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Cannabis use, cognitive functioning and behaviour problems

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References

Achenbach, T.M., 1991. *Manual for the Youth Self-Report and 1991 Profile*. University of Vermont, Burlington.

Arrindell, W.A., & Van der Ende, J. (1985). Cross-sample invariance of the structure of self-reported distress and difficulty in assertiveness: Experience with the scale for interpersonal behaviour. *Advances in Behavior Research and Therapy*, 7, 205-243.

Arseneault, L., Cannon, M., Poulton, R., Murray, R., Caspi, A., & Moffitt, T.E. (2002). Cannabis use in adolescence and risk for adult psychosis: longitudinal prospective study. *British Medical Journal*, 325, 1212–1213.

Brook, J.S., Cohen, P., & Brook, D.W. (1998). Longitudinal study of co-occurring psychiatric disorders and substance use. *Journal of the American Academy of Child and Adolescent Psychiatry*, 37, 322–330.

Buchan, B.J., Dennis, M.L., Tims, F.M., Diamond, G.S., (2002). Cannabis use: consistency and validity of self-report, on-site urine testing and laboratory testing. *Addiction*, 97, 98–108.

Caspi, A., Moffitt, T.E., Cannon, M., McClay, J., Murray, R., Harrington, H., Taylor, A., Arseneault, L., Williams, B., Braithwaite, A., Poulton, R., & Craig, I.W. (2005). Moderation of the Effect of Adolescent-Onset Cannabis Use on Adult Psychosis by a Functional Polymorphism in the Catechol-O-Methyltransferase Gene: Longitudinal Evidence of a Gene X Environment Interaction. *Biological Psychiatry*, 57, 1117 – 1127.

Court, J.M. et al. (1998). Cannabis and brain function. *Journal of Paediatric Child Health*, 34, 1-5.

Cuijpers, P. (2002). Effective ingredients of school-based drug prevention programs; A systematic review. *Addictive Behaviors*, 27, 1009-1023. ,

Donaldson, S. I., Sussman, S., MacKinnon, D. P., Severson, H. H., Glynn, T., Murray, D. M., & Stone, E. J. (1996). Drug abuse prevention programming; do we know what contents works? *American Behavioral Scientist*, *39*, 868–883.

Ehrenreich, H., Rinn, T., Kunert, H. J., Moeller, M.R., Poser, W., Schilling, L., Gigerenzer, G., & Hoehe, M.R. (1999) Specific attentional dysfunction in adults following early start of cannabis use. *Psychopharmacology*, *142*, 295 -301.

Ferdinand, R.F., Sondeijker, F., van der Ende, j., Selten, J., Huizink, A., & Verhulst, F.C. (2005). Cannabis use predicts future psychotic symptoms, and vice versa. *Addiction*, *100*, 612– 8.

Fergusson, D. M., Boden, J. M., & Horwood, L. J. (2006). Cannabis use and other drug use: testing the cannabis gateway hypothesis. *Addiction*, *101*, 556-569.

Fergusson, D.M., & Horwood, L.J. (1997). Early onset cannabis use and psychosocial adjustment in young adults. *Addiction*, (*92*), 279–296.

Fergusson, D.M., Horwood, L.J., & Swain-Campbell, N. (2002a). Cannabis use and psychosocial adjustment in adolescence and young adulthood. *Addiction*, *97*, 1123–1135.

Fergusson, D. M., Swain-Campbell, N. R., & Horwood, L. J. (2002b). Deviant peer affiliations, crime and substance use: a fixed effects regression analysis. *Journal of Abnormal Child Psychology*, *30*, 419-430.

Fergusson, D.M., Horwood, L.J., & Swain-Campbell, N.R. (2003). Cannabis dependence and psychotic symptoms in young people. *Psychological Medicine*, *33*, 15-21.

Fergusson, D.M., Horwood, L.J., & Ridder, E.M. (2007). Conduct and attentional problems in childhood and adolescence and later substance use, abuse and dependence: results of a 25-year longitudinal study. *Drug and Alcohol Dependence*, *88*, 14–26.

Gill, M., Donohoe, G., Corvin A. (2010) What have genomics ever done for the psychoses? *Psychological Medicine*, 40, 529-520.

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A Research Note. *Journal of Child Psychology and Psychiatry*, 38, 581-586.

Gresham, F. M., & Elliott, S. N. (1990). *Social Skills Rating System*. Circle Pines, MN: American Guidance Service.

Hawkins, J.D., Catalano, R.F. & Miller, J.Y. (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.

Hicks, B.M., Schalet, B.D., Malone, S.M., Iacono, W.G., & McGue, M. (2011). Psychometric and Genetic Architecture of Substance Use Disorder. and Behavioral Disinhibition Measures for Gene Association Studies. *Behavior Genetics*, 41, 459-475.

Henquet, C., Di Forti, M., Morrison, P., Kuepper, R., Murray, R.M. (2008). Gene-Environment interplay between cannabis and psychosis. *Schizophrenia Bulletin*, 34, 1111-21.

Henquet, C., Krabbendam, L., Spauwen, J., Kaplan, C., Lieb, R., Lieb, H.U., & van Os, J. (2005). Prospective cohort study of cannabis use, predisposition for psychosis, and psychotic symptoms in young people. *British Medical Journal*, 330, 11 -14.

Huisman, M., Oldehinkel, A.J., de Winter, A., Minderaa, R.B., de Bildt, A., Huizink, A.C., Verhulst, F.C., Ormel, J., 2008. Cohort profile: the Dutch ‘tracking adolescents’ individual lives survey; trails. *Int. J. Epidemiol.* 37, 1227–1235.

Huizink, A.C., Ferdinand, R.F., Ormel, J., & Verhulst, F.C. (2006). Hypothalamic-pituitary-adrenal axis activity and early onset of cannabis use. *Addiction*, 101, 1581–1588.

Kandel, D.B., Yamaguchi, K., & Chen, K. (1992). Stages of progression in drug involvement from adolescence to adulthood: further evidence for the gateway theory. *Journal of Studies on Alcohol*, *53*, 447–457.

Kendler, K.S., Prescott, C.A., Myers, J. & Neale, M.C. (2003). The structure of genetic and environmental risk factors for common psychiatric and substance use disorders in men and women. *Archives of General Psychiatry*, *60*, 929–937.

Khantzian, E.J., 1985. The self-medication hypothesis of addictive disorders – focus on heroin and cocaine dependence. *American Journal of Psychiatry*, *142*, 1259–1264.

King, S.M., Iacono, W.G., & McGue, M. (2004). Childhood externalizing and internalizing psychopathology in the prediction of early substance use. *Addiction*, *99*, 1548–1559.

Klein, D. & Riso, L. (1994). *Psychiatric disorders: problems of boundaries and comorbidity*. In: Costello, G., (Ed.). *Basic Issues in Psychopathology*, New York: Guilