A Facebook survey to obtain alcohol-related information by young people and adolescents. An Italian study

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Abstract

Background : **Alcohol consumption by adolescents and young adults is an issue of significant public concern. Internet-based Social Networking sites, such as Facebook™, are potential avenues to reach young people easily.**

Objective : **to underline the innovation in proposing surveys to collect health-related information regarding young people alcohol consumption and other substances abuse by using Social Networking Websites, particularly Facebook™.**

Methods : **A questionnaire investigating modalities of alcohol consumption, drinking patterns' risk behaviors and other substances abuse was proposed through a "Facebook event" to young Italian Facebook users aged between 16 and 32. Each Facebook user invited to the event was free to participate, to answer to the questionnaire and to invite his "Facebook friends".**

Results : **During the 89 days of permanence on the Social Network, 1846 Facebook users participated the event and 732 of them decided spontaneously to answer the questionnaire. The frequency of answering was 8,2 people per day. About 200 users wrote a positive comment to the initiative on the wall of the event. Sixty% of subjects participating the survey were females. Ninety-one% of people answering the questionnaire were alcohol consumers. More than 50% of alcohol consumers were also smokers. Approximately 50% of subjects were binge drinkers. Illegal drugs were used by the 22.2% of the interviewed people.**

Conclusions : **Facebook™ resulted an efficient and rapid tool to reach young people from all over Italy and to propose surveys in order to investigate alcohol consumption and alcohol-related health problems in the youth.** (Acta gastroenterol. belg., **2014**, 77, **18-24**).

Key words : alcohol, young, Facebook, survey, social networking.

Introduction

Alcohol consumption by adolescents and young adults is an issue of significant public concern (1,2) associated with a high risk of chronic diseases and other dangerous behaviors (3-5). The most common pattern of alcohol consumption in youths is known as "binge drinking" (6), which indicates that five or more standard drinks are taken in a very short period of time (7). Binge drinking is particularly at risk since it is associated with one third of all fatal road traffic accidents among young people between 15 and 20 years of age. This habit usually begins in the early adolescence (8,9) and in some countries, i.e. in the USA, involves about 90% of adolescent alcohol consumers (10).

In Italy, traditionally considered a "during meals" alcohol-consuming country (11,12) an increasing trend towards binge drinking has been observed in the last years (13). Recently, two national surveys carried out by ISTAT (14) and Doxa (15) have collected a large number of data about the diffusion of alcohol drinking and binge drinking among young people. However, the above-mentioned studies, while offering a general evaluation of these aspects, show some limitations. The ISTAT results, in fact, are essentially based on the reports of a questionnaire delivered at home and filled out in the familiar context. This modality of interview can underestimate the phenomenon because of the big influence made by the absence of control of the correct answering and by a certain degree of psychological inhibition to face up this tricky health problem. The DOXA survey is based on an interview proposed to young people at home by an expert examiner. The presence of an unknown figure, the hunt to face up this subject with other people and the domestic context are aspects that may significantly influence the results. Other surveys on alcohol consumption have been proposed to school students in different Italian areas but these might have been influenced by the characteristics of the sample (16,17). Therefore, recruitment and retention of adolescents and young adults participating the study is very difficult and must be carefully developed to maximize participation in public health research (18).

Internet-based Social Networking sites, such as Facebook™ , are potential avenues to reach young people easily. About 600 billion people all over the world use this Social Network every day and our country stands ninth in the world for the number of Facebook users (19). In Italy, 25% of the population of all ages uses Facebook™ and about 50% is aged between 17 and 32 years (20). By visiting social networking sites such as MySpace or Facebook™ we have noticed that it is the most popular computer activity among people between 8 and 18 year of age, accounting for an average of 22 minutes a day across all age groups. On a typical day, 40% of young people will go to a social networking site, and those who

visit these sites will spend an average of almost an hour a day on this activity. The percentage of young people (i.e. between 8 and 18 years of age) who engage in social networking ranges from 18% to 53% (21). The scientific community has taken notice of different positive aspects of social networking, such as peer feedback, increasingly fast response times for scientific discovery, collaborative design and research ; creation of blogs and support groups of individuals ; providing a social context where to propose educational programs or resources (22). Moreover, social networking provides an effective method of satisfying human desire of communication, both with friends and with unknown figures, institutions, and communities.

One main limitation of clinical studies based on interview, especially when investigating tricky health problem with a social backlash as alcohol consumption, is linked to recruitment of adolescents and young adults participating the survey. So the main purpose of our study was to underline the innovation in proposing surveys to collect tricky health-related information regarding young people, like alcohol consumption and other substances abuse, by using Social Networking Websites, particularly Facebook™ .

