

Alcohol consumption in the Haute Matsiatra region of Madagascar: profile, knowledge, attitudes, and practices of high school students

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Abstract

Introduction

Alcohol consumption among adolescents is a major public health issue worldwide due to its physical, psychological, and social impacts. In Madagascar, specific data on this phenomenon remain limited. This study aims to describe the sociodemographic profile and knowledge, attitudes, and practices (KAP) related to alcohol consumption among high school students in the Haute Matsiatra Region.

Materials and Methods

A descriptive cross-sectional study was conducted during the 2023–2024 school year among high school students in the Haute Matsiatra region, selected through a two-stage sampling process. Data were collected using the World Health Organization (WHO) standardized Global School-based Student Health Survey (GSHS, 2021) questionnaire and analyzed using Statistical Package for the Social Sciences (SPSS) software version 20.0.

Results

A total of 2,946 high school students were included. The average age of participants was 16.8±1.3 years. The prevalence of alcohol consumption was 32.8%, with more than 85% of students reporting their first consumption before the age of 14. In terms of knowledge, 73.9% of students reported having had family discussions about the dangers of alcohol. In terms of attitudes, 23.2% expressed an intention to accept a drink offered by a friend. In terms of practices, wine was the most commonly consumed beverage (42.9%).

Conclusion

Alcohol consumption among high school students in the Haute Matsiatra region is highly prevalent, with varying levels of knowledge and sometimes permissive attitudes. Strengthening educational interventions in schools and communities appears essential in order to prevent early initiation and limit the associated consequences.

Keywords: Alcohol; High school students; Adolescents; Knowledge; Attitudes; Practices

Introduction

Alcohol consumption among adolescents is a major public health issue worldwide due to its impact on physical, mental, and social health, as well as its association with various risk behaviors [1,2]. Alcohol remains the most commonly used psychoactive substance in this age group, favored by its legal status, social acceptance, and wide availability[3].

Adolescence is a period of transition marked by significant biological, cognitive, and psychosocial changes that can have a lasting impact on health behaviors [1]. During this phase, some adolescents engage in risky behaviors, particularly alcohol consumption, with potential consequences for academic success and psychosocial well-being [4].

According to the World Health Organization (WHO), by 2023, a significant proportion of young people aged 15 to 19 will have already consumed alcohol, exposing them to immediate and long-term risks [5,6]. Despite the existence of standardized international surveys, specific data on alcohol consumption among adolescents remains limited in several low-income countries, including Madagascar [7].

In Madagascar, available data suggest that adolescents are introduced to various alcoholic beverages at an early age, reflecting the integration of alcohol into sociocultural practices and everyday life [8]. Traditional alcoholic beverages also play an important role in social events and rituals [9].

In the Haute Matsiatra region, alcohol consumption is part of a sociocultural context characterized by high social acceptability and easy access to alcoholic beverages, both industrial and artisanal. This situation is comparable to that observed in several low- and middle-income countries, where the availability of alcohol, unregulated local production, and favorable social norms are major determinants of adolescent initiation and consumption of alcohol [10]. However, few studies have systematically documented the sociodemographic profile and knowledge, attitudes, and practices of high school students with regard to alcohol consumption [11]. This study aims to fill this gap by describing these factors among high school students in the Haute Matsiatra region, using the standardized Global School-based Student Health Survey or GSHS questionnaire (WHO, 2021) [12].

Materials and Methods

Study setting

The study was conducted in the Haute Matsiatra Region, located in south-central Madagascar, with Fianarantsoa as its capital [13]. It comprises seven districts and 136 operational high schools, including 60 public and 76 private institutions, with a total of 20,136 high school students during the 2023-2024 school year [14].

Study type and population

This was a descriptive cross-sectional study conducted among adolescent high school students enrolled in public and private schools in urban and rural areas during the 2023-2024 school year.

Inclusion and exclusion criteria

Teenage high school students who were present at the time of the survey and who gave their informed consent were included. Poorly completed or inconsistent questionnaires, students who were absent on the day of the survey, and respondents over the age of 19 were excluded.

Sampling

Sampling was carried out using a two-stage survey. In the first stage, 30% of high schools were selected by simple random sampling in each district, representing 47 schools, including 21 public and 26 private schools. In the second stage, 30% of the classes in these schools were randomly selected, corresponding to 84 classes and a total of 3,187 high school students.

Data collection and analysis

The data were collected in April 2024 using a self-administered, anonymous, pre-tested questionnaire based on the GSHS (2021). They were analyzed descriptively using the Statistical Package for the Social Sciences (SPSS) software for Windows, version 20.0.

Ethics

The research protocol was approved by the Committee for Ethics and Biomedical Research (CERBM) of the Ministry of Public Health of Madagascar, under reference No. 40-MSANP/SG/AMM/CERBM dated March 4, 2024. Written agreements were obtained from local authorities. Informed consent was obtained from adult students and from parents or legal guardians for minors.

