

Gender convergence in adolescent drunkenness in different Italian regions

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Abstract

Objectives The aim of this study was to investigate time trend changes in frequency of drunkenness among Italian adolescents. Gender convergence in adolescent drunkenness was evaluated in different geographical regions.

Methods The survey reported here is part of the larger cross-sectional (2002/2006/2010) “Health Behaviour in School-aged Children” (HBSC) trans-national study. The sample comprised 13,174 Italian middle and secondary school students (50.3 % girls). Data were collected through a self-report questionnaire. Data on drunkenness and demographic characteristics were used for this study. Trends were determined using the Gamma statistics.

Results Prevalence of drunkenness decreased from 2002 to 2010 in both boys (from 26.9 to 21.8 %) and girls (from 18.7 to 15.0 %). Consistent with the hypothesis of gender convergence, the difference in the prevalence of drunkenness between boys and girls declined from 2002 to 2010 in the south of Italy and in the islands.

Conclusions Future researches and prevention programs on drunkenness should give more consideration to geographical-cultural differences not only by comparing or

taking in consideration different countries but also by comparing different regions in the same country.

Keywords Adolescence · Drunkenness · Time trend · Gender difference · Italy

Introduction

Adolescence is a time for exploration, and alcohol use is a common behaviour that increases dramatically during this phase of human development (Johnston et al. 2006; Simons-Morton et al. 2009). Alcohol consumption is a major risk factor for mortality and morbidity throughout the life span (Berks and McCormick 2008; Rehm et al. 2004), and during adolescence it is associated with a range of adverse consequences, including academic problems, future drinking and drugs use, delinquent behaviour (Ellickson et al. 2003), motor vehicle crashes (Shope and Bingham 2008), and physical and emotional problems (Tomlinson et al. 2004). More specifically, drunkenness has been associated with adverse consequences and health problems such as fatal and non-fatal injuries, blackouts, suicide attempts, unintended pregnancy, sexually transmitted diseases, academic failure, and violence (Perkins 2002).

In Italy, alcohol use and abuse is supposed to be a direct or indirect cause of 10 % of all illnesses, 41 % of murders, and 45 % of motor accidents (Scafato et al. 2004). More specifically, 13.5 % of adolescents (15–24 years) are estimated (self reported) driving motorbike or car after being drunk. Information with respect to adolescents’ drunkenness and changing this behaviour over time seems to be necessary for a responsive public health policy (Rehm and Scafato 2011; Spoth et al. 2008). For this reason, the main aim of this study is to investigate time trend changes in frequency of drunkenness among Italian adolescents from different regions.

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For several cultural reasons (wine production, cultural attitudes, etc.), adolescents from the south of Italy reported lower frequency of drunkenness than their counterparts from the north (Scafato et al. 2011). However, recent reports seem to indicate that adolescent drinking is no longer consistently higher in the north compared to the south (Cavallo et al. 2006). This trend is in line with the “cultural convergence” on drinking behaviour that we are observing in Europe (Kuntsche et al. 2011). This convergence can be attributed in Italy to the increase we observed of the “trendy” phenomenon of drinking “out of meal” (ISTAT 2011a) and to a tendency that is growing in Italy to approximate a northern European style in the use of alcohol, that is, binge drinking (Dallago and Santinello 2006).

In addition to the evidence of cultural convergence across different geographical areas, evidence of gender convergence among adolescence is now emerging (Kuntsche et al. 2011). In their study, Kuntsche et al. (2011) determined that this convergence was attributable more to an increase of prevalence of drunkenness among adolescents girls coming from particular geographical areas (e.g., eastern Europe), where gender roles became less distinct as a result of the increasing participation of women in the labour force and the accompanying changes in women’s lives.

A similar phenomenon has taken place in Italy, as an overall phenomenon in the whole country, but especially in Southern Italy, where the change in the labour market, in job opportunities and in women’s financial possibilities has brought about a greater independence from the family and a less marked distinction from male’s behaviour.

