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# Adolescent male hazardous drinking and participation in organised activities: Involvement in team sports is associated with less hazardous drinking in young offenders

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## ABSTRACT

**Background** *There is a lack of research investigating organised activity participation and associated alcohol use in vulnerable groups.*

**Aims** *The purpose of this research was to test and compare associations between participation in organised activities and indicators of hazardous drinking between young offenders and young non-offenders.*

**Methods** *Two groups of 13–18 year-old males were recruited in Cardiff, UK: 93 young offenders and 53 non-offenders from secondary schools matched on estimated IQ, sex and socioeconomic status. Indicators of hazardous drinking were measured using the Fast Alcohol Screening Test (FAST). Organised activity participation and externalising behaviour was measured by the Youth Self Report. The Wechsler Abbreviated Scale of Intelligence was also administered.*

**Results** *Young offenders participated in fewer organised activities and had higher FAST scores than non-offenders. Young offenders and non-offenders significantly differed on mean FAST scores if they participated in no organised activities but not if they participated in at least one team sport. Externalising behaviour problems were unrelated to participation in organised activities.*

**Conclusions** *Although young offenders were less likely to have participated in organised activities, for them, participation in a team sport was associated with less hazardous drinking. Vulnerable youths who might benefit most from sporting activities actually access them the*

least. Future research should identify the different barriers to participation that they face. © 2014 The Authors. *Criminal Behaviour and Mental Health* published by John Wiley & Sons Ltd.

## Introduction

Participation in constructive leisure activities that take place outside the school curriculum, also known as organised activities (Bohnert et al., 2010; Eccles et al., 2003), is generally associated with many benefits (Farb and Matjasko, 2011), including school involvement (Mahoney and Cairns, 1997), academic achievement and psychological adjustment (Fredricks and Eccles, 2006b). Participation in organised activities during adolescence, however, may also be associated with poor health-related outcomes, such as increased alcohol use (Eccles and Barber, 1999; Wichstrøm and Wichstrøm, 2009; Farb and Matjasko, 2011). Early adolescent alcohol use is associated with violence, injuries, drink driving (Gruber et al., 1996) and later alcohol misuse (DeWit et al., 2000). Alcohol consumption is one of the top 10 leading causes of death in the world (Mathers et al., 2009) and England and Wales have some of the highest adolescent drinking rates in Europe (World Health Organisation, 2004, 2009). In England and Wales, offending populations report higher levels of alcohol use (Lader et al., 2000), and young offenders in particular report more hazardous drinking compared with older offenders (Plant and Taylor, 2012).

Adolescence participation in organised activities, such as sport, has been found to be associated with higher levels of alcohol use (Peretti-Watel et al., 2002; McCaul et al., 2004; Terry-McElrath et al., 2011) and an increased growth in alcohol use over time (Eccles and Barber, 1999; Barber et al., 2001; Denault et al., 2009; Mays and Thompson, 2009; Mays et al., 2010), but findings have not been consistent (Darling, 2005; Fredricks and Eccles, 2006b; Barnes et al., 2007). The relationship between sports and alcohol use also varies according to the type of sport. It has been shown that team sports are associated with higher levels of alcohol use than other types of sport (Peretti-Watel et al., 2002, 2003; McCaul et al., 2004; Wichstrøm and Wichstrøm, 2009). Despite the weight of evidence, however, sports-based interventions have been widely adopted in the UK to reduce crime and substance use among youth (Kelly, 2011, 2013). The relationship between sports participation and delinquency is inconclusive (Burton and Marshall, 2005; Gardner et al., 2009; Sønnerlund et al., 2013) and there remains a lack of evidence on the effectiveness of such interventions on reducing alcohol use (Smith and Waddington, 2004).

### *Participation in sports and delinquency*

Research investigating participation in organised activities and associated positive outcomes is mainly school-based. Focus on schools, however, has led to

the exclusion of many at-risk youths, characterised by 'externalising' or 'challenging' behaviours. Truanting youths are harder to recruit into studies generally and school-based research specifically (Jimerson et al., 2000). Externalising behaviour predicts less participation in organised activities such as sport (Fredricks and Eccles, 2006b) and higher attrition rates from studies (Peck et al., 2008). It is questionable whether young people less represented in research, such as young offenders, have similar relationships between hazardous drinking and participation in sport. It has been suggested that sport participation increases supervision, establishes appropriate social norms and curbs drinking through orientation towards success (Eccles et al., 2003; Mahoney et al., 2003; Wichstrøm and Wichstrøm, 2009). On this basis, young offenders might also benefit from participation in such activities and engage less in hazardous drinking than young offenders who do not participate.

