

Knowledge of gestational alcohol drinking risks: results from a survey among Italian secondary school students

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Abstract

Introduction. Ethanol is the most widely used drug worldwide. Its consumption has been increasing, and it is reported even during childbearing. Prenatal exposure to ethanol can lead to irreversible damages of the fetus. Knowledge about this risk could prevent these damages. There is no information about knowledge of the Italian students on this issue.

Methods. Therefore the aim of this study was to describe the awareness of the Italian students attending the last year of secondary school about risk of gestational alcohol drinking for the delivering mother and the fetus. An online multiple-choice anonymous survey for students was used and e-mailed to the all Italian secondary schools.

Results. The respondents were 9.921 and the obtained results evidenced that that young females are more informed than males, and students in Northern and Central Italy are better informed than those in the South, especially on general aspects. The most of respondents knows that alcohol consumption during pregnancy can damage the fetus. However, many youngsters failed to translate this belief into the practice.

Conclusions. In conclusion, interventions are needed to enhance knowledge and prevent these damages, and health professionals, with nurses in the first row are entitled to provide education on this topic.

Key words

- alcoholic drinks
- fetal alcohol syndrome
- fetal alcohol spectrum disorders
- Italy
- pregnancy
- students

INTRODUCTION

World Health Organization (WHO) defines alcohol as “a psychoactive substance with dependence-producing properties” whose “harmful use (...) causes a large disease, social and economic burden in societies”; “harmful use” is intended as “a pattern (...) that is causing damage to health, (...) physical (...) or mental” [1].

Alcohol consumption patterns vary all over the world; despite the social and economic consequences that drinking implicates [2] alcohol continues to be legal and socially acceptable [3].

Ethanol is the primary ingredient in alcoholic drinks and its worldwide consumption has been steadily increasing unless successful measures change this trend [3].

Alcohol consumption has been related to an augmented risk of unplanned pregnancy, and can occur during the pregnancy if women are not aware to be pregnant, or they cannot refrain from alcohol [4]. These occurrences can lead to spontaneous abortion, low birth weight and preterm birth, besides permanent damages to the exposed fetus [3, 5].

Fetal alcohol spectrum disorders (FASDs) are conditions that may occur in fetus in utero exposed to alcohol: alcohol damages particularly the brain and central nervous system, and can cause permanent physical, cognitive and behavioural damages with overwhelming repercussions for the whole family. Fetal alcohol syndrome (FAS), the maximum expression of FASD, causes permanent, severe and irreversible brain damage and serious growth problems [4, 6, 7].

Women ought not to drink alcohol even when they might get pregnant, since they could not be aware of this status in a critical period for embryo formation and in any case, they should stop drinking as soon as they are aware on their pregnancy [7-9].

FASDs are totally attributable to alcohol consumption. Indeed, there is no safe amount of alcohol which can be consumed or safe time to drink during pregnancy [1, 2, 8]. Despite worldwide efforts to raise awareness on this risk, a remarkable amount of pregnancies are still alcohol-exposed. On average, in over the world, about 60% of pregnant women has drunk alcohol dur-

ing pregnancy and this problem affects also Italian pregnant women even if the real incidence of this occurrence is unknown [10-12].

THEORETICAL FRAMEWORK

Over the world, 38.3% population aged 15 years or older (mostly males) stated to have drunk alcohol in the previous year, with the highest values occurring in Europe [1, 2].

The epidemiological data on FASD and FAS are variable; there is no comprehensive mapping of the phenomenon due the limitations and the difference of the methods used for diagnosis and for data collection [13]. However, countries that have high rates of alcohol consumption reported higher rates of FAS [14].

In the state of South Africa the highest rate of FAS or partial FAS in the world are reported (68-89.2%) [15].

In the USA the prevalence of FAS and FASD were estimated respectively between 0.2-1.5% and 9-10% of born alive children in some studies (highest for Indian and Alaska Native populations) [14], while others estimated prevalence of FAS and FASD respectively between 6-9% and 24-48% [16].

The pooled prevalence in Canada was valued in 1% (FAS) and 5% (FASD) in the general population and 38 and 6 times higher among natives [11].

Burns reported an Australian prevalence rates of FAS between 0.01-0.68% live births (higher among indigenous) with possible under-ascertainment [13].

Currently, there are no comprehensive statistics on FAS and FASD in Europe and those available are probably underreported [2, 4].

