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Adolescent Alcohol Use Reflects Community-Level Alcohol Consumption Irrespective of Parental Drinking

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A B S T R A C T

Purpose: Risk factors for adolescent alcohol use are typically conceptualized at the individual level, and school- and community-level risk factors have received little attention. Based on the theoretical understanding of youth alcohol consumption as a reflection of community social practice, we analyzed whether adolescent drunkenness was related to community-level adult alcohol use (AAC), when taking individual and school-level risk factors for drunkenness into account. Furthermore, we investigated whether the association between community-level AAC and adolescent drunkenness was attenuated after inclusion of parental drinking.

Methods: We used data from three sources: data about adolescent drunkenness from the Health Behavior in School-Aged Children 2010 survey (N = 2,911; 13- to 15-year-olds nested in 175 school classes and 51 schools); data about community-level AAC derived from the Danish National Health Survey 2010 (177,639 participants); and data on school-level variables from Health Behavior in School-Aged Children School Leader Survey 2010. We performed multilevel logistic regression analysis with data from students nested within school classes and schools.

Results: Overall, 33.5% of students had been drunk twice or more. High community-level AAC was significantly associated with adolescent drunkenness (odds ratio [95% confidence interval], 1.94 [1.21–3.11]). Parental drinking was strongly related to adolescent drunkenness but did not attenuate the relationship between community-level AAC and adolescent drunkenness. We found no association between adolescent drunkenness and school-level variables (youth friendly environment, alcohol education, and exposure to alcohol outlets).

Conclusions: Adolescent drunkenness was associated with community-level AAC and was not explained by parental drinking.

IMPLICATIONS AND CONTRIBUTION

Adolescent drinking is associated with alcohol consumption among adults in their community, even after adjustment for parental drinking. Future research should identify the processes behind this social reproduction of behavior. The findings may inform practice and stimulate alcohol preventive interventions that address not only adolescents but also adults in their community.

Excessive alcohol use among young people is a public health problem that causes injuries and other health and social problems [1,2]. Adolescents' alcohol use is influenced by the context in which they live [3,4], school characteristics [5–7], access to alcohol outlets [8,9], and motivational [10] and sociodemographic factors [11,12]. Alcohol consumption among adults and adolescents varies considerably across communities and countries [13,14]. These geographical variations in health and health behaviors are often ascribed to either compositional or contextual influences [15]. Compositional explanations focus on the composition of the population in a given area, whereas contextual explanations stress the characteristics of the surroundings (e.g., average income in an area, number and quality of schools, access to sport facilities and

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supermarkets). Macintyre et al. [15] suggested collective explanations as a third kind of interpretation of geographical variations in health. Collective explanations emphasize the importance of the shared norms, behaviors, and traditions in a community. Based on theories from Giddens, Bourdieu, and Sen, Frohlich et al. [16] developed the concept of "collective lifestyles." They rejected the biomedical conceptualization of health-related behaviors as too individualistic. Rather, they analyzed lifestyle as a set of social practices embedded in the social context. As such, collective lifestyles are composed of both structure and practices. Following Poland [17], we regard collective lifestyle as a social practice, routinized and socialized behaviors common to groups, such as shared patterns of alcohol consumption. Drawing on this theoretical approach, we conceptualize adolescent drunkenness not only as an individual health behavior, but as a social practice with a dialectical relationship between agency and structure.

In addition, Skog [4] and Skog and Rossow [18] suggested that drinking preferences reflect consumption patterns and social norms in the community. If so, adolescent alcohol use may reflect the general patterns of alcohol consumption in the community. This issue has received little attention in international research on young people's alcohol use. Fuhr and Gmel [13] reported a significant association between adult per capita alcohol consumption and drinking among adolescents ($r = .81$; $p < .001$), operationalized as the prevalence of mid-teenage drinking across the world. In another cross-national study of 26 countries, Paschall et al. [9] found that alcohol use in the general population was associated with youth alcohol consumption at a single point in time. Cook and More [19] demonstrated a relationship between the decline in per capita consumption and reductions in the prevalence of adolescent drinking in the United States. An Irish trend study found that per capita alcohol intake was negatively correlated with the median age of drinking onset [20]. Most of the studies are ecological, with aggregated data on adults' and adolescents' alcohol use, which tend to hide individual-level risk factors. It is plausible that the association between adult alcohol use and adolescent drinking is at least partially attributable to the availability of alcohol [8,21] and parental alcohol use [22,23]. Hence, high levels of adult alcohol use in a community could reflect high exposure to alcohol outlets and high levels of alcohol use among parents, which subsequently could lead to higher levels of youth drinking.