Our aim, therefore, was to understand the relationship between participation in organised activities and levels of hazardous drinking in a group of vulnerable adolescents previously under-represented in research. It was predicted that young offenders would show higher levels of hazardous drinking and lower levels of participation in organised activities than non-offenders matched for age, sex and socioeconomic status. It was hypothesised that, within groups, participation in at least one organised activity would be associated with lower scores indicative of hazardous drinking for both young offenders and non-offenders, but participation in a team sport compared with no participation in any activity would be associated with a higher prevalence of hazardous drinking in non-offenders and lower levels in young offenders. The role of externalising behaviour in predicting participation was investigated to help understand these relationships.

## **Methods**

### *Participants*

#### *Young offenders*

Ninety-three young offenders, mean age 16 years (standard deviation [SD] 1.02, range 13–18), were recruited from a local Youth Offending Team (YOT). Each local authority in England and Wales has a YOT that is governed by the Youth Justice Board and reports to the Ministry of Justice. The main priority of a YOT is to prevent recidivism by identifying and meeting the needs of youngsters. Participants recruited from the YOT had been convicted of at least one offence.

There were very small numbers of young female offenders, which is usual (Zheng and Cleveland, 2013), so only male offenders were included in the analyses. Participants who had an estimated intelligence quotient (IQ) score of less than 70, and therefore possible learning disabilities, were also excluded.

### Non-offenders

Fifty-three non-offenders, mean age 15.1 years (SD 1.3, range 13–18), were recruited from local schools in the catchment area of the YOT, ensuring that socioeconomic factors were similar across study groups. They had had no past or current contact with the criminal justice system.

### Measures

#### Organised activities

Participation in organised activities was measured using the Youth Self Report (YSR) (Achenbach and Rescorla, 2001), a two-part questionnaire measuring behavioural problems and competencies in youth aged 11–18 years. Participants were asked to list up to three 'organisations, clubs, teams or groups' that they belonged to. Those who listed football, rugby, hockey, cricket or basketball were categorised as participating in at least one team sport. Those who reported non-team activities (kickboxing, gym, swimming, fishing, snooker, skittles, pool, rowing, motorbikes, sign language, computer club, music group, cadets and youth group) were categorised as doing other activities. Those who did not report any participation were categorised as doing 'no activities'. These three groups were mutually exclusive. Those who reported at least one team activity were categorised as participating in a team sport even if they reported participation in other non-team activities. Participants were then described according to three binary variables, one for each activity category, which were the dependent variables in subsequent analyses. Three-way comparisons between those who participated in sports, other activities and no activities have been conducted previously (Gardner et al., 2009). In our sample, team sports were more popular and the small number of other types of activities reported did not allow for comparison.

#### Externalising behaviour

The YSR questionnaire (Achenbach and Rescorla, 2001) is a reliable and valid measure of emotion and behaviour in the past 6 months, with 112 items, each rated on a three-point scale. The externalising scale is a hierarchical score drawn from delinquent and aggressive behaviour sub-scales. Raw scores on the externalising scale were converted into *t*-scores and used in the current analyses. The current eight-syndrome taxonomic model of the YSR meets the criteria for a good fit to data from 30,243 youths in 23 societies (Ivanova et al., 2007).

#### Indicators of hazardous drinking

Hazardous drinking was measured by the Fast Alcohol Screening Test (FAST; Hodgson et al., 2002). This assesses drinking using four questions about frequency of bingeing and negative effects resulting from alcohol use in the past year; scores range from 0 to 16, with a score of 3 or more indicating hazardous drinking. The

FAST has been shown to have good test–retest reliability ( $>0.80$ ), internal consistency (Cronbach's alpha, 0.77), specificity and sensitivity for identifying hazardous drinkers (Hodgson et al., 2002) and to correlate with breath alcohol concentration (Moore and Cusens, 2010) and other established alcohol measures in samples of young people (Bowring et al., 2013). The FAST is also used to measure changes in drinking patterns (Brendryen et al., 2013; Moore et al., 2013).

