ADDICTION
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COMMENTARY

Commentary on Mahedy *et al.* : Cognitive impairments and heavy drinking - a hallmark of vulnerable groups

Previous results suggesting that cognitive impairments result from alcohol use probably reflect deficits in high-risk samples; samples that include or overrepresent adolescents with behavioural problems. In general populations, such effects seem less prevalent or rather absent.

The study by Mahedy and colleagues [1] reveals that cognitive impairments after binge drinking are not observed in a general adolescent population. Using a variety of analytical techniques, the study emphasizes the importance of controlling for childhood and familial vulnerabilities, such as a low socio-economic position (SEP). The drinking patterns observed in the study by Mahedy and colleagues reflect the drinking patterns of the average youth population; heavy drinking is relatively less common within that group. According to Caspi and colleagues [2], however, adverse behavioural and health outcomes in young adulthood (e.g. smoking, drug prescription, delinquency) most probably can be traced back to a relatively small proportion of the adolescent population. Recent results suggest that approximately 20% of adolescents are responsible for approximately 80% of behavioural and health problems [2,3]. This specific group of young people represents a high-risk group; adolescents whose future prospects are less bright because of childhood and familial vulnerabilities, such as low socio-economic family background, relatively lower IQ [4] and poorer self-control [4,5].

Previous studies on cognitive impairments after alcohol use reveal mostly adverse effects among high-risk populations and among vulnerable groups [1,6]. Generalizing these adverse effects to general populations is difficult—even after controlling for confounding effects—as the accumulation of risk factors and predispositions in childhood characteristic for this vulnerable group (e.g. low self-control, low SEP) may place them on a track where many additional factors, besides alcohol use, continue to amplify cognitive impairments [2,3]. Controlling for early risk factors does not take into account that these risks may create a cascade of cumulative adverse effects later in life, e.g. throughout adolescence, that are linked to both drinking (heavily) and cognitive functioning. For example, being selected into the lowest educational levels within school may both hamper cognitive development (e.g. due to the association between IQ and working memory performance [7]) and increase drinking [8,9], due to a social context that triggers so-called 'deviancy training'. Failure to analyze such processes may lead to underestimation of confounding factors related to adolescent experiences.

The educational context also plays an important role in relation to behavioural problems such as attention deficit hyperactivity disorders (ADHD). Adolescents with behavioural problems more often end up in the lower vocational tracks due to learning problems [10]. In some studies on cognitive impairments after heavy drinking, clinical diagnoses for ADHD are exclusion criteria [11] or are absent in control groups [12], ruling out the possibility to unravel the time-varying influence of such behaviours on both the development of cognitive impairments (e.g. school drop-out, truancy) and drinking (e.g. affiliation with deviant peers). It is therefore questionable whether traditional methods of exclusion and adjusting are capable of identifying the complex interplay between individual vulnerabilities and the social context in which adolescents grow up, which are inextricably linked to adverse outcomes such as poorer cognitive functioning.

To conclude, adolescents who may be most vulnerable to heavy drinking—adolescents with behavioural problems and often with a lower socio-economic background [13,14]—are far more frequently represented in high-risk populations [10] and severely under-represented in studies in general adolescent populations (cf. Fakkel et al., unpublished, available upon request). It may therefore not be surprising that a consistent picture emerges from research in general adolescent populations with respect to the absence of cognitive impairments after adolescents' alcohol use [1,15]. The design of the study by Mahedy and colleagues neatly illustrates that point by combining different statistical approaches that support the same conclusion; there are no differences observed in cognitive functioning between frequent and none-binge drinking adolescents in a general population. By doing so, it responds to the long-standing need for good longitudinal research in various general adolescent populations. Such research should be supplemented with research including (more) high-risk adolescents and vulnerability markers such as a low SEP, a low educational context and low self-control as moderators, as these can amplify the relationship between (binge) drinking and cognitive impairments in multiple ways during adolescence.

Declaration of interests

None.

Keywords Adolescents, alcohol use, behavioural problems, cognitive impairments, high-risk populations, low socio-econmic position.

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Submitted 17 July 2020; final version accepted 5 August 2020

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