italy was much higher than the average of the European member countries (19.72 *vs.* 13.83); nevertheless, Italy was the first nation in the European Region of the WHO to reach the target set by the European strategies of reducing per capita alcohol consumption by 25%. In the following years, however, in Italy, despite the reduction observed between 2002 and 2010 and the fluctuations observed between 2011 and 2018, the indicator value is coming back to the 2008 levels of 7.81 liters per capita, nullifying the reductions of the last decade (Figure 1).

Figure 1. Trends of recorded alcohol per capita consumption and estimated one (Italy and European Countries). Registered (circle) e estimated (dashed line) obtained by Joint Point Analysis. Years 1970-2018.

Analyzing rAPC by type of drink, during the decade 2009-2019 in the population aged 15 and over, there were significant changes concerning the type of beverage consumed (Figure 2). The rAPC related to wine fluctuated and was equal to 4.83 in 2019, the rAPC. The rAPC related to beer increased steadily in the peri-

od considered, going from 1.63 in 2009 to 1.99 in 2019. The habit of consuming other alcoholic beverages in addition to wine and beer (rAPC other alcoholics) decreased between 2009 and 2016. Still, it increased again over the last three years, returning in 2019 to 0.83, i.e., to the value of 2009 (Figure 2). Comparability in analyzing drinking patterns is basic to push Member States

Figure 2. Recorded alcohol per capita consumption (rAPC) total and y specific beverages. Italy. Year 2009-2019.
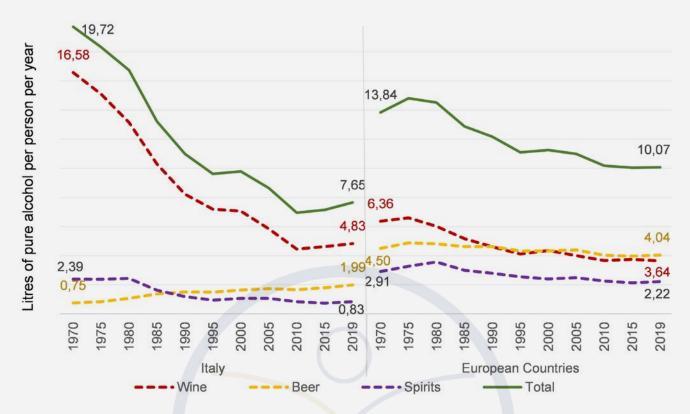
towards actions and measures that should give a new emphasis to the overall implementation of SDGs in Europe, taking into account the different drinking behaviors and alcoholic beverages that are much more representative of a specific National drinking culture. Figure three shows that the consumption of rAPC by type of beverage in Italy is different with respect to those observed on average in EU countries; it is a characteristic model not only in all Mediterranean countries but is also slowly influencing many other European countries where the Mediterranean diet is widespread. In Italy, the overall decrease in APC is primarily attributable to the decrease in consumption of wine, followed by beer. The rAPC of wine in Italy decreased from 16.58 in 1970 to 4.45 in 2010, but over the last few years, the value has increased again (4.83 in 2019). The trend of rAPC of beer has had a very different tendency compared to wine; between 1970 and 2019, there was a constant growth (0.75 in 1970 *vs.* 1.99 in 2019). Finally, the rAPC of spirits (spirits, bitters, cocktails, etc.) decreased until 1995 (0.94 in 1995) and subsequently fluctuated, reaching 0.83 liters in 2019. In EU countries, the rAPC increased in 1970 and then decreased to 10.07 in 2019. Wine consumption decreased between

1980 and 1995 and then remained stable while the rAPC of beer and spirits fluctuated, reaching the value of 3.64 and 2.22, respectively, in 2019[24].

THE TOTAL ALCOHOL PER CAPITA CONSUMPTION

Excessive alcohol consumption is responsible for about 3 million deaths in the world, which is equal to 5.3% of all deaths occurred, more than deaths due to hypertension and diabetes together. The World Health Organization (WHO) estimates that in 2016, 5.1% of the burden of disease and injury worldwide was attributable to alcohol consumption, which is equivalent to 132.6 million disability-adjusted life years DALY)[1]. In 2018, the WHO reported that alcohol contributed to more than 200 diseases and injury-related health conditions, including liver diseases, road injuries, violence, cardiovascular diseases, suicides, tuberculosis, HIV/AIDS, and cancers[2]. Regarding cancers, in 2020, approximately 4% of cancers registered in the world were caused by alcohol consumption, equal to over 740,000 cases, and a recent review shows that alcohol consump-

Figure 3. Recorded alcohol per capita consumption (rAPC) among adults aged 15+ by specific beverage in Italy and in EU Countries (Years 1970, 1980, 1990, 2000, 2010, 2018, 2019).

tion is a well-established risk factor for cancer and has been linked to cancers of the oral cavity and pharynx, oesophagus, liver, colorectum and breast[26-27].

The WHO World Mental Health (WMH) Survey Initiative has demonstrated that the prevalence of Alcohol Use disorders (AUD) was much higher for men than women. And that 15% of all lifetime AUD cases developed before age 18. Higher household income and being older, married, and more educated, were protective for lifetime AUD and AUD persistence[28].

In the last ten years, at EU level have been developed numerous initiatives on alcohol, such as the "EU strategy to support Member States in reducing alcohol-related harms"[29] and the "WHO European Alcohol Action Plan to reduce the harmful use of alcohol 2012-2020"[30]. These initiatives were supported by the "Global strategy to reduce the harmful use of alcohol"[4] and by the "Action Plan for the Global Strategy for the Prevention and Control of Non-communicable Disease 2008-2013"[31]. Italy, like other EU Countries, has adhered to many European project activities. The aims of these activities were underlined and strengthened over time the importance of developing and supporting a local alcohol-related monitoring system. The system
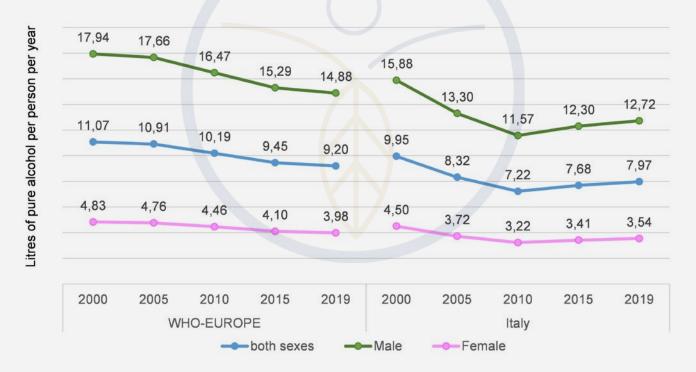
should guarantee, on the one hand, an assessment of the social and health impact of alcohol consumption in the population and, on the other hand, provide timely information on the progress of the adopted and possibly readapted measures based on emerging social and health needs.