#### Estimated intelligence quotient

Intelligence quotient was estimated by creating a scaled score for vocabulary and matrix reasoning sub-tests of the Wechsler Abbreviated Scale of Intelligence (Wechsler, 1999), adjusted for the age of the participant. These scores were summed to create an IQ estimate.

#### Offending history

The offence frequency rate for young offenders was measured by dividing the number of offences committed by the participant's age. Offence severity was measured by the Youth Justice Board's seriousness scale.

#### *Procedure*

This study was approved by Cardiff University's School of Psychology's Research Ethics Committee. Information about the study, including the tasks, their right to withdraw at any time and the confidentiality of the data collected was provided. For offenders and non-offenders alike, both the young people and their parent/guardian were required to give consent before participation.

#### Young offenders

Young offenders were recruited by caseworkers who worked at the YOT. The eligibility criterion was that the participant's behaviour had resulted in any contact with the criminal justice system, whether a court conviction, a reprimand or a final warning.

#### Non-offenders

Contacts within local schools provided summaries of the research to students. Those who expressed an interest in participation were given more information. The inclusion criterion was absence of any criminal justice system contact as a perpetrator of delinquent or offending behaviour.

For both groups, interviews were conducted individually with each participant in a private room.

Participants were given £5 store vouchers for every hour of their participation.

## Results

### *Descriptive statistics*

Most participants were White British (99, 72%). Offenders were, on average, older than non-offenders (mean 16.0 years, SD 1.02, range 13–18; mean 15.1 years, SD 1.27, range 13–18;  $t_{140} = 4.80$ ,  $P < 0.001$ ). Forty-eight (56.5%) young offenders and 31 (62%) of the non-offenders lived in an area where the average income was £520 or less a week and were thus considered to have low socioeconomic status. There was a tendency for the offenders to have lower estimated IQ scores than the non-offenders (mean 87.3, SD 10.5, range 70–124; mean 92.0, SD 13.2, range 74–125;  $t_{102} = -1.94$ ,  $P = 0.055$ ). The offenders had higher FAST scores (mean 3.38, SD 3.23, range 0–12;  $t_{126} = 3.54$ ,  $P < 0.001$ ) and higher externalising behaviour scores (mean 64.1, SD 10.1, range 40–82;  $t_{119} = 5.33$ ,  $P < 0.001$ ) than non-offenders (mean 1.54, SD 2.01, range 0–8; mean 53.8, SD 10.3, range 34–77, respectively). The young offenders had committed an average of 12 offences (SD 11, range 1–52), yielding a mean offending rate of 0.76 (SD 0.67, range 0.06–3.06). For the following analyses in this study, the offence frequency rate was transformed with a log transformation in order to reduce skewness. The mean offence severity score was 5.35 (SD 1.28, range 2–8).

### *Participation in organised activities*

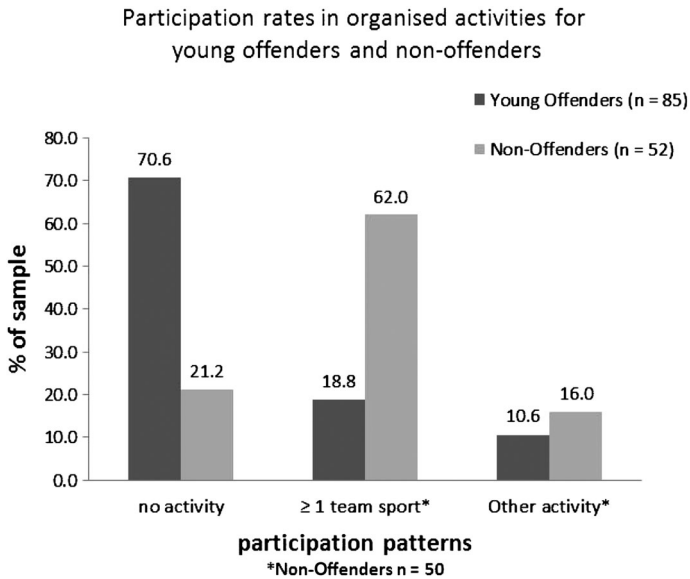
Figure 1 presents a description of participation rates in organised activities. Sixteen (19%) offenders but nearly two-thirds of non-offenders (31, 62%) reported participation in team sports, whereas just nine (11%) offenders and eight (16%) non-offenders participated in other activities. Two (2%) offenders and eight (16%) non-offenders listed both kinds of activity. For two non-offenders, the nature of the activity was unclear, so they were excluded from specific activity analyses.

