Prevalence patterns and predictors of alcohol use and abuse among secondary school students in southern KwaZulu-Natal, South Africa: demographic factors and the influence of parents and peers

Abstract

Background: The prevalence and predictors of alcohol use and abuse among school students were investigated with the aim of gaining insight to guide prevention interventions.

Method: A cross-sectional, self-administered survey pertaining to a one-month period was conducted among students in grades 11 and 12 in purposively selected schools with mixed-race groups. Frequencies and $\chi^2$ analyses were conducted and forward stepwise, conditional entry logistic regression models were fitted to determine the significant demographic predictors and influence of peers and parents on students’ alcohol use and binge drinking.

Results: About 54% of students had used alcohol before, while 14.5% had had their first drink before the age of 13. In the relevant month, 41% used alcohol and 32% engaged in binge drinking. Students who were more likely to have used alcohol in the preceding month were older [odds ratio (OR) = 1.44, P = 0.006], male (OR = 2.1, P < 0.001), white (OR = 5.1, P < 0.001), had often seen their fathers drunk (OR = 1.9, P < 0.001) and had friends who frequently use alcohol (OR = 3.5, P < 0.001). Students who were more likely to report binge drinking in the preceding month were older (OR = 1.6, P < 0.001), male (OR = 2.4, P < 0.001), white (OR = 1.6, P = 0.048), had often seen their fathers (OR = 1.5, P = 0.001) and mothers (OR = 1.4, P = 0.05) drunk and had friends who frequently use alcohol (OR = 3.6, P < 0.001).

Conclusion: The long-term consequences of hazardous drinking patterns initiated during adolescence may have negative effects on achievement in life, health and general well-being, and therefore these patterns are in need of urgent address. While older, male students are at particular risk, the significant influence of peer and parental alcohol use is highlighted and should be considered when developing prevention interventions in schools.
prevalences for alcohol use and binge drinking were higher than the national rates. Binge drinking was reported in other studies to be common among students of both sexes.\(^2,9-11\) In an earlier study involving 1,318 students in grade 10 from 28 high schools in southern KwaZulu-Natal, 53% of males and 25% of females reported ever having used alcohol.\(^12\) In 2006, media reports in this region highlighted the use of alcohol in fatal motor car accidents involving adolescents.\(^13\)

However, adolescent alcohol use should be considered within a developmental framework, as experimentation and risk taking may occur during this stage with increased chances of negative short- and long-term consequences.\(^4,8\) Peer influence, significant during this stage, has been linked to alcohol misuse.\(^14-16\) However, parents remain influential during the adolescent years as younger adolescents listen to parents’ opinions about alcohol, while older adolescents seek guidance from parents’ own drinking habits.\(^16,17\) Research show that when parents use alcohol frequently, their adolescents have an increased likelihood of exposure to alcohol and related risk behaviours.\(^18\) Furthermore, adolescents with parents who held permissive attitudes towards alcohol use were found more likely to engage in heavy binge drinking. Parental permissiveness also influences peer associations with a significant relationship between peer influence and alcohol use.\(^19\) Little attention has been paid to the role of parents in alcohol misuse of adolescents in the South African context.

The current study aims to extend the limited local knowledge in the district of students’ alcohol use and binge drinking prevalence, and the influence of demographic factors and significant others, i.e. parents and peers, in their alcohol use behaviour in view of gaining useful insight to be used in the planning of future interventions.

**Method**

**Research design and sampling**

A cross-sectional survey was conducted during 2007. Purposive sampling was used to select all the secondary schools with mixed races in a southern KwaZulu-Natal (KZN) district from a Department of Education list, to enable the exploration of racial differentials. The schools were situated in areas known to contain a range of socio-economic classes from affluent to middle and lower income brackets. The study population was all the students in grades 11 and 12 as they were expected to be 16 to 18 years old (n = 1,227) and thus likely to have used alcohol.\(^2,10\) While all received parental informed consent documentation, only 807 students (66%) returned the signed forms. The realised sample was n = 704 (57% response rate). Some students (9%) with parental consent either did not consent personally, or did not attend school on the day of the survey or did not complete their questionnaires. However, a degree of bias cannot be ruled out as some who use/abuse alcohol might have omitted to obtain parental/guardian permission for study participation. A sample size of n = 704 was considered adequate for a statistical power of 80%.

