Alcohol drinking behaviors among Turkish high school students

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SUMMARY: Alikaşifoğlu M, Erginöz E, Ercan O, Uysal Ö, Albayrak-Kaymak D, İlter Ö. Alcohol drinking behaviors among Turkish high school students. Turk J Pediatr 2004; 46: 44-53.

The aim of this study was to evaluate the prevalence, behavioral patterns and correlates of regular alcohol drinking in high school students.

This cross-sectional study involved the completion of a modified version of "Health Behavior in School Age Children" (HBSC 1997/1998) questionnaire by 4,153 grade 9-11 students from 26 randomly selected high schools in İstanbul. Chi-square test, Spearman correlation test and forward stepwise multiple logistic regression model were used for statistical analyses as appropriate.

Overall, 61% of students were experimental drinkers, and 46% of the students were current drinkers. There was a significant difference between female and male students with respect to reporting current alcohol drinking at grade 9 and 11 (p>0.05 for each comparison). Regular drinking was reported by 6% of students. Male students were more likely than female students to report regular drinking at each grade (p<0.01 for each comparison). Nineteen percent of the students reported that they had been really drunk at least once during their lifetime. Male students were more likely than female students to report an occasion of drunkenness at each grade (p<0.05 for each comparison). All types of drinking behavior rates tended to increase across grades for both genders (p<0.05 for each comparison).

In logistic regression analysis the following were all independently associated with regular drinking: being in grade 11, smoking cigarettes currently, lifetime drug use, bullying others, being sexually active, playing computer games ≥4h/week, exercising ≤1h/week, spending ≥four evenings with friends, at ease in talking to same gender friends, tiredness in the morning, perceived as good-looking/beautiful, higher educational level of the mother and perceived poor academic achievement.

The results of this study showed that alcohol consumption is prevalent among high school students. There is therefore a need for school-based alcohol prevention programs which also deal with family and peer influences on drinking.

Key words: adolescence, substance use, risk behaviors.

In recent years there has been growing concern about teenagers' alcohol problems. This concern has been stimulated by evidence of increasing alcohol use by teenagers and by the presence of an association between alcohol drinking in teenage years and alcohol abuse and dependency in adulthood¹.

In Turkey, although purchase of alcohol is forbidden by individuals younger than 18, alcohol remains the most widely used psychoactive substance among adolescents^{2,3}. Examining the prevalence of alcohol drinking

patterns among adolescents and the factors that correlate with adolescent alcohol use is the first step towards establishing an appropriate prevention program. The existing literature proposes a number of factors related to causes and associations of drinking among adolescents, especially among those in whom alcohol use shows an abusive pattern, including weak bond with family, alcohol attitudes and behaviors of family and peers, academic difficulties, and other health risk behaviors such as fighting, unplanned sexual activity, suicide, homicide and motor vehicle accidents⁴⁻¹².

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The aims of this study were a) to provide data about the prevalence of alcohol drinking patterns in high school students, b) to compare the prevalence of alcohol drinking behaviors by gender and grades, and c) to determine the factors correlated with regular alcohol use.

Material and Methods

This study was part of a cross-sectional study that was conducted to determine the health status and health behaviors, and the factors that influence them, of high school students in the metropolitan area of İstanbul. İstanbul is the largest city in Turkey, with a population of approximately 10 million. The population selected for sampling in this study were high school students. Ethical permission for this study was obtained from the University of İstanbul and the Department of Education of İstanbul.

Population

The study sample included 4,153 randomly selected 9th through 11th grade students attending 26 randomly selected high schools. The schools were general or vocational, and public or private. Students were sampled using a stratified cluster procedure. Schools were the primary sampling unit. The sample was stratified on the basis of location of the district (metropolitan core, small city, suburban or rural) and school types. The schools were chosen from a list provided by the Department of Education¹³. High schools (n=28) were selected randomly within each of the 19 districts. The students' classrooms were also selected randomly within schools, and all students in the class who were present on the day the survey was administered were included. The sample size for each of the three grades was 1,500 students (1,290 students from public schools, 210 students from private schools). Students were selected in order to represent both the public or private general and vocational schools in appropriate proportions. This represents 154,959 (86% of the total students) students from 208 public high schools and 24,666 (14% of total students) students from 140 private high schools in the city. This calculation assumed a 95% confidence level, 80% of power, \pm 3% error and an effect size=1.44.

