# Impact of Binge Drinking (BD) in Adolescence. Are we doing it right?

# Impacto del consumo episódico excesivo de alcohol en la adolescencia. ¿Lo estamos haciendo bien?

Ana Magdalena Vargas-Martínez\*, Marta Trapero-Bertran\*\*, Eugenia Gil-García\*\*\*, Marta Lima-Serrano\*\*\*.

\* Facultad de Ciencias de la Salud. Universidad Pontificia de Salamanca. Salamanca, España. \*\* Facultad de Ciencias Económicas y Sociales. Universitat Internacional de Catalunya (UIC). Barcelona, España. \*\*\* Departamento de Enfermería. Facultad de Enfermería, Fisioterapia y Podología. Universidad de Sevilla. Sevilla, España.

ear Editor,
Excessive alcohol use and alcohol use disorders are major causes of death and disability worldwide (WHO, 2014). According to the World Health Organization, 10% of adolescent deaths (those aged 15 to 19 years) in the European Region were attributable to alcohol (Drost et al. 2016).

Nowadays, one of the most prevalent patterns of alcohol consumption is called binge drinking (BD). In 2015 it was estimated that about 35% of European adolescents of 15-16 years old have had at least one BD occasion in the past 30 days (The ESPAD Group, 2016). Moreover, in Spain, the series of surveys on the use of drugs in adolescents of secondary education, ESTUDES 2014-2015, stated that 32.2% have performed at least one BD occasion in the last month (National Plan on Drugs, 2016) whereas a recent study by Golpe, Gómez, Braña, Varela & Rial (2017) concluded that 33.1% of Spanish adolescents were doing intensive consumption last year and 20% last month (3 or more alcoholic drinks per sitting and drunkenness). Moreover, 19.8% of adolescents were doing a risk alcohol consumption without significant differences by gender. Romo-Avilés, Marcos-Marcos, Tarragona-Camacho, Gil-García & Marquina-Márquez (2016) found small differences between the amount of alcohol consumed or in "botellón" participation between boys and girls. This suggests that intensive alcohol consumption and BD have increased in girls.

In the European Union, alcohol-attributable costs were estimated at €125 billion in 2003. In Spain, the total social costs of alcohol consumption can be around 1% of gross domestic product (more than 10.000 million euros) (Pulido, Indave-Ruiz, Ruiz-García, Bartroli & Barrio, 2014).

We did not find any study regarding costs associated with BD and underage drinking in Europe but previous works have shown youthful drinkers are at greater risk of: being victimized and perpetrating youth violence; low educational attainment; and low college expectations, putting a financial burden on the criminal justice system and educational sector. (WHO, 2014).

Based on the evidence, BD is mainly related to acute effects in young people, such as acute intoxication, accidental and intentional injuries, road crashes, scholar problems due to lower cognitive performance and brain alterations as well as school absenteeism caused by the symptoms caused by the hangover after acute alcohol intoxication, unprotected and unplanned sex, consumption of other drugs, legal problems due to the reduction of cognitive and verbal ability to resolve conflicts and developing an alcohol use disorder in adulthood (Pulido et al., 2014, Windle & Windle, 2017). In a research carried out by Windle & Windle in 2017 found that diagnostic accuracy of adolescent alcohol problems in predicting alcohol dependence 7 years later was 74%. In Spain, the annual prevalence self-informed about acute alcohol intoxication was higher than 30% in population between 15 and 34 years

Received: October 2017; Accepted: November 2017.

#### Send correspondence to:

Ana Magdalena Vargas-Martínez. Facultad de Ciencias de la Salud. Universidad Pontificia de Salamanca. Calle Compañía 5. Salamanca 37002 (España). Teléfono móvil: 670709328. E-mail: vargasmartinezam@gmail.com

old in 2011, being higher in adolescents between 15 and 16 years old (Pulido et al., 2014).

However, all these adverse or acute events could be associated to economic consequences such as outpatient care, hospital stays, some of the direct costs associated with violence as emergency care, police services or criminal justice, traffic accidents with healthcare and scholar absenteeism (Pulido et al., 2014; WHO, 2014).

Given the high prevalence and health, social and economic consequences of alcohol use and BD, it seems clear that strategies aimed at the prevention must be carried out. Which measures are taken today for prevention of alcohol use? To date, different programs to prevent alcohol use in adolescents have been designed (Foxcroft y Tsertsvadze, 2012; Jander, Crutzen, Mercken, Candel & de Vries, 2016). Currently there are some web-based computer-tailored prevention programs but they are more extended usually at international level.

A meta-analysis of computer-tailored interventions for health behaviour change showed these interventions would have clinically significant impact on rates of behavioural risk factors (Krebs, Prochaska & Rossi, 2010). On the one hand, these interventions have the potential to reach many people from different social classes and ages. This is because a significant percentage of the population, today, has access to the internet. On the other hand, tailored information is perceived as more relevant than no tailored information (Schulz et al., 2014).