The main indicator currently used at the European and international level to monitor the harmful use of alcohol is the national consumption of Total Alcohol Per Capita (tAPC) in adults over 15 years of age, expressed in liters of pure alcohol[14.] The tAPC is an indicator strongly correlated with the harmful use of alcohol. The possibility of having data available for almost all countries on an annual basis has allowed it to be considered the best indicator available for monitoring the Global Action Plan for the prevention and the control of non-communicable diseases 2013-2020[32] and for monitoring the Sustainable Development Goals[33-34]. tAPC is defined as the total (sum of rAPC and unrecorded alcohol) amount of alcohol consumed per person (15 years of age or older) over a calendar year, in litres of pure alcohol, adjusted for tourist consumption. The estimates for the total alcohol consumption are produced by summing up the 3-year average per capita (15+) recorded alcohol

consumption and an estimate of per capita (15+) unrecorded alcohol consumption for a calendar year. Tourist consumption takes into account tourists visiting the country and inhabitants visiting other countries14. The difference between recorded and unrecorded alcohol consumption is related to the quantity of alcohol that is not taxed in the countries where it is consumed because it is usually produced, distributed or sold outside the formal channels under government control. Unrecorded alcohol can be legally or illegally produced, sold and purchased; in EU+ countries, this is a large heterogeneous group of different products that vary between and within countries. Four broad categories of unrecorded alcohol can be distinguished: 1) homemade alcoholic beverages (legal and illegal); 2) illegally produced alcohol and/or counterfeit alcoholic products, or informally produced alcohol that was not declared to state authorities to avoid taxation; 3) alcoholic products not or not officially intended for human consumption,

but consumed as surrogate alcohol (such as medicinal or cosmetic alcohols); and 4) alcohol that is brought across the border (smuggled or legally brought, but registered in another jurisdiction)[2].

In 2019, the WHO estimated that the tAPC in the European Region of the WHO was 14.88 (M=9.20, F=3.98), while in Italy, the tAPC was 12.72 (M=7.97; F=3.54). Looking again at Italy to compare also this indicator with the European average, it has been found that, although in Italy, the value of tAPC is lower than the average of the countries of the WHO European region, the trend of the indicator is very different. In WHO-Europe, the tAPC decreased slowly between 2000 and 2019, both for men and women; in Italy, on the other hand, there was a rapid decrease between 2000 and 2010, followed by an increase that brought the indicator back to the value of 12.72 and the projection to 2025 looks like to identify a missed target more than a reached goal.

Figure 4. Total alcohol per capita consumption (tAPC) among adults aged 15+ in Italy and in WHO-Europe Countries (Years 2000, 2005, 2010, 2015, 2019).

FREQUENCY OF ALCOHOL CONSUMPTION DURING THE PAST 12 MONTHS

Data from the European Health Interview Survey (EHIS) by Eurostat[35], conducted in all EU Member States in the period 2018-2020, detect alcohol consumption in EU countries in the population aged 15 or over who live in households residing in the national

territory. The standardized methodology of data collection allows for comparing the consumption habits of the different Member States. The data collected concerns not only alcoholic beverages such as beer, wine, liqueurs, and cocktails, but also homemade spirits. Data from the 3rd EHIS Survey shows that in 2019, 8.4% of the EU population aged 15 and over reported having an alcoholic drink every day, compared to 28.8% of week-

ly alcohol consumers and 22.8% of monthly alcohol consumers. In contrast, slightly more than one-quarter of Europeans (26.2%) have not consumed alcohol at all during the twelve months prior to the survey or have never had an alcoholic drink of any kind (Figure 5).
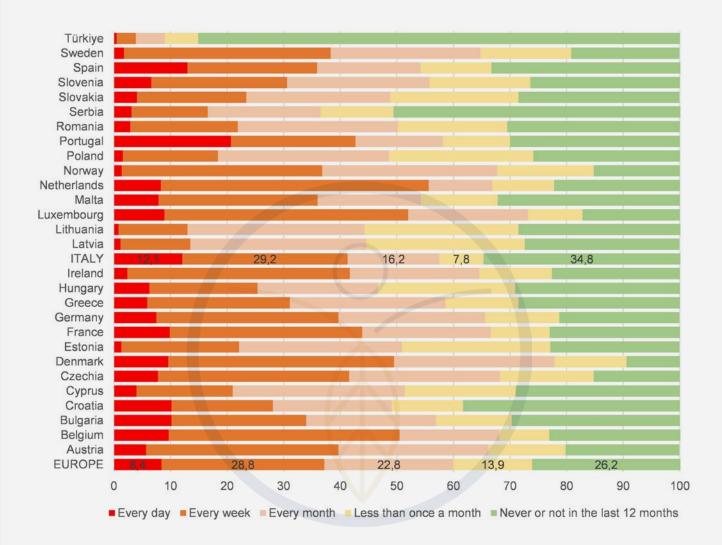

Figure 5. Distribution of persons aged 15 and over according to the frequency of alcohol consumption, 2019.

Italy and Spain have the share of subjects with daily consumption of more than 12% of the reference population, preceded in Europe only by Portugal. At the other extreme, in Lithuania, Latvia, Estonia, Poland, Sweden, Ireland, Romania, Norway and Turkey, the percentage of the population drinking alcohol daily was less than 3%. The highest percentages of people who do not consume alcoholic beverages are recorded in Croatia and Italy (34.8%), while the lowest quotas are recorded in Denmark, the Czech Republic and Luxembourg; the highest percentage of people who do not consume alcohol was found in Turkey[24,35].

HARMFUL USE OF ALCOHOL

The harmful use of alcohol is one of the leading risk factors for population health worldwide and has a direct impact on many health-related targets of the Sustainable Development Goals (SDGs), including those for maternal and child health, infectious diseases (HIV, viral hepatitis, tuberculosis), non-communicable diseases and mental health, injuries and poisonings. Alcohol production and consumption are highly relevant to many other goals and targets of the 2030 Agenda for Sustainable Development. Harmful use of alcohol

is part of the indicators, which provide information on direct health consequences attributable to alcohol consumption. The indicators are periodically calculated by WHO as a proportion of adults (15+ years) with harmful use of alcohol (according to ICD-10: F10.1 Harmful use of alcohol) during a given calendar year[36].

Among the European Countries, the prevalence of harmful use of alcohol in the past 12 months was higher among males than females everywhere. For both sexes, the highest values were recorded in Hungary (M=20.4; F=4.0), while values over the 3rd quartile were also recorded in Slovenia, Estonia, and Poland; values over the 3rd quartile were also recorded in Latvia, Lithuania, and Slovakia for male and in Austria Irland and Sweden for female. Conversely, the prevalence of harmful use of alcohol was the lowest in Italy (0.9) for males and in Spain (0.3) for females (Table 1).

Another pattern of alcohol consumption, the Alcohol Acute Intoxication (AAI) is an intercurrent, potentially transitory condition that is caused by drinking a considerable amount of alcohol. Symptoms are usually related to blood alcohol concentration (BAC) and, in cases of severe AAI, respiratory depression, and arterial hypotension can lead to death. Several factors other than the number of drinks influence BAC, such as age, gender, body weight, and consumption during a meal or not. BAC depends on the relative amount of total body water. Infants with more body water have a lower BAC than older children after equivalent doses of ethanol; however, immature hepatic alcohol dehydrogenase activity limits the ability of children under 5 years of age to metabolize alcohol, so that coma can occur at lower BAC in children than in adults. AAI negatively affects a number of cognitive functions, including memory, planning and complex motor control, and this loss can lead to unexpected behavior and injury. Studies on the incidence of alcohol intoxication in trauma patients admitted to the emergency department report show that AAI is largely responsible for road accidents, pedestrian injuries, acts of violence including domestic violence, suicide attempts, head injuries due to falls and crashes, and these events are associated with severe post-traumatic disability and mortality[37].

