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Message 10: "Know the risks of alcohol"

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Μήνυμα 10: «Ενημερωθείτε για τους κινδύνους του αλκοόλ»

Περίληψη στο τέλος του άρθρου

Key words:

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Alcohol consumption has been linked to several injuries such as motor vehicle crashes, falls, drowning, fires and burns, and violence. Despite the many efforts and the implementation of health policies at both community and national level, the burden of alcohol-related injuries, especially among young people, is still unacceptably high in many European Union (EU) countries. The identification of effective interventions for the reduction of unintentional injuries due to alcohol is, therefore, an important public health goal. This paper aims: (a) to describe the magnitude and the socio-economic burden of alcohol-related injuries in the countries of the EU, (b) to outline underlying risk factors and (c) to present evidence-based preventive practices that reduce the likelihood of accidents due to alcohol. Some of these measures are therefore included in the European Code Against Injuries (ECAI) aiming to raise public awareness regarding injury prevention.

1. DEFINITION

Alcohol-related injuries include those injuries for which there is epidemiological evidence of an association with alcohol consumption. Alcohol consumption has been associated with an increased risk of injury in a wide variety of settings, including road traffic accidents, falls, fires, injuries related to sports and recreational activities, self-inflicted injuries, and injuries resulting from interpersonal violence.[1] There is also some evidence that the presence of alcohol in the human body at the time of injury may be associated with a greater severity of injury and a less positive outcome. Attributable fractions for a range of alcohol-related accidents and injuries are summarized in table 1.[2]

2. MAGNITUDE OF THE PROBLEM

The best estimate suggests that more than 1 in 3 road traffic fatalities in the European Union (EU) are due to alcohol consumption.[3] These drink-driving deaths are not equally split between genders, with 15,000 male deaths compared to 2,000 deaths for females. The cost due to alcohol in human lives is even higher for other accidents, with a toll of 27,000 deaths (including alcohol-related drowning, falls, fights, and fires, occupational and recreational injuries). Over 2,000 homicide deaths per year in the EU are attributable to alcohol. Time-series show that the effect per litre is greater in northern Europe. Nevertheless the higher consumption levels in southern Europe indicate that the estimated share of all homicides, that are due to alcohol, is slightly higher in southern (61% of all homicides) than in northern Europe (50% of all homicides).[4] Deaths by suicide account for 7%–8% of the total deaths due to alcohol, a toll that is greater for men.

The increasing trends in under-age "binge-drinking", along with the high frequency of under-age drinking that have been reported in many European countries,[5] may lead to long-term adverse health and social effects. "Binge-drinking" is a term commonly used to describe a single drinking session that includes consumption above a given cut-off level of alcohol.[6] Excessive alcohol use and a pattern of binge-drinking are associated with increased risk of negative social consequences, reduced work performance, injuries, drink-driving accidents, brain damage, alcohol dependence, suicide, stroke, irregular heart rhythms, coronary heart disease, sexually transmitted diseases, and premature death.[5] Binge-drinking needs to be distinguished from alcohol intoxication, which is defined as a condition that follows the administration of alcohol and results in disturbances in the level of consciousness, cognition, perception, judgement, affect, behaviour, or other psychophysiological functions and responses.[7]

Table 1. Attributable alcohol fractions of acute alcohol-related health effects in the adult general population[2]

Motor vehicle traffic accidents	0.33	0.11
pedestrians	0.40	0.17
Accidental ethanol and methanol poisoning	1.00	1.00
Accidental fall injuries	0.22	0.14
Arson injuries	0.44	0.44
Accidental drowning	0.34	0.34
Accidental aspiration	1.00	1.00
Occupational and machine injuries	0.07	0.07
Suicide, self-inflicted injuries	0.32	0.29
Victim fight, brawl, rape	0.47	0.47
Victim assault, firearms	0.47	0.47
Victim assault, cutting instrument	0.47	0.47
Victim child battering	0.16	0.16
Victim assault, other	0.47	0.47
Late effects of injuries by another	0.47	0.47

One way of assessing the scale of alcohol use as a public health problem is to examine the entire burden of illness and disease, looking at years of healthy life. The WHO uses Disability-Adjusted Life Years (DALYs) as a measure to estimate the number of healthy years of life lost due to each risk factor. DALYs measure the existing gap in health status between the current position and what could potentially be achieved. Alcohol is responsible for the loss of over 4.5 million DALYs every year in the EU (7.4% of all DALYs).[3] This is principally for men, accounting for 12% of all male ill-health and premature death and a smaller, but still sizeable, 2% of all female ill-health and premature death. Two-fifths of alcohol-related DALYs are due to unintentional and intentional injuries.