Procedures

Selected schools were informed about the survey by a letter to the school principal. Two weeks later a phone call was made to schedule the survey. All school principals agreed to participate in the study except those in two private schools. Completion of the survey took one 45 to 60 minute class period. Data were collected during the second semester between March and April 2000.

A self-report survey questionnaire was administered in the classroom in the presence of one of the researchers, a trained surveyor and the class/home room teacher. Researchers followed a standardized protocol in giving instructions to students and answering questions about individual items. Student participation was voluntary; however, no student refused to cooperate in the research. Verbal and written instructions reminded students of the importance of giving honest answers, not writing their names on the questionnaire to maintain confidentiality, and not talking during questionnaire completion.

Instrument

The international version of "Health Behavior in School Age Children" (HBSC) 1997/1998 survey was the main instrument used in this study¹⁴. HBSC 97/98 was used with the permission of the representative of the WHO regional office for Europe during the 1997/1998 survey. This questionnaire consisted of two sections: core and foci. The core questions gathered information on selected demographic characteristics; health related behaviors; general perceptions of personal health, psychosocial adjustment, peer relationships and support; and perception of the school and its influence. The focus questions of the survey included those about school experiences, relationship with parents, socioeconomic status and body image. We also selected several items from the optional package of HBSC 97/98 survey. These included: 1) items on violence to complete a core picture of youth violence in the city; and 2) items on injury to provide information regarding the epidemiology of medically treated non-fatal injuries among high school children in the city. Researchers also added several items to the survey to assess illicit drug use (1 item) (non-prescribed sedative and antidepressant, anabolic steroid, inhalant, cannabis, marijuana, LSD, cocaine, heroin and amphetamine use), physical and sexual abuse (6 items) and sexual behaviors (2 items).

The final questionnaire used in this study consisted of 84 items. The questionnaire form was first translated into Turkish and then was translated back into English. It was piloted on 120 students (grades 9, 10, and 11) who were selected from a public high school that was not included in the main sample. Minor wording changes were made to clarify the meaning of certain questions.

Measurement

Three self-reported items assessed alcohol use. To determine experimentation with alcohol, students were asked "Have you ever tasted an alcoholic drink?". Respondents were categorized as "abstinent" for "no" response, as "ever used" for "yes" response, or as "not applicable" for "don't know" response. To determine the frequency of current alcohol use, students were asked "At present, how often do you drink anything alcoholic (beer, wine, raki, gin, liquor, vodka and/or others) on a 5-point scale for each ranging from 1 to 5 [every day (1), every week (2), every month (3), rarely (4) to never (5)]. Students who reported drinking some kind of alcoholic beverage every month (1) to rarely (4) were categorized as "occasional drinkers". Students who claimed that they had drunk something alcoholic once a week or more were categorized as "regular drinkers". The final variable assessed in this study was "perceived drunkenness", which was assessed through the question "Have you ever had so much alcohol that you were really drunk?" on a 5-point scale ranging from "No, never" (1) to "Yes, more than 10 times" (5).

The independent variables included sociodemographic characteristics (school grade, gender), family factors (educational level of both parents, ease in talking to parents, selfappraisal of the family economic status), peer factors (time spent with friends both directly after school and at night, ease in talking to both same and opposite gender friends, the number of close friends, ease in making new friends), school factors (perception of teachers' opinion about the student's performance, truancy, concept that school is boring, feelings about school, feeling pressured by school work, tiredness in the morning), individual perception (self-reported health, happiness and loneliness, perceived attractiveness and fatness) and other health behaviors (current cigarette use, drug use, bullying of others, physical fighting, carrying a weapon, being sexually active, exercising, watching television and playing computer games for a long period). The

independent variables and how they were dichotomized for the logistic regression analyses are listed in appendix 1.

Data Analysis

In univariate analysis, chi-square test was used to determine how alcohol drinking behaviors changed between genders in the same grade. Spearman correlation test was used to determine how alcohol drinking behaviors changed by gender across grades. Forward stepwise multiple logistic regression model (likelihood ratio) was used to determine the independent variables influencing regular alcohol drinking behavior. All variables were included in the logistic model, because all factors could be a correlate of regular alcohol consumption.