The monitoring indicator of AAI is not standardized among European Countries, and the definition varied in terms of the amount of alcohol consumed and reference to the observational period. In Italy, for example, the prevalence of binge drinking identified (taking into consideration the 3rd question of the AUDIT-C test) as the prevalence of subjects who consumed more than 6 Standard Units of alcohol on a single occasion in the 12

months previous to the interview, is 1.6% among men and 0.7% among female aged 11-25 years old in 2021[24]. Data from the Espad Report 2019 (the European School Survey Project on Alcohol and Other Drugs) showed instead a prevalence of intoxicated students equals to 12% among men and 11% among females but the definition of intoxicated is the consumption of five glasses of alcoholic beverages on one occasion at least once in the last 30 days. Denmark had the highest prevalence, with two-fifths of the students (40%) reporting intoxication. Kosovo, Iceland, Lithuania, Montenegro, Estonia, Norway, North Macedonia and Sweden had rates of less than 10%. On average, slightly more boys (14%) than girls (13%) reported that they had been intoxicated in the last 30 days, with the highest differences found in Serbia (15% for boys versus 10% for girls) and Montenegro (10% versus 4.7%). In Spain, noticeably more girls than boys reported intoxication in the last 30 days (19% for girls versus 14% for boys)[38].

A recent narrative review about alcohol intoxication management in the Emergency Department highlights the emerging phenomenon in Europe and around the world of acute alcohol intoxication management in first aid. The treatment of acute alcohol intoxication depends on general clinical conditions of the patient, vital signs, hemodynamic stability, cognitive state, alcohol-related complications, which are closely related to the blood alcohol concentration. At the same time, symptoms could be extremely variable due to individual differences in alcohol metabolism. Unlike adults, adolescents are more exposed to the toxic effect of alcohol (because of their immature hepatic alcohol dehydrogenase activity), and acute alcohol-related complications are more frequent and dangerous in young people than in the adult population. In many cases, patients affected by acute alcohol intoxication referring to an Emergency Department have mild-moderate transitory symptoms that do not require the use of drugs; they can benefit from a clinical observation, with a clinical course often completed within 24 hours with a favorable outcome. Clinical observation with vital signs control is also necessary to evaluate the possible development of the alcohol withdrawal syndrome (that involves a specific treatment) and to evaluate possible pathological complications of the organism, above all acute liver damage. In many cases, hospitalization could be not necessary, but the patient affected by Alcohol Use Disorder must be referred to an Alcohol Addiction Unit for the follow-up, to reduce the risk of alcohol relapse and complications related to alcohol abuse, and financial costs of hospitalization[39].

ALCOHOL USE DISORDERS (AUDS)

Alcohol use disorders comprise an array of disorders attributable to alcohol and, therefore, reveal an important proportion of the population that suffers from the direct impact of alcohol. WHO periodically calculates the indicators as a proportion of adults (15+ years) who suffer from disorders attributable to the consumption of alcohol (according to ICD-10: F10.1 Harmful use of alcohol; F10.2 Alcohol dependence) during a given calendar year[40].

The prevalence of AUD in the last 12 months varies by WHO region, with the highest values registered in the European Region (66.2 million people over the age of 15, representing 8.8% of the population in that group

of age) and in the Americas region (63.3 million, representing 8.2% of the population aged 15 and over). In contrast, the prevalence of AUD is lowest in the Eastern Mediterranean region (3.4 million, representing 0.8% of the population aged 15 and over).

Among the European Countries, the prevalence in the past 12 months was higher among males than females everywhere. Among males, the highest values were recorded in Hungary and above 20% in Estonia, Latvia, Poland, Slovakia, and Slovenia; for females, the highest values were recorded in Sweden, Hungary, and Austria. Italy, on the other hand, had one of the lowest prevalences of AUD for both men (1.7%) and women (1.0%), together with Spain, the Netherlands and Romania (Table 1).

Table 1. Prevalence of harmful use of alcohol and Alcohol Use Disorders 12 months prevalence, year 2016.

Country	Alcohol, harmful use (15+), 12-month prevalence (%)		Alcohol use disorders (15+), 12-month prevalence (%)	
	Male	Female	Male	Female
Austria	9.3	3.1	18.1	6.1
Belgium	5.8	2.0	12.1	4.3
Bulgaria	7.9	1.5	12.2	1.9
Croatia	4.2	0.8	9.8	2.2
Cyprus	5.8	1.8	10.5	3.2
Czechia	5.6	0.9	10.6	1.7
Denmark	5.3	2.0	10.9	4.2
Estonia	12.3	2.1	22.2	3.8
France	5.8	1.6	11.1	3.1
Germany	4.8	2.0	9.8	4.0
Greece	5.2	1.6	9.4	2.9
Hungary	20.4	4.0	36.9	7.2
Ireland	7.2	2.3	13.0	4.1
Italy	0.9	0.5	1.7	1.0
Latvia	9.4	1.6	28.8	4.6
Lithuania	11.0	2.0	19.9	3.6
Luxembourg	5.8	1.5	10.5	2.7
Malta	3.1	0.9	5.6	1.6
Netherlands	1.1	0.5	2.0	0.9
Norway	4.5	2.0	10.6	3.8
Poland	18.6	3.3	22.7	3.7
Portugal	6.1	1.8	11.0	3.2
Romania	2.5	0.8	4.5	1.4
Serbia	4.4	0.8	9.9	2.1
Slovakia	12.6	1.4	22.8	2.5
Slovenia	13.0	2.5	23.5	4.5
Spain	1.5	0.3	2.7	0.5
Sweden	8.3	3.5	14.7	7.3
Türkiye	5.6	1.0	8.1	1.7

LEGEND:

Min	
<1st quartile	
>3rd quartile	
Max	

ALCOHOL PREVENTION AND POLICIES IN EUROPE

The main policies and commitments to tackle alcohol's harm will be summarized.