Based on the results of 21 European studies, the total tangible cost of alcohol to the EU has been estimated at €125bn (€79bn – €220bn) in 2003, equivalent to 1.3% of GDP (0.9% – 2.4%).[3] Aside from the tangible monetary costs, alcohol causes an intangible cost of €152bn – €764bn, which incorporates the value people place on pain, suffering and life itself due to crime and lost healthy life due to alcohol. This intangible cost is not an 'economic loss' in the usual/normal sense of the term and cannot be compared to e.g. GDP (nor can it be simply added to the tangible cost, given that both include estimated values for lost life but the estimates are derived in different ways). However, this cost offers a more accurate estimate of the full economic and human burden of alcohol to the EU.

The age-standardized death rate for external cause, injury and poison declined in the EU from 63/100,000 citizens in 1970 to 43/100,000 in 2005 (fig. 1). The decline has been observed in both member states that joined the Union prior to 2004, and in the states that joined the Union in 2004 and in 2007. The decline has been more

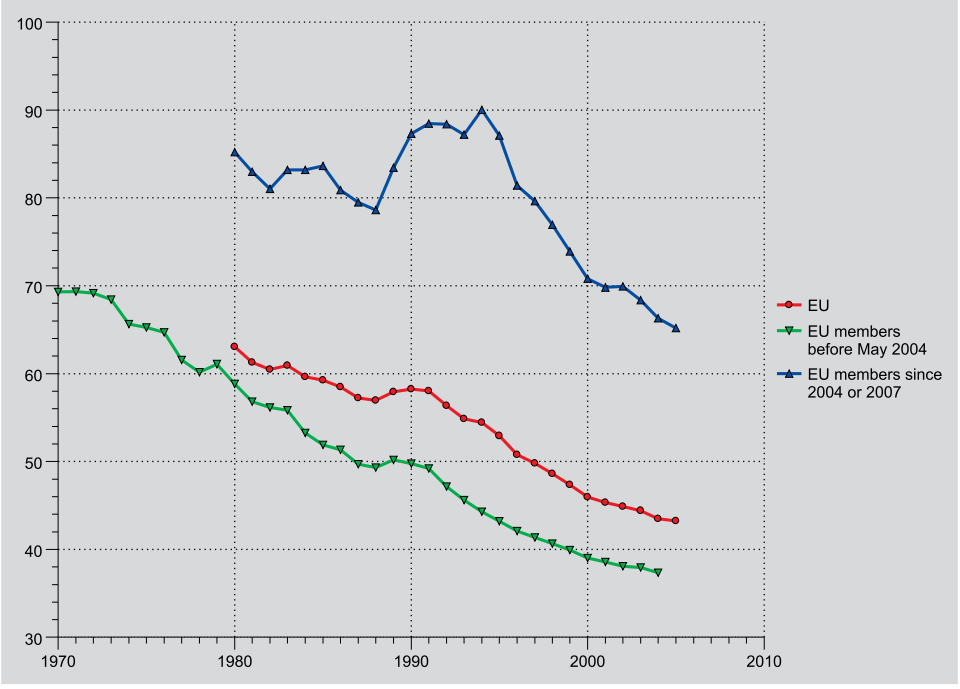

Figure 1. Age standardized death rate (per 100,000 population) due to external cause, injury and poison for all ages (Source: World Health Organization European health for all database)

substantial in the older than in the newer member states, and subsequently the gap between the two has widened over time. The increase in death rates that occurred in the newer member states in the early 1990s coincides with the socio-economic transformation that occurred following the break-up of the Soviet Union.

3. RISK FACTORS

3.1. Demographic risk factors

A higher proportion of deaths due to alcohol is detected in younger people. At an age of death of between 15 and 29 years, 27% of all deaths occurring in men (13,000 deaths) and 11% of all deaths occurring in women (2,000 deaths) are due to alcohol.[8]

3.2. Environmental risk factors

There is a substantial health gap across Europe, with a difference in life expectancy at birth between EU countries of as much as 10 years. Against this background, it is clear that many of the individual conditions that contribute to the health gap are linked to alcohol. For males dying between the ages of 20 and 64 years, injuries are responsible for nearly half (46%) of the difference in life expectancy between the three Baltic states (Estonia, Latvia and Lithuania) and the EU-15, and for one fifth (22%) of the difference between central and eastern Europe (Poland, Czech Republic, Slovakia, Hungary, Slovenia, Romania, Bulgaria) and the EU-15 (Rehm et al 2006).[9]