Consistency Determination

Students who responded inconsistently to two or more pairs of related items were excluded from the study. The inconsistencies were noted on questions about substance use or/and on sexual victimization. Students who were under 15 years old and over 20 years old were also completely omitted from all analyses.

Results

The total number of adolescents in this study was set at 4,500. However, owing to refusal by two private schools principals (n=120), the exclusion of unreliable questionnaires (n=47), the exclusion of respondents younger than 15 years old or older than 20 years old (n=94) and the absence of students in the classroom (n=86), the total obtained sample was 4,153 adolescents.

Forty seven percent of the sample (n=1955) were females. The age range in the sample was 15 to 20 years, with a mean age of 16.4 (SD= ± 1.10) years. Approximately equal numbers of subjects were recruited from grades 9 (n=1324), 10 (n=1511) and 11 (n=1318).

The total number of students who provided answers for the question "Have you ever tasted an alcoholic drink?" was 4,069 (98.5% of the total students: 1928 female, 2141 male). Sixty one percent of students (female: n=1181, 61%, male: n=1286, 60%) reported that they had tasted an alcoholic drink. There was no significant difference between female and male students with respect to reporting having tasted

an alcoholic drink at each grade (Table I). There was a remarkable increase in this behavior across grades for both genders (female: r=0.13, p=0.0001; male: r=0.12, p=0.0001).

Forty six percent of the students (females: n=840, 43.5%; males: n=1016, 47.4%) reported alcohol consumption at least rarely (current user). There was a significant difference between female and male students with respect to reporting current alcohol consumption at grades 9 and 11 (p<0.05 for each comparison) (Table I). Current drinking rate tended to increase across grades for both genders (female: r=0.17, p=0.0001; male: r=0.15, p=0.0001).

Forty percent of students (females: n=776, 40%; male: n=839, 39%) reported alcohol consumption occasionally.

Six percent of the students (female: n=64, 3.3%; male: n=177, 8.4%) reported regular drinking. Male students were more likely than female students to report regular drinking at each grade (p<0.01 for each comparison) (Table I). Frequency of regular drinking also tended to increase across grades for both genders (female: r=0.11, p=0.001; male: r=0.14, p=0.0001).

Nineteen percent (female: n=313, 16%, male: n=485, 22%) of the students reported that they had been really drunk at least once during their lifetime (Table I). Eleven percent of male students and 6% of female students reported that they had been really drunk twice or more. Male students were more likely than female students to report an occasion of drunkenness at each grade (Table I) (p<0.05 for each comparison). There was a remarkable increase in drunkenness rate across grades for both genders (female: r=0.15, p=0.0001; male: r=0.16, p=0.0001).

In logistic regression analysis, being in grade 11, smoking cigarettes currently, lifetime drug use, bullying others, being sexually active, playing computer games ≥4h/week, exercising ≤1h/week, spending ≥four evenings with friends, ease in talking to same gender friends, tiredness in the morning, perceived as good-looking/beautiful, higher educational level of the mother and perceived poor academic achievement were all independently associated with regular drinking (Table II).

Higher educational level of the father, having difficultly in talking to father and mother, perceived higher economic status of the family,

Table I. Alcohol Drinking Behaviors: Gender Differences in the Same Grade (chi square test results)

	Grade 9			Grade 10			Grade 11		
Variables	Total N=1290 n %	Female N=592 n %	Male N=698 n %	Total N=1482 n %	Female N=716 n %	Male N=766 n %	Total N=1297 n %	Female N=620 n %	Male N=667 n %
Ever tasted alcohol Current alcohol use Occasional alcohol use Regular alcohol use Ever been drunk Drunkenness once Drunkenness 2-3 times Drunkenness 4-10 times Drunkenness > 10 times	657 (51) 459 (36) 417 (32) 42 (3) 147 (11) 87 (7) 47 (4) 4 (0.3) 9 (0.6)	301 (51) 187 (32) 177 (30) 10 (2) 47 (8) 30 (5) 13 (2) 2 (0.2) 2 (0.2)	356 (51) 272 (39)* 240 (34) 32 (5)\$ 100 (14)\$ 57 (8) 34 (5) 2 (0.3) 7 (1)	941 (63) 699 (47) 626 (42) 73 (5) 300 (20) 172 (12) 96 (6) 19 (1) 13 (0.8)	458 (64) 328 (46) 308 (43) 20 (3) 125 (17) 82 (12) 39 (6) 4 (0.6)	483 (63) 371 (48) 318 (41) 53 (7)§ 175 (22)§ 90 (12) 57 (7) 15 (2) 13 (2)	869 (67) 698 (54) 572 (44) 126 (10) 351 (27) 185 (14) 108 (8) 29 (2) 299 (2)	422 (68) 325 (52) 291 (47) 34 (5) 141 (22) 85 (14) 45 (7) 5 (0.8) 6 (1)	447 (66) 373 (55)* 281 (42) 92 (14)§ 210 (31)§ 100 (15) 63 (9) 24 (4) 23 (3)