1. The first strategy to reduce the harmful use of alcohol worldwide has been the *Global Strategy to reduce the harmful use of alcohol* (GS) of the WHO (2010)[4]. It took into consideration several World Health Assembly resolutions (WHA) previously adopted, starting more than 40 years ago (1979), with the aim of reducing alcohol-related problems, preventing and controlling alcohol use disorders, and addressing public health problems caused by the harmful use of alcohol: resolution WHA32.40 (1979), WHA36.12 (1983), WHA42.20 (1989), WHA55.10 (2002) and WHA58.26 (2005). The Global Strategy was endorsed by the Sixty-third World Health Assembly in May 2010 (Resolution WHA63.13) with the main objectives listed below:
   • To complement and support public health policies in Member States.
   • To give guidance for action at all levels.
   • To set priority areas for global action.
   • To contain a portfolio of policy options and measures to be considered for implementation and adjusted as appropriate at the national level.
   GS represents a unique consensus among WHO 194 Member States on ways to tackle the harmful use of alcohol at all levels.
   The recommended 10 target priority areas for policy measures and interventions are the followings:
   1. Leadership, awareness and commitment
   2. Health services' response
   3. Community action
   4. Drink-driving policies and countermeasures
   5. Availability of alcohol
   6. Marketing of alcoholic beverages
   7. Pricing policies
   8. Reducing the negative consequences of drinking and alcohol intoxication
   9. Reducing the public health impact of illicit alcohol and informally produced alcohol
   10. Monitoring and surveillance.

2. The *European Action Plan to reduce the harmful use of Alcohol 2012-2020* (EAPA) of the WHO, 2012, closely linked to the 10 priority action areas of the GS was endorsed by all 53 Member States of the WHO European Region in September 2011[30]. It can be considered a complementary document to the GS (being the regional action plan for Europe aligned with the GS) in which a range of evidence-based policy options to reduce the harmful use of alcohol

have been included other than evaluation tools (from the WHO Regional Committee for Europe resolution EUR/RC61/R4): a list of indicators and definitions linked to the indicators used in the European Information System on Alcohol and Health, and a checklist/set of questions for Member States.

3. The adoption and implementation of the *Global Action Plan for the prevention and control of Non-Communicable Diseases 2013-2020* (the NCD Global Action Plan) of the WHO, 2013[32], extended to 2030 by the WHA resolution WHA72.11, has ensured the alignment of Member States commitments with the 2030 Agenda for Sustainable Development Goals. The NCD Global Action Plan lists the harmful use of alcohol as one of four key risk factors for major NCDs. It enables Member States and other stakeholders to identify and use opportunities for synergies to tackle more than one risk factor at the same time, to strengthen coordination and coherence between measures to reduce the harmful use of alcohol and activities to prevent and control NCDs, and to set voluntary targets for reducing the harmful use of alcohol and other risk factors for NCDs. The main goal of the NCD Global action plan is to reduce the preventable and avoidable burden of morbidity, mortality, and disability due to NCDs by means of multisectoral collaboration and cooperation at national, regional and global levels, so that populations reach the highest attainable standards of health and productivity at every age and those diseases are no longer a barrier to well-being or socio-economic development.
   The following are the objectives of the NCD global action plan:
   • To raise the priority accorded to the prevention and control of non-communicable diseases in global, regional and national agendas and internationally agreed development goals, through strengthened international cooperation and advocacy.
   • To strengthen national capacity, leadership, governance, multisectoral action and partnerships to accelerate country response for the prevention and control of non-communicable diseases.
   • To reduce modifiable risk factors for non-communicable diseases and underlying social determinants through the creation of health-promoting environments.
   • To strengthen and orient health systems to address the prevention and control of non-communicable diseases and the underlying social determinants through people-centred Primary Health Care (PHC) and universal health coverage.
   • To promote and support national capacity for

high-quality research and development for the prevention and control of non-communicable diseases.
• To monitor the trends and determinants of non-communicable diseases and evaluate progress in their prevention and control.

4. Reducing the harmful use of alcohol will contribute both directly and indirectly to progress achieved with the attainment of multiple goals and targets of the 2030 *Agenda Sustainable Development Goals* (SDGs) of the United Nations (UN), 2015[11-13], an action program for people, the planet and prosperity signed in September 2015 by the governments of the 193 Member States. At this regard, alcohol consumption affects 13 of the 17 SDGs included in the 2030 Agenda; indeed, alcohol affects a number of health-related indicators, such as children's health, infectious diseases and road accidents, as well as a much wider range of indicators relating to aspects of economic and social development, the environment and equality between people. In view of the negative impact of the harmful use of alcohol on development and on the outcomes of many diseases and health conditions, including major NCDs and injuries, effective reduction of the harmful use of alcohol will make a substantial contribution to the achievement of good health and well-being worldwide (SDG 3). The inclusion in the SDGs of the specific goal 3.5 on the harmful use of alcohol: *"strengthen the prevention and treatment of substance abuse, including drug abuse and the harmful use of alcohol"* underlined the key role of alcohol harm prevention on the global development agenda. To monitor the achievement of this objective, three specific indicators have been identified by the WHO: alcohol per capita consumption[14-15,25], consumption of alcohol in the last 12 months ([35]), and the harmful use of alcohol[36].

5. *Tackling NCDs: 'best buys' and other recommended interventions for the prevention and control of non-communicable diseases* of the WHO, 2017[33], provides policymakers with a list of 'best buys' and other recommended interventions to address NCDs based on an update of Appendix 3 of the Global Action Plan for the Prevention and Control of NCDs 2013-2020[32]. An alcohol policy "best buy" is an intervention that is not only highly cost-effective but also cheap, feasible and culturally acceptable to implement. A list of options is presented for each of the 4 key risk factors for NCDs (tobacco, harmful use of alcohol, unhealthy diet, and physical inactivity) and for 4 disease areas (cardiovascular disease, diabetes, cancer and chronic respiratory disease). This docu-

ment comprises a total of 88 interventions (including overarching/enabling policy actions, the most cost-effective interventions, and other recommended interventions) presented in tables, with one table showing the relevant options for each of the four key risk factors and four NCDs addressed.
The "best buys" policies of the WHO to reduce harm due to alcohol are the following:
• Increase excise taxes on alcoholic beverages.
• Enact and enforce bans or comprehensive restrictions on exposure to alcohol advertising (across multiple types of media).
• Enact and enforce restrictions on the physical availability of alcohol in sales outlets (via reduced hours of sale).

6. Nearby at the same time, the WHO launched the *SAFER alcohol control initiative to prevent and reduce alcohol-related death and disability* during a side event on alcohol at the 3rd High Level Meeting on NCDs 28 September 2018[34]. The High-impact interventions included in the acronym "SAFER" are the followings:
• **S**trengthen restrictions on alcohol availability
• **A**dvance and enforce drink-driving counter measures
• **F**acilitate access o screening, brief interventions and treatment
• **E**nforce bans or comprehensive restrictions on advertising, sponsorship and promotion
• **R**aise prices on alcohol through excise taxes and pricing policies.
SAFER has been developed with supporters to meet global, regional and country health and development goals, and to reduce human suffering and pain caused by the harmful use of alcohol. The overall objective is to provide support for Member States in reducing the harmful use of alcohol by boosting and enhancing the ongoing implementation of the global alcohol strategy and other WHO and UN instruments.
SAFER focuses on the most cost-effective priority interventions (*"best buys"*) using a set of WHO tools and resources to prevent and reduce alcohol-related harm.
SAFER is a package of proven interventions to reduce the harms caused by alcohol, and a new partnership to catalyze global action, looking for governments to put in place effective alcohol control policy options and public policies to reduce the harmful use of alcohol".
The interventions included in the SAFER package, as well as all strategic international plans, take into account the comprehensive picture of alcohol consumption and the disease burden attributable to alco-

hol worldwide, as showed by the WHO series of the Global status report on alcohol and health (the first one in 1999, the last one in 2018)[3].