A very high prevalence of FAS and FASD, ranging respectively between 3.7-7.4% and 20.3-40.5% was estimated among 543 Italian children of a single region. A further study on 976 children reported a prevalence (4-12% FAS and 23.1-62.6% FASD) higher than those estimated for developed countries [17, 18].

In a survey of a limited number of Italian neonatologists and Italian and Spanish paediatricians, more than 60% of Italian doctors and about 80% of Spanish ones answered to be aware that drinking alcohol during pregnancy is dangerous, however among 37.6%-56.4% professionals stated to allow women to consume occasionally wine or beer [5].

Even if worldwide the number of daily drinkers is declining, the youngest, girls in particular, are more likely to be risky drinkers and a prevalence between 5-81% of women consuming alcohol during childbearing has been reported [19].

In Italy, in 2015, 0.7% teenagers aged 11-17 consumed alcohol daily and 18.3% occasionally with these percentage 6.8% people aged 18-24 and 16.8% and 61.7% people aged 25-44 for daily and occasional consumption, respectively [20].

The mean of alcoholic drinks consumed between meals ranged from 2.9 glasses a week in young aged 11-15 to 4.3 glasses in people aged 25-29.

Binge-drinking (the consumption of 5 or more units of alcohol in a single occasion) is increasing in people of almost every age, particularly in women at childbearing age [2, 20].

Between 4-40% Italian women who drink significant quantities of alcohol during pregnancy can give birth to different degrees of alcohol-related damaged children and about a half women does not stop drinking alcohol when pregnant by ignoring or not perceiving the risks [10].

Among the fundamental factors that affect the extension and patterns of consumption worldwide, culture is included since a large amount of people are not aware of the alcohol related risks for their health, and that of the fetus [1].

WHO released international policies and action plans to support the development of research and evidence-based interventions at multiple levels to protect young people from pressure to drink, to raise awareness on the alcohol related problems, to prevent prenatal alcohol exposure and FASD [1, 2, 21, 22].

Recently, the European Commission and the WHO Regional Office for Europe began to monitor the interventions for prevention of fetal exposure to alcohol and endorsed an action plan for the stakeholders in the view of a comprehensive approach [2, 23, 24], underlining the need to support policies and interventions with up-to-date evidences, for actions oriented to students and women at childbearing age to protect young people and the unborn children through training, educational campaigns, and awareness raising activities since recent studies showed that interventions may be effective, i.e. in helping pregnant women to stop drinking alcohol [2].

In 2014 in the USA a survey on public health among students from the University of Alaska Anchorage was conducted and since students were considered at particularly high risk for alcohol-exposed pregnancies, knowledge regarding the alcohol related risks for the fetus were explored.

The 1035 respondents showed an excellent knowledge of the topic (between 85% and 93.4% correct answers). Since education and prevention of FAS and FASD courses have been conducting for about 10 years in this university, this data cannot be representative of all American college students although it can be argued that the courses are successful [25].

An essential step in developing prevention efforts is to identify the targeted individuals' level of knowledge and to date in Italy, no research has been conducted on this topic.

STUDY PURPOSE

To investigate the knowledge of the Italian students attending the fifth class of secondary schools about risk of gestational alcohol drinking for the pregnant woman and fetus.

METHODS

Study design

This cross sectional study was conducted with an online multiple-choice anonymous survey to examine the relationship between the "knowledge of the FASD" construct vs gender differences, age and type of school attended. The survey was based on a questionnaire that was submitted to the participating students using a web-based platform.

Sample and setting

In February 2016 we invited all the 4496 Italian public and private secondary schools to participate. A first invitation letter was e-mailed to them; a second and third e-mail were sent if no answers were received. After this self-selected sampling process, the number of the participating schools was 2025 (45% of initially invited schools). We asked to a referent teacher to describe the purpose of this study to the students and the modality to access and complete the on-line questionnaire.

Questionnaire

On the basis of the literature review, a questionnaire was developed and it was assessed for face and content validity. Firstly, it has been critically reviewed by a group of expert nurses and paediatric nurses ($n = 10$, median age 46 years and 4 months, median seniority 19 years and 8 months, 6 with Master Degree and 1 with PhD in Nursing) on clarity, understand ability, coherence, relevance, comprehensiveness and representativeness of the questions and for the need of modification.