Fewer offenders (25, 29%) than non-offenders (41, 79%) participated in any activity ( $\chi^2 = 31.58$ ,  $p < 0.001$ ) or in at least one team sport (16, 19%: 31, 62%, respectively;  $\chi^2 = 23.8$ ,  $p < 0.001$ ; see Figure 1).

Table 1 shows the results of the logistic regressions used to investigate measures associated with participation patterns. Age, estimated IQ and externalising behaviour were entered as the independent variables. None of them were associated with participation in any activity or more specifically with a team sport. A likelihood ratio chi-square test found that both models fit the data better than an empty model ( $\chi^2_4 = 27.48$ ,  $p < 0.001$ ;  $\chi^2_4 = 25.11$ ,  $p < 0.001$ , respectively).

### *Hazardous drinking and participation in organised activities*

Hazardous drinking, indicated by a FAST score of 3 or more, was more common among young offenders (43, 54%) than non-offenders (13, 27%;  $\chi^2 = 8.67$ ,



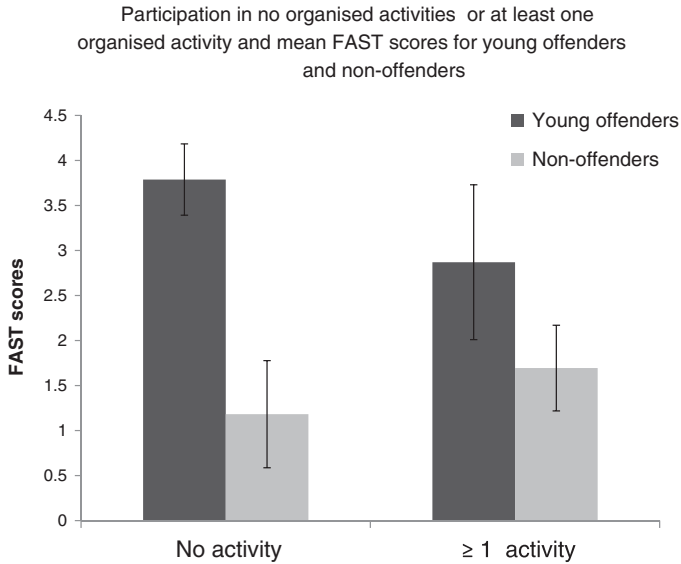
**Figure 1:** Participation rates in organised activities for young offenders and non-offenders

**Table 1:** Associations between participation patterns using logistic regressions. Dichotomous outcomes compared participation in no activity to participation in (a) an organised activity ( $n = 99$ ) and (b) team sport ( $n = 85$ )

Independent variables	Participation in an activity		Participation in team sports	
	OR (95% CI)	P-value	OR (95% CI)	P-value
Age	0.68 (0.44–1.03)	0.072	0.69 (0.41–1.16)	0.160
Estimated IQ	1.01 (0.97–1.04)	0.775	1.00 (0.96–1.05)	0.846
Externalising behaviour				
Young offenders	0.97 (0.92–1.01)	0.142	0.96 (0.91–1.01)	0.134
Non-offenders	1.00 (0.94–1.05)	0.864	0.99 (0.94–1.06)	0.843

$p = 0.003$ ). Mean FAST scores were compared between groups – offender/non-offender and activity/no activity – using a  $2 \times 2$  ANOVA (see Figure 2). There was a significant main effect, confirming that offenders reported higher FAST scores (mean 3.51, SD 3.26, range 0–12) than non-offenders (mean 1.57, SD 2.02, range 0–8;  $F_{1, 118} 9.69, p = 0.002, \eta^2 = 0.073$ ). Mean FAST scores did not differ between those who participated in an activity (mean 2.15, SD 2.41, range 0–9) and those who did not (mean 3.33, SD 3.37, range 0–12;  $F_{1, 118} 0.11, p = 0.74$ ). There was no interaction between offender group and activity participation ( $F_{1, 118} 1.39, p = 2.41$ ). Amongst offenders,  $t$ -tests showed that those who engaged in an activity had significantly higher offending frequency (mean 0.58, SD 0.87, range –2.83