We hypothesized that spreading an anonymous questionnaire to a large number of young subjects through Facebook™ might allow to acquire a large amount of information and to obtain unconditioned opinions in anonymity. Therefore, in order to investigate the drinking habits of young Italian people, we planned a Facebook event and put on it a questionnaire investigating several aspects of alcohol use such as drinking patterns, frequency and quantity of alcohol assumption as well as possible association with other dangerous behaviors and other substances abuse.

Methods

Participants

Italian young Facebook users, aged from 16 to 32 years, were invited as first step by our group of researchers. Subsequently, the continuity of enrollment was ensured directly by Facebook users previously invited to our Facebook event through a "friendship chain". The aims of enrollment were to give visibility to the Facebook event, to give the users the opportunity to participate (actively or not) to the event's activities and discussions and to give a free choice to answer to our anonymous questionnaire available on the Social Network event.

Modality of survey

A "Facebook event" was created by a group of Gastroenterology Fellows (Z.C and G.L), aged between 24 and 27 years, experienced in Social Networking. The chief of the GI Unit (CL) coordinated the working group. The Facebook event was active on the social network for 89 days is from February 1st to April 30th, 2011. It consisted of a private Facebook page, joinable only by Facebook users selected by invitations. It was composed of a main page, an "event's wall" and a list of participants. On the main page of our Facebook event the information about our group was available, the interview criteria and simple instructions about the criteria of inclusion to the survey such as the age of the participants, nationality were provided. A link to the web page of our questionnaire was present on the wall. Each Facebook user who was invited to the event was free to participate, to answer the questionnaire and to invite his "Facebook friends" to the event. This modality allowed the participants to answer spontaneously. Furthermore, each Facebook user who accepted to participate the Facebook event was able to express his opinion about the initiative by leaving a comment on the event's wall.

Interview content

Demographic variables and physical parameters (i.e. sex, age, body mass index-BMI) were investigated. BMI was calculated through the International Formula linked to the question : weight (Kg)/height (m)^2. The social class was established using educational qualifications. Alcohol consumption was investigated through questions concerning quantity and frequency of alcohol consumption in the last 12 months. The alcoholic beverage was differentiated in wine (red/white), beer (blonde/dark), cocktails spirit-based, short-drink spirits. The total alcohol consumption was calculated adding up the number of drinks consumed on a single "occasion" with the number of drinks consumed in a typical week. A drink was taken as an Alcoholic Unit (AU). One drink corresponds to a glass of wine, a can of beer or a measure of spirits, and is equivalent to 11-13 g of pure alcohol. The alcoholic measure was also explained to the answering person in the correspondence. Binge drinking, its frequency and its association to risky behaviors were also evaluated. The frequency of heavy week drinking (more than 7 drinks a week for females and more than 14 drinks a week for males) was evaluated. Risky behaviors associated with alcohol consume were evaluated by asking each participant about smoking habits and the use/abuse of different drugs, psychotropic or not, and illegal drugs. The context of drinking (i.e. familiar, working, or social contexts) and the favorite week day and locations for alcoholic consumption (i.e. bar/pubs, party, discos) were also analyzed.

Statistical analysis

Descriptive statistics were used to summarize the results about the recruitment modalities, the characteristics of the participants and alcohol consumption. The results were expressed in absolute number, percentage, average ± standard deviation (SD). Statistical analysis was performed through SPSS 13.0 version.

Results

Survey

During the 89 days of permanence of the questionnaire on the social network, by using the users' spontaneous chain of invitations, a total of 1,846 Facebook users were added to the event. Each of them had the possibility to visualize the Facebook event's wall and a short description of the characteristics and aims of the proposed study, to leave comments, to click on the questionnaire's web page link. The subjects who accepted to be interviewed by opening the questionnaire link and filling it out were 732, corresponding approximately to 40% of Facebook users invited to the event. The frequency of spontaneous Facebook users' enrollment was about 20 people per day. The frequency of Facebook users invited to the event who accepted to answer to the survey present on the event's wall was about 8,2 people per day. A total of 202 people, about 28% of the interviewed people, wrote a comment to the initiative on the wall of the event. Quite the totality (98%) of the comments was in favor of the initiative, while only 2% criticized it negatively. Negative comments included complaints about the length of the questionnaire, considered excessive by two participants, and the difficulty in remembering alcohol consumption in the past year. However, most of the participants who commented on the event showed interest in obtaining results from our survey.

Demographic characteristics

Main demographic characteristics, sorted for gender and age classes, are reported in Table 1.