To our knowledge, no study has examined the hypothesis of gender convergence in drunkenness in Italy and by comparing different geographical areas of the country. We expected gender differences to become less pronounced in the last decade, particularly in the south of Italy (Scafato et al. 2011), where gender roles are becoming less distinct.

Based on a unique data set of nearly 13,000 Italian adolescents from five geographical areas surveyed over 8 years, this study investigated the convergence in the frequency of adolescent drunkenness over time across geographical areas and gender. In particular, we hypothesized that drunkenness has increased among girls, particularly in the south of Italy, and has remained stable or decreased among boys (Kuntsche et al. 2011).

Methods

Procedures

This study was conducted with a sample of Italian middle and secondary school students drawn from a research

project that is part of the “Health Behaviour in School-aged Children” (HBSC) project, a trans-national study conducted every 4 years and carried out in collaboration with the European office of the World Health Organization (Currie et al. 2009). The research protocol included three age groups: 11-, 13-, and 15-year-olds corresponding to the 6th, 8th, and 10th grade (first and third grade of Italian middle school, and second grade of Italian secondary school).

Across the survey years, data were collected via self-report questionnaires during a regular school day, and participants were assured of the confidentiality of their answers.

Participants

Participants were chosen through a sample clustering approach (Thompson 1999): First, the schools were randomly selected from the National School Office’s database of all public schools, and then in each school, one class for each age group was selected randomly. Within each area of the country (northwest, northeast, central, south, and islands), samples were stratified to represent the distribution of students in grades 6, 8, and 10 (modal ages 11, 13, and 15) and to be representative of the schools’ student populations. The sample includes all students in the selected classes. This particular design ensured a sample population that accurately reflects the referent population.

The questionnaire was completed by a total of 13,174 adolescents and early adolescents students coming from the five principal geographical areas of Italy (50.3 % girls; Table 1 offers a detailed overview). The average age of each of the three age groups was 11.67 ($N = 4,339$), 13.69 years ($N = 4,648$), and 15.70 years ($N = 4,101$).

Measures

Data were collected through a self-report questionnaire devised by the HBSC international group and focusing on health behaviours of early adolescents and adolescents.

Table 1 Final sample size (and response rates), by gender, Italian geographical area, and survey year (2002, 2006, 2010)

Geographical area	Boys (<i>N</i>)			Girls (<i>N</i>)			Response rate (%)
	2002	2006	2010	2002	2006	2010	
Northwest	550	466	680	588	463	539	75.87
Northeast	288	298	432	355	278	471	72.87
Centre	362	404	464	422	377	438	73.29
South	641	568	595	632	558	679	69.83
Islands	284	262	287	264	277	287	67.62
Total	2,125	1,998	2,423	2,261	1,053	2,414	71.89

The outcome measure was the frequency of drunkenness. The students were asked: “Have you ever had so much alcohol that you were really drunk?” Responses were rated on a five-point scale (1 = no, never; 2 = yes, once; 3 = yes, 2–3 times; 4 = yes, 4–10 times; 5 = more than 10 times). To evaluate the prevalence of the phenomenon in Italy in different geographical areas, when students reported having been drunk at least one time, they were included in the “drunkenness” category.

Data analysis

Prevalence of drunkenness was compared by administration year (and by gender), and the Gamma statistics was used to verify those differences. The Gamma statistic represents a symmetric measure of association between two ordinal variables; it ranges between -1 and 1 . Values close to ± 1 indicate a strong relationship (positive or negative) between the two variables. Values close to 0 indicate little or no relationship (Goodman and Kruskal 1972). Note that we replicated the analyses by using different ways of categorizing drunkenness (i.e. adolescents who get drunk more than one time) and we obtained similar results (available upon request).

To investigate the gender convergence hypothesis, the frequency of drunkenness was regressed on gender, survey year, and the interaction of both variables (after controlling for age). To investigate this convergence in different geographical areas, five independent regression models have been performed separately for the students living in the five geographical areas.