Results

General characteristics of the study population

Of the 3,187 high school students initially selected during sampling, 2,946 were retained for the final analysis, corresponding to a response rate of 92.4%.

Of the 241 high school students not included (7.6% of the initial sample), 54 questionnaires were incorrectly completed (1.7%), 109 students were absent at the time of the survey (3.4%), and 78 respondents were over the age of 19 (2.4%).

Sociodemographic profile

Among the high school students included, 57.7% were boys and 42.3% were girls, with a sex ratio of 1.37. The 12-14 age group represented 2.7% of the population, while the 15-19 age group represented 97.3%. The average age of participants was 16.8±1.33 years, with ages ranging from 12 to 19 years. The students were distributed according to grade level, with 25.3% in 10th grade, 40.7% in 11th grade, and 34% in 12th grade. Just over a quarter of the high school students (26.8%) lived in urban areas, while nearly three-quarters (73.2%) lived in rural areas. Nearly two-thirds of high school students attended public schools (66.9%), compared to 33.1% who attended private schools. (Table I)

Table I: Distribution of high school students according to their sociodemographic profile

| Characteristics | | Number (n) | Percentage (%) |
|---------------------|---|---------------|-------------------|
| Gender | Male | 1,701 | 57.7 |
| | Female | 1,245 | 42.3 |
| | Total | 2,946 | 100 |
| Age group | 12 to 14 years old | 79 | 2.7 |
| | 15 to 19 years old | 2,867 | 97.3 |
| | Total | 2,946 | 100 |
| | Minimum age: 12 years old Maximum age: 19 Average age: 16.80±1.33 | | |
| School level | Second year | 745 | 25.3 |
| | First year | 1,198 | 40.7 |
| | Final year | 1,003 | 34 |
| | Total | 2,946 | 100 |
| Place of residence | Urban | 790 | 26.8 |
| | Rural | 2,156 | 73.2 |
| | Total | 2,946 | 100 |
| Type of high school | Public | 1,972 | 66.9 |
| | Private | 974 | 33.1 |
| | Total | 2,946 | 100 |

High school students' knowledge about alcohol consumption

The main sources of information about alcohol came from the family environment and the school setting. In fact:

- Regarding the family as a source, nearly three-quarters of high school students (73.9%) reported having had family discussions about the harmful effects of alcohol, while 26.1% reported not having received this type of information. (Table II)
- In terms of education, during the 2023-2024 school year, less than a third of high school students surveyed (30.1%) reported having received education on alcohol-related risk prevention. This education focused on the benefits of abstinence from alcohol, the dangers of alcohol abuse, the effects of alcohol on decision-making, places and resources for help in stopping alcohol consumption, support for programs and policies to prevent alcohol abuse among young people, and strategies for refusing alcohol. In contrast, nearly two-thirds of students (65.8%) reported receiving no such education in school, while a small proportion (4.1%) did not specify their situation. (Table II)

Table II: Distribution of high school students according to sources of information and educational content related to alcohol

| Sources of information | Educational content related to alcohol | Number (n) | Percentage (%) |
|------------------------|--|------------|----------------|
| Family | Family discussion about the harmful effects of alcohol | | |
| | Yes | 2,177 | 73.9 |
| | No | 769 | 26.1 |
| | Total | 2,946 | 100 |
| School | Education on the prevention of alcohol-related risks | | |
| | Yes | 887 | 30.1 |
| | No | 1,938 | 65.8 |
| | Don't know | 121 | 4.1 |
| | Total | 2,946 | 100 |

High school students' attitudes toward alcohol

➤ High school students' attitudes toward being offered alcohol by a peer

When offered alcohol by a peer, 72.5% of high school students said they would categorically refuse, while 4.3% said they would probably refuse. Conversely, 23.2% said they would accept, with 21.7% saying they would probably accept and 1.5% saying they would definitely accept. (Table III)

➤ Perception of the risk associated with occasional alcohol consumption (1 to 2 times per year)

Regarding the perception of risk associated with occasional alcohol consumption (1 to 2 times per year) 59.2% of high school students believed that occasional alcohol consumption (1–2 times per year) carries a high risk, while 41% perceived it as posing little or moderate risk. (Table III)

Table III: High school students' attitudes toward alcohol consumption

| High school students' attitudes toward alcohol consumption | Number (n) | Percentage (%) |
|---|------------|----------------|
| Response to an offer of alcohol from a peer | | |
| Absolutely not | 2,135 | 72.5 |
| Probably not | 128 | 4.3 |
| Probably yes | 639 | 21.7 |
| Of course yes | 44 | 1.5 |
| Total | 2,946 | 100 |
| Perception of risk associated with occasional alcohol consumption (1 to 2 times per year) | | |
| No risk | 349 | 11.8 |
| Low risk | 458 | 15.5 |
| Moderate risk | 394 | 13.4 |
| High risk | 1,745 | 59.2 |
| Total | 2,946 | 100 |

