

Correspondence

Psychological Medicine (2011).
doi:10.1017/S0033291711001024

Letter to the Editor

Poor childhood mental health may explain linkages between trauma, cannabis use and later psychotic experiences

An accumulation of evidence indicates that early adverse experiences could enhance the risk of developing psychosis (Read *et al.* 2005). In addition, several meta-analyses support the idea that exposure to Δ^9 -tetrahydrocannabinol, the psychoactive component of cannabis, may produce an increased risk of psychosis (e.g. Arseneault *et al.* 2004; Fergusson *et al.* 2006; Large *et al.* 2011). However, for numerous reasons, children and adolescents with poor mental health may be more likely than others to experience trauma or to go on to use drugs (Hawkins *et al.* 1992). Thus, initial mental health must be taken into consideration when evaluating if environmental risk factors such as childhood adversity or cannabis use contribute to psychosis.

Surprisingly, this is often not the case (MacLeod & Hickman, 2010). A recent article published in *Psychological Medicine* neglected to consider initial psychotic symptoms or mental health more generally when demonstrating a large association between early experiences of non-consensual sex and psychosis in adulthood, particularly amongst cannabis users (Houston *et al.* 2011). It is difficult to ascertain from the extant literature how omitting a measure of initial mental health may affect the findings reported by Houston *et al.* (2011). I therefore utilized secondary data to identify if adjusting for the presence of hallucinations during childhood might diminish associations between non-consensual sex, cannabis use and experiencing hallucinations in adulthood.

Of 3649 participants with usable data from the 1970 British Birth Cohort sample (Elliot & Shepherd, 2006), 58.9% of males and 40.2% of participants reported having tried cannabis by age 29 years. Few males had experienced non-consensual sex (0.1%) whereas 1.6% of the female sample indicated they had been forced to have sex by age 16 years. In logistic regression analyses, which adjusted for the participant's socio-economic background, females who had experienced non-consensual sex by age 16 years were at an elevated risk of visual and auditory hallucinations at age 29 years [$\chi^2=3.8$, $p=0.05$, odds ratio (OR) 8.51,

95% confidence interval (CI) 0.99–73.28]. No such link was found for males who had experienced non-consensual sex, nor was there any evidence for either males or females that cannabis use interacted with non-consensual sex to produce hallucinations in adulthood. As expected, females who experienced hallucinations by age 16 years were at high risk of experiencing non-consensual sex in the same period ($\chi^2=7.29$, $p=0.007$, OR 28.81, 95% CI 2.52–330.38). This finding opens up the possibility that the association between early non-consensual sex and later mental health problems may be confounded by initial psychotic symptoms. In support of this idea, adjusting for initial psychotic experiences eliminated any link between non-consensual sex in females and later visual or auditory hallucinations ($\chi^2=0.29$, $p=0.59$, OR 2.43, 95% CI 0.09–62.88).

The empirical illustration above, although limited to hallucinations, does indicate that the findings of Houston *et al.* (2011) should be interpreted with caution. Further research is needed to test if non-consensual sex in childhood combines with cannabis use to place people at enhanced risk of later psychotic experiences *over and above the presence of initial psychotic symptoms or poor mental health*. In the past, methodologically more robust studies have taken the approach of adjusting for initial symptoms of psychosis or excluding participants with a diagnosis of psychosis at baseline (e.g. see Moore *et al.* 2007). Whilst this step is useful, subclinical psychotic experiences and poor mental health should also be adjusted for. This is because subtle individual differences in mental health amongst those without psychosis at baseline could be the primary determinant of later psychosis.

The study by Houston *et al.* (2011) relied on retrospective accounts of environmental exposures and due to the cross-sectional nature of the data collected could not assess the subjective experiences of participants at baseline. However, an attempt could have been made to elicit retrospective information relating to psychotic symptoms (e.g. age of onset, age of first diagnosis if applicable). This information would have helped the researchers to gauge the likelihood that sexual abuse and cannabis use may combine to produce an independent risk of psychosis. Future research would contribute key policy-relevant insights by clarifying the temporal interrelationships between childhood trauma, cannabis use and early mental health and the role of each factor in the development of psychosis (Nelson & Mann, 2011).

Declaration of Interest

None.

References

- Arseneault L, Cannon M, Witton J, Murray RM** (2004). Causal association between cannabis and psychosis: examination of the evidence. *British Journal of Psychiatry* **184**, 110–117.
- Elliott J, Shepherd P** (2006). Cohort profile: 1970 British Birth Cohort (BCS70). *International Journal of Epidemiology* **35**, 836–843.
- Fergusson DM, Poulton R, Smith PF, Boden JM** (2006). Cannabis and psychosis. *British Medical Journal* **332**, 172–175.
- Hawkins JD, Catalano RF, Miller JY** (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: implications for substance abuse prevention. *Psychological Bulletin* **112**, 64–105.
- Houston JE, Murphy J, Shevlin M, Adamson G** (2011). Cannabis use and psychosis: re-visiting the role of childhood trauma. *Psychological Medicine*. Published online 18 April 2011. doi:10.1017/S0033291711000559.

- Large M, Sharma S, Compton MT, Slade T, Nielssen O** (2011). Cannabis use and earlier onset of psychosis. *Archives of General Psychiatry*. Published online 7 February 2011. doi:10.1001/archgenpsychiatry.2011.5.
- MacLeod J, Hickman M** (2010). How ideology shapes the evidence and the policy: what do we know about cannabis use and what should we do? *Addiction* **105**, 1326–1330.
- Moore THM, Zammit S, Lingford-Hughes A, Barnes TRE, Jones PB, Burke M, Lewis G** (2007). Cannabis use and risk of psychotic or affective mental health outcomes: a systematic review. *Lancet* **370**, 319–328.
- Nelson F, Mann T** (2011). Opportunities in public policy to support infant and early childhood mental health. *American Psychologist* **66**, 129–139.
- Read J, van Os J, Morrison AP, Ross CA** (2005). Childhood trauma, psychosis and schizophrenia: a literature review with theoretical and clinical implications. *Acta Psychiatrica Scandinavica* **112**, 330–350.

MICHAEL DALY
School of Psychological Sciences, University of Manchester,
Coupland 1 Building, Coupland Street, Oxford Road,
Manchester M13 9PL, UK

(Email: michael.daly@manchester.ac.uk)