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Time Trends and Policy Gaps: The Case of Alcohol Misuse Among Adolescents in Lebanon

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Abstract

Background—Monitoring studies are crucial for informing and reforming local policies.

Objectives—Using the Lebanon 2005 and 2011 Global School-based Student Health Surveys (GSHS), alcohol time trends were described, policy gaps were identified, and harm reduction policy recommendations were made.

Methods—In 2005 and 2011, 100 ($n = 5109$ students) and 44 ($n = 2784$ students) middle schools were surveyed, respectively. Self-reported cross-sectional data on alcohol use among 7–9th graders in private and public schools was collected including 30-day prevalence, lifetime drunkenness, alcohol-related problems, and sources of alcohol.

Results—In 2011, the majority (87%) had alcohol before turning 14. Between 2005 and 2011, past 30-day alcohol use had increased by 40% and lifetime drunkenness by 50% in the total sample (122% among females with a narrowing in the gender gap). Drinking was regular for more than a third of the past 30-day drinkers (drank two or more drinks on the days they drank). Male adolescents were more likely to obtain alcohol from “stores” or “through their friends” whereas females’ main source was their “family.” One in twenty reported experiencing alcohol-related problems (e.g., getting into fights with family/friends and skipping school).

Conclusion/Importance—Evidence-informed policy implications include enforcing a minimum legal drinking age, regulating alcohol advertising, and marketing particularly those targeting youth and women, and ensuring the availability of youth-friendly services. Public messages to increase awareness among all stakeholders including youth, their parents, and larger community are also needed.

Keywords

alcohol; GSHS; youth; Lebanon; alcohol policy

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Declaration of Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.

Introduction

Alcohol is a major public health concern worldwide. It is the world's third largest risk factor for disease and disability, contributing to more than 60 types of noncommunicable (NCD) and other diseases (Mathers & Loncar, 2006; Rehm, Zatonksi, Taylor, & Anderson, 2011). While on the decline in some countries, youth alcohol use remains a concern given its continued high prevalence and younger initiation ages (Johnston, O'Malley, Miech, Bachman, & Schulenberg, 2015; Karam, Kypri, & Salamoun, 2007). Early onset alcohol use has been consistently and strongly linked to risky youth behaviors, including increased spontaneous sexual experiences (Orchowski & Barnett, 2012), gambling (Engwall, Hunter, & Steinberg, 2004), physical fights (Hingson, Heeren, & Zakocs, 2001), and unintentional injury (Hingson, Heeren, Jamanka, & Howland, 2000). While many young drinkers will reduce their alcohol use as they reach young adulthood (Chilcoat & Breslau, 1996), earlier onset has been associated with increased risk of developing problem drinking (Warner, White, & Johnson, 2007), as well as alcohol and other substance use disorders (DeWit, Adlaf, Offord, & Ogborne, 2000; Lowman, 2004) in adulthood.

Data on alcohol consumption in most of the Middle East and North African (MENA) countries, however, is either unavailable or outdated (Salamoun et al., 2008), impeding the implementation of adequate and evidence-informed health policies and planning. In an effort to help countries develop priorities, establish country-level health programs, and advocate for resources (CDC, 2013) besides establishing trends, the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) joined efforts to undertake the Global School-based Student Health Survey (GSHS) among 7–9th graders in 73 countries, including 16 countries in the Eastern Mediterranean Region (EMR). However, despite the successful completion of the survey, data specific to adolescent alcohol use in the Arab region is only available for Lebanon, Morocco, and Syria (CDC, 2013).

Lebanon was ranked as having the third largest per capita alcohol consumption in 2011, according to the WHO, as compared to other countries in the MENA region. In fact, epidemiological evidence reveals that drinking at a very young age is quite common, that the age of first-time alcohol use is decreasing with time (Degenhardt et al., 2008; Ghandour, Karam, & Maalouf, 2009; Karam, Maalouf, & Ghandour, 2004), and that alcohol drinking among youth in Lebanon is more frequent than experimental or occasional. For example, in a sample of high school students (aged 16.78 ± 0.06 years) enrolled in private, public as well as vocational schools in the greater Beirut area, 40% of those who drank alcohol in the preceding year reported drinking once or twice per week or more (Zahlan, Ghandour, Yassin, Afifi, & Martins, 2014). More concerning is the percentage of youth (27%) who report ever having been “really drunk” at least once (Karam, Ghandour, Maalouf, Yamout, & Salamoun, 2009). Frequent alcohol drinking also characterizes university student life where almost half of the lifetime drinkers (45.4%) in a recently surveyed (2010) university sample reported drinking one to two times per week or more (Ghandour, El Sayed, & Martins, 2012). Alcohol-related problems among young drinkers are also not uncommon; 11% of the lifetime drinkers in a high school study sample met criteria for alcohol abuse as per the Diagnostic Statistical Manual (DSM-IV) (Karam et al., 2009).

Despite Lebanon's participation in the GSHS in 2005 and 2011, notwithstanding the available and mounting cross-sectional evidence on the high and problematic alcohol drinking habits among youth in Lebanon, evidence-based priority setting and policy-making, as well as alcohol harm reduction are not on the national youth agenda. In fact, Lebanon is currently characterized by weak, outdated (latest update in 1985) and loosely enforced alcohol control measures. This is evidenced by low alcohol prices, illegal sale to minors, lax law enforcement, and very low alcohol excise taxes as well as a weak regulatory framework for alcohol advertising and marketing.

This paper uses trend data on alcohol use prevalence and patterns generated by the 2005 and 2011 GSHS to illustrate important changes in youth alcohol drinking, but more importantly, identify policy gaps and generate evidence-informed recommendations to help country officials and other stakeholders achieve the study's purpose as well as help translate accumulated epidemiological data into evidence-based policies and practices.