High school students' drinking habits

➤ Prevalence of alcohol consumption

Among the 2,946 high school students surveyed, the prevalence of alcohol consumption was 32.8%, compared to 67.2% who reported not drinking. (Table IV)

➤ **Age of first consumption**

Of the 967 students who reported drinking, 37.7% started at 10–11 years, 47.7% at 12–13 years, and only 14.7% at age 14 or older. (Table IV)

➤ **Age of first intoxication**

Among the 967 high school students who reported having consumed alcohol, 39.4% said they had never been drunk. Among those who had been drunk, the 14-15 age group was the most represented (43.3%), followed by the 12-13 age group (10.9%). The first instances of drunkenness occurring at age 16 or older concerned 6.4% of students. (Table IV)

➤ **Place of first consumption**

The first consumption of alcohol occurred mainly at someone else's home (31.5%) and in bars (28.5%). Consumption initiated at home concerned 27.1% of high school students, while other places accounted for 10.9%. Consumption at school remained marginal (2.0%). (Table IV)

➤ **Types of alcoholic beverages consumed**

Among the 967 high school students who reported drinking alcohol, 42.9% reported drinking wine, 21.8% beer, 21.1% artisanal rum, and 14.2% spirits. (Table IV)

➤ **Amount of alcohol consumed on a single occasion**

Nearly half of high school students reported consuming less than one drink on a single occasion (43.6%). However, 56.4% reported consuming at least two drinks, including 21.9% who consumed three drinks, 12.1% who consumed four drinks, and 5.3% who consumed five or more drinks. (Table IV)

➤ **Patterns of consumption**

Alcohol consumption mainly took place with friends (47.2%), followed by consumption in a family setting (39.3%). Solo consumption accounted for 13.5% of high school students. (Table IV)

➤ **Frequency of drunkenness in the last 30 days**

52.1% of high school students reported no drunkenness in the last 30 days. However, 46.4% reported one to two instances of drunkenness, and 1.4% reported three to nine instances of drunkenness during the same period. (Table IV)

Table IV: High school students' practices regarding alcohol consumption

| High school students' practices regarding alcohol consumption | Number (n) | Percentage (%) |
|--|-------------------|-----------------------|
| Prevalence of alcohol consumption | | |
| Yes | 967 | 32.8 |
| No | 1,979 | 67.2 |
| Total | 2,946 | 100 |
| Age of first consumption | | |
| 10 to 11 years old | 365 | 37.7 |
| 12 to 13 years old | 461 | 47.7 |
| 14 to 15 years old | 109 | 11.3 |
| 16 years old and older | 32 | 3.3 |
| Total | 967 | 100 |
| Age of first intoxication | | |
| Never drunk | 381 | 39.4 |
| 12 to 13 years old | 105 | 10.9 |
| 14 to 15 years old | 419 | 43.3 |
| 16 years old and older | 62 | 6.4 |
| Total | 967 | 100 |
| Place for first consumption | | |
| At home | 262 | 27.1 |
| At someone else's house | 305 | 31.5 |
| At school | 19 | 2.0 |
| Bar | 276 | 28.6 |
| Other places | 105 | 10.9 |
| Total | 967 | 100 |
| Types of alcoholic beverages consumed | | |
| Wine | 415 | 42.9 |
| Beer | 211 | 21.8 |
| Artisanal rum | 204 | 21.1 |
| Spirits | 137 | 14.2 |
| Total | 967 | 100 |

| Amount of alcohol consumed on a single occasion | | |
|---|-----|------|
| Less than one drink | 422 | 43.6 |
| 2 drinks | 165 | 17.1 |
| 3 drinks | 212 | 21.9 |
| 4 drinks | 117 | 12.1 |
| 5 drinks or more | 51 | 5.3 |
| Total | 967 | 100 |
| Patterns of consumption | | |
| With friends | 456 | 47.2 |
| With family | 380 | 39.3 |
| Alone | 131 | 13.5 |
| Total | 967 | 100 |
| Frequency of drunkenness in the last 30 days | | |
| 0 times | 504 | 52.1 |
| 1 to 2 times | 449 | 46.4 |
| 3 to 9 times | 14 | 1.4 |
| Total | 967 | 100 |

Discussion

Sociodemographic profile and prevalence of consumption

In this descriptive study conducted among 2,946 high school students in the Haute Matsiatra region, 32.8% of students reported having consumed alcohol. This prevalence of consumption is comparatively higher than that observed in a large global study using data from the Global School-based Student Health Survey (GSHS), where the overall prevalence of alcohol consumption among adolescents aged 11 to 16 was approximately 25.2% [15], 23.3% among adolescents aged 10 to 17 in sub-Saharan Africa [16], and 27.8% among high school students in Ethiopia [17]. Similarly, a survey conducted in Panama showed a prevalence of use of 30.6% among adolescents aged 13 to 17, which is similar to our findings and corroborates the extent of use in certain school settings [18].