Although in the EU-15, alcohol is responsible for 29% of all male injuries and 19% of all female injuries, in the central and eastern European countries, the proportions are 38% and 29%, and in the three Baltic states 48% and 42% respectively. The majority of conditions responsible for health inequalities within countries is strongly linked to alcohol. Research from Finland further suggests that socioeconomic variables act on the collective as well as the individual level. Areas with the most manual workers had 20% higher mortality rates directly attributable to alcohol than areas with the least, even after accounting for the *individual* relationship of occupation to mortality.[10]

3.3. Behavioural risk factors

Alcohol consumption is the most important behavioural risk factor for involvement in an accident, as well as for the severity of the injury. The lifetime risk of death from an alcohol-related accident or injury increases exponentially with alcohol consumption. For a drinker who, on average, drinks every other day between the ages of 18 and 70 years is more than 15% for a man and 10% for a woman if they drink more than 60g alcohol per occasion.[1] Nevertheless, even small amounts of alcohol are found to impair behaviour, judgment, memory, concentration and coordination of movements,[11] indicating that activities requiring high concentration should not be combined/mixed with alcohol consumption.

As blood alcohol concentration increases, cognitive function and psychomotor performance decrease rapidly. Less than two standard drinks may result in cognitive and psychomotor effects that increase injury risk, such as effects on reaction time, cognitive processing, coordination and vigilance.[10] Alcohol consumption increases also the likelihood and the extent of aggressive behaviour, raising the chance that a conflict or dispute will not be resolved peacefully by verbal means.[12] Injury risk from violence, both physical and sexual, is therefore increased. Alcohol consumption does not always increase aggressive behaviour, probably due to its interaction with personality. Some studies have indicated that the role of alcohol in aggression may differ between the sexes. Additionally, alcohol is a significant contributor to between-partner violence.

Alcohol also appears to interact with personality characteristics and other factors related to a personal propensity for violence, such as impulsivity.[3] Injuries from violence may also be more closely linked to alcohol dependence than other types of alcohol-related injury. In addition to alcohol consumption and drinking pattern, the social context of drinking is also important for alcohol-related aggression, especially for young people whose drinking behaviour is influenced strongly by their peers. A meta-analysis found that the effects of alcohol were larger in situations characterized by increased anxiety, inhibition, conflict and frustration, while differences between sober and intoxicated persons were smaller in situations involving high provocation or self-focused attention.[13] Furthermore, given sufficient disincentives for aggression the effects of alcohol on aggression can be reduced or even eliminated altogether.

Public drinking establishments are high-risk locations for alcohol-related aggression. However, drinking contexts by themselves do not explain the relationship between alcohol and aggression, since the impact of alcohol also acts independently of the context or setting in which drinking is taking place.[14] The environment for alcohol-related aggression is also not independent of drinking. Although a few incidents that occur in bars involve interpersonal

conflict between people that might have occurred even in the absence of facilitating factors, almost all incidents of aggression that occur in bars are sudden, unplanned, emerge from the social interaction and often involve strangers. The Comparative Risk Assessment study of the World Health Organization concluded that it is reasonable to assume that almost all incidents of violence occurring in bars and other environments, where drinking is the main activity, should be considered attributable to alcohol, either directly through the pharmacological effects of alcohol or indirectly through the social norms related to drinking.[15]

The connection between changes in population drinking and mortality has been comprehensively investigated within the ECAS study,[16] using time-series analysis in 14 European countries for the years 1950 to1995. This technique investigates the relationship between yearly changes in consumption and harm, as well as the relative change in mortality for a change in per capita consumption of one litre of pure alcohol. Changes in death rates of accidents, suicide and homicide are strongly related to changes in overall alcohol consumption, (fig. 2).