Methods

Participants

In 2005 and 2011, and in coordination between WHO-Lebanon, the Ministry of Public Health and the Ministry of Education and Higher Education, a total of 100 schools (50 public and 50 private) were surveyed in 2005; and 44 (25 public and 19 private) schools in 2011. In both years, the schools were chosen through a two-stage cluster sample design to produce a representative sample for Lebanon. Schools that were included in the sampling frame had at least 40 students, and tutored grades 7, 8, and 9; they were then selected systematically with probability proportional to enrolment size. Within these grade levels, classes were also randomly selected by a systematic equal probability sampling technique. All students in the selected classes were eligible to participate. In 2005, the school and student response rate, were 92% and 96%, respectively, yielding an overall rate of 88% (eight private schools refused to participate). In 2011, the school response rate was 88% (six private schools refused to participate) and the student response rate was 99%, yielding an overall response rate of 87%. Parents were sent a letter informing them of the study and requesting their passive consent; only a few parents did not accept, hence the 96% and 99% student response rate in 2005 and 2011, respectively (within participating schools). In both surveys administered in 2005 and 2011, a weighting factor was applied to each student record to adjust for nonresponse and for the varying probabilities of selection.

In both surveys (2005 and 2011), females were slightly more represented (54% and 53%, respectively). Average ages were 13.80 years (SD = 0.02) and 13.91 years (SD=0.02) in 2005 and 2011, respectively. In 2005, more students from private schools were included (55% vs. 45% public), whereas in 2011, the reverse was true (47% vs. 53%, respectively). Last, the total sample was almost equally distributed across the three grade levels in 2005 (39% in 7th, 31% in 8th and 30% in 9th grades); in 2011, however, about 40% were sampled from the 7th and 8th grade, and 20% from the 9th.

Survey Measures

For both years, a self-administered questionnaire was used to assess alcohol use as well as other substances, among other things (e.g., dietary behaviors, mental health, violence, and unintentional injury). Demographics including gender and grade level were also collected.

Alcohol-relevant questions commonly asked between both 2005 and 2011 surveys included: having had at least one drink in the past month, total number of drinks they had on the days they had drunk in the past month, lifetime drunkenness, alcohol-related problems, as well as sources of obtaining alcohol (each question measured as yes/no). The question on “drunkenness” in 2011 was preceded by a subheading that read: “*staggering when walking, not being able to speak right, and throwing up are some signs of being drunk.*” Alcohol-related problems included the number of times students got in trouble for having drinking a lot of alcohol. Specifically, in 2005, the question was, “*During your life, how many times have you ever had a hangover, felt sick, got into trouble with your family or friends, missed school, or got into fights, as a result of drinking alcohol?*” In 2011, the terms “hangover” and “felt sick” were removed, and the question therefore read as such: “*During your life, how many times have you got into trouble with your family or friends, missed school, or got into fights, as a result of drinking alcohol?*” In 2011, the survey also assessed age at which the student had had his or her first drink of alcohol (defined as “other than a few sips”).

Analysis

Analyses were conducted using Stata/IC 10.0. Missingness was less than 5% across all the variables. Logistic regression models were run for each alcohol outcome including the student’s sex, grade level, and type of school she or he is attending in order to examine differences in alcohol consumption patterns by basic demographics; this was conducted using the most recent 2011 data only (Table 1). To describe time trends in the total sample and within demographic subgroups (Tables 2 through 4), prevalence estimates were compared between 2005 and 2011, and the relative change was computed; *ptest* indicated whether the change was statistically significant or not (critical alpha level assumed at 0.05).

Ethical Considerations

Survey procedures were designed to protect student privacy by allowing for anonymous and voluntary participation. Parental consent was obtained by informing parents of the survey and its content and requesting that they inform the school if they preferred that their children did not participate in the study. Students were also informed about the survey and its contents, their rights, and the voluntary nature of participation.

Results

Current State of Alcohol use Among Middle School Students

In 2011, the vast majority (87%) of the 7–9th graders had had a drink of alcohol (other than a few sips). Current drinking, or having at least one alcoholic drink in the preceding 30 days, was reported by 1 in 4 students approximately (27.4%), more than a third of which (38.1%) reported having had two or more drinks on the days they drank. Moreover, 1 in 5 students had ever experienced drunkenness, and 5% reported at least one alcohol-related problem

(e.g., getting into trouble with family, friends, and school or getting into fights) one or more times as a result of drinking alcohol.

Demographic Differences in Current Alcohol Use

Developing evidence-informed and tailored interventions necessitates a good understanding of the subgroups that are most at risk. We focused this analysis on the most recent 2011 data to enhance relevance. As shown in Table 1, males had consistently higher odds of all alcohol-relevant outcomes. In terms of alcohol access, males were more likely (than females) to endorse buying alcohol from stores, getting it from friends, getting it without permission or “some other way”; females, however, were more likely to obtain it from “family,” though the association was no longer statistically significant upon adjusting for grade level and school type.

With regards to independent effects of school type, students attending private schools were at greater odds of harmful alcohol use (Table 1). As for the source of alcohol use, private versus public students were also five times more likely to buy it or get it “some other way,” and seven times more likely to report getting it from “family,” controlling for gender and grade level (Table 1).

Overall, not much substantial differences were observed between 7th, 8th, and 9th graders; compared to 7th graders, 8th graders were more likely to report a greater frequency of drinking (two or more drinks on the days they drank), and 9th graders were more likely to report giving someone else money to buy them alcohol (Table 1).

Examining Time Trends in Total Sample, and by Gender, Grade Level, and School-Type

Early Onset Alcohol Use—Trends with regards to the mean age of onset of alcohol drinking could not be assessed since the question was not posed in the 2005 survey. In 2011, the predominant majority (87%) of the middle school students reported having had their first drink before the age of 14; no gender differences were observed with regards to the age of onset (Table 2) but a higher (though not statistically significant) percentage of 7th graders (95%) reported an early onset of alcohol use (vs. 82% in 8th and 9th graders) (Table 3); moreover, 91% of the students in private schools reported having their first drink before age 14 compared to a statistically significantly lower percentage (68%) among public middle school students (Table 4).