Despite of international and national interventions (Foxcroft y Tsertsvadze, 2012) aim to prevent the alcohol use, in very few occasions their cost-effectiveness and their efficiency has been assessed (Drost et al., 2016). In a limited budget situation studying the cost-effectiveness of interventions is a need to assess health decision making. Therefore, cost-effectiveness analysis is a useful tool to inform the interest of an intervention and influence policy and health planning.

In conclusion, there are important gaps in the information about social and health harms associated to alcohol consumption in Spain, especially in the estimation of mortality and morbidity burden, the prevalence of alcohol use disorders, the social costs of consumption and the efficiency of preventive interventions or programs. Therefore, there is a need to evaluate the economic burden and economic evaluation of interventions of BD.

## **Authorship contributions**

AM Vargas-Martínez has prepared the first draft and coordinated the work. E Gil-García has reviewed the work and added the gender perspective. M Lima-Serrano and M Trapero-Bertran have contributed substantially to the text, have made critical revisions to its content. All the authors have approved the final version.

### **Funding**

This study has been prepared within the framework of the research project "ALCOHOL ALERT: Design, validation and evaluation of the program of selective prevention of alcohol abuse in adolescents: web-based computer-tailored intervention" (PI-0031-2014), financed by the Andalusian Public Foundation "Progress and Health" for the financing of research + innovation Biomedical and in health sciences in Andalusia for the year 2014 (Health Counseling).

### Conflicts of interest

None.

#### References

Drost, R. M., Paulus, A. T. G., Jander, A. F., Mercken, L., de Vries, H., Ruwaard, D., & Evers, S. M. (2016). A web-based computer-tailored alcohol prevention program for adolescents: Cost-Effectiveness and intersectoral costs and benefits. *Journal of Medical Internet Research*, 18, e93. doi:10.2196/jmir.5223.

Foxcroft, D. R., & Tsertsvadze, A. (2012). Universal school-based prevention programs for alcohol misuse in young people. *Evidence-Based Child Health*, 7, 450–575. doi:10.1002/ebch.1829.

Golpe, S., Gómez, P., Braña, T., Varela, J., & Rial, A. (2017). The relationship between consumption of alcohol and other drugs and problematic Internet use among adolescents. *Adicciones*, 29, 268-277. doi:10.20882/adicciones.959.

Jander, A., Crutzen, R., Mercken, L., Candel, M., & de Vries, H. (2016). Effects of a Web-Based Computer-Tailored Game to Reduce Binge Drinking Among Dutch Adolescents: A Cluster Randomized Controlled Trial. *Journal of Medical Internet Research*, 18, e29. doi:10.2196/ jmir.4708.

Krebs, P., Prochaska, J.O. & Rossi, J.R. (2010) A meta-analysis of computer-tailored interventions for health behaviour change. *Preventive Medicine*, *51*: 214-221.

Plan Nacional sobre Drogas. (2016). Encuesta sobre el uso de drogas en enseñanzas secundarias en España (ESTU-DES) 2014-2015. Madrid, España: Delegación del Gobierno para el Plan Nacional sobre Drogas, Ministerio de Sanidad, Servicios Sociales e Igualdad. Retrieved at http://www.pnsd.msssi.gob.es/profesionales/sistema-sInformacion/sistemaInformacion/pdf/2016\_ESTU-DES\_2014-2015.pdf.

Pulido, J., Indave-Ruiz, B.I., Ruiz-García, M., Bartroli, M. & Barrio, G. (2014) Estudios poblacionales en España sobre daños relacionados con el consumo de alcohol. Revista de Salud Pública, 8: 493-513.

Romo-Avilés, N., Marcos-Marcos, J, Tarragona-Camacho, A., Gil-García, E. & Marquina-Márquez, A. (2016). "I

- like to be different from how I normally am": Heavy alcohol consumption among female Spanish adolescents and the unsettling of traditional gender norms. *Drugs: Education, Prevention and Policy*. Advance publication online. doi:10.1080/09687637.2016.1259390.
- Schulz, D.N., Smit, E.S., Stanczyk, N.E., Kremers, S.P., de Vries, H. & Evers, S.M. (2014). Economic evaluation of a web-based tailored lifestyle intervention for adults: findings regarding cost-effectiveness and cost-utility from a randomized controlled trial. *Journal of Medical Internet Research*, 16, e91. doi:10.2196/jmir.3159.
- The ESPAD Group. (2016). ESPAD Report 2015: Results from the European School Survey Project on Alcohol and Other Drugs. Lisbon: European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). Retrieved at http://www.espad.org/sites/espad.org/files/ ESPAD\_report\_2015.pdf.
- World Health Organization (WHO). (2014). *Global status report on alcohol and health*. Retrieved at http://www.who.int/substance\_abuse/publications/global\_alcohol\_report/en/.
- Windle, M. & Windle, R. (2017) The Measurement of Adolescent Alcohol Problems via Item Response Theory and Their 15-Year Prospective Associations with Alcohol and Other Psychiatric Disorders. *Alcoholism: Clinical and Experimental Research*, 41, 399-406. doi:10.1111/acer.13301.