To prevent losing information by dichotomising the dependent variable, we decided to use the variable as an ordinary measure. To approximate a normal distribution and to reduce the effect of extreme values, the outcome variable was log transformed (Tabachnick and Fidell 2001).

Results

Descriptive statistics

In Italy in general, the prevalence of drunkenness in both boys and girls (Table 2) seemed to decrease from 2002 to 2010; however, the decrease appears more robust for boys (more of 5 % of decrease). Much of the decrease seems to be attributable to the period 2006–2010.

The prevalence of drunkenness significantly decreases for boys in almost all the geographical areas (for the northwest, the test approximates significance) except for the northeast, where the prevalence seems to be stable. Moreover, with the exception of the centre of Italy, prevalence of drunkenness in girls seems to be pretty stable.

Overall, it is difficult to detect a clear trend in the prevalence of drunkenness across different geographical areas; the distribution of the prevalence of drunkenness appears to be quite homogeneous in Italy.

To test our hypothesis of gender convergence in drunkenness (by taking into consideration the different geographical areas), we tested six regression models, one for the total sample and one for each of the five geographical areas (Table 3). Results of the analysis performed on the total sample (examining the gender convergence) revealed a significant effect of both gender and survey year, whereas the interaction was not significant. Thus, contrary to the hypothesis of gender convergence, in Italy, the gap in the prevalence of drunkenness between boys and girls did not decrease from 2002 and 2010. On the other hand, according to what is suggested in the descriptive analyses, the general prevalence of drunkenness is declining. Finally, according to what expected in this age groups, drunkenness clearly increases with age.

By considering the different geographical areas, we confirmed a general trend of decrease in the prevalence of

Table 2 Rates of drunkenness (%) among Italian early adolescents and adolescents in 2002, 2006, and 2010 according to gender and geographical area

Geographical area	Boys <i>N</i> (%)				Girls <i>N</i> (%)			
	2002	2006	2010	Change (gamma)	2002	2006	2010	Change (gamma)
Northwest	151 (27.5)	128 (27.5)	161 (23.7)	-0.101#	127 (21.6)	66 (14.3)	90 (16.7)	-0.080
Northeast	57 (19.8)	74 (24.8)	104 (24.1)	0.072	58 (16.3)	46 (16.5)	74 (15.7)	-0.018
Centre	96 (26.5)	105 (26.0)	78 (16.8)	-0.192**	93 (22.0)	78 (20.7)	57 (13.0)	-0.204**
South	182 (28.4)	149 (26.2)	130 (21.8)	-0.115**	108 (17.1)	115 (20.6)	97 (14.3)	-0.071
Islands	85 (29.9)	65 (24.8)	55 (21.8)	-0.143*	36 (13.6)	52 (18.8)	45 (15.7)	0.046
Total	571 (26.9)	521 (26.1)	528 (21.8)	-0.094**	422 (18.7)	357 (18.3)	363 (15.0)	-0.088**

We expressed the magnitude of changes (trend) in terms of gammas. Values close to an absolute value of 1 indicate a strong relationship between the two variables

* $p < 0.05$; ** $p < 0.01$; # $p < 0.10$

Table 3 Gender, age, survey year (2002, 2006, 2010), and interaction (gender*survey year) as determinants of drunkenness for the total sample and according to Italian geographical area