^{*} p=0.05, p=0.01.

Table II. Predictors of Regular Drinking: Forward Stepwise Logistic Regression (likelihood ratio)

Variables	β	Sig	Exp (β)	95% C.I.	
Being in 11 th grade	1.41	0.0001	4.1	2.08	8.04
Poor academic achievement	0.7	0.003	2.01	1.26	3.20
Current cigarette use	0.8	0.001	2.22	1.36	3.60
Drug use	1.17	0.0001	3.21	1.85	5.59
Feeling tired in the morning	0.57	0.01	1.77	1.13	2.78
Playing computer games ≥4h/w	0.566	0.01	1.76	1.10	2.81
Ease in talking to same gender friends	1.41	0.0001	4.09	1.90	8.79
Spending ≥ four evenings with friends	0.72	0.003	2.05	1.26	3.32
Bullying others last school term	0.58	0.01	1.78	1.11	2.87
Being sexually active	0.98	0.0001	2.68	1.66	4.32
Exercising ≤1 h/week	0.83	0.001	2.29	1.42	3.70
Higher educational level of mother	0.90	0.0001	2.46	1.55	3.91
Being good looking/beautiful	0.51	0.02	1.67	1.06	2.63

physical fighting, carrying a weapon, ease in making new friends, having more close friends, ease in talking to opposite gender friends, dislike of school, concept that school is boring, increased absence from school, feeling pressured by school work, feeling less healthy and happy, feeling lonely more often, perceived fatness, spending more time with friends after school and watching TV ≥4h/day were not independently associated with regular drinking after adjustment for gender and grades.

Discussion

The purpose of our study was to determine the profile of alcohol drinking behavior of İstanbul high school students. Approximately equal percentages of male (60%) and female students (61%) reported that they had tried some kind of alcoholic beverage. These figures are similar to those found in 1995 in İstanbul High School students². Female alcohol experimentation rate in our study was similar to that found in the country with the lowest rate in the HBSC 98 study (Slovakia, 62%), while male experimentation rate was lower than that found in all countries¹⁴. These figures are also different from those found in the United States¹⁵.

In this study, 47% of male students and 43.5% of female students reported that they drank alcohol at least rarely. Eight percent of male students and 3% of female students reported that they were regular drinkers. If one considers that having used alcohol at least 3-5 times during the previous month is equivalent to being a regular drinker, in our study the regular drinking rate was lower than that found in 1995 and 1998 in İstanbul High School students^{2,3}. Female regular drinking rate in this study was similar to that found in the country with the lowest rate in the HBSC 98 study (Hungary, 3%) while male regular alcohol drinking rate was lower than that a found in all countries¹⁴. These figures also differ from those found in populations of 16-year-old adolescents in some European countries².

Drunkenness at least once during lifetime was reported by 19% of students (22% male, 16% female). The percentage of drunkenness in this study was also lower than that reported in 1995 and 1998^{2,3}. The differences between our results and those of the studies performed in 1995 and 1998 may be attributed to the differences between study methodologies. In our study, the

percentages of male (11%) and female (6%) students who reported drunkenness twice or more were also lower than those found in all countries in the HBSC 98 study¹⁴. The differences between the results of our study and those of European countries may be attributed to cultural and religious norms in Turkey.

Although our students' alcohol drinking patterns significantly differ from those of the European countries, the results of two other national studies and our results still indicate that adolescent alcohol use is a reality in our community. Our results also indicate that all drinking behaviors increased significantly in students through grades 9 and 11. This is an important finding which might help us in determining the timing of prevention programs. Our results and those found in other surveys indicate that prevention programs should be established before the high school years.