**Research instrument**

A self-administered questionnaire was developed in elementary English as English is used in the school but is not the home language of all the students. The questionnaire was tested for appropriateness and validity in a pilot study which included 90 adolescents from a similar high school in the region, but who were not included in the study. The questionnaire included sociodemographic items, such as sex, age, race and perceived socio-economic status (SES) measured on a five-point scale (very rich, rich, average, poor and very poor). Alcohol use among adolescents in terms of the frequency and quantity was investigated along the same lines as the questions used in the national YRBSs\(^6,10\) in order to enable comparison. Questions regarding alcohol use included: age at which alcohol use was initiated, ever drinking alcohol (e.g. a beer, a glass of wine, or a tot of brandy), frequency of alcohol use and binge drinking (five or more drinks in succession) in the preceding month. Students were also asked who offered them their first drink and who is the most influential person regarding their alcohol use. Two questions were asked about significant others: how often their friends drank and how often they have seen their parents/guardians drunk (often=3, sometimes=2, never=1).

**Ethical clearance**

Ethical clearance was obtained from the Biomedical Research Ethics Committee of the College of Health Sciences, University of KwaZulu-Natal, South Africa. Permission was obtained from the Provincial Department of Education and principals of the participating schools. Information about the study and informed consent documentation was sent to all the eligible students’ parents/guardians to obtain written informed consent for study participation. Written informed consent from students and parents/guardians were a prerequisite for participation with adequate emphasis on ethical issues, i.e. voluntary participation, confidentiality and anonymity of the information obtained.

**Data collection and procedures**

The information and consent documents were sent in sealed envelopes to the 1,227 parents/guardians of the eligible students. Only 807 signed consent forms were returned. The survey was conducted in each school’s hall with consent from the principals and students. Educators were not involved in this process. The questionnaires were completed within 45 minutes and collected by the
researcher. The survey was conducted between January and April 2007.

Data analysis

The software package SPSS® version 17.0.1 was used for analysis. Frequencies were calculated for all the data items and χ² analyses were performed with the variables sex, race, age, SES and alcohol use and binge drinking in the preceding month. Two logistical regression models (forward stepwise conditional entry) were fitted to identify the most significant predictors pertaining to demographic factors and significant others’ influence on alcohol use/abuse in the preceding month. Race was recoded into three categories, namely Indian, African/black and white/coloured. The latter two were placed in one group as only a few students were coloured (2.8%, n = 20). SES was recoded into poor, average and rich to improve the distribution for analysis. The following independent variables were entered in the first block: sex, age, and race (white and coloured = 1 vs. others = 0, Indian = 1 vs. others = 0, with black as reference category). The variables in the second block were frequency of peer drinking and perceived parental drunkenness. The dependent variables were alcohol use in the preceding month (yes = 1, no = 2), and binge drinking in the preceding month (yes = 1, no = 2).

Results

The demographic information of the participants is shown in Table I. The majority of the 704 participants were female (59.8%), slightly less than half (46.2%) were African, followed by Indian, white and coloured students. English and Zulu were the most common home languages and the majority (83.1%, n = 585) said that they were of an “average” SES.

Adolescent alcohol use

More than half (54%) of the adolescents reported that they had consumed alcohol at some time in their life. The majority (28.6%) who used alcohol before had their first drink when they were 15 to 16 years old, 22.45% had it when they were 13 to 14 years old and 14.5% used alcohol before they turned 13.

Table II depicts the prevalence of alcohol use of both the YRBSs and the current study. In comparison to the YRBSs, a higher prevalence was reported in the current study for using alcohol before (53.8%), alcohol use in the preceding month (40.8%) and binge drinking in the preceding month (31.8%).

In Table III, the frequency of alcohol use and binge drinking in the preceding month is shown. While 59.2% did not consume alcohol in the preceding month, it is of concern that a small group of students reported drinking alcohol more than once a week (7.8%) and some even every day (1.1%). About 32% of the students reported engaging
in binge drinking during the preceding month, while 21% (n = 148) of students reported binge drinking twice or more in the preceding month.

Alcohol use and binge drinking was reported by significantly more male than female students: \(\chi^2(1, n=704) = 21.5, P < 0.001\); \(\chi^2(1, n=704) = 29.6, P < 0.001\). A significant difference was found among different age groups regarding alcohol consumption and binge drinking in the preceding month [32% (16yrs), 45.5% (17yrs), 51.8% (18yrs); \(\chi^2(2, n=704) = 27.9, P < 0.001\) and 23% (16yrs), 34.9% (17yrs), 47.3% (18yrs); \(\chi^2(2, n=704) = 24.5, P < 0.001\) respectively]. A significant difference was observed among the race groups regarding using alcohol and binge drinking in the preceding month [34.7% (Indian), 26.8% (black), 72.1% (white); \(\chi^2(2, n=704) = 103.91, P < 0.001\) and 29.6% (Indian), 24.0% (black), 48.1% (white); \(\chi^2(2, n=704) = 31.8, P < 0.001\) respectively]. A significant difference was also highlighted among SES groups regarding binge drinking in the preceding month [poor (45.2%), average (29.9%) and rich (39.8%); \(\chi^2(2, n=704) = 6.1, P < 0.048\)]. When this finding was investigated according to race group, SES and binge drinking was only significant for the white/coloured student group [poor (90%), average (43.6%), and rich (54.5%); \(\chi^2(2, n=183) = 8.7, P < 0.013\)].