Variable	Total sample	Northwest	Northeast	Centre	South	Islands
Gender	-0.077 (0.003; -11.83)**	-0.087 (0.007; -6.59)**	-0.077 (0.008; -4.64)**	-0.040 (0.007; 2.60)**	-0.089 (0.006; -7.14)**	-0.078 (0.009; -4.21)**
Age	0.066 (0.002, 33.37)**	0.077 (0.004, 18.51)	0.068 (0.005, 13.97)**	0.069 (0.004, 15.30)**	0.060 (0.004, 16.08)**	0.055 (0.005, 10.03)**
Survey year	-0.011 (0.003; -3.38)**	-0.015 (0.003; -2.21)*	0.014 (0.008; 1.70)	-0.022 (0.008; -2.90)**	-0.014 (0.006; -2.26)*	-0.020 (0.009; -2.12)*
Gender*survey year	0.005 (0.003; 1.45)	0.008 (0.007; 1.17)	-0.010 (0.008; -1.25)	-0.008 (0.008; -1.10)	0.012 (0.006; 1.99)*	0.026 (0.009; 2.72)**

Regression coefficients of the models are given, and standard errors and t ratios are shown in parentheses. Gender was coded 1 for boys and 2 for girls. The dependent variable was the logarithm of drunkenness

* $p < 0.05$; ** $p < 0.01$

drunkenness except for the northeast. Moreover, according to what we hypothesised, the difference in the prevalence of drunkenness between boys and girls (gender gap) declined from 2002 to 2010 in the south of Italy and in the islands. By observing the descriptive analyses, this gender convergence seems to be more attributable to a decline in drunkenness among boys than to an increase among girls.

Discussion

National and regional trends in drinking and drunkenness provide information about public health status. Trends in prevalence may be due to a variety of factors, including habits, culture, and national/regional programs and policies. The current study of drunkenness among Italian adolescents showed that rates and trends varied across geographical areas and by gender. The results across geographical areas showed a general decrease in the prevalence of drunkenness except for the northeast of the country. On the other hand, gender differences, which were more pronounced in 2002, decreased significantly in the south and islands of Italy.

It is very difficult to compare the different estimates of prevalence of drunkenness in Italy given by the agencies dealing with this problem, as the surveying methodology and age categories used are very different. Taking as a reference the results obtained by the Italian Institute of Statistics (ISTAT 2011a), we can confirm that, during early adolescence, the gap in drunkenness behaviour between male (15.2 %) and female (12 %) seems to be, as in our study, pretty small during adolescence.

In general, in contrast to public opinion and mass media alarms, but in accordance with recent studies (Kuntsche et al. 2011), our results revealed a decrease in adolescent drunkenness in all Italian geographical zones except for northeast, particularly among boys. Alcohol consumption and drunkenness seem to have lost their appeal to a formerly high-consumption group, and probably the omnipresence of alcohol marketing may have saturated the market, helping the adolescents to consider this behaviour as conformist and traditional more than innovative and transgressive (Demant and Torronen 2009). This trend can also be attributed to prevention programs and policies that restrict marketing and access to substance use: For example, drinking and driving among adults and youths has declined in Italy (ISTAT 2011b) in the past years owing to policy attention to this issue as well as an increase of the control of the streets and the worsening of penalties.

The variability in trends by geographical area suggests that marketing and regional-level policies and programs may be less or more effective in different areas of the country. For example, living in an area that always ranked

very high in alcohol consumption (ISTAT 2011a, b) can increase the exposure of children and adolescents to consider alcohol use, and drunkenness, the most frequent vehicle for socialization, celebration, and having parties. Such a context can be more relevant to the adoption of an alcohol-reduction-based approach that will focus on moderate drinking (Bagnardi et al. 2011) instead of a “just say no” approach.

The variability in trends by gender in different areas of the country could be due to increased effectiveness of contemporary marketing practice or relative ineffectiveness of policies and programs with girls, in particular in the south. On the other hand, the changes in prevalence could be due to changes in the social roles of women in the south and islands of Italy, allowing girls’ greater autonomy and a wider range of social options compared to the past (Beccaria and Allaman 2007).