7. Monitoring the global status of alcohol consumption and harm, it is evident that the previous WHO Global Strategy 2010 and the EAPA 2012 have been largely underutilized. Thus, in 2020, the General Director of the WHO was requested to develop a *Global Alcohol Action Plan to effectively reduce the harmful use of alcohol 2022-2030* as a public health priority, in consultation with Member States and relevant stakeholders, for consideration by the 75th World Health Assembly through the 150th session of the WHO Executive Committee in 2022 now in pre-print version (the final version of action plan is expected to be available in the end of August)[41].

According to the Global Alcohol Action Plan to effectively reduce the harmful use of alcohol 2022-2030, barriers to the implementation of effective and cost-effective alcohol policies have varied sources, such as the complexity of the issues and the difficulties of a fragmented response as well as the influence and power of commercial interests in policy-making and commitments. The result of various consultations with the WHO Department of Mental Health and Substance Use also in light of the assessment of the impact of the delay in achieving the Sustainable Development Goals by the Assembly of United Nations and the Agenda 2030 for the prevention and control of chronic-degenerative diseases, pointing out the substantial interference of resources adopted so far to achieve the goal of reducing the impact of alcohol globally and in individual national realities42.

The revised targets, indicators and milestones of the alcohol action plan are described below.

By 2030, at least 20% relative reduction in the harmful use of alcohol (in comparison to 2010) of:

• Total adult per capita consumption.

• Age-standardized prevalence of heavy episodic drinking.

• Age-standardized alcohol-attributable deaths.

• Age-standardized alcohol-attributable DALY's.

By 2030, 70% of countries have introduced, enacted or maintained the implementation of high-impact policy options and interventions, 50% target (50% of countries) set the most global targets, and 75% a few (based on available WHO data).

8. *The European framework for action on alcohol in the WHO European Region 2022-2025* was developed in 2022 by WHO through consultations with Member States and civil society organizations, as well as through an online public consultation ([43]).

"Turning down the alcohol flow" is the background document on the European framework for action on alcohol, 2022-2025 of the WHO, 2022[44].

It is aligned with and contributes to the realization of the Global Action Plan (2022-2030) to reduce the harmful use of alcohol as a public health priority. It is based on the latest assessment analysis of alcohol-attributable harms and the best scientific evidence to reduce such harms; comprehensively reflects the context in which Member States find themselves, including the management of the impacts of the COVID-19 pandemic, and highlights priority areas for action in continuity with the implementation of the European Work Program 2020-2025, aiming to achieve the goal of a 10% relative reduction in per capita alcohol consumption by 2025 (from a 2010 baseline), the frequency of harmful drinkers, and the achievement of targets 3.4 and 3.5 of the SDG. Implementation will be supported by WHO's SAFER WHO European Region free from harm due to alcohol initiative, which is aligned to actions of the WHO global SAFER initiatives.

The priority areas for action of EPW are 6 as the following:

1. Pricing
   • Pricing policies, specifically increasing excise taxes and complementing them with minimum pricing policies, based on the best available evidence and regularly updated in line with inflation
   • Intersectoral dialogue and planning across Ministries of Health and Finance
   • Transnational and intersectoral collaboration to address cross-border trade issues.

2. Availability
   • National licensing systems and mandated server and salesperson training as conditions for licensing
   • Restrictions on the number and density of outlets, days and hours of sale, and outdoor drinking
   • Minimum age restrictions
   • Support for enforcement and the right to alcohol-free spaces
   • Consideration of total restrictions in and around sporting events and cultural events that include minors

3. Marketing
   • Multisectoral working groups to prevent and reduce risks of harms associated with traditional and digital marketing contexts
   • Intersectoral dialogue and planning across Ministries of Health and ministries responsible for digital technologies
   • Restrictions on content and volume of commercial communications

• Regulatory codes that state what is permitted rather than what is not

• Establishment of relationships with Internet platform providers, with new regulations where necessary

• Consideration of actions to oblige alcohol producers to share market data on consumers in different media for public health purposes

• Partnerships and collaborations with other countries and with international agencies

• Consideration of new taxation systems related to alcohol marketing

4. Health information, with a focus on labelling

• Independent mandating, monitoring and enforcement, working in the interests of public health and consumer rights and free from influence or interference from corporate interests

• Statutory labelling, informed by WHO guidance, including nutrition and ingredients and health warnings

• If self-regulation is permitted, requirements that the advice of independent and nationally recognized public health agencies has been sought and followed

• Research to understand the effects of health warning labels

• Consideration of the principle of a statutory "right to know" in relation to alcohol content and risks

5. Health services' response

• National guidance and investment to integrate health service information and screening and brief intervention services, and combine biopsychosocial treatment strategies with community support, with active linkages to recovery communities

• Actions to reduce stigma and discrimination

• Expanded provision of alcohol-related screening and brief interventions in PHC settings and in other contexts based on evidence

• Adequate provision of psychosocial treatment and pharmacological treatments and outreach

• National clinical guidelines for all alcohol-related services

• Raising awareness about alcohol risks and harms, including harms to families and to children through fetal alcohol spectrum disorder, through community support and specialist services that are available

6. Community action

• Empowering local communities to inform and/or make decisions that affect their alcohol risk environments

• Evidence-informed school, community and workplace programmes, with no involvement or interference from economic operators in alcohol production and trade

• Raising awareness about harms that alcohol consumption can cause to others, including families and children

• Engagement with young people to develop coherent strategies

• Alignment of national and local strategies so that community resources can contribute to the recovery of individuals, families and communities.

These priorities for action, which will introduce the implementation of the global action plan (2022-2030) will be reflected in policies and in national and regional prevention and public health planning, in communication strategies and in those for enhancing the authority of scientific evidence at the service of the person and the community.

SUSTAINABLE HEALTH TARGETS TO FILL THE GAPS OF THE PREVENTION

As repeatedly expressed and showed over the last years by the WHO and the alcohol monitoring system at the Regional and National level worldwide, the alcohol-related prevention measures and policies in many Nations are not yet adequate and effective. It prompted the World Health Assembly to ask the WHO for greater determination and acceleration in the preparation of public health policies on alcohol, of national, regional, local prevention plans or strategies adequate and oriented towards intervening rigorously through approaches of greater protection, avoiding involvement or partnership of those components linked to the enlarged production sector which, according to the WHO, has shown interests that are irreconcilable with those of health protection and to interfere with the creation and implementation of those public health prevention policies repeatedly referred to as indispensable for reducing mortality, morbidity and disability caused by current levels of alcohol exposure as a risk factor for sustainable health development.

The need to reduce the number of hazardous and harmful alcohol consumers is a non-negligible element in the light of the need to achieve by 2025 the substantial reduction of 10% of harmful consumers, and of per capita consumption, having as reference 2010 as the baseline indicated by the SDGs (SDG 3.5.2 Harmful use of alcohol, defined according to the national context as alcohol per capita consumption within a calendar year, in liters of pure alcohol), objectives of economic and health value as well.