Past 30-Day Patterns of Alcohol Use—The 30-day prevalence of alcohol use increased by about 40% between 2005 and 2011, more so among females than males; 7th and 8th graders (but not 9th graders), and students belonging to private but not public schools (Tables 2–4). Among the past 30-day drinkers, the percentage of students who reported drinking two or more drinks on the days they drank did not change between 2005 and 2011, except for a substantial yet not statistically significant relative increase (36%) among 8th graders (Table 3).

Ever Drunkenness—Reports of ever getting drunk increased by 48%, from 14% in 2005 to 20% in 2011, an increase that was observed in both sexes, but to a much larger extent in

females (a statistically significant increase of 122% vs. a 22% increase in males) (Table 2). A 39%–55% increase in prevalence of ever drunkenness (though not statistically significant) was also observed across all grade levels (Table 3), and private school students (60%) (Table 4).

Alcohol-Related Problems—Given the different wording in the questions posed in 2005 and 2011, relative changes were not calculated for this measure. In 2005, 17% of students aged 13–15 years old reported ever having had a hangover, felt sick, gotten into trouble with family or friends, missed school, or gotten into fights, as a result of their alcohol drinking. In 2011, the terms “hangover” and “felt sick” were not included in the question, and so 5% of the 7–9th graders reported ever getting into trouble with family or friends, missing school, or getting into fights, as a result of their alcohol drinking.

Sources of Alcohol—The predominantly reported source of alcohol for middle school students seems to be “family” (55%), followed by “buying it from a store/shop/street vendor” reported by about one in four middle school students (a more common behavior in males than females). Expectedly, very few students reported giving someone money to buy alcohol for them (given that alcohol is available and no minimum legal age exists); similarly, getting alcohol via friends was also unusual and much less reported in 2011 (4.8% vs. 7.7% in 2005). Quite interestingly, the percentage of students reporting obtaining alcohol “in some other way” rose substantially between 2005 and 2011, particularly in males (84% increase) (Table 2), the older students (8th and 9th graders, Table 3), and private school students (Table 4).

Discussion

Prevention research underscores the importance of strategically using data to inform efforts to reduce problems related to ill-health outcomes or behaviors, such as underage alcohol drinking. This necessitates not only the collection of timely data but also its translation to evidence-informed recommendations that can be ultimately used to guide policy and practice.

Trend data emanating from the 2005 and 2011 GSHS in Lebanon clearly point towards a substantial 40% increase in current alcohol drinking among 7–9th graders in less than a decade. While experimenting with alcohol may be socially accepted, the habit of regular alcohol drinking should not be (with more than a third reporting having had two or more drinks on the days they drank in the preceding month), particularly since the literature is clear about the link between early onset alcohol drinking and an increased probability of developing problem drinking and alcohol/other substance use disorders in adulthood (than if drinking onset were delayed) (McLeroy, Bibeau, Steckler, & Glanz, 1988; Warner et al., 2007). When benchmarking against other Arab countries, we find that the most current 2011 estimate of current drinking among adolescents in Lebanon (27%) is by far higher than that reported among 13–15 year olds in Morocco (3.7%) and Syria (7.4%) (CDC, 2013), the only two other countries with GSHS data on alcohol. Actually, this increasing and high prevalence of drinking among adolescents in Lebanon is seen at a time when developed countries are witnessing significant declines in such estimates. As an example, in 2011,

current drinking among 8th graders attending U.S. private and public schools was estimated at 12.7% (a 26% decrease since 2005) compared 29.2% among 8th graders in Lebanon (a 47% increase since 2005); similarly, lifetime drunkenness among 8th graders in the United States was 14.8% in 2011 (signifying a 24% decline) compared to 20.9% in our sample (a 55% increase since 2005).

Though Lebanon is home to two major religions (Christianity and Islam) that have different religious doctrines regarding alcohol use, differentiating students' alcohol drinking patterns by their religious faith was not possible in this survey given that both religion and religiosity were not assessed. However, it has been shown previously that while alcohol use was expectedly more common in Christians than Muslim university students in Lebanon, once ever drinkers, the odds of alcohol use disorders and harmful alcohol drinking were comparable across students belonging to both religious groups (Ghandour, Karam, & Maalouf, 2009).

Overall, our findings carry clear policy implications, particularly at the level of enforcing a minimum legal age for alcohol purchasing and drinking, as well as the regulation of all alcohol marketing that is vehemently targeting the youth population. Today, youth in Lebanon are surrounded by a proalcohol use context including low alcohol prices, heavy alcohol marketing and advertising on several media outlets, and wide alcohol availability with alcohol being easily accessible. It is important to note here that Lebanon is not an Islamic state so alcohol is freely available and can be purchased in a variety of locations such as grocery stores, small shops, alcohol outlets, as well as in restaurants, bars, and hotels. Decrees governing the sale of alcohol to minors date back to the 1940s and 1960s and are weakly enforced. In fact, the only Decree (number 340), which was issued in 1943 and revised in 1993, imposes a penalty fine of \$4–\$14 (cheaper than one alcohol drink in most pubs and bars in Lebanon) on persons who put minors under 18 years of age in a drunken state by offering them alcoholic drinks. Stipulations of the same decree (article 626 revised through law 239/1993) impose sanctions and fines equivalent to \$6–\$13 on the owners and employees of bars/pubs or other similar public places, who offer alcoholic drinks to drunk persons or to minors under age of 18 years, or who put a person in a drunken state. In the present study, one in four middle school students reported buying alcohol from a shop/store or street vendor in 2011, further stressing the urgent need to set new and implemented policies that would regulate alcohol sale to minors, reduce the density of alcohol outlets, and integrate public messages supporting enforcement of these policies.