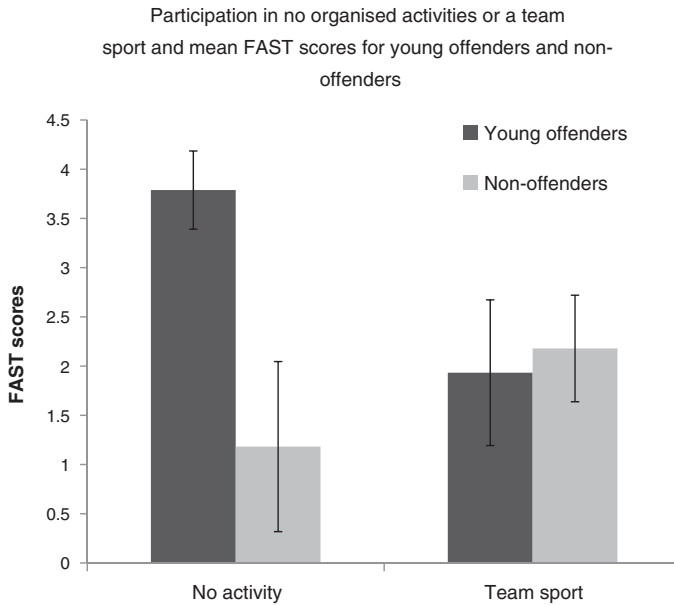




**Figure 2:** Participation in no organised activities or at least one organised activity and mean FAST scores for young offenders and non-offenders

to 1.12) than those who did not (mean  $-1.07$ , SD  $0.95$ , range  $-2.64$  to  $0.62$ ;  $t_{68} 2.14$ ,  $p = 0.036$ ); however, they did not differ on seriousness of past offences (mean  $5.36$ , SD  $1.56$ , range  $2-8$ : mean  $5.31$ , SD  $1.19$ , range  $3-7$ , respectively; ( $t_{68} -0.151$ ,  $p = 0.88$ ).

The same approach was then taken with team sports more specifically. A  $2 \times 2$  ANOVA showed a significant interaction ( $F_{1, 102} 4.66$ ,  $p = 0.033$ ,  $\eta^2 = 0.041$ ; see Figure 3). FAST scores were significantly higher among offenders (mean  $3.79$ , SD  $3.48$ , range  $0-12$ ) than non-offenders (mean  $1.18$ , SD  $1.66$ , range  $0-5$ ) for those in no activities ( $t_{61} 2.42$ ,  $p = 0.019$ ). There was no difference in FAST scores among offenders (mean  $1.93$ , SD  $2.15$ , range  $0-7$ ) and non-offenders (mean  $2.18$ , SD  $2.18$ , range  $0-8$ ) who participated in at least one team sport ( $t_{41} = -0.35$ ,  $P = 0.726$ ). Within the offender group, there was a trend towards those participating in a team sport having lower FAST scores (mean  $1.93$ , SD  $2.15$ , range  $0-7$ ) than those in no activities (mean  $3.79$ , SD  $3.48$ , range  $0-12$ ;  $t_{65} = 1.95$ ,  $p = 0.055$ ). Within the non-offender group, there was no significant difference in FAST scores between those in a team sport (mean  $2.18$ , SD  $2.18$ , range  $0-8$ ) and those in no activities (mean  $1.18$ , SD  $1.66$ , range  $0-5$ ;  $t_{37} = -1.37$ ,  $p = 0.18$ ). Seriousness of past offences did not differ between offenders who participated in a team sport (mean  $5.8$ , SD  $1.32$ , range  $3-8$ ) and offenders who participated in no activities (mean  $5.31$ , SD  $1.19$ , range  $3-7$ ;  $t_{61} -1.35$ ,  $P = 0.182$ ) but did marginally differ on offending frequency rates (mean  $-1.12$ , SD  $0.99$ , range  $-2.64$  to  $0.62$ : mean  $-0.58$ , SD  $0.87$ , range  $-2.83$  to  $1.12$ , respectively;  $t_{61} 2.00$ ,  $p = 0.049$ ).