This study also provides evidence about significant correlates of adolescent regular alcohol consumption. Male gender was a significant correlate of regular drinking as in other surveys^{2,14,16}. Higher educational level of the mother was the only parental correlate of regular drinking. Similarly, a previous study has shown that higher educational level of the mother is an important determinant of alcohol use¹⁷. Among factors related to peers, ease in talking to same gender friends and spending more time with friends in the evening correlated with regular drinking. These results showed that students who engage in drinking alcohol tend to socialize more with their peers than those who do not drink alcohol. In this study, among school factors, poor academic achievement and tiredness in the morning were factors correlated with frequent drinking. Low level of school connectedness and poor academic achievement were also previously reported to have influence on adolescent drinking behaviors^{7,18-20}. The only individual variable which correlated with regular drinking was perceiving one self as attractive. However, in the HBSC study, this factor was not found to be related to alcohol consumption among 15-year-old students¹⁴. Our results also suggest that other health risk and problem behaviors such as current cigarette use, illicit drug use, bullying others, and being sexually active correlated with regular drinking. These data again reveal the strength of the associations between health risk and problem behaviors^{3,14,21-23}. In our study, playing computer games ≥4 h/week

and exercising ≤1h/week were also found to be correlated with regular drinking. This may indicate a relationship between leisure time activities and alcohol drinking behaviors. This co-occurrence may also reflect the effect of socio-cultural factors.

The similarity between our results and those of previous studies from western countries showed that correlates of regular drinking do not change from culture to culture^{2,3,7,8,14,16-23}.

The limitations of the study should be acknowledged. Although this study suggests factors which would be expected to correlate with adolescent regular alcohol use among İstanbul high school students, it is not possible to draw conclusions about causality because the data were cross-sectional. Further longitudinal researches are needed to determine the cause-effect relationship between regular drinking and its correlates. Social desirability effect is another limitation of this study. This is a cross-sectional survey and the prevalence of alcohol drinking behaviors is based on self report of alcohol drinking experiences with no corroboration from other sources. There may be significantly underreporting or over-reporting of the information, depending on whether the behavior is thought to be desirable. In this study, to reduce such biases, efforts were taken to ensure confidentiality and anonymity of responses.

We did not ask any questions about other problematic behaviors such as delinquency,

suicidal ideation, being a member of a gang or driving while drunk which would help us in identifying problematic alcohol users. Thus, we do not know whether problematic alcohol use is a concern among our high school students. Further studies need to be performed to distinguish this subgroup clearly from those who drink alcohol causally.

The analyses presented in this paper constitute a baseline data set which can be used for comparisons in future surveys targeting 15-20year-old adolescents' drinking behavior. This study also provided a description of some of the characteristics of regular drinkers. This is important for developing drinking prevention and intervention programs in Turkey. Our results indicate that parent as well as peer influences should be addressed in these programs. Students and their parents should be aware of the many and varied social influences on drinking behavior and the consequences of adolescent drinking. Students should also learn about effective alcohol refusal skills. Finally, drinking prevention programs should also target other health risk behaviors. Health care providers should screen adolescents, especially those found to be at risk of drinking routinely, for drinking behaviors, and they should also realize that adolescents who drink regularly could be engaged in other health-risk and problematic behaviors.

Appendix 1: Independent Variables

- 1. How often do you smoke cigarettes at present?
- a) Every day
- b) At least once a week but not every day
- c) Less than once a week

1+2+3+4+5 versus 6

- d) I do not smoke
- a versus b+c+d
- 2. Have you ever used substances such as inhalant, cannabis, cocaine, heroin/morphine, marijuana, nonprescription sedative/antidepressant, LSD, amphetamine or anabolic steroid to fell high or to have more energy?

	40 or more	20-39	10-19	3-9	1-2	No
	times	times	times	times	times	
	(1)	(2)	(3)	(4)	(5)	(6)
a) Inhalant						
b) Cannabis						
c) Cocaine						
d) Heroin/morphine						
e) Marijuana						
f) Sedative/Antidepressan	t 🗆					
g) LSD						
h) Amphetamine						
i) Anabolic steroid						