It is important to remember to policymakers that alcohol reduction targets are included in the majority of the global/regional strategic health plans as those described so far. These highlight the recognition of the alcohol consumption harm for the individuals and societies and the need to regulate it effectively.

Alcohol use is among the main risk factors for premature mortality and disability due to its causal relationship with pathological conditions that also include unintentional injuries and suicides. Young people are disproportionately affected by alcohol than older adults, and 13.5% of all deaths among 20-39-year-olds are attributed to alcohol, the leading cause of death among young males in Italy, Europe, and the world[3].

Alcohol is one of the most important causes of health inequality: disadvantaged and vulnerable populations have higher alcohol-related mortality and hospitalization rates, which increased everywhere in the COVID-19 pandemic period, as, for example, in Italy with the increase in harmful consumption among those who were already consumers at greater risk[45].

The global burden of disease attributable to alcohol is measured in DALYs; in other words, the sum of years of life lost due to premature mortality (YLL) and years of life lived in suboptimal health or disability (Years of Life lived with Disability, YLD). Overall, alcohol consumption caused 8.3% of YLL in the EU, i.e., 7.6 million years lost prematurely due to alcohol consumption. In 2016, there were more than 10.3 million years of DALYs attributable to alcohol in the EU: 6.8% of all DALYs. The leading cause of alcohol-related death was cancer (29% of alcohol-attributable deaths), followed by cirrhosis of the liver (20%), cardiovascular disease (19%), and injury (18%).

Alcohol, as classified by the International Agency for Research on Cancer (IARC), is a toxic, psychoactive, addictive substance, and a group 1 carcinogen that is causally linked to seven types of cancers, including cancers of the esophagus, liver, colorectal and breast[46].

Alcohol consumption is associated with 740,000 new cases of cancer every year globally[47]. The IARC has made available a tool for evaluating and estimating the impact of alcohol on cancer incidence according to gender differences and levels of consumption that are emblematic of the institutional duty to formulate effective communication aimed at promoting an increase in consumers' awareness that even small quantities of alcohol can represent a risk.

In the EU, 'light' to 'moderate' alcohol consumption (<20 g of pure alcohol per day, which equates to the consumption of approximately <1.5 liters of wine – 12% alcohol by volume, <3.5 liters of beer - 5% alcohol by volume, or <450 mL of spirits – 40% alcohol by volume per week) was associated with nearly 23,000 new cancer cases in 2017, accounting for 13.3% of all alcohol-attributable cancers and 2.3% of all cases of the seven alcohol-related cancers[46].

Nearly half of these cancers (about 11,000 cases) were female breast cancers. In addition, more than a third of cancer cases attributed to light to moderate consumption (about 8500 cases) were associated with a lower risk of alcohol consumption (<10 g per day).

According to the latest available data, half of all alcohol-attributable cancers in the WHO European Region are caused by 'light' and 'moderate' alcohol consumption, responsible for the majority of alcohol-attributable breast cancers in women. In 2017, almost 23,000 new cases of cancer in the EU (13.3% of all alcohol-attributable ones) were caused by the consumption of less than or equal to 20 g of pure alcohol per day. Basically, the classic glass consumed at lunch and dinner; of these, approximately 8500 cases were associated with a consumption of less than one unit of alcohol per day. In 2017, according to the WHO[46,47], drinking fewer than two drinks (about 20 g of pure alcohol) per day caused almost 1 out of 10 cases of alcohol-attributable oral cancer and 1 in 4 cases of alcohol-attributable breast cancer to alcohol in women. Taking into account all cancer cases causally linked to alcohol, at the European level, it has been shown that 11% were caused by the consumption of alcohol below the threshold of 20 g – i.e., the consumption of no more than one bottle of large beer (500 mL), two large glasses of wine (200 mL), or 60 mL of spirits per day. A study of the Global Burden of Diseases calculated 10,100 cases of cancer caused by alcohol in Italy in 2020, 6,900 for males and 3,200 for women, with a rate of 7.6 new cases of cancer caused by alcohol every 100,000 inhabitants (10.6/100,000 for males and 4.9/100,000 for females)[27].

Over the years, the overall risks and harms deriving from alcohol consumption have been increasingly well documented, discussed, evaluated systematically and extensively, leading to the construction of consensus by the independent international scientific community on the opportunity to combat the spread of behaviors that scientific evidence and epidemiological monitoring indicate among the main causes of high health and social costs to be reduced by increasing risk awareness and supporting informed consumer choices to protect individual and collective health and safety.

According to the latest WHO estimates, alcohol consumption contributed to 3 million deaths in 2016 globally and was responsible for 5.1% of the global burden of disease and injury.

In Europe, alcohol is a preventable cause of death for 1 million users whose consumption, even moderate,

is associated with an increased risk of many diseases/conditions and is the principal and sufficient cause of several disorders, including alcohol addiction, cancer, cirrhosis of the liver, many other NCDs and mental health conditions.

In Italy, for example, according to the consumption levels used by the WHO, it can be estimated that, in 2020, the audience of those exposed to a higher risk of developing cancer even with a moderate alcohol consumption was 4,493,653 consumers of aged over 15 who drank up to 1 standard unit (SU) of alcohol per day, and an additional 4,158,556 who drank up to 2 SU per day. As a consequence of the alcohol-related risk for any level of consumption, the IARC has estimated and officially published for Italy a specific mortality from alcohol-related cancer equal to 10,000 deaths a year, including 2,000 women who died due to of preventable breast cancer.

Increasing levels of alcohol consumption are associated with increasing levels of risk of diseases and mortality7, leading to the question of whether it is possible to define a safe level of alcohol consumption associated with zero risk of health outcomes[48].

The scientific community has very often been committed to identify a safe level of alcohol consumption, and there are numerous experiences dedicated to the search for scientific evidence to demonstrate the absence of an increased risk of illness or injury associated with alcohol consumption at a certain level of consumption and/or below it. The results of the last few decades of specific research have made it possible to draw a well-defined picture of the effect of alcohol on health. Some studies have suggested that 'moderate' drinking may have a small protective effect, as measured by the risk of certain cardiovascular diseases or type 2 diabetes[49,50]. Other studies have demonstrated such effects on some types of cardiovascular disease in middle-aged and older people[51]; however, several systematic reviews have also found that the "protective" effects of moderate drinking disappear with heavy episodic drinking, which increases the risk of any cardiovascular disease[7,52].

It has been widely noted that the observed effects should not be related to the consumption of a specific drink, such as wine or beer, but to alcohol (ethanol). Many guidelines, and among these the Italian ones of CREA (Consiglio per la Ricerca in agricoltura e l'analisi dell'Economia Agraria) that is the leading Italian research organization dedicated to the agri-food supply chains), exclude that, for example, in beer or wine the quantity of bioactive substances, antioxidants (mainly polyphenols) contained in one-two glasses, compatible with the need to remain within the range of low

risk, can be endowed with any type of biological effectiveness or "protection". In the face of such evidence, which has also definitively dismantled the so-called "French paradox", it should be noted that no study in the world has ever demonstrated that the potential existence of a protective effect for cardiovascular disease or type 2 diabetes can also reduce the risk of cancer for the consumer. The evidence available so far does not indicate the existence of a particular threshold at which the carcinogenic effects of alcohol begin to manifest themselves in the human body. Therefore, consistent with the message of the most recent contribution published in the Lancet[53] with the commentary of the joint study group of all WHO offices "No level of alcohol consumption is safe for our health", it is not possible to establish a safe amount of alcohol consumption for cancer and health.