In particular, about half of the interviewed (53.1%) was aged between 21 and 25 years, 24.6% between 26 and 30 years, 19.7% between 16 and 20 years ; 1.4% was older than 30 years. The average age was 21 years for females and 27 years for males.

BMI values were within the range of normality (19.1 to 24.9) in most cases (52.4%). Twenty-four % of the interviewed was overweight with a BMI ranging from 25.1 to 30. Only 6.8% was obese with a BMI value higher than 30. 4.6% had a BMI lower than 19, and 0.4% had a BMI lower than 16. BMI average values were higher in males than in females.

The socio-economic variable analyzed in our study was the educational level. The majority of subjects (54.6%) had received 13 years of education, 39.1% were graduated from University and 5.1% attended school for eight years.

Drinking habits

The total number of the interviewed who had got drunk in the last year was 668 (91% of interviewed), 389 females (about 88.0% of the females total number) and 279 males (96.2% of the males total number), with a median weekly alcohol consumption of 5 drinks (range 1-14 drinks) and of 4 drinks (range 1-12), respectively. These subjects have been defined alcohol consumers. About 95% of alcohol consumers did not provide a preference for a definite alcoholic beverage. The favorite drink was represented by beer (blonde), chosen by 83.5% of male alcohol consumers and by 52.6% of the female alcohol consumers. Among alcohol consumers, 48.7% of females and 42.5% of males reported to drink hard-liquors. Wine was consumed by 71.8% of males and by 15.4% of females (Fig. 1). Approximately 78% of alcohol consumers used to drink during the weekend and 13.2% indifferently during the week. The best occasions to consume alcohol were represented by parties (reported by 47% of alcohol consumers) and bar/pub (44%). Almost 2% drink at home in front of the TV or PC. Approximately 90% of males and 93.8% of females reported to drink with friends, while only 2.8% used to drink alone. Five% of the interviewed were heavy drinkers.

Drinking and smoking

About 52% of alcohol consumers associated smoking and drinking. Approximately 60% of females and 51.6% of males associated drinking and smoking (Fig. 2). Among last year's smokers only 5% reported not to have consumed alcoholic beverage in the last year.

Table 1. — **Main demographic characteristics sorted for age classes and sex**

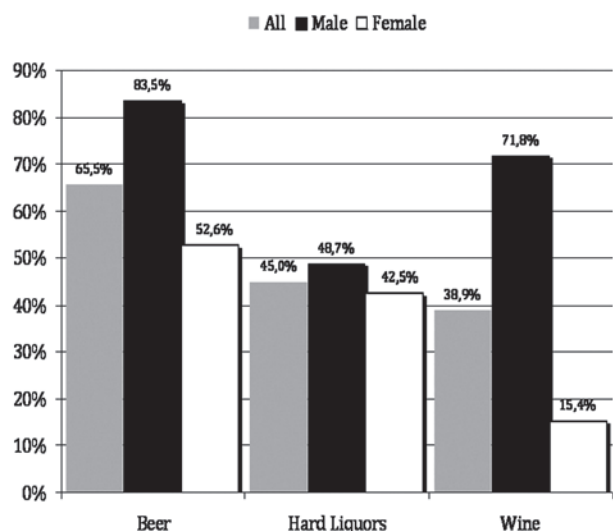|		Males	Females
Total Number (%)		290 (39.6%)	442 (60.4%)
Age class 16-20 years	Number of interviewed (% of total) BMI (average ± SD)	49 (16.9%) 24.03 ± 9.099	97 (22%) 21.36 ± 8.877
Age class 21-25 years	Number of interviewed (% of total) BMI (average ± SD)	146 (50.3%) 24.50 ± 7.476	246 (55,6%) 22.02 ± 8.094
Age class 26-30 years	Number of interviewed (% of total) BMI (average ± SD)	88 (30.4%) 25.12 ± 8.561	96 (21.7%) 22.03 ± 9.334
Age class > 30 years	Number of interviewed (% of total) BMI (average ± SD)	7 (2.4%) 26.40 ± 11.905	3 (0.7%) 19.66 ± 6.833

Fig. 1. — Beverage Choice Among Alcohol Consumers (*p < 0.05 and **p < 0.01 vs Male).

Fig. 2. — Percentage of "smokers and drinkers" among alcohol consumers (Gender Differences) (p = n.s.).

Drug Use

Thirty-six% of the interviewed reported use of drugs (more than once a week for three months or more). One half of them reported the use non-steroidal anti-inflammatory drugs (NSAIDs), 15% steroidal anti-inflammatory drugs (SAIDs), 15% unspecified drugs and about 3% antidepressants/anxiolytics. Eleven % of females used contraceptive pills.