Limitations and strengths

The present study has some limitations. First, since it considered only three time periods, the stability of the trends could not be clearly determined. Second, it should be noted that some areas with a relatively high prevalence in 2006 increased in drunkenness, suggesting that some of the variability over time may be transient and due to random variability. Third, in our study, only adolescent self-report measures were used and categorization of drunkenness should be more precise and detailed. Peer or teacher assessments of variables may help us better understand the individual adjustment of adolescents. Moreover, as an outcome variable, only the frequency of drunkenness was included as an indicator of heavy episodic drinking: For this reason, our results should be confirmed in studies using measures of alcohol use, for example by adding the number of standard drinks of various beverages in the same occasion.

These limitations notwithstanding, the results from the present study are important for several reasons. The strengths of the study include the use of a large and representative Italian sample and a range of ages across two school levels. Moreover, this is the first trend study conducted in Italy on drunkenness among early adolescents and adolescents that distinguished among different geographical areas and analysed their prevalence across gender. Finally, since the current data are part of a multinational study, they will also permit future cross-cultural research on the topic.

Conclusion

First, our study confirms (Rehm and Scafato 2011) the need for a deep understanding of drunkenness trends in different

populations and understanding that can facilitate establishing effective policies and programs to prevent the problematic consequences of these behaviours. In this sense, we see a risk in the public debate of an excessive and counterproductive alarmism when considering single and extreme cases of drunkenness during adolescence, when the trend of this phenomenon over time is decreasing or at least stable.

This study of drunkenness among Italian adolescents showed that rates and trends varied across geographical areas and by gender. In particular, we observed a reduction in the “gender gap” that is decreasing significantly in the south and islands of Italy, which implies that adoption and implementation of evidence-based measures to reduce adolescent drunkenness might consider gender differences in different cultures. The gender convergence implies that prevention policy should be less exclusively focused on male adolescents.

Moreover, in particular in the northeast of the country, a policy aimed at contrasting drunkenness should probably be more focused towards promoting a moderate use of alcohol rather than aiming to abstinence. Example of such policies include server training to discourage drunkenness within drinking situations and promoting leisure time in which activities other than drinking are central (Vieno et al. 2007). Furthermore, the School Health and Alcohol Harm Reduction Project (SHAHRP), a program aimed at reducing alcohol-related consequences by promoting students’ abilities to deal with high-risk drinking situations, represents a promising approach in drunkenness prevention. The program, which has an explicit harm minimization goal, incorporated evidence-based approaches and a quasi-experimental evaluation over a three-year period. The SHAHRP has showed its efficacy in changing in students’ knowledge, attitudes, and behaviours, underscoring how evidence-based programs can contribute to bridging the gap between research and practice (McBride et al. 2004).

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Conflict of interest The authors declare that they have no conflict of interest.

References

- Bagnardi V, Sorini E, Disalvatore D, Assi V, Corrao G, De Stefani R (2011) ‘Alcohol, less is better’ Group. ‘Alcohol, less is better’ project: outcomes of an Italian community-based prevention