**Figure 3:** Participation in no organised activities or a team sport and mean FAST scores for young offenders and non-offenders

Further investigation showed that young offenders who participated in a team sport had significantly lower FAST scores (mean 1.93, SD 2.15, range 0–7) than young offenders in other activities (mean 4.63, SD 2.83, range 0–7;  $t_{21}$  2.56,  $p = 0.018$ ). Comparison of scores showed that this relationship was reversed among the non-offenders, although here, the higher group mean was below hazardous drinking levels (team sport FAST score mean 2.18, SD 2.18, range 0–8; other activity FAST score invariably 0).

## Discussion

This cross-sectional study provided insights into participation rates for organised activities and indicators of hazardous drinking in a British sample of at-risk youth with low socioeconomic status. Young offenders in this study are particularly under-represented in other research; typically, such a group includes adolescents who are frequently excluded from school, involved in the criminal justice system from an early age and need additional support from numerous statutory agencies. To our knowledge, this is the first study to assess systematically the relationship between participation in organised activities and hazardous alcohol use in such a vulnerable cohort.

As predicted, young offenders participated in significantly fewer organised activities than non-offenders and had significantly higher levels of hazardous

drinking. For those who participated in no organised activities, young offenders had significantly higher scores on hazardous drinking than non-offenders. Young offenders did not, however, differ from non-offenders in FAST scores if they participated in at least one team sport. Participation in an organised activity in itself was not associated with levels of hazardous drinking.

It is interesting that the relationship between team activities and drinking was in opposite directions in offender and non-offender groups. It has previously been shown that students who participate in sports (Eccles and Barber, 1999; Barber et al., 2001; Fredricks and Eccles, 2006a; Denault et al., 2009; Mays et al., 2010) and team sports specifically (Peretti-Watel et al., 2002; Peretti-Watel et al., 2003; McCaul et al., 2004) report higher levels of alcohol use. In our study, there was an indication of this pattern amongst non-offenders but not offenders. The apparent advantage for the offender groups is consistent with previous observations that show those who are worse-off benefit most from taking part in organised activities (Mahoney and Cairns, 1997; Mahoney, 2000; Diamond and Lee, 2011).

Challenging behaviours have been shown to predict both alcohol use (Hawkins et al., 1992; Patrick and Schulenberg, 2010; Maslowsky and Schulenberg, 2013) and less participation in organised activities (Fredricks and Eccles, 2006b). In our study, externalising behaviour was not associated with participation in team sports or, indeed, any activity and cannot explain the observed relationships between participation in activities and alcohol use. As adolescents get older, they often reduce their participation in organised activities and increase their alcohol use (Peretti-Watel et al., 2002). Although our young offenders were moderately older than non-offenders, age was not associated with participation.

One limitation of our study was that we had to limit our analyses to males, and our results are unlikely to be generalisable to females. Female adolescents are less likely to participate in sports compared with male adolescents (Pate et al., 2000; Darling, 2005; Moore and Werch, 2005; Denault and Poulin, 2009) and the role of organised activities for young female offenders is an area that still needs to be explored. A second limitation was that other characteristics of activity participation, such as duration, level of competition and the amount of different activities participated in, were not measured. These have been shown to influence relationships between participation in organised activities and hazardous drinking (Peretti-Watel et al., 2002; McCaul et al., 2004; Bohnert et al., 2010). Third, we could only report cross-sectional relationships. Although participation may influence alcohol use, alcohol use may also influence participation. It remains that latent variables and self-selection factors other than externalising behaviour may explain observed relationships (Peretti-Watel, 2009). Longitudinal studies or controlled interventions would have the ability to disentangle these relationships and the results reported here suggest that such studies might be feasible.

Despite these limitations, we have shown that the relationship between participation in organised activities and hazardous drinking in smaller, atypical groups differ from that in the general population. Young offenders who participate

in team sports may be less hazardous alcohol users because of the physical demands of the sport, the wider social support gained from an increase in social capital, the influence of social group norms and positive social role modelling (Eccles et al., 2003; Mahoney et al., 2003; Wichstrøm and Wichstrøm, 2009).

In conclusion, although young offenders were less likely to have participated in organised activities, for them, participation in a team sport was associated with less hazardous drinking. This suggests that vulnerable youths who might benefit most from sporting activities actually access them the least. In order to change this, next steps would be to identify the barriers to participation, whether environmental, social and/or psychological that vulnerable young people face and determine the characteristics of activities that they find attractive. Future research should also aim to develop and evaluate sport interventions for vulnerable young people.

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