Among alcohol consumers, 33.5% reported the use drugs ; 18.5% of them used NSAIDs, 1.4% SAIDs, 4.2% unspecified drugs and about 1% antidepressants/anxiolytics. Contraceptive pill was used by 6.4% of the girls who had consumed alcohol in the past year.

Illegal drugs were used by the 22.2% of the interviewed. Ninety-seven% of the interviewed who reported the use of illegal drugs were also alcohol consumers.

Binge drinkers

About one half of the subjects (45.9%) were binge drinkers. Fifty-six% of them were females and 43.7% were males, with a median single occasion alcohol consumption of 6 drinks (range 5-10 drinks) and of 5 drinks (range 4-9), respectively. The average age was 24 years (range 16-30) both in males and females and both in binge drinkers and in non-binge drinkers. The average BMI value was 21.8 for females and 24.5 for males, confirming that gender differences in values of BMI are independent of alcohol consumption (Table 2).

Most of the binge drinkers (54%) had received 13 years of education, 38% were graduated or more. In the subgroup of binge drinkers, drinking was reported during the weekend by 78.9% of the interviewed while 22.9% had no preference for a particular day of the week.. Among non-binge drinkers, 63.9% reported to drink during the weekend and the 9.8% had no preference for any particular day of the week. The majority (69%) of the
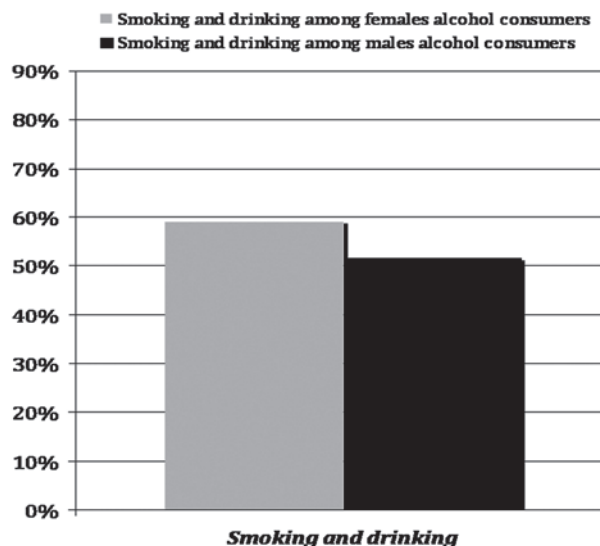
binge drinkers reported to have smoked in the past year, while only 42.1% of the non-binge drinkers had smoked in the past year. BMI median value among non-binge drinkers was 23.7 while BMI among binge drinkers was 23.6.

There was a difference in the amount of drugs used by binge- and non binge-drinkers, binge drinkers using approximately twice as much of anxiolytics and antidepressants compared to non-binge drinkers (Table 3).

Discussion

In our opinion the relevance of this study relies in the novelty of the method adopted for recruitment, based on the use of a social network in order to obtain safely confidential information from young people and adolescents. Overall, Facebook was a successful recruitment source for young-adult to complete a survey about alcohol consumption and other substance use.

To the best of our knowledge, this is one of the first studies by means of which a survey aimed at investigating alcoholic social health problem is proposed to adolescents and young people by using a no-cost inviting chain on a Social Networking Website. By using this recruitment tool, operators only need to be familiar with Social Networks' use, permissions and rules, and quick creation of a friendship chain for launching the survey. This procedure is cost-saving and avoids useless waste of time. In fact, Facebook, the most used Social Network in our country, is free and available on the Internet, and represents a low cost media worldwide approachable. Moreover, to the best of our knowledge, this is one of the first studies in which the interviewers themselves were main actors of the proposed interview. We were able to interplay with the interviewed people for three prominent reasons : 1) the continuous management of the Facebook event ; 2) the friendly answering to comments of the

Table 2. — **Binge Drinkers characteristics**

Total Number: 336 Percent of interviewed: 45.9%		
	Male Binge Drinkers	Female Binge Drinkers
Number (% of binge drinkers)	147 (43.7%)	189 (56.3%)
Median years age (range)	24 (17-30)	24 (16-29)
BMI (average ± SD)	24.5 ± 4.091	21.8 ± 6.502

Table 3. — **Main differences among binge drinkers and non binge drinkers**

	Binge Drinkers	Non Binge Drinkers	p-values
Number (%)	45.9	54.1	-
Median years age (range)	24 (16-30)	24 (16-30)	-
BMI (average ± SD)	23.6 ± 5.032	23.7 ± 6.054	n.s.
Week-end drinking	78.9%	63.9%	n.s.
Any week days drinking	22.9%	9.8%	< 0.05
Smokers in the last year	69%	42.1%	< 0.05
Anxiolytics/Antidepressant use	3%	1.8%	< 0.05

n.s. = not significant.

interviewed people and helping in solving difficulties linked to understanding the questions ; 3) the simple but concrete approach to the young people collectively due to the deep comprehension of young habits and lifestyles by the interviewers.