This increased availability of alcohol to youth in Lebanon is aggravated by the free rein of the alcohol industry marketing and sales practices (e.g., advertising expenditure on spirits alone estimated at \$15 million USD annually; Stigset, 2005) in the absence of a law that regulates all alcohol marketing, including sponsorship. New emerging markets for the alcohol industry target not only young age groups, but also women, making young females most vulnerable. This is evidenced by a substantial narrowing of the gender gap, also being seen among female adolescents in other cultures (Hibell et al., 2012; Johnston et al., 2015). Though alcohol consumption remains a predominantly male behavior, significantly larger increases in prevalence were noted among females in our sample (64% increase in alcohol drinking and 122% in drunkenness as opposed to 28% and 22% in males, respectively).

While underlying reasons may vary, one cannot overlook a key possible driving force which is the alcohol industry's increased efforts to target primarily women via their marketing and advertising campaigns (Chung et al., 2010), again emphasizing the importance of regulating or banning alcohol advertisements and sponsorships as part of a national alcohol control policy, as well as incorporating gender-specific components to prevention efforts that pay close attention to incident female drinkers.

While GSHS did not collect data on drinking and driving per se, the levels of reported drunkenness among the 7–9th graders in Lebanon increased by 50%, again more so in the females (122% in females vs. 22% in males). In the absence of a national law enforcing random sobriety checkpoints, and in the presence of drive-through alcohol outlets that sell cheap alcohol to young drivers, alcohol-related crashes have become increasingly common in Lebanon (second most common reason as reported by Red Cross Lebanon). Despite the scattered efforts by local nongovernmental organizations to raise awareness among youth about the harms of drinking and driving, systematic national efforts are still needed to curb or prevent alcohol-related car crashes.

Supporting national harm reduction policies are also efforts undertaken by various stakeholders within the family, schools, and larger communities. To begin with, the role of parents cannot be stressed enough and should also be incorporated as part of any national prevention effort—given that “family” is one of the most commonly reported sources for obtaining alcohol among youth (Campbell et al., 2009; Casswell & Thamarangsi, 2009; Ponicki, Gruenewald, & LaScala, 2007; WHO, 2014), be it directly via making alcohol accessible or indirectly via role modeling. Early ages of alcohol use also shed light on the importance of restricting the availability of alcohol beverages at home (similar to a medicine cabinet), and quite importantly, the importance of parent-child communication about the harms associated with early and frequent alcohol drinking.

The fact that 1 in 20 middle school students (13% of the lifetime drinkers) had already had trouble with family, friends, school, or gotten into a fight as a result of their alcohol drinking has implications not only at the familial level but also at the level of the school (e.g., availability of confidential school-based youth counseling) and the wider community (e.g., ensuring presence of youth-friendly counseling and treatment services for youth with alcohol-related problems). Strengthening school-based education on alcohol and its related harms is also essential especially since 60% of our sample reported never receiving such information at school. While knowledge can be increased and attitudes slightly changed, school-based programs are, however, unlikely to affect drinking behaviors on the long run (Casswell & Thamarangsi, 2009; Wagenaar, Salois, & Komro, 2009). At the community level, public information campaigns can highlight the dangers of alcohol use, bring the issue of into public dialogue, and help support the implementation of effective policies (Wagenaar et al., 2009).

Concerning schools per se, understanding variations in alcohol use prevalence and patterns by school type is also important for ensuring that programs are tailored to meet the target youth population needs. Our findings of higher and more harmful drinking among private school students are in line with others from less developed countries, such as Brazil, where

students in schools charging lower tuition were less likely to binge drink, suggesting that this harmful alcohol practice may be linked to family income and socioeconomic status (Sanchez et al., 2011). However, this is in contrast to U.S. findings where public middle school students are at a higher risk for alcohol use (O'Malley, Johnston, Bachman, Schulenberg, & Kumar, 2006). Worth noting is that in Lebanon, as in Brazil, private schools are characterized by very high tuition fees—catering mostly for the upper-middle income and wealthy families. Whether it is the family background or surrounding peer environment that puts the wealthier kids in the less developed countries at higher risk remains to be investigated. This difference in consumption between private and public schools is at least partially explained by income fluidity; however, prevention must be emphasized to all students. In an uncertain context such as Lebanon, incomes are to some extent variable and people can fall in and out of certain income brackets rapidly. In addition, the industry has recently been releasing products that are cheaper and potentially accessible to young persons of all income levels (new beer products are available for about 60 cents/USD). Given our belief, which is supported by global alcohol policy documents (WHO, 2014) that control of alcohol related problems is a function of a comprehensive programmatic approach, then prevention is needed by and must reach all.

Implementation of an evidence-based national alcohol harm reduction policy has been shown to be effective in preventing and reducing alcohol-related harms. WHO's adoption of the Global Strategy to Reduce the Harmful Use of Alcohol in May 2010 has succeeded in strengthening active governments' commitment in promoting effective actions to address the harmful use of alcohol drinking by targeting one or a combination of areas including alcohol marketing/advertising, pricing, and availability, as well as drinking and driving (Anderson, Chisholm, & Fuhr, 2009; Anderson, De Bruijn, Angus, Gordon, & Hastings, 2009; Campbell et al., 2009; Livingston et al., 2007; Nelson, 2003; Ponicki et al., 2007; Wagenaar et al., 2009; Wagenaar & Toomey, 2002; WHO, 2014). Data from the United States shows that states with more comprehensive and stringent alcohol control policies tend to have lower binge drinking rates among adults and youth (Nelson, Naimi, Brewer, & Wechsler, 2005). Furthermore, a comparative analysis of alcohol control policies conducted among 30 countries found an inverse association between policy strength and alcohol consumption (Brand, Saisana, Rynn, Pennoni, & Lowenfels, 2007).