Alcohol use and significant others

Parents and guardians seemed to be the most influential people regarding alcohol use. Among the female group the majority (56.8%, n = 239) reported parents/guardians as the most influential person in their life, followed by friends (n = 120). Among the male students, both parents/guardians and friends were considered influential (43.1%, n = 122 and 41.7%, n = 118 respectively). For both the female and male groups, friends, rather than others, offered them their first alcoholic drink (35.2% of females, n = 148; 47.5% of males, n = 134). The majority of the female (77.4%) and male (81.6%) students reported never having seen their mothers drunk while only 6.4% of females and 3.9% of males said that they have often seen their mothers drunk. About half of females (52.3%) and males (54.1%) had never seen their fathers drunk while fathers were often seen drunk by 18.8% of female and 15.2% of male students.

Determinants of adolescent alcohol use and binge drinking in the preceding month

The significant predictors for alcohol use/abuse in the preceding month, as shown in the final models of the forward stepwise (conditional entry) binary logistic regression models, are shown in Table IV. The significant demographic predictors for alcohol use in the preceding month are: (1) age: for every one year’s increase in age, students were 1.4 times more likely to use alcohol, (2) sex: males were about twice as likely to use alcohol, and (3) race: white students were about 1.6 times more likely to have used alcohol in the preceding month. Interpretation of race should be done cautiously owing to the wide confidence interval. When considering predictors for binge drinking, for every one year’s increase in age, students were 1.6 times more likely to report binge drinking, males were about 2.4 times more likely to binge drink and white students were about 1.6 times more likely to binge drink than the other respective groups.

With regards to the influence of significant others, the frequency of peer drinking is a highly significant predictor for both alcohol use and binge drinking as adolescents who have friends who drink more frequently were about 3.6 times more likely to report using alcohol and binge drinking in the preceding month. Parental alcohol-use practices are important, as students who have often seen their fathers drunk were 1.9 times more likely to have used alcohol in the preceding month and 1.5 times more likely to have engaged in binge drinking in the preceding month. Those who have often seen their mothers drunk were about 1.4 times more likely to have engaged in binge drinking in the preceding month.
Discussion

The study aimed to identify the prevalence patterns and predictors of alcohol use and binge drinking among students in mixed-race secondary schools in a southern KwaZulu-Natal district. Alcohol use and abuse was considered in a developmental framework and the influence of significant others, i.e. peers and parents, was investigated in this regard.

The study found that about 14.5% of students started consuming alcohol before the age of 13, a slightly higher figure than the 13.6% reported in the 2009 YRBS for students in KwaZulu-Natal. The data suggested that youths of 13 to 16 years of age are at particular risk to initiate alcohol use: about 51% of the sample started using alcohol before they turned 17. Interventions should therefore focus on the primary prevention of alcohol use in this age group.

The prevalence of having used alcohol before was slightly higher in this study than reported in an earlier study from this region and also higher than that reported in other studies. Similarly, the prevalence of alcohol use and binge drinking in the preceding month was also higher in this population than what was stated in the YRBS and in a study conducted among rural students in the Limpopo region.

An investigation in alcohol use trends in South Africa from 1993 to 2006 reported a range of 21.5% to 62% for current alcohol use and 14% to 40% for binge drinking. In the study by Neser et al. regarding underage drinking in schools, 38% of adolescents admitted to using alcohol on one to five occasions in a month. While the relationship between risky sexual behaviour and alcohol use was not investigated in the current study, adolescent alcohol use was found to increase the likelihood of risky sexual behaviour, e.g. unprotected sex, and thus contribute to HIV vulnerability and violence. It should be noted that the risk for HIV infection is heightened in context of the generalised HIV epidemic and is particularly significant in KwaZulu-Natal, which has reported HIV prevalences of 38.7% (CI 37.2-40.1) and 21.7% (CI 21.0-22.3) among 15- to 24-year-olds.

The higher prevalence of alcohol misuse specifically among poor white and coloured students is contrary to the results of other studies conducted in South Africa and in the United States of America, where white students’ alcohol use was linked to higher SES with greater disposable income available to purchase alcohol products. The current study supports the significant gender and age differences reported in other studies conducted among adolescents in South Africa, of males and older adolescents being more likely to use alcohol and to engage in binge drinking than females and younger adolescents. The overall increase of alcohol use and abuse among young women deserve attention as their drinking might be as hazardous as