Through Facebook™ we were able to recruit easily and rapidly young people from all over the Italian country. Web-based recruitment methods have already been proposed, including paid advertising and links on websites and online discussion boards (23-25). A few studies used paid Facebook advertising to recruit participants (26,27). Most of these studies grouped Facebook advertising with other online advertising strategies and, only one study (28), compared three methods for inviting young adult smokers to complete a survey : 1) Advertisements on free on-line pages ; 2) Other Internet advertisements (including Facebook, My Space and other Social Networking sites, Google and other file-sharing sites) and 3) Invitations to members of the Internet market research panels. Method 2 resulted to attract younger participants and males more than the other methods, but it yielded the most complete surveys overall, while methods 1 and 3 were the most effective. Demographic characteristics were not analyzed. As shown by a Canadian study, direct mail can cost $14-$27 per participant, while site visits to facilitate face-to-face contacts can be expensive as well (29). Another study used Facebook advertisements in 2005 to invite US college students to complete a survey about opioid misuse (30). This study found that male and white students were more likely to respond to the advertisement. Newly, demographic characteristics were not reported. At the time of previous reported studies Facebook™ was far less popular than today. On this Social Network, young users aged up to 34 years old represent more than 50% of the total users of Social Networks (19). Facebook users share their private life's information, creating a virtual identity profile parallel to their real world's identity. By this personal page shared on Facebook, users are able to communicate freely, without real-life related inhibitions. On this background, interviewers can obtain reliable answers, reducing significantly the influence related to psychological inhibitions related to the familiar and social context and to the face-to-face modality of approach. In this way, people can choose spontaneously to answer and participants are certain to never be identified because of the anonymity of the questionnaire. Different studies have been carried out to recruit research participants through Facebook or different Social Networks by creating Facebook group pages or employing chain references, or snowball sampling, to obtain a convenience sampling and a rapidity in recruitment by providing great results (31-37). This technique may be efficient and cost effective but its potential to attract a representative sample is limited because of the actual reticence on the use of social network for epidemiological purposes. In addition to this scientific prejudice, other limitations could be a) the need of being a "social network user" and b) the absence of a "face to face modality of supervision" in the compilation of the questionnaire proposed through the web. Moreover, it's necessary to consider that this modality of selection has a potential bias in generating the sample of interview because alcohol consumers are probably more concerned by this Facebook event than non consumers.

On the other hand data collected in our study about alcohol consumption and its association with other risky health behaviors (i.e. smoking tobacco, use of illegal drugs) show the same alcohol consumption tendencies

yet present in most cited studies of scientific literature concerning this argument (12,13,17,38,39).

Overall trends in Social Networking medical research are increasing overtime and are expected to grow in the future. However, the use of Facebook to recruit adolescents as research participants is able to add to traditional recruitment techniques by further minimizing losses to follow-up, as already demonstrated (18). Prensky, a web-based learning expert, claims that today's students and young people "think and process information differently" from pre-digital world counterparts. People who were born in the 1980s are named "digital natives" because of their predisposition for taking information by using digital technology (40). Digital data can be created and viewed anywhere, an ability that can be translated to new educational opportunities as already experimented by several high schools, universities or media player markets. Apple Computer's iTunes™ , brand dominating the media player market and learning web distribution, has recently launched "iTunes University", a subset of its on-line media store devoted to diffuse educational programs towards the web. Therefore, different groups of researchers, especially in the study of health social problems, have already used blogs or micro-blogs to propose educational programs to well-defined group of individuals.

Because of these motivations, our future aim would be at first to propose an educational program to the same Facebook event's members group and, after that, to evaluate potential differences in alcoholic behaviors to let people understand which are the alcohol-related health risks. As a second step we would like to explore the world of young alcohol consumption by "spying" their alcoholic habits on non-private Facebook profiles.

In conclusion, the Social Network can be a great instrument for survey-based clinical research in order to obtain truthful answers to simple questions proposed on large-scale and possibly to educate and sensitize young people to important health problems.

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