In the pilot phase of this study, the revised questionnaire was administered to a small students sample ($n = 19$ students of high school) to test the understanding of the items. The results showed a good statistical strength of the instrument and no changes were required.

The questionnaire has been already used in 2015 for a survey in 9 public secondary schools of the Italian city of Genoa [26].

It consisted of 23 items: 7 related to demographic data and the type of attended school, and the other related to knowledge about the risks to the fetus exposed to alcohol and FASD.

Data collection

The data were collected on the platform "Survey Monkey", between February, the 15th and May, the 31st.

A total 10,867 Italian students completed the questionnaire; 946 (8.7%) were eliminated because of incoherent or missing responses. A total of 9921 questionnaires were processed (Figure 1).

Ethical considerations

Participants were assured that their anonymity would be guaranteed, and that that data would be managed only by the investigators and reported in aggregate form. They were also informed that by completing the questionnaire they were indicating their consent to participate.

Data analysis

Analyses were performed with "SPSS Statistics 22.0" software (SPSS, USA) and allowed to analyse the items of the questionnaire under the independent variables gender, geographic area and type of school.

The results are presented as percentages and mean \pm standard deviations (SD). The percentages were statistically compared between groups using the χ^2 test, and comparisons of mean were statistically analysed by performing an analysis of variance (ANOVA) 2-way. The associated differences with $p < 0.05$ were considered statistically significant.

RESULTS

The 55.4% respondents were females ($N = 5497$); 2.1% were under 18 years of age ($N = 209$), 55.4% were 18 years old ($N = 5497$), 31.8% were 19 ($N = 3154$) and 10.7% were 20 ($N = 1061$).

The 953% sample ($N = 9450$) was attending a public school and 4.7% ($N = 471$) a private one (Figure 2).

The 40.7% respondents ($N = 4041$) came from schools in the North of Italy, most of which in Lombardia (12.0%, $N = 1193$), and Veneto (9.9%, $N = 985$).

The 15.7% respondents ($N = 1557$) came from schools in the Centre of Italy, most of which in Toscana (6.1%, $N = 608$) and Lazio (5.0%, $N = 498$).

The 43.6% respondents ($N = 4323$) came from schools in the South of Italy and islands, most of which in Puglia (10%, $N = 991$) and Campania (8.7%, $N = 860$).

The findings showed higher percentages of correct answers to general questions, and lower to specific ones (Table 1).

The accuracy of answers was different between gen-

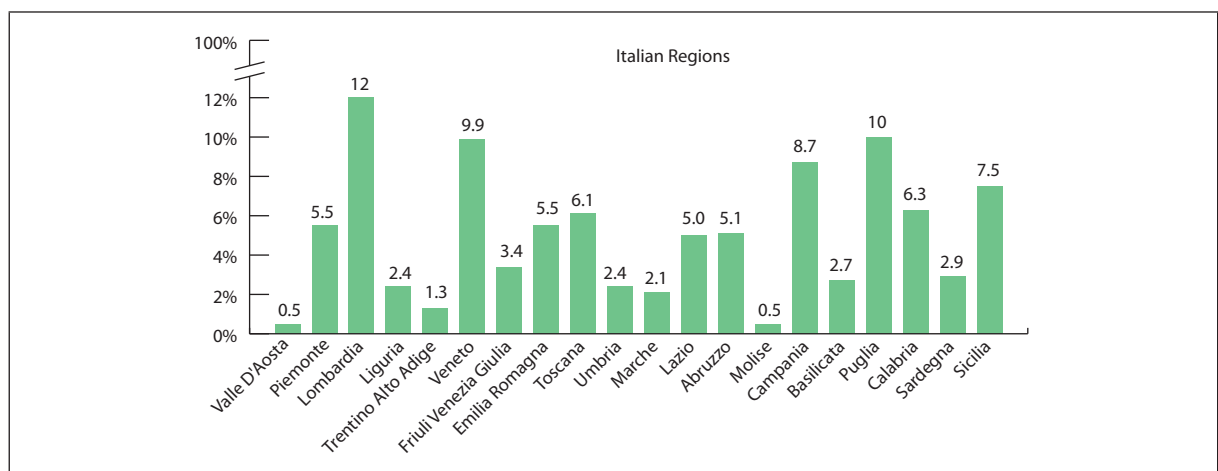


Figure 1
Students distribution for geographical area.