 3. Outside school hours: How that you get out of breath a) None b) About half an hour c) About 1 hour d) About 2 to 3 hours e) About 4 to 6 hours f) 7 hours or more a+b+c versus d+e+f 4. now many hours per day 	or sweat ?			ally exercise in you	r free time to the extent		
a) Not at all b) Less than half an hour a c) Half an hour to 1 hour d) 2 to 3 hours e) 4 hours f) More than 4 hours a+b+c+d versus e+f	·	,					
5. How many hours per wee a) Not at all b) Less than 1 hour a week c) 1 to 3 hours d) 4 to 6 hours e) 7 to 9 hours f) 10 hours or more a+b+c versus d+e+f	k do you usu	ally play	computer ga	mes?			
6. How many evening per week do you usually spend out with your friends? 0 1 2 3 4 5 6 7 evenings 0+1+2+3 versus 4+5+6+7 7. How easy is it for you to talk to the following persons about things that really bother you?							
7. How easy to it for you to		_	Difficult	-	Don't have or		
 Father Mother Friends of the same sex Friends of the opposite sea+b versus c+d+e 	Very Easy (a) □ □ □ □ xx □	Easy (b)		Very Difficult (d) □ □ □ □	see this person (e) □ □ □ □		
8. Do you think you are: a) Very good looking b) Quite good looking c) About average d) Not very good looking e) Not at all good looking f) I don't think about my looa+b+ versus c+d+e	oks						
9. Is it easy or difficult for ya) Very easyb) Easyc) Difficultd) Very difficulta+b versus c+d	ou to make r	new friend	ds?				
10. How many close friendsa) Noneb) Onec) Twod) Three or morea+b+c versus d	do you have?						
11. How healthy do you thira) Very healthyb) Quite healthyc) Not very healthya+b versus c	nk you are?						

- 12. In general, how do you feel about your life at present?
- a) I feel very happy
- b) I feel quite happy
- c) I do not feel very happy
- d) I'm not happy at all
- a+b versus c+d
- 13. Do you ever feel lonely?
- a) Yes, very often
- b) Yes, rather often
- c) Yes, sometimes
- d) No
- a+b versus c+d
- 14. How often do you feel tired when you go to school in the morning?
- a) Rarely or never
- b) Occasionally
- c) 1-3 times a week
- d) 4 or more times a week
- a+b versus c+d
- 15. In your opinion: What do your class teachers think about your school performance compared to your classmates?
- a) Very good
- b) Good
- c) Average
- d) Below average
- a+b versus c+d
- 16. How do you feel about school at present?
- a) I like it a lot
- b) I like it a bit
- c) I do not like it very much
- d) I do not like it at all
- a+b versus c+d
- 17. How pressured do you feel by the school work you have to do?
- a) Not at all
- b) A little
- c) Some
- d) A lot
- a+b versus c+d
- 18. How well off do you think your family is?
- a) Very well off
- b) Quite well off
- c) Average
- d) Not very well off
- e) Not at all well off
- a+b versus c+d+e
- 19. During the past 12 months, how many times were you in a physical fight?
- a) I have not been in a physical fight
- b) 1 time
- c) 2 times
- d) 3 times
- e) 4 or more times
- a versus b+c+d+e
- 20. Do you think your body is
- a) Much too thin
- b) A bit too thin
- c) About the right size
- d) A bit too fat
- e) Much too fat
- f) I do not think about it
- a+b+c versus d+e

- 21. How often have you taken part in bullying other students in school this term?
- a) I haven't bullied others in school this trem
- b) Once or twice
- c) Sometimes
- d) About once a week
- e) Several times a week
- a versus b+c+d+e
- 22. During this term, how many times did you carry a weapon, such as a knife, club or gun on school grounds?
- a) I did not carry a weapon during this term on school grounds
- h) 1 time
- c) 2-3 times
- d) 4-5 times
- e) 6 or more times
- a versus b+c+d+e
- 23. Have you ever had sexual intercourse?
- a) Yes
- b) No
- 24. How often do you spend time with friends right after school?
- a) 4-5 days a week
- b) 2-3 days a week
- c) once a week or less
- d) Have no friends right now
- a+b versus c+d
- 25. How often do you think that going to school is boring?
- a) Very often
- b) Often
- c) Sometimes
- d) Rarely
- e) Never
- a+b versus c+d+e
- 26. How many days did you skip classes or school this term? (use appropriate word to indicate truancy)
- a) 0 days
- b) 1 day
- c) 2 days
- d) 3 days
- e) 4 or more days
- a+b+c versus d+e

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