The consequence of this evidence, also sanctioned by European directives, is that alcohol consumers have the right to be informed about the risks of cancer and other health conditions associated with the use and not just the abuse of any alcoholic beverages. All consumers of alcoholic beverages, to ensure informed choices, must be made aware of the message of the European Code against Cancer: "If you drink alcohol of any kind, limit your consumption. To prevent cancer, it is best to avoid drinking alcohol". It is intuitive that no guideline can "recommend" the consumption of alcohol or even simply recommend a moderate use of alcohol, based on the possible effects of reducing the risk of a few pathological conditions.

The Resolution of the European Parliament of 16 February 2022[54] on strengthening Europe in the fight against cancer demands and requires a global and coordinated strategy in accordance with what was voted by Parliament as a formal and substantial approach, shared in a legal framework that literally:

- Recalls "that the IARC has classified ethanol and acetaldehyde (from ethanol metabolism) contained in alcoholic beverages as carcinogenic to humans and that in Europe about 10% of all cancer cases in men and 3% of all cancer cases in women are attributable to alcohol consumption";
- Underlines that "the lower the alcohol consumption, the lower the risk of developing neoplasms; points out that the harmful use of alcohol is a risk factor for many different cancers, such as cancers of the oral cavity, pharynx, larynx, oesophagus, liver, colorectal and breast in women; recalls the study mentioned by the WHO which recognizes that the safest level of alcohol consumption does not exist with regard to cancer prevention and underlines the need to take this into account in the definition and implementation of cancer prevention policy";

- Welcomes "the Commission's target of reducing the harmful use of alcohol by at least 10% by 2025; Encourages the Commission and the Member States to promote actions to reduce and prevent the harm caused by alcohol in the framework of the reviewing of the European alcohol strategy, including a European strategy to reduce alcohol consumption for minors, accompanied, where appropriate, legislative proposals, while respecting the principle of subsidiarity and existing national legislation on age limits for alcohol consumption";
- Supports "the need to offer consumers appropriate information by improving the labeling of alcoholic beverages with the inclusion of information on moderate and responsible consumption of alcohol and by introducing the mandatory indication of ingredients and nutritional information as well as by introducing "digital tagging";
- Ask the Commission to adopt specific actions against the hazardous and harmful alcohol consumption;
- Considers the importance "to protect minors from exposure to commercial communication on alcohol consumption, as well as product placement and brand sponsorships of alcoholic products, including in a digital environment, since advertising has not expressly targeted minors and does not encourage the consumption of alcohol";
- Calls for "prohibiting the advertising and sponsorship of alcoholic beverages at sporting events if minors mainly attend these events";
- Calls for "strict monitoring of the implementation of the revised Audiovisual Media Services Directive";
- Requests "that the proposal for a law on digital services strengthen the capacity of Member States to support and implement legislation aimed at protecting minors and other vulnerable populations from commercial communications of alcoholic beverages";
- Calls for "to allocate public funds to awareness campaigns at national and European level";
- Supports "the planned revision of the European legislation on the taxation of alcoholic products and cross-border purchases of alcohol by private citizens as well as the revision of the policies on the definition of alcohol prices".

Healthcare and health planning should take into account the portfolio of policy options, guided and formulated by public health interests, based on clear public health objectives and the best available evidence, with the areas focused on activities related to NCD Best Buys against risk factors of chronic diseases. In total, six areas are prioritized: the price of alcohol; availability of alcohol; marketing of alcoholic beverages; health information, with particular attention to the labeling of alcohol; health services response and community action. These areas of interest intersect with each other, requiring a global approach to achieve maximum impact. Priorities for action and implementation at national and regional levels may be considered as a response to specific circumstances and needs, with particular attention to differences in social, economic, legal and cultural contexts, public health priorities, system policies, health care and available resources which should also prioritize engaging the skills, experience and connections of people with lived experience of alcohol problems, as well as non-state actors (including NGOs), recovery activists and advocacy organizations mutual aid and self-help.

It is essential to make specific training compulsory for those who work in the services and structures of the NHS (National Health Service). It has been indeed demonstrated that the provision of advices, motivational interviews, brief interventions, provided through the elements of the Early Identification and Brief Intervention (EIBI) courses, according to the WHO standard[55-58] allow a significant number of consumers at risk to reduce their consumption and can also be useful tool for maintaining the sobriety required for harmful consumers/alcohol addicts in the more articulated and complex framework of rehabilitation and the return of the patient to a social, working and relationship life.

According to the WHO, it is essential to guarantee valid and correct information and to counter the fake news spread by the production sector, amplified by social networks and by the media, and to increase the health literacy of policy makers. Information on the risk associated with the consumption of alcoholic beverages is a right of all consumers who must be made aware of the risks associated with the products offered for consumption, including alcohol, which is not an ordinary commodity, so that they can act informed choices. It is the government's duty to ensure that consumers are increasingly provided with correct information protected against disinformation that would introduce implausible distinctions on the impact of different alcoholic beverages and hinder the implementation of policies on the provision of health information through labels. Public awareness of the range of harms associated with alcohol consumption is very low in a society that, on the contrary, normalizes drinking as a function of industry pressures to consume. Many people are unaware of the risks of developing diseases and several cancers due to even very low levels of alcohol consumption; despite the known causal link between alcohol and cancer, no country in the world has a mandatory provision to display this information on the label of alcoholic products. The European Cancer Plan

has committed to implementing health information on alcoholic beverage labels, which increase knowledge and awareness of the risks associated with alcohol consumption and may lead to increased public support for other policy measures to reduce damage caused by alcohol consumption. For these reasons, the European Commission has indicated that it will review its policy to promote alcoholic beverages through the mandatory indication of the list of ingredients and nutrition declaration on the labels of alcoholic beverages by the end of 2022, and health warnings on labels by the end of 2023, the deadline by which calories information will appear on all labels, a central element for reducing consumption and a substantial contribution to the fight against overweight and obesity.

Throughout this process, a due response from health services cannot continue to be lacking, providing a vital first line in prevention and early intervention to prevent and reduce harms due to alcohol consumption, as well as facilitating comprehensive support, wherever necessary, to support people in recovery, as well as their families, part of the recovery process along with mutual aid organizations to support long-term recovery. Health service actions need to be realigned with community action in identifying alcohol use as a behavioral risk and providing early interventions before health and social problems become apparent and severe forms of AUD requiring medical attention develop. Facilitation interventions can achieve important outcomes for individuals with AUD in achieving and maintaining sobriety/abstinence, further savings for health care services. As with other Substance Use Disorders, AUDs must be considered primarily as health problems and people with these problems intercepted and treated by NHS facilities with an urgent need to ensure treatment is currently needed but not provided 91.5% of those "in need for treatment" never intercepted by NHS staff or structures and therefore very far from SDG 3.5: strengthening the prevention and treatment of substance abuse, including drug abuse and harmful use of alcohol.