<table>
<thead>
<tr>
<th>Variables</th>
<th>Parameter estimates (Beta)</th>
<th>SE</th>
<th>Wald statistic</th>
<th>P value</th>
<th>Odds ratio</th>
<th>Lower limit</th>
<th>Upper limit</th>
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<td>Alcohol use in preceding month</td>
<td>Age</td>
<td>0.366</td>
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<td>0.006</td>
<td>1.442</td>
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<td>Race (white vs. others)</td>
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<td>Sex</td>
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<td>0.191</td>
<td>14.703</td>
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<td>2.080</td>
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<td>Father drunk</td>
<td>0.683</td>
<td>0.132</td>
<td>26.865</td>
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<td>1.979</td>
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<td>Peer alcohol use frequency</td>
<td>1.269</td>
<td>0.161</td>
<td>61.838</td>
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<td>3.559</td>
<td>2.593</td>
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<td>Binge drinking in preceding month</td>
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<td>0.134</td>
<td>13.401</td>
<td>&lt;0.001</td>
<td>1.632</td>
<td>1.256</td>
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<td>Race (white vs. others)</td>
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<td>Mother drunk</td>
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<td>0.001</td>
<td>1.540</td>
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<td>Peer alcohol use frequency</td>
<td>1.279</td>
<td>0.165</td>
<td>59.755</td>
<td>&lt;0.001</td>
<td>3.592</td>
<td>2.597</td>
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</table>

Table IV: Logistic regression analysis outcomes of socio-demographic predictors and significant others’ influence on alcohol use and binge drinking in the preceding month (n = 704)

a = standard error

1 Independent variables: race (white and coloured = 1, others = 0; Indian = 1, others=0, reference category: African/black); sex (male = 1, female = 0); age (higher score = older age); mother/father drunk (higher score = more often); friends drink (higher score = more often). Dependent variables: yes = 1, no = 0

2 Hosmer and Lemershaw goodness-of-fit test ($\chi^2$ = 5.571, df 8, P = 0.695)

3 Hosmer and Lemershaw goodness-of-fit test ($\chi^2$ = 8.082, df 8, P = 0.426)
that of young men in terms of clinical categories of safe and harmful drinking. More research is needed with regards to the frequency and amount of alcohol consumption among young females. It has been suggested that appropriate cut-off scores for the sexes need to be used to estimate women's alcohol-use risk, which would be different from men as men can generally consume more alcohol than females.28 School-based alcohol prevention interventions therefore need to focus not only on young men, but also on females with specific consideration to safe drinking practices.

Similar to other studies, the students also viewed alcohol use and abuse as a way to have fun and to cope with problems at home.11,29 These findings suggest that interventions should aim to help young people, especially students of low SES, to make informed decisions about alcohol use when socialising but more so when used as a coping strategy. The negative consequences that may stem from ineffective coping strategies need special attention and the need for the development of more effective coping skills should be recognised.

The influential role of peers is evident in the data as peers offered most respondents their first alcoholic drink, and those who perceived their friends to drink often were twice as likely to have consumed alcohol in the preceding month. Young episodic drinkers have been found to overestimate their peers’ alcohol consumption to normalise their own binge drinking.29,30 Nevertheless, peer pressure plays a significant role in alcohol misuse and needs to be considered in prevention interventions.14,17,20

Students also perceived parents to be influential in their own attitude to alcohol use; some parents were also the first to introduce their children to alcohol. However, adolescents seem to drink less alcohol when they obtain it from their parents than when the source is their peers or others.11,31 The powerful influence of parents as role models is suggested by the data, as the perceived frequency of parental/guardian alcohol abuse played a significant role in adolescents’ engagement in binge drinking while the abuse of alcohol by fathers was a significant predictor in students’ alcohol use in the preceding month. Various studies support the influence of parents as role models and the influence of their practices on their children’s alcohol use behaviour.15,17,20,31-33 Problematic relationships with parents have also been found to facilitate adolescent alcohol use and abuse.11,29 This highlights the responsibility of parents in the socialisation of their children and the protective role they can play against engagement in risk behaviours.17 The paucity of intervention measures in this regard should be noted and special efforts are needed to develop appropriate and effective interventions involving both adolescents and their parents.

The findings of the study cannot be generalised to all students in schools with different race groups as non-probability purposive sampling was used. However, the correspondences of prevalence patterns with other studies provide support to the findings. Because of the problematic nature of self-reported behaviour, response bias is likely as some students might not have responded honestly.

Conclusion

While older, white male students are at a particular risk, prevention interventions need to explore peer influence and a realistic assessment and understanding of hazardous drinking for both males and females should be undertaken. Parents need to be included as an important target group and should be made aware of their influence as role models and their responsibility to foster responsible and safe alcohol-use practices. Health workers and medical practitioners can play a vital counselling role in this regard, especially when problem drinking is diagnosed in their adult clients. The long-term consequences of hazardous drinking patterns established during the adolescent years may lead to more serious alcohol and other substance abuse in later years, with negative effects on achievement in life, health and general well-being.

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Declarations

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