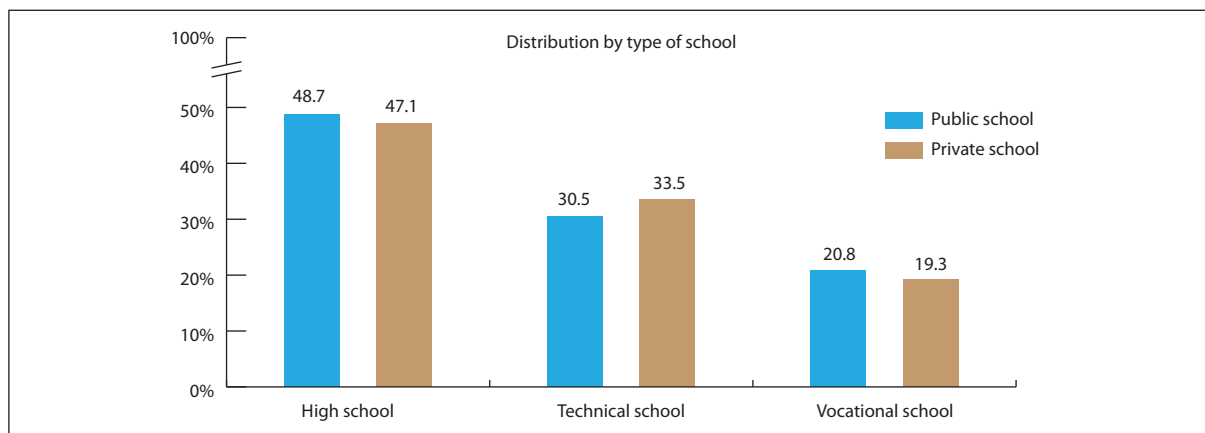


Figure 2
Students' distribution by type of school.

ders and even not statistically significant generally speaking, a significantly higher percentage females answered correctly with respect to males ($p < 0.01$) except for the question n. 12 - the duration of health problems for the fetus - (M 25.7% vs F 21.1%), and n. 18 - the correct meaning of Fetal-Alcohol Spectrum Disorders - (M 3.6% vs F 2.7%; $p < 0.01$).

Except for a question (n. 9), answered correctly in similar percentages among the all types of school, generally the student of high and vocational schools answered significantly better ($p < 0.05$) than those in the technical schools (in particular, to questions n. 8, 11, 15 and 22 the high and to question n. 13, 14, 16 and 18 the vocational schools) (available online as Supplementary Material).

In North of Italy the students answered correctly in a statistically greater proportion ($p < 0.01$) to questions n. 11, 12, 15 and 22, while in the South and islands to questions n. 16 ($p < 0.05$). The students correctly answered to questions n. 9 and 13 in similar percentage in all geographical areas.

Considering the totality of the questionnaire, the study shows that students in Northern and Central Italy

are better informed than students in the Southern Italy and islands with respect to the risk of gestational drinking on pregnant woman and the fetus (available online as Supplementary Material).

For question about FASD, the results shows that eighteen years old students responded correctly in higher percentage than students of minor age, with the exception of questions n. 12, 13 and 18.

The 20% students admitted to know the meaning of the term "FASD" mainly thanks to teachers, doctors or the mass media (questions n. 20 and 21).

DISCUSSION

First of all, it has to be said that the 45% adherence of the schools and the low percentage of respondents, as well as a highly heterogeneous adherence with greater adhesion in four regions, are the main limits of this survey. Nevertheless, it is well known that this occurrence is very common in this type of surveys and that even if we cannot consider this sample as significantly representative of all the Italian secondary school students, the absolute number of respondents is high, and this survey is the first and unique national study on this is-

Table 1
Percentages of correct answers

Question number	Question	% of right answers
8	Does drinking alcohol during pregnancy cause health problems to the fetus?	89.5
9	In your opinion, does drinking alcohol during pregnancy involve health risks?	80.1
11	If so, what level are the health problems of the fetus?	73.7
12	If so, respect to duration, how can be the health problems of the fetus?	23.2
13	Which type of alcohol can be drunk during pregnancy without any problem for the fetus?	60.2
14	How many standard drinks (glass of average strength of 125 ml can of beer of average strength wine 330ml glass of liquor from 40 ml) a pregnant woman can drink without causing health problems to the fetus?	46.9
15	Until a pregnant woman can drink alcohol without causing health problems to the fetus?	42.4
16	Drinking alcohol while breastfeeding may cause health problems to the child?	61.2
18	Do you know what is meant by the definition of Fetal-Alcohol Spectrum Disorders (FASD) ?	3.1
22	Do you think that FASD is preventable?	44.6

sue, giving for the first time information on a striking issue of risks associated to alcohol consumption during pregnancy. Indeed, this first study can prompt further extensive investigations having an ever-clearer picture with the aim of creating a framework useful for planning prevention interventions.