4. EFFECTIVE PREVENTIVE PRACTICES

Increasing the price of alcohol reduces road traffic accidents and fatalities particularly for younger drivers, intentional and unintentional injuries, rapes and robberies, homicides, crime, violence at universities, and violence-related injuries in general.[17]

A review of 132 studies, published between 1960 and 1999, found very strong evidence to support that changes

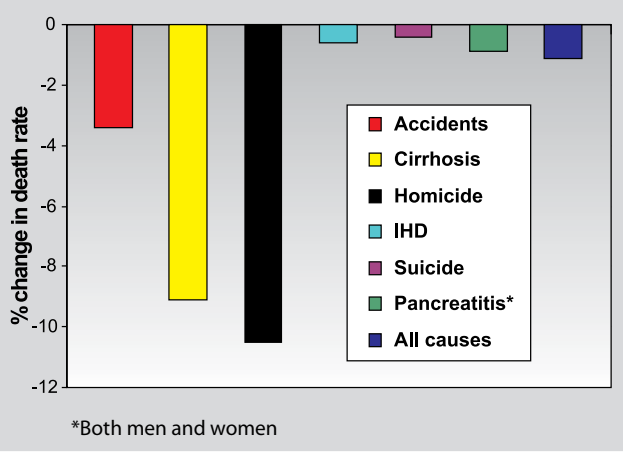

Figure 2. Percentage reduction in male death rate when per capita alcohol consumption is reduced by 1L per year (Source: Norström et al. 2001).[16] Medium consuming European countries.

in minimum drinking age laws can have substantial effects on youth drinking and alcohol-related harm.[18] A systematic review of minimum legal drinking age (MLDA) laws in the United States found that among 14 studies looking at the effects of raising the MLDA, crash-related outcomes declined a median of 16% for the targeted age groups. On the other hand, among 9 studies looking at the effects of lowering the MLDA, crash-related outcomes increased by a median of 10% within the targeted age groups.[19] The full benefits of a higher drinking age are only realized if the law is enforced.

Finnish studies have found an overall impact on alcohol consumption following changes in the number of outlets. The most dramatic change was observed in 1969, when, beer up to 4.7% alcohol, was allowed to be sold by grocery stores, and it also became easier to obtain a restaurant license. The number of off-premise sales points increased from 132 to about 17,600, and that of on-premise sales from 940 to over 4,000.[20] In the following year, alcohol consumption increased by 46%, whereas in the next five years arrests for drunkenness increased by 80% and 160% for men and women respectively. In Sweden, a time-series analysis found that motor vehicle accidents were significantly reduced in three of four age groups, when the right to sell 4.5% beer in grocery stores was retracted; there was a significant fall in hospital admissions for alcohol-specific diagnoses among those aged under 20 years, but no effect on assaults, suicides and falls.[21]

A number of studies have indicated that, although changing the time and day of alcohol availability at stores can redistribute the times at which many alcohol-related crashes and violent events take place, it does so at the cost of an overall increase in problems.[22] A study in Western Australia showed that extending opening hours from midnight to 1.00 a.m. increased violent incidents at the later night venues by 70%.[23]

Licensed drinking environments are associated with drunkenness, drink-driving and problematic behaviours such as aggression and violence, with some licensed premises being associated with a disproportionate amount of harm.[24] Aspects of the bar environment that increase the likelihood of alcohol-related problems include serving practices that promote intoxication, an aggressive approach taken to closing time by bar staff and local police, the inability of bar staff to manage problem behaviour, general characteristics of the environment, such as crowding and permissiveness of bar staff, the general type of bar, and physical comfort, the degree of overall 'permissiveness' in the bar, the availability of public transport, and aspects of the ethnic mix of customers. However, a systematic Cochrane review found

no reliable evidence that interventions in the alcohol server setting are effective in reducing injury.[25] Compliance with interventions appears to be a problem; hence mandated interventions may be more effective/efficient.

Community-based prevention programmes can be effective in reducing drinking and driving, alcohol-related traffic fatalities and assault injuries. A review of 10 community-based prevention trials, which have sought to reduce harm from alcohol, found that promising interventions were those that paid particular attention to controls on access, included the environmental contexts of where the products are sold and distributed, and involved enforcement of public health polices.[26] Since 1996, a multi-component program based on community mobilization, training in responsible beverage service for servers and stricter enforcement of existing alcohol laws has been conducted in Stockholm, Sweden, leading to a 29% reduction in violent crimes in the intervention area, compared with the control area.[27]

A recent review analyzed the results of 14 systematic reviews and found no consistent evidence for the impact of educational initiatives in reducing alcohol-related harm.[28] Based on these reviews, 19 classroom-based programmes led by teachers were identified, with only three of them demonstrating evidence of reducing alcohol use in the short-term, and one only demonstrating evidence of long-term effects on alcohol use. Nine classroom-based programmes were identified that were taught by external contributors, only one of which (a culturally tailored programme for Native American students) demonstrated evidence of medium- to long-term effects. Nineteen school-based programmes, that were delivered outside of the lesson format, were identified including brief intervention programmes, counselling programmes, peer support and teacher training, none of which demonstrated medium to longer term effects. Twelve multicomponent programmes were identified that combined school-based intervention with family, community and/or media components. Three long-term programmes that combined school-based intervention with family and community components showed no consistent effects. Two programmes that combined classroom-based intervention with components targeting parental participation, and focusing on wider problem behaviours, appeared to have more consistent long-term effects.