Conclusion

Results of our analysis suggest that action is urgently needed to curb the potentially harmful impact of alcohol use among youth. We recommend that awareness campaigns be designed to promote knowledge, change attitudes, and enhance needed life skills of young people related to the dangers of alcohol use, their susceptibility to such dangers, and their preparedness to respond under threat. In line with best practices, a variety of approaches should be utilized, including mass media, peer education, parental dialogue and contract, and school based education. Despite high rates of youth alcohol use, there seems to be very little discussion about the issue of alcohol use and abuse, while many awareness campaigns around illegal drug use take place although the latter is prohibited by all religions and practiced with much less frequency.

Global evidence related to many “risky” health behaviors, however, suggests that such individual level approaches will only go so far in preventing and controlling harms of alcohol use. Lebanese policy and decision makers are urged to construct and implement a comprehensive alcohol control policy, keeping in mind global best practices. Effective policies for alcohol harm reduction and control have been identified globally (Anderson, Chisholm, et al., 2009; Anderson, De Bruijn, et al., 2009; Casswell & Thamarangsi, 2009) and though most of the evidence on their effectiveness is derived from research conducted in developed nations, the general principles can be adapted to fit other countries, including Lebanon. The findings of this study can be clearly mapped onto various effective control measures (as outline in Table 5) (Anderson, Chisholm, et al., 2009; Anderson, De Bruijn, et al., 2009; Campbell et al., 2009; Casswell & Thamarangsi, 2009; Ponicki et al., 2007; Wagenaar et al., 2009; WHO, 2014), thus providing stakeholders with the robust evidence needed to initiate dialogue and push for a national alcohol harm reduction policy. The imperative is clear, and the lives of youth are at stake.

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Biographies



Dr. Lilian Ghandour is an assistant Professor of Epidemiology and Applied Biostatistics at the Department of Epidemiology and Population Health, Faculty of Health Sciences (FHS), American University of Beirut (AUB). She received her PhD in 2008 from the Department of Mental Health at the Johns Hopkins Bloomberg School of Public Health; and a Masters of Public Health (MPH) in Epidemiology and Biostatistics in 2001 from FHS at AUB. Her research interests include: the epidemiology of harmful alcohol drinking and prescription drug abuse among youth; comorbidity and psychosocial determinants of other risky youth behaviors including pathological gambling and unsafe sexual practices; epidemiology of mental health disorders among children and adolescents; psychometric properties of scales/ validation of instruments.



Dr. Rima Afifi is a Professor in the Department of Health Promotion and Community Health and Associate Dean at the Faculty of Health Sciences (FHS), American University of Beirut. She received her PhD in Health Services Research with a minor in Behavioral Science and Health Education from St. Louis University in 1997; and a Masters of Public Health in Health Behavior and Education in 1989 from UNC-CH. As coordinator of the Graduate Public Health Program (GPHP) and Associate Dean, Dr. Afifi was instrumental in supporting FHS to achieve accreditation by the Council on Education for Public Health (CEPH). Dr. Afifi's research falls into the following main areas: youth health promotion, tobacco prevention and control, community-based partnerships and intervention, and evaluation.



Ms. Sonia Fares holds a master's degree in psychology from the American University of Beirut (AUB). She is also currently completing a degree in Applied Behavior Analysis—BACB at Western New England University, Springfield, Massachusetts. Since 2013, Ms. Fares has been working as an ABA therapist at The New England Center for Children in the United Arab Emirates. She has a considerable interest in ABA instructorship and research. Having the necessary skills for applying research and the profound pursuit in working in an ABA-oriented school, she is interested in the areas covered in behavioral and social Psychology, bringing both sciences into a path for the social difficulties children with autism face. Her long-term goal is becoming a full-time researcher and instructor in the field of autism.



Ms. Noura El Salibi completed a Master's degree in Public Health (MPH), with a concentration in Epidemiology and Biostatistics, at the American University of Beirut

(AUB). Since she graduated in 2013, she started working as a research assistant at the Department of Epidemiology and Population Health at the Faculty of Health Sciences (FHS) at AUB. She has been involved in research and dissemination activities of the Youth Sexual and Reproductive Health project (YSRHP) which aims at promoting youth reproductive and sexual health, and sexuality education within a public health framework in the Arab Region. Her research interests include: youth health, substance use and abuse among youth, and mental-physical comorbidities.



Dr. Alissar Rady is the senior National Professional Officer at WHO Beirut since 2005, responsible of the technical programs, and providing technical support to the WHO and Ministry of Public Health (MOPH) teams. She holds a medical degree (MD) specializing in Family Medicine; a Master's in Public Health; and a Masters in Basic Sciences. Dr. Rady started her career in Public health as a manager of the Human Immunodeficiency Virus (HIV) program in 1994 at the World Health Organization (WHO), and then became medical officer for 4 years before moving to work as an international expert with several UN agencies.