The results underline that females are better informed than males on the specific issue and students in Northern and Central Italy are better informed than those in the South, especially on general problem aspects. The most of respondents knows that alcohol consumption during pregnancy can damage the fetus; however, many failed to translate this belief into the practice.

Conclusion and recommendation

As American students [25], the most of Italian students are quite well informed that alcohol assumption during pregnancy can cause harms to fetus and to mother, and recognize that FASDs are birth defects that last a lifetime. However, they are confused about the fact that also sporadic drinking during pregnancy is not safe for the fetus. Although about 90% respondents stated that drinking alcohol when pregnant can damage the fetus, only 60% and less than 50% stated, that any type and any amount of alcoholic drink can be assumed, respectively and failed to translate the awareness of the risk of gestational drinking into the recognition that this means “zero drinks” throughout pregnancy.

This can be explained by the unclear messages that even come from health professionals, and opinion-based rather than evidence-based information that can lead to the lack of perception on the risk [7]. For instance, Italian gynecologists and neonatologists do not have a common position about the absolute banning of alcohol in pregnancy [5].

Clear and extensive public information and school education on this topic are lacking, and this is considered one of the causes of the scarce information and awareness of related alcohol problems for the fetus when drinking during pregnancy [7].

These results are an additive information coming for a Mediterranean country that support the worldwide call for effective prevention interventions of alcohol consumption during and even before pregnancy, starting from school age [7, 11, 21, 27].

Evidence-based prevention interventions for FASD have to be developed and tailored within the local context [7]. In this light, the results of this survey can help to choose appropriate strategies to inform about the risks of drinking during pregnancy for the young Italians, as targeted interventions for children and adolescents are recommended as priority [1, 28].

Italy has several regional, national and international systems to monitor alcohol related problems and program health care interventions to prevent and face the harmful consumption of alcohol [29]. Nevertheless, there are currently no programs specifically targeted at students on the prevention of FASD.

As reported by international literature, among the feasible interventions suggested, general information at school [7] educational sessions that seem to have

effects on approach to alcohol consumption during childbearing [2] and programs for students based on psychosocial and development components that have demonstrated a certain effectiveness are suggested [30] with all interventions addressed to both girls and boys [7].

People's awareness of FASD is globally at a very low level and appraisal of this aspect is crucial to guide the process of decision-making on prevention interventions [7]. However, it is imperative to recognize that FASD prevention entail much more than just giving information on the risks of alcohol drinking when pregnant, and that its effectiveness must be assessed in order to undertake subsequent cost-effective actions [7, 11].

Implication for nursing practice

Health services and professionals are central in the development and the delivery of prevention interventions and are expected to take initiatives aimed to educate people about alcohol-related harms [1, 2, 23]. There is some evidence in the success of multi-component community interventions for changing people's behaviour on this issue [1], although it is unclear whether, for young people, multi-component interventions are more effective than single ones [31].

Nurse-conducted brief interventions can be effective to reduce alcohol consumption. In addition, being prevention a focus of nursing profession, nurses should be engaged with full rights in the implementation of such kind of interventions [32].

Implication for Health and/or Social Policy

Population protection from the damage related to the use of alcohol is a public health high-priority, and one of the targets of the WHO [1, 2].

Clearly public health messages about drinking and pregnancy should reach people from a young age, so that even youngsters can perceive alcohol as a toxic substance, can know the multiple risks associated with alcohol consumption during pregnancy and can learn that abstinence from alcohol is the only way to preserve the health of the mother and the newborn.

Comprehensive data of this phenomenon and related knowledge are essential for the policymakers and the stakeholders to implement effective and sustainable intervention for the promotion of the awareness on the risk of gestational alcohol consumption to avoid the birth of millions of newborns affected from permanent damages when the causes are well-known and totally preventable [7, 11, 13].

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