A systematic review of the evidence of the impact of alcohol warning labels,[29] introduced in the United States, found significant increases in the likelihood of respondents reporting having taken part in conversations about risks of alcohol consumption, compared to before the introduction of the labels. No direct impacts of warning labels on consumption or alcohol-related problems have been reported.

Brief advice delivered in emergency departments and trauma centres has been shown to be effective in reducing alcohol-related harm. One systematic review of 23 studies found evidence of reduced motor-vehicle crashes and related injuries, falls, suicide attempts, domestic violence, assaults and child abuse, alcohol-related injuries and injury emergency visits, hospitalizations and deaths, with reductions ranging from 27% to 65%.[30] A second meta-analysis of 13 studies of emergency department interventions revealed that counselling interventions were associated with approximately half the odds of experiencing an alcohol-related injury (OR: 0.59; 95% CI: 0.42–0.84) in the 6 or 12 months following their emergency department presentation.[31]

5. CONCLUSION

Alcohol is a risk factor for many adverse health outcomes, including injuries and deaths. Nevertheless, a considerable body of evidence shows that alcohol policies and interventions can have a protective effect and reduce the overall level of alcohol-related problems. Ad hering to the following preventive messages could make a difference were they to be adopted by each individual and the society at large:

- Be realistic about how long alcohol remains in your body. Even low levels of alcohol can increase the risk of all types of injury and can also impair child supervision. If you have been drinking, try to avoid activities that could result in potential harm.
- Apply the same safety rules, as for alcohol, to prescribed or over-the-counter medicines, as well as for drugs that may alter your perception and increase your injury risk. Do not mix alcohol with any medicines, even to over-the-counter ones.
- Excessive drinking can cause alcohol poisoning which can be deadly. Avoid binge drinking and keep within the recommended amounts of alcohol consumption.

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I would like to thank Athanasios Ntinapogias, psychologist - researcher of the Center for Research and Prevention of Injuries (CEREPRI) for his fruitful comments during the internal review of this paper.

ΠΕΡΙΛΗΨΗ

Μήνυμα 10: «Ενημερωθείτε για τους κινδύνους του αλκοόλ»

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Department of Health, Government of Catalonia

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Η κατανάλωση αλκοόλ έχει κατά καιρούς συνδεθεί με αρκετά ατυχήματα όπως για παράδειγμα τροχαία, πτώσεις, πνιγμούς, εγκαύματα και εκδηλώσεις βίας. Παρόλες τις προσπάθειες και τις εφαρμογές πρακτικών τόσο σε κοινοτικό όσο και εθνικό επιίπεδο, το μέγεθος των τραυματισμών που οφείλονται σε κατανάλωση αλκοόλ και αφορούν κυρίως νέους, είναι πολύ μεγάλο σε πολλές Ευρωπαϊκές χώρες. Συνεπώς, ο προσδιορισμός αποτελεσματικών πρακτικών που μειώνουν τον κίνδυνο τραυματισμών απο κατανάλωση αλκοόλ είναι ένας σημαντικό στόχος για τη δημόσια υγεία. Αυτή η εργασία στοχεύει: (α) να περιγράψει την έκταση του προβλήματος και τις κοινωνικο-οικονομικές επιπτώσεις των ατυχημάτων που προκαλούνται από χρήση αλκοόλ στις χώρες της Ευρωπαϊκής Ένωσης, (β) να επισημάνει τους υποκείμενους παράγοντες κινδύνου, και (γ) να παρουσιάσει τις επιστημονικά αποδεδειγμένες πρακτικές που μειώνουν την πιθανότητα ατυχημάτων από αλκοόλ. Μερικές από αυτές τις πρακτικές έχουν συμπεριληφθεί στον Ευρωπαϊκό Κώδικα Κατά των Ατυχημάτων, προκειμένου το κοινό να ενημερωθεί σχετικά με την πρόληψη των ακούσιων τραυματισμών.

Λέξεις ευρετηρίου: Αλκοόλ, Ατύχημα, Ευρωπαϊκός Κώδικας Κατά των Ατυχημάτων, Πόση, Πρόληψη

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