People with alcohol problems often struggle with many other health problems. For example, many people with alcohol problems face mental health problems and conversely, many people with mental health problems have alcohol problems, yet services continue to find it difficult to treat their co-occurrence effectively. The evidence strongly supports the widespread implementation of screening and brief intervention programs in Primary Health Care facilities by those with a health and prevention mandate and vocation strictly excluding programs on "responsible drinking" or history or the culture of drinking devoid of any effectiveness and usually the object of promotion of interests distant from those of protecting the health, especially of minors whose critical capacity is not yet such as to allow an adequate devaluation of such argumentations without scientific evidence.

Recovery-oriented systems of care are an approach to the long-term management of patients within the network of community-based support services and resources. Professionally directed recovery management, as with the management of other chronic disease disorders, shifts the treatment focus from an "admit, treat, and discharge" model to a sustained healthcare management partnership between services and the patient. In this model, post-stabilization monitoring, recovery education, recovery coaching, active connection to the recovery community (including self- and mutual-help support), resource development, and rapid access back to treatment, when needed, replace, as indicated by the WHO, the traditional discharge process.

Services and programs, processes aimed at the recovery of the harmful consumers and the alcohol dependent should aim to be person-centered and based on bio-psycho-social interventions to be combined in a flexible and integrated way according to the different skills required, making use of the relationships with peers and individuals valuing lived experience of alcohol-related problems aiming to co-produce plans and embed actions that support long-term recovery for drinkers and their families following a systemic approach, a relatively new orientation but rapidly developing that can offer a number of systemic approaches to addressing complex public health problems such as the prevention of NCDs. The use of systems approaches has the potential to contribute to the development of effective evidence-based policies, encourage stakeholder involvement in decision-making and improve the coherence of policy implementation resulting from the reasoned application of resources and best practices to different stages of the political cycle:

• Problem identification and policy analysis;
• Policy development;
• Policy implementation;
• Monitoring, implementation and evaluation of policies.

Finally, speaking about the prevention and treatment of harmful alcohol consumption, the COVID-19 pandemic has left us a lesson: the importance of tele-medicine or tele-consulting and now, in some clinical settings, these tools remain active too. In this regard, a randomized controlled trial of primary care-based facilitated access to an interactive alcohol reduction website (FA) compared with face-to-face BI for risky drinking revealed non-inferiority and that it could be an alternative to face-to-face intervention[59].

More recently, under the frame of the AlHaMBRA Project's (ALcohol HArm Measuring and Building capacity for policy Response and Action), a contract service of the European Commission ended in 2022, a webinar on the "Application of eHealth tools to reduce alcohol-related harm" has been carried out with the objective to support European Member States in knowledge gathering, sharing best practice and capacity building for evidence-based alcohol policy for alcohol harm-reduction across multiple sectors, adopting digital health tools/approaches to prevent harmful alcohol consumption (data not yet published; the background document used for the webinar is available at: https://bipeek-resources-onsite-prd.s3.amazonaws.com/11226/AlHaMBRA_eHealth-Workshop_BackgroundDoc-%283%29.pdf?v=1645028946).

The recommendations for researchers and digital health technologies/tools (DHTs) developers merged from the AlHaMBRA webinar (February 2022) are the following:

1. Evidence for the application of DHTs for the prevention and treatment of alcohol consumption is not yet robust enough, as it is restricted to short- and medium-term interventions in adult or student populations. Future studies should assess the effectiveness, acceptability, and utility via long-term studies and in different populations subgroups.
2. The digital divide is an enormous and complicated issue heavily interwoven with issues of social inequality. It is important to guarantee that interventions are designed considering inequality and special effort made to ensure that those most in need of care can access interventions.
3. Concerning the development of DHTs, interventions should be developed together with the relevant stakeholders and include elements that have been demonstrated to increase effectiveness, such as using theory or establishing multicomponent interventions over long periods.
4. Develop and validate new theories and behaviour change models that fit the demands of emerging technologies that interact more frequently with the individual and don't assume a static relationship between risk and protective factors.
5. Conduct a comprehensive review of DHTs develop by the alcohol industry.
6. Develop evidence on how to better safeguard and protect the privacy of patients.

The recommendations for policy makers are the following:

1. There is a wide range of DHT solutions in the market; nationally and internationally. It is important to build a more robust regulatory framework to guarantee safety, effectiveness, and accessibility. Standards should cover: a. Privacy and security b. Minimum technical, clinical and integration system requirements to ensure the safety, effectiveness and usability of DHTs for patients
2. Establish harmonized testing, reporting, classification and accreditation processes. Nevertheless, this process should be mindful of not being too costly or lengthy.
3. Promote the use of the EC Best Practice Portal to support the exchange of digital best practices related to alcohol consumption and encourage researchers to enter their interventions and findings.
4. DHTs should reach all the population regardless of socioeconomic level or place of residence. Further developments in ICTs are key to advancing digitalized and equitable healthcare.
5. Increase population technological literacy, so users are aware of what they are consenting to when they agree to the terms and conditions of a digital application.
6. Foster interoperability between platforms to avoid duplicating data and optimize care pathways.
7. Further support Member States to launch national strategies to boost health professionals' digital skills and raise awareness of the benefits that DHTs can bring to clinical practice

The NCD prevention policy must be able to count on an adequate and practical decision-making aid based on the advantages and limitations of each approach to be adopted in the communication, information, indications, and actions to be offered in the daily prevention activities by weighing resources, considerations, and potential benefits.

Concerning young people, the elements of consensus in school prevention resulted in substantially converging on the importance of developing preventive action strategically oriented towards awareness and prevention of alcohol-related risks in the school setting.

In this regard, it will be very important the following actions:

- to standardize the approach and contents of prevention projects at the national level, according to the indications of scientific evidence on effective interventions and in compliance with homogeneous standards, albeit adaptable to different settings;
- to prefer interventions included in broader health promotion programs that involve the whole school community (students, school staff, and families) according to a community empowerment model;
- to favor early interventions dedicated to a target in a phase of the life cycle – and therefore of evolution-

ary development – preceding or coinciding with the first alcoholic consumption;

- to increase the socio-educational approach, which has the priority objective of increasing life skills together with the increase in knowledge and skills;
- to provide methods that stimulate the active involvement of young people and their resources;
- to consolidate the skills of prevention experts, in particular, in the design of evidence-based interventions;
- to invest in prevention with indispensable coherent investments on an organizational and economic-financial level;
- to develop systemic actions to favor the dissemination of appropriate interventions - evidence-based approaches and programs must find a place at all levels of programmers, capable of being able to promise – based on the reference theories – the preventive outcomes and expected health gains;
- to promote preventive programs oriented towards life skills.

Conflict of Interest:
The authors declare that they have no conflict of interests.

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