Glossary

CDC	Center for Disease Control and Prevention
DSM	Diagnostic Statistical Manual
EMR	Eastern Mediterranean Region
GSHS	Global School-Based Student Health Surveys
MENA	Middle East and North Africa
NCDs	Non-communicable diseases
WHO	World Health Organization

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Table 1

Adjusted logistic regression: findings describing differences in alcohol drinking prevalence and patterns by gender, school type, and grade level—Global School-based Health Survey (GSHS), 2011

	Gender		School type		Grade level			
	Males vs. females		Private vs. public		8th vs. 7th Grade		9th vs. 7th Grade	
	Adjusted OR (95% CI)	P value	Adjusted OR (95% CI)	P value	Adjusted OR (95% CI)	P value	Adjusted OR (95% CI)	P value
2011								
Early onset of alcohol use								
First drink before 14 years among who ever had a drink of alcohol (other than a few sips)	1.82 (1.43, 2.32)	0.000*	5.18 (2.07, 13.01)	0.001*	1.13 (0.77, 1.65)	0.514	0.84 (0.25, 2.87)	0.775
Past 30-day drinking patterns								
Drank at least one alcoholic drink at least once in past 30-days	2.11 (1.63, 2.71)	0.000*	4.33 (2.00, 9.37)	0.001*	1.09 (0.76, 1.57)	0.629	0.97 (0.33, 2.82)	0.950
Drank two or more drinks per day on the days they drank among past 30day drinkers	2.72 (1.70, 4.37)	0.000*	2.74 (1.36, 5.05)	0.007*	1.66 (1.03, 2.67)	0.038*	1.19 (0.50, 2.81)	0.679
Ever drunkenness								
Been really drunk a minimum of one time during life	1.77 (1.30, 2.40)	0.001*	3.02 (1.43, 6.38)	0.006*	1.06 (0.76, 1.49)	0.727	1.10 (0.41, 2.98)	0.842
Alcohol-related problems ^a								
Trouble with family/friends./school	4.08 (2.45, 6.78)	0.000*	1.85 (0.94, 3.64)	0.072	1.70 (0.93, 3.12)	0.083	1.13 (0.57, 2.24)	0.706
Sources of obtaining alcohol [†]								
Buying from store/shop/street vendor	4.67 (2.13, 10.18)	0.000*	1.78 (1.01, 3.13)	0.047*	1.27 (0.84, 1.92)	0.247	0.71 (0.34, 1.32)	0.269
Giving someone else money to buy it for them	1.52 (0.55, 4.20)	0.404	0.78 (0.28, 2.16)	0.618	1.97 (0.58, 6.67)	0.264	2.68 (1.01, 7.08)	0.047*
From friends	3.45 (1.63, 7.29)	0.002*	1.22 (0.58, 2.56)	0.582	2.10 (0.92, 4.79)	0.075	1.55 (0.36, 6.68)	0.539
From family	0.89 (0.69, 1.14)	0.341	7.10 (2.70, 18.74)	0.000*	0.86 (0.58, 1.27)	0.435	0.97 (0.29, 3.30)	0.961
Stealing it or getting it without permission	6.98 (1.15, 42.52)	0.036*	0.60 (0.14, 2.61)	0.479	1.49 (0.60, 3.68)	0.372	0.52 (0.12, 2.33)	0.380
Getting it some other way	2.16 (1.25, 3.72)	0.008*	4.82 (1.72, 13.49)	0.004*	1.15 (0.49, 2.73)	0.736	1.64 (0.53, 5.11)	0.375

Adjusted OR: Adjusted odds ratio, representing a model that included gender, school and grade level as predictors of each of the alcohol outcomes; 95% CI (confidence interval).

^a Gotten into trouble with family or friends, missed school, or got into fights a minimum of one time during life as a result of drinking alcohol.

[†] reference category: No.

* Statistical significance (p value < 0.05).

Table 2
 Alcohol use patterns among middle school students, in the total sample, and by gender: 2005 and 2011 Global School-based Health Surveys (GSHS)

	Total			Male			Female		
	2005 % (n)	2011 % (n)	RC %	2005 % (n)	2011 % (n)	RC %	2005 % (n)	2011 % (n)	RC %
Early onset alcohol use									
First drink before 14 years among who ever had a drink of alcohol (other than a few sips)	—	86.8 (639)	—	—	87.2 (354)	—	—	86.1 (285)	—
Past 30-day drinking patterns									
Drank at least one alcoholic drink at least once in past 30 days	19.5 (966)	27.4 (542)	+40.5▲	27.8 (637)	35.7 (320)	+28.4▲	12.2 (329)	20.3 (222)	+66.4▲
Drank two or more drinks per day on the days they drank among past 30-day drinkers	38.8 (367)	38.1 (205)	-1.8	44.9 (280)	43.8 (142)	-2.4	26.7 (87)	29.2 (63)	+9.4
Ever drunkenness									
Been really drunk a minimum of one time during life	13.8 (682)	20.4 (406)	+47.8▲	21.2 (490)	25.9 (239)	+22.2	7.1 (192)	15.8 (167)	+122.5▲
Alcohol-related problems*									
Trouble with family/friends/school	17.0 (840)	4.9 (97)	-	23.7 (540)	8.2 (70)	-	11.0 (300)	2.1 (27)	-
Sources of obtaining alcohol									
Buying from store/street vendor	23.4 (198)	22.6 (125)	-3.4	29.2 (165)	29.7 (99)	+1.7	11.2 (33)	11.8 (26)	+5.4
Giving someone money to buy it	3.4 (26)	2.9 (17)	-14.7	4.6 (23)	2.7 (9)	-41.3	1.1 (3)	3.1 (8)	+181.1
From friends	7.7 (65)	4.8 (26)	-37.7	7.7 (43)	6.2 (20)	-19.5	7.7 (22)	2.6 (6)	-66.2
From family	55.4 (479)	49.8 (247)	-10.1	48.9 (258)	39.5 (114)	-19.2	69.0 (194)	65.4 (133)	-5.2
Stealing it/getting with no permission	1.8 (15)	1.7 (11)	-5.5	2.7 (15)	2.7 (10)	0.0	0.0 (0)	0.3 (1)	—
Getting it some other way	8.3 (70)	11.8 (61)	+42.2	7.0 (39)	12.9 (38)	+84.0	11.0 (31)	10.0 (23)	-9.1

RC= relative change between 2005 and 2011, where "+" indicates an increase and "-" indicates a decrease;

▲ The observed increase is statistically significant ($p < \text{value } 0.05$).