Drawing on the theoretical understanding of alcohol consumption as a collective lifestyle or social practice, this study examined compositional, contextual, and collective influences on adolescent drunkenness using individual-level data in a multilevel analysis. First, we examined whether drunkenness among adolescents reflected community-level adult alcohol consumption (AAC), taking individual- and school-level factors for drunkenness into account. We focused on sociodemographic characteristics and school-level factors found in previous studies to be associated with drunkenness [6,8,12,24,25]. Second, we investigated whether parental drinking explained the association between community-level AAC and adolescent drunkenness. Parental drinking is an important risk factor for adolescent alcohol use [22,23], but to our knowledge, no study investigated parental drinking as a potential mediator between AAC and adolescent alcohol use.

Methods

We used three different data sources: (1) The Danish 2010 Health Behavior in School-Aged Children (HBSC) study measured adolescent alcohol use, parental alcohol use, and individual-level covariates; (2) the HBSC School Leader Survey 2010 measured school-level characteristics; and (3) secondary data from the Danish National Health Survey 2010 measured community-level AAC. We merged HBSC data at the student level with school leader data and information on community-level AAC.

The HBSC study is based on a random sample of schools from a complete list of all schools in Denmark. Nonparticipating schools were replaced by new schools sampled in the same way. Of a total sample of 137 schools, 73 agreed to participate (school-level participation, 53%). The school-level participation was lower among large schools (>300 students) and among schools in the capital region. The most common reason for declined participation was that the school recently had participated in other health surveys. Some school classes within the participating schools declined participation because of time pressure or the head teacher's sick leave. There were 5,704 schoolchildren in the participating school classes, 4,985 of whom were present on the day of data collection, and 4,922 of whom submitted a satisfactorily answered questionnaire. The students answered the internationally standardized HBSC questionnaire in the classroom [26]. The response rate was 86.3% of students enrolled in the participating classes (4,922 of 5,704). A total of 69 of 73 school leaders completed a questionnaire about the school setting (response rate, 94.5%). The participation rate in the Danish National Health Survey 2010 was 59.5% [27].

Study population

We included students in the seventh and ninth grades only (mean age [standard deviation (SD)] 13.7 (.40) and 15.7 (.40); N = 3,080). We excluded students with missing school leader information (N = 172), which left 2,911 respondents and 51 schools for the multilevel analyses. Students with missing information about age (N = 244) were assigned the mean age in their grade.

The study complies with the Helsinki II declaration. There is no agency for ethical evaluation and approval of school surveys in Denmark. Instead, we obtained an approval from all school leaders, the board of students, and the board of parents in each participating school. The survey was conducted under full confidentiality, with informed consent and voluntary participation.

Measures

We included adolescents' self-reported data on sex, age, family structure, migration status, and parental drinking as fixed effects in the multilevel model. Family structure was measured by asking participants with whom they lived at home. We categorized the participants into (1) living with both biological parents and (2) other family types. Students with missing information on family structure (n = 170) showed characteristics similar to those of the group living with both biological parents, and were categorized in this group. Migration status was measured by the students' and parents' country of birth. We categorized students as Danish versus immigrants and descendants. Parental drinking was assessed by two questions about mother's and father's frequency of alcohol intake (daily, weekly, monthly, rarely/never, and do not know), categorized as "both drinking daily," "one drinking daily," or "less". The parent drinking variable may cause problems for participants who do not live together with father and mother, so we performed