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Alcohol consumption in secondary-school students: effects on plasma total antioxidant capacity

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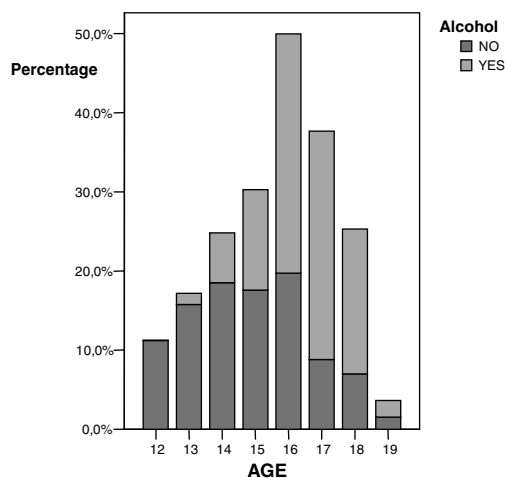
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National Household Surveys have been carried out biannually in Spain since 1994 to establish the patterns and trends of substance use among students in secondary education (age 14–18 years). Alcohol has been consistently, although to a different extent, the psycho-active substance of abuse most commonly used by students. In 2004 42.7% of 14–18 year olds had had a drink at least once in their lives, the prevalence being higher among boys than among girls (45.3% and 40.2% respectively).

The aim of the present study was to compare the prevalence of alcohol consumption in a random sample of students in secondary education (age 14–18 years) from Valencia (Spain) with that of the National Household Survey, and to relate alcohol use to antioxidant status.

An anonymous self-administered questionnaire designed to collect information on alcohol consumption was completed during school hours by a sample of 291 Valencian secondary school students between January and June 2006. A blood sample was collected from a subgroup of volunteers (n 53) and plasma total antioxidant capacity (TAC) was determined in 1 ml serum using spectrophotometry⁽¹⁾ in order to establish its relationship with alcohol consumption. Both TAC and alcohol consumption could have a negative impact on the present and future health of the subjects since excessive production of free radicals and lipid peroxidation may be implicated in the development of chronic diseases, such as atherosclerosis and cancer, and are responsible for cellular aging⁽²⁾.

Among this sample of adolescents the percentage of students surveyed in 2006 that reported using alcohol and cannabis was much lower (36.7%) than that in the 2004 Spanish National Household Survey (65.6%) and showed no significant gender differences. Reference values for plasma TAC were in the range 1.30–1.77 mmol/l, and did not appear to be affected by alcohol use (1.37 (sd 0.20) mmol/l v. 1.37 (sd 0.18) mmol/l). The Figure shows the percentage distribution of values for plasma TAC and alcohol use according to age.



Alcohol consumption does not significantly affect plasma TAC, probably because of its cardioprotective effects at moderate doses. Within this age-group no significant differences were observed.

1. Rice-Evans C & Miller NJ (1994) *Methods Enzymol* **234**, 279–293.
2. Soardo G, Donnini D, Varutti R *et al.* (2005) *Alcohol Clin Exp Res* **29**, 1889–1898.