

Growing up, getting drunk : development and prevention of adolescent alcohol use

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**Sum
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In high-income countries, alcohol use is one of the leading risk factors for burden of disease among adolescents. This stresses the necessity to determine important factors predicting the development of adolescent alcohol use and to develop effective alcohol prevention strategies.

From previous research it can be concluded that, although there is much literature on individual risk factors of adolescent alcohol use and abuse, prevention efforts targeting individuals have shown a limited long-term impact on alcohol use and related harm. On the other hand, supply measures restricting alcohol availability have shown promising effects in reducing adolescent alcohol use and related harm in the long run. However, still unclear is through which mechanisms supply measures work and which role intrapersonal factors play in this. Also, the effect of more informal ways to restrict alcohol availability for adolescents in their social environment (through parents, schools, etc.) remains underexplored.

In this thesis, the social ecological paradigm is used as an overarching framework to understand the interplay between adolescents, their social environments, the legal environment and the community they live in. Rather than focusing exclusively on either environmental or intrapersonal determinants of behavior, the social ecological paradigm focuses on multiple levels of influence, and their interplay in relation to health behaviors. The levels of influence include the intrapersonal, interpersonal, organizational, community and policy level.

At the intrapersonal level of influence it was investigated whether drinking motives predict increases in adolescent alcohol use. Results showed (Chapter 2) that externally roused social motives (rather than the internally roused drinking motives such as enhancement or coping motives) were most predictive for increases in weekly drinking and the frequency of heavy episodic alcohol use among Dutch drinking adolescents. This indicates that even at the intrapersonal level of motives, social environmental influences appear to be most important for understanding increases in adolescent alcohol consumption.

In Chapter 3 and 4 the interplay between factors at the intrapersonal (early pubertal and psychosocial timing) and interpersonal level of influence (parental alcohol-specific rule setting and proportion of drinkers in the peer group) were investigated. A mediating role of environmental factors explaining the link between early pubertal and psychosocial development and adolescent alcohol use was found. The effect of early pubertal and psychosocial timing on adolescent alcohol use was explained (mediated) by parents becoming more lenient

in their alcohol-specific rule setting and early pubertal timing adolescents more rapidly increasing the proportion of drinkers in their peer group.

The organizational, community, and policy levels of influence were investigated by evaluating the effect of two community intervention studies limiting the retail and/or social alcohol availability for adolescents. In this thesis, the first Dutch studies were presented which are able to draw evidence-based conclusions about the effectiveness of control measures. Evidence from such intervention studies conducted in a country with relatively liberal alcohol policies and social norms is important for demonstrating the cross-national validity of the effectiveness of these control measures.

In the first community intervention only formal control (intensified inspections on the legal purchase age combined with a stricter local alcohol policy) was intensified in order to decrease the retail alcohol availability for adolescents. Results indicated (Chapter 5) that intensifying formal control increased the risk to start drinking weekly for adolescents, however, significantly reduced the risk in weekly drinking adolescents to progress into drunkenness. The reduced risk in weekly drinking adolescents to progress into drunkenness could neither be explained by changes in the frequency of adolescents' alcohol purchases nor perceived ease for purchasing alcohol.

In the second community intervention both formal (restricting retail supply) and informal control (restricting social supply from e.g., parents) were intensified. Combining both formal and informal control (Chapter 6) showed to be effective in reducing the risk in weekly drinking adolescents to progress into drunkenness. No intervention effect was found on weekly drinking status. Furthermore, intervention effects were evaluated on intermediate intervention goals. Only few of the tested effects on intermediate intervention goals showed a positive effect (Chapter 6). Parents in the intervention community combining formal and informal control versus the comparison community became more restrictive in their attitudes towards underage alcohol use at home (Chapter 7). Retailers in the combined formal and informal control intervention community compared with the control showed: 1) a greater increase in their perceived likelihood of sanctions, 2) rated alcohol-law enforcement as more effective to reduce adolescent drinking and 3) more often checked age identification of adolescents before supplying alcohol to them (Chapter 7).

To conclude, the results of this thesis indicate that the social environment of adolescents plays a profound role in explaining the development of their

alcohol use; even when it comes to explaining the effect of psycho-social (e.g., drinking motives) and biological factors (e.g., pubertal timing) on adolescent alcohol use. Furthermore, it is possible to change adolescent alcohol use by intervening at higher social ecological levels. Combining intensified formal and informal control seemed to be more effective than only intensifying formal control to prevent adolescent alcohol use. However, since the exact underlying mechanism through which control measures (formal and informal) work could not be identified in this thesis, more research is needed to gain more insight in this. In terms of prevention, consistently discouraging adolescent alcohol use throughout several ecological levels (e.g., by multi-level interventions) is likely to be effective in terms of preventing adolescent alcohol use. Therefore, to reduce adolescent alcohol use and related harm, important actors in the social environment of adolescents at several social ecological levels should be stimulated to reduce alcohol availability and monitor adolescents' drinking as actively as possible.