- programme on reducing per-capita alcohol consumption. *Addiction* 106:102–110
- Beccaria F, Allaman A (2007) Changes in the consumption of alcoholic beverages in Italy: studies of the decrease in consumption between the 1970s and the 2000s. *Contemp Drug Probl* 34:183–186
- Berks J, McCormick R (2008) Screening for alcohol misuse in elderly primary care patients: a systematic literature review. *Int Psychogeriatr* 20:1090–1103
- Cavallo F, Lemma P, Santinello M, Giacchi M (2006) Stili di vita e salute dei giovani italiani tra gli 11 e i 15 anni. II Rapporto sui dati italiani dello studio internazionale HBSC. Padova: Cleup
- Currie C, Nic Gabhainn S, Godeau E, The International HBSC Network Coordinating Committee (2009) The Health Behaviour in School-aged Children: WHO Collaborative Cross-National (HBSC) study: origins, concept, history and development 1982–2008. *Int J Public Health* 54:S131–S139
- Dallago L, Santinello M (2006) L'uso e l'abuso di alcolici: confronto tra gli adolescenti europei. *Psicologia di Comunità* 2:13–28
- Demant J, Torronen J (2009) Changing drinking styles in Denmark and Finland: the feminisation of Scandinavian drinking cultures. Presented at: 35th annual alcohol epidemiology symposium of the Kettil Brum society for social and epidemiological research on alcohol, Copenhagen, 3 June 2009
- Ellickson PL, Tucker JS, Klein DJ (2003) Ten-year prospective study of public health problems associated with early drinking. *Pediatrics* 111:949–955
- Goodman LA, Kruskal WH (1972) Measures of association for cross classifications, IV: simplification of asymptotic variances. *J Am Stat Assoc* 67(338):415–421
- ISTAT (2011a) L'uso e l'abuso di alcol in Italia. Available online: <http://www.istat.it>
- ISTAT (2011b) Incidenti stradali. Anno 2010. Available online: <http://www.istat.it>
- Johnston LD, O'Malley PM, Bachman JG, Schulenberg JE (2006) Monitoring the future national survey results on drug use, 1975–2005. Volume I: Secondary school students (NIH Publication No. 06-5883). National Institute on Drug Abuse, Bethesda
- Kuntsche E, Kuntsche S, Knibbe R, Simons-Morton B, Farhat T, Hublet A, Bendtsen P, Godeau E, Demetrovics Z (2011) Cultural and gender convergence in adolescent drunkenness: evidence from 23 European and North American countries. *Arch Pediat Adol Med* 165:152–158
- McBride N, Farrington F, Midford R, Meuleners L, Philip M (2004) Harm minimisation in school drug education: final results of the School Health and Alcohol Harm Reduction Project (SHAHRP). *Addiction* 99:278–291
- Perkins HW (2002) Surveying the damage: a review of research on consequences of alcohol misuse in college populations. *J Stud Alcohol* 14:91–100
- Rehm J, Scafato EP (2011) Indicators of alcohol consumption and attributable harm for monitoring and surveillance in European Union countries. *Addiction* 106:4–10
- Rehm J, Room R, Monteiro M, Gmel G, Graham K et al (2004) Alcohol use. In: Ezzati M, Lopez AD, Rodgers A, Murray CJL (eds) *Comparative quantification of health risks global and regional burden of disease attributable to selected major risk factors*. World Health Organisation, Geneva
- Scafato E, Ghirini S, Russo R (2004) I consumi alcolici in Italia. Report 2004 sui consumi e le tendenze (1988–2001). Roma: Istituto Superiore di Sanità
- Scafato E, Gandin C, Galluzzo L, Rossi A, Ghirini S (2011) *Epidemiologia e monitoraggio alcol-correlato in Italia*. Rapporti ISTISAN 11/4. Roma: Istituto Superiore di Sanità
- Shope JT, Bingham CR (2008) Teen driving motor-vehicle crashes and factors that contribute. *Am J Prev Med* 35:S261–S271
- Simons-Morton BG, Farhat T, ter Bogt TFM, Hublet A, Kuntsche E, Nic Gabhainn S, Godeau E, Kokkevi A, The HBSC Risk Behaviour Focus Group (2009) Gender specific trends in alcohol use: cross-cultural comparisons from 1998 to 2006 in 24 countries and regions. *Int J Public Health* 54:S199–208
- Spoth R, Greenberg M, Turrissi R (2008) Preventive interventions addressing underage drinking: state of the evidence and steps toward public health impact. *Pediatrics* 121:311–336
- Tabachnick BG, Fidell LS (2001) *Using multivariate statistics*, 4th edn. Allyn and Bacon, MA
- Thompson SK (1999) *Sampling*. John Wiley & Sons, New York
- Tomlinson KL, Brown SA, Abrantes A (2004) Psychiatric comorbidity and substance use treatment outcomes of adolescents. *Psychol Addict Behav* 18:160–169
- Vieno A, Nation M, Perkins DD, Santinello M (2007) Civic participation and the development of adolescent behavior problems. *J Community Psychol* 35:761–777