The age of initiation into alcohol consumption in our population was particularly low, with more than 85% of high school students reporting their first consumption before the age of 14. This proportion mainly concerns adolescents aged 15 to 19 at the time of the survey, reflecting very early exposure to alcohol, which is likely to increase the risk of problematic consumption later on. This suggests early exposure to risk, which is concerning since early initiation has been associated with an increased likelihood of subsequent problematic consumption. In addition, a longitudinal study in the United Kingdom showed that 13.4% of children aged 10 to 11 had

already drunk alcohol, although drunkenness at this age was rare, indicating that initiation can begin very early [19]. According to a study using data from the 2018 Global School-based Student Health Survey (GSHS) conducted in low- and middle-income countries, approximately 19% of adolescents aged 12 to 13 and 29% of those aged 14 to 15 had already consumed alcohol [20]. Although these age groups are younger than most participants in this study, these results confirm the high frequency of early initiation observed in different contexts. The average age of first alcohol consumption among students in grades 7 to 12 in Canada was 13.4 years [21].

Knowledge about alcohol

In our study, 73.9% of students reported discussing the dangers of alcohol with their families, while 30.1% received formal education in school. This dissociation reflects a heterogeneous knowledge profile. Although direct comparisons are rare, systematic data show that school education on the risks of alcohol remains uneven worldwide, often dependent on national programs and the availability of school-based interventions [15].

The high level of family communication observed in our population may play a protective role, but it is likely insufficient to eliminate risky behaviors without strengthening educational programs in schools and communities.

Attitudes toward alcohol consumption

In terms of attitudes, 72.5% of high school students reported that they had categorically refused an offer of alcohol from a peer, which is an encouraging sign of social resistance. However, 23.2% expressed an intention to accept, highlighting significant susceptibility to peer influence. The Brazilian study from Campina Grande showed that a significant proportion of adolescents drink between the ages of 11 and 14, with permissive attitudes that could facilitate experimentation and acceptance of alcohol [22].

Perceptions of risk also varied. 59.2% believed that occasional consumption carries a high risk, while 41% perceived it as posing little or moderate risk. This variation in risk perception is consistent with international studies showing that adolescents often underestimate the risks associated with alcohol, particularly when they are influenced by positive social norms regarding consumption [15].

Consumption practices

Types of beverages and contexts

Among the 967 consumers, wine (42.9%) was the most frequently reported beverage, followed by beer (21.8%) and artisanal rum (21.1%). This distribution may reflect local preferences and the availability of alcohol types in the region. In contrast, a Brazilian study reported that beer was the most commonly consumed beverage (43.8%) among adolescents, which differs from our profile but highlights the cultural variability of practices [22].

Quantity and frequency of consumption

In terms of quantity, 43.6% of adolescents reported consuming less than one drink per occasion, but 56.4% consume two or more drinks. The frequency of drunkenness was notable, with 46.4% of consumers reporting 1 to 2 episodes of drunkenness in the previous 30 days, indicating more frequent risky behavior than that reported in some recent African surveys, where the proportion of adolescents reporting having been drunk at least once was lower (e.g., around 8.3% for certain definitions of “drunkenness”) [23].

Age of first intoxication

In our cohort, first intoxication occurred between ages 14 and 15 (43.3%), which is consistent with observations indicating that progression to episodes of intoxication increases with age among adolescents. Although methodologies differ, the UK study found that only 1.2% of 10- to 11-year-olds had experienced intoxication, reflecting the transition to episodes of intoxication later in adolescence [19].

Implications for public health

All of these findings underscore the urgent need for prevention and education programs tailored to the local context. The substantial prevalence of consumption, early initiation, and permissive attitudes among a significant proportion of high school students indicate that multisectoral interventions are needed, integrating school education, family support, regulation of access to alcohol, and community awareness.

Limitations of the study

This study has certain limitations. The results are based on participants' self-reported responses, which may influence their accuracy. Furthermore, although the sample is large and representative of high school students in the Haute Matsiatra region, the conclusions cannot be extrapolated to either out-of-school adolescents or other regions of Madagascar.

Conclusion

The prevalence of alcohol consumption among high school students in the Haute Matsiatra region is high. The age of initiation into drinking is early and associated with risky behaviors. These results, corroborated by several international studies, highlight the need for targeted interventions aimed at stopping the initiation of alcohol consumption, strengthening knowledge, and changing risky attitudes among high school students.

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Conflicts of interest

No conflicts of interest declared.

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