Bolded percentages indicate that the gender differences within each year were statistically significant ($p \text{ value} < 0.05$).

* Gotten into trouble with family or friends, missed school, or got into fights a minimum of one time during life as a result of drinking alcohol.

— Data not collected for 2005.

Table 3
 Alcohol use patterns among middle school students, in the total sample, and by grade level: 2005 and 2011 Global School-based Health Surveys (GSHS)

	Total			7th grade			8th grade			9th grade		
	2005 % (n)	2011 % (n)	RC %	2005 % (n)	2011 % (n)	RC %	2005 % (n)	2011 % (n)	RC %	2005 % (n)	2011 % (n)	RC %
Early onset alcohol use												
First drink before 14 years among who ever had a drink of alcohol (other than a few sips)	—	86.7 (638)	—	—	94.5 (286)	—	—	82.3 (259)	—	—	82.4 (95)	—
Past 30-day drinking patterns												
Drank at least one alcoholic drink at least once in past 30 days	19.5 (965)	27.4 (541)	+40.5▲	18.7 (347)	26.2 (224)	+40.1▲	19.9 (303)	29.2 (223)	+46.7▲	20.1 (315)	26.9 (94)	+33.8
Drank two or more drinks per day on the days they drank among past 30-day drinkers	38.8 (366)	38.0 (204)	-2.1	41.1 (139)	30.4 (69)	-26.0	33.6 (97)	45.7 (98)	+36.0	41.3 (130)	38.1 (37)	-8.4
Ever drunkenness												
Been really drunk a minimum of one time during life	13.8 (681)	20.4 (405)	+47.8▲	13.9 (262)	19.3 (168)	+38.8	13.5 (207)	20.9 (165)	+54.8	13.8 (212)	21.4 (72)	+55.1
Alcohol-related problems*												
Trouble with family/friends/school	17.0 (839)	4.9 (97)	n/a	17.3 (327)	3.8 (32)	n/a	17.5 (268)	6.6 (52)	n/a	16.1 (244)	4.4 (13)	n/a
Sources of obtaining alcohol												
Buying from store/shop/street vendor	23.4 (198)	22.6 (125)	-3.4	19.5 (57)	23.2 (49)	+19.0	26.5 (70)	26.2 (59)	-1.1	24.6 (71)	17.4 (17)	-29.3
Giving someone else money to buy it for them	3.4 (26)	3.0 (17)	-11.7	3.9 (11)	1.8 (4)	-53.8	4.6 (11)	2.6 (6)	-43.5	1.6 (4)	4.6 (7)	+187.5
From friends	7.7 (65)	4.8 (26)	-37.7	7.7 (23)	3.5 (9)	-54.5	4.6 (13)	5.7 (12)	+23.9	10.9 (29)	5.3 (5)	-51.4
From family	55.3 (478)	49.8 (247)	-10.1	58.0 (173)	52.0 (109)	-10.3	55.6 (151)	44.5 (97)	-20.0	52.0 (154)	53.8 (41)	+3.5
Stealing it or getting it without permission	1.8 (15)	1.6 (10)	-11.1	2.4 (7)	1.4 (3)	-41.7	2.5 (3)	2.3 (5)	-4.2	2.1 (5)	0.9 (2)	-57.1
Getting it some other way	8.3 (70)	11.8 (61)	+42.2	8.4 (25)	9.1 (21)	+8.3	7.4 (20)	11.5 (25)	+55.4	9.1 (25)	11.6 (15)	+27.5

RC= relative change between 2005 and 2011, where "+" indicates an increase and "-" indicates a decrease;

▲ The observed increase is statistically significant (p value < 0.05).

Bolded percentages indicate that the grade differences within each year were statistically significant (p value < 0.05).

* Gotten into trouble with family or friends, missed school, or got into fights a minimum of one time during life as a result of drinking alcohol.

— Data not collected for 2005.

Table 4

Alcohol use patterns among middle school students, in the total sample, and by school type, using 2005 and 2011 Global School-based Health Surveys (GSHS)

	Total				Public schools			Private schools		
	2005 % (n)	2011 % (n)	RC %	2005 % (n)	2011 % (n)	RC %	2005 % (n)	2011 % (n)	RC %	
Patterns of alcohol use										
First drink before 14 years among who ever had a drink of alcohol (other than a few sips)	—	86.8 (639)	—	—	67.8 (134)	—	—	90.5 (505)	—	—
Past 30-day drinking patterns										
Drank at least one alcoholic drink at least once in past 30 days	19.5 (967)	27.4 (542)	+40.5▲	13.4 (278)	11.8 (145)	-11.9	24.8 (689)	37.1 (397)	+49.6▲	+49.6▲
Drank two or more drinks per day on the days they drank among past 30-day drinkers	38.8 (367)	38.1 (205)	-1.8	43.3 (118)	42.9 (65)	-0.9	36.8 (249)	36.7 (140)	-0.3	-0.3
Ever drunkenness										
Been really drunk a minimum of one time during life	13.8 (638)	20.4 (406)	+47.8▲	10.3 (217)	10.5 (128)	+1.9	16.7 (466)	26.7 (278)	+60.0▲	+60.0▲
Alcohol-related problems*										
Trouble with family/friends/school	17.0 (841)	4.9 (97)	n/a	14.1 (301)	3.5 (37)	n/a	19.6 (540)	6.1 (60)	n/a	n/a
Sources of obtaining alcohol										
Buying from store/shop/street vendor	23.5 (199)	22.6 (125)	-3.8	27.8 (69)	30.6 (45)	+10.1	21.4 (130)	21.0 (80)	-1.9	-1.9
Giving someone else money to buy it for them	3.4 (26)	2.9 (17)	-14.7	4.4 (10)	6.7 (9)	+52.3	2.9 (16)	2.1 (8)	-27.6	-27.6
From friends	7.7 (65)	4.7 (26)	-40.0	7.7 (21)	9.0 (13)	+16.9	7.6 (44)	3.9 (13)	-48.7	-48.7
From family	55.3 (479)	49.8 (267)	-9.9	48.3 (122)	30.5 (42)	-36.9▲	58.7 (357)	53.6 (205)	-8.7	-8.7
Stealing it or getting it without permission	1.8 (15)	1.7 (11)	-5.5	2.7 (7)	4.8 (7)	+77.8	1.4 (8)	1.1 (4)	-21.4	-21.4
Getting it some other way	8.3 (70)	11.8 (61)	+42.2	9.0 (23)	8.0 (12)	-11.1	8.0 (47)	12.5 (49)	+56.2	+56.2

