



## Brief report

# Characteristics associated with risk taking behaviours predict young people's participation in organised activities



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## ABSTRACT

Participation in organised activities (OAs) such as sports and special groups can shape adolescent risk taking behaviours. Sensation seeking and inhibitory control play an important role in the emergence of adolescent risk taking behaviours and may explain variations in OA participation as well as inform the development of more effective interventions that use OAs. Data from the Avon Longitudinal Study of Parents and Children (England) were analysed using logistic regression to test whether inhibitory control and sensation seeking predicted participation in OAs at a mean age of 11.7 years ( $n = 2557$ ) and 15.4 years ( $n = 2147$ ). At 11 years of age higher sensation seeking predicted participation in any activity, sports and special groups while low inhibitory control predicted less participation in sports. At 15 years of age higher sensation seeking predicted participation in sports and activity breadth. Opportunities to develop targeted interventions aimed at increasing participation are discussed.

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## 1. Background

Organised activities (OAs), such as sports, extracurricular activities and other types of youth clubs, have been identified as opportunities to improve young people's health and development (Modecki, Barber, & Eccles, 2014). OA participation is associated with better psychological adjustment (Fredricks & Eccles, 2006a) and improved emotional health (Barber, Eccles, & Stone, 2001); however, not all forms of OA participation protect against risk-taking. Sporting activities in particular are associated with risk taking behaviours such as increased alcohol use, delinquency and violence (Denault, Poulin, & Pedersen, 2009; Gardner, Roth, & Brooks-Gunn, 2009; Sønderlund et al., 2013).

There are likely fundamental differences between OA participants and non-participants, which contributes to difficulties in disentangling the effects of OA participation (Bohnert, Fredricks, & Randall, 2010). Groups such as young offenders (Hallingberg, Moore, Morgan, Bowen, & Goozen, 2015), children from low-income families (Dearing et al., 2009), and young people with externalising behaviours participate in OAs less often, and are also more likely to use alcohol, exhibit delinquency

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and violence (Hallingberg et al., 2015), suggesting that those who are least likely to engage in OAs are more likely to engage in these risk behaviours.

Individual characteristics associated with risk taking behaviours, such as sensation seeking and inhibitory control (Casey, Jones, & Somerville, 2011; Steinberg, 2010), may explain variations in OA participation among young people. Not all risk taking is undesirable (Strang, Chein, & Steinberg, 2013) and reward-seeking tendencies can drive behaviours that are either socially valued (i.e. OA participation) or undesirable (i.e. substance use and delinquency). OAs might mimic the rewards and experiences of undesirable risk taking, although the evidence for this remains debated (Crabbe, 2000; Smith & Waddington, 2004).

Greater sensation seeking is associated with participation in extreme sports, combat activities (Cazenave, Le Scanff, & Woodman, 2007; D'Silva, Grant Harrington, Palmgreen, Donohew, & Pugzles Lorch, 2001; Zuckerman, 1994) and more diverse activity participation (D'Silva et al., 2001), while inhibitory control difficulties are comorbid with motor control and developmental problems (Beyer, 1999; Pan, Tsai, & Chu, 2009) and may reduce opportunities to engage with physical activities (Engel-Yeger & Ziv-On, 2011; Shimoni, Engel-Yeger, & Tirosh, 2010) and organised play (Cairney et al., 2005).

Although previous studies have examined individual characteristics that are associated with OA participation within ecological frameworks (Dearing et al., 2009; Eisman, Stoddard, Bauermeister, Caldwell, & Zimmerman, 2015), sensation seeking and inhibitory control have not yet been investigated. To address this, the current study used a longitudinal British cohort to investigate whether sensation seeking and inhibitory control predicted participation in OAs at 11 and 15 years of age (referred to as early and mid-adolescence respectively). Analyses controlled for respondent's demographic circumstances, previous OA participation, intelligence (IQ) and level of conduct problems.

## 2. Methods

### 2.1. Sample

The Avon Longitudinal Study of Parents and Children (ALSPAC) is a longitudinal population-based cohort in England (see Boyd et al., 2013; Golding, 2004; Golding, Pembrey, Jones, & Team, 2001 for methods). Pregnant mothers in the Bristol-based health districts who were due to give birth between 1st April 1991 to 31st December 1992 were recruited to the study. 14,541 pregnancies were recruited antenatally resulting in 14,676 fetuses. 14,062 of the fetuses resulted in live births of which 13,988 children were alive at one year of age (Boyd et al., 2013). Participants in this study were limited to those with complete information at a mean age of 11.7 years ( $SD = 0.1$ ; 48.3% male; 97.7% white;  $n = 2557$ ) and 15.4 years ( $SD = 0.2$ ; 47.9% male; 97.3% white;  $n = 2147$ ). Ethical approval for the study was obtained from the ALSPAC Ethics and Law Committee and local research ethics committees. The study website contains further information on ALSPAC including a searchable data dictionary (<http://www.bris.ac.uk/alspac/>).

### 2.2. Measures

#### 2.2.1. OA participation

At 8 and 11 years mothers reported whether their child attended a) “any special activity classes (e.g. sports)” and b) any “special groups (e.g. scouts or youth clubs)”; these two categories are referred to as “sports” and “special groups”, respectively, throughout this paper. At 15 years participants reported whether they attended youth clubs, groups, or sports centres on evenings or weekends and indicated the types of activities they participated in: sports, dance activity (keep-fit/aerobics/dance class), music club, drama club, youth club or other. Breadth was measured as the sum of these different activity groups.

#### 2.2.2. Inhibitory control

Inhibitory control was measured at 10 years using the stop-signal paradigm (Logan, Cowan, & Davis, 1984). The procedure outlined by Handley, Capon, Beveridge, Dennis, and Evans (2004) was used to administer and score the task. Four blocks of trials were presented: 30 primary task trials, 24 practice trials and two experimental blocks consisting of 48 trials each. The number of correct trials inhibited when the stop signal occurred 150 ms before participant's mean reaction time was used and the top ten percent of participants who failed the most number of trials were coded as low inhibitory control.

#### 2.2.3. Sensation seeking

At 11 and 13 years sensation seeking was assessed by the intensity subscale of Arnett's Inventory of Sensation Seeking (AISS, Arnett, 1994; Cronbach's alpha age 11 = 0.568; age 13 = 0.611), a ten item Likert-type scale. Higher scores indicated greater sensation seeking. To make the questionnaire more age-appropriate the original questionnaire item: “In general, I work better when I'm under pressure” was replaced with: “I think it's fun and exciting to perform or speak before a group”. The AISS has been validated as a measure of risk taking behaviour in adolescent populations (Arnett, 1994; Roth & Herzberg, 2004) and in contrast to other measures, the AISS is “conceived as being influenced by a biological predisposition which interacts with the social environment” and does not contain items associated with physical strength, antisocial or norm-breaking behaviour (Roth & Herzberg, 2004, p. 206).

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