RC= relative change between 2005 and 2011, where "+" indicates an increase and "-" indicates a decrease;

▲The observed increase is statistically significant (p value < 0.05).

* Gotten into trouble with family or friends, missed school, or got into fights a minimum of one time during life as a result of drinking alcohol.

—: Data not collected for 2005.

Table 5

Highlights from the Lebanon Global School-based Health Surveys (GSHS) and evidence-based implications for research and intervention

GSHS 2005/2011 main findings	Evidence-based implications for policy, research and intervention	Current state of relevant policies
87% of the lifetime drinkers had their first drink before age 14, a higher percentage (95%) among the youngest 7th graders	<ul style="list-style-type: none"> Enforcing the minimum legal age law for alcohol drinking and purchasing Restricting home availability of alcohol beverages Encouraging parent-child communication about alcohol drinking at a young age and its related harms Regulating all alcohol marketing, including sponsorships 	<ul style="list-style-type: none"> Decree number 340, issued in March 1943, and revised in 1993, imposes a penalty fine (6,000–20,000 L.L.; equivalent to 4–14 USD) on persons who put minors under 18 years of age, in a drunken state by offering them spirit drinks. <p>Stipulations of the same decree (article 626-revised through law 239/1993), impose sanctions and fines (10,000–20,000 L.L. equivalent to 6.5–13 USD) on owners and employees of bars/pubs or other similar places that are open to the public, in cases where they offer spirit drinks to drunk persons, or to minors under age of 18 years, or in cases where they put a person in a drunken state.</p> <ul style="list-style-type: none"> There is no law regarding the legal alcohol purchase age (y).
Percentage of current drinkers among 13–15 year olds increased by 40% between 2005 and 2011; a third reported having at least two drinks on the days they drank in the preceding month (in both years)		<ul style="list-style-type: none"> There is no law regarding the regulation of all alcohol marketing, including sponsorship
Between 2005 and 2011, the levels of reported drunkenness among 13–15 year olds increased by 50%, more so in the females (122% in females vs. 22% in males)	<ul style="list-style-type: none"> Increasing public messages targeting youth, parents and larger community, reinforcing knowledge of alcohol-related harms Strengthening school-based education on alcohol and its related harms Integrating sobriety check points to check for drunk-driving 	<ul style="list-style-type: none"> There are no community mobilization programs to increase public awareness of, and prevent alcohol problems There is no law regarding the integration of sobriety check points
In 2011, 1 in 20 13–15 year old (13% of the lifetime drinkers) ever got into trouble with family, friends, missed school, or gotten into a fight as a result of alcohol drinking.	<ul style="list-style-type: none"> Ensuring availability of confidential school-based youth counseling Encouraging parent-child communication about alcohol drinking at a young age and its related harms Ensuring the availability of counseling and treatment for young people with alcohol problems 	<ul style="list-style-type: none"> There is no law that imposes mandatory training of alcohol servers to prevent and manage aggression There is no law that imposes mandatory treatment for repeat drinking drivers There are no community mobilization programs to increase public awareness of, and prevent alcohol problems
Half of the 13–15 year old students reported obtaining alcohol from their family (in both years)	<ul style="list-style-type: none"> Increasing parental awareness about the harmfulness of early onset alcohol drinking Urging parents to restrict alcohol availability at home Encouraging parent-child communication about alcohol drinking at a young age and its related harms 	<ul style="list-style-type: none"> There are no community mobilization programs to increase public awareness of, and prevent alcohol problems
One in four students aged 13–15 years old reported buying alcohol	<ul style="list-style-type: none"> Regulating alcohol sale to minors 	<ul style="list-style-type: none"> Decree 12222 issued in 1963 prohibits young males and females who have not yet completed

GSHS 2005/2011 main findings	Evidence-based implications for policy, research and intervention	Current state of relevant policies
from a shop/shop or street vendor in 2011	<ul style="list-style-type: none"> • Reducing the density of alcohol outlets • Integrating public messages supporting enforcement of available policies 	<p>their 18 years of age from entering bars and clubs of all kinds during day and night time.</p> <ul style="list-style-type: none"> • Decree number 340, issued in March 1943, and revised in 1993, imposes a penalty fine (6,000–20,000 L.L.; equivalent to 4–14 USD) on persons who put minors under 18 years of age, in a drunken state by offering them spirit drinks • There is no law regarding the restrictions on density of stores selling alcoholic beverages in a given locale.
Sixty percent of the middle school students in 2011 reported not having received any school-based education about alcohol or its associated harms	<ul style="list-style-type: none"> • Strengthening school-based education on alcohol and its related harms 	<ul style="list-style-type: none"> • There are no community mobilization programs to increase public awareness of, and prevent alcohol problems
Males aged 13–15 years old report a more frequent and harmful alcohol use pattern, but data from both years point towards a narrowing in the gender gap over time	<ul style="list-style-type: none"> • Creating national evidence-based gender-specific interventions, paying close attention to incident female drinkers. 	<ul style="list-style-type: none"> • There are no community mobilization programs to increase public awareness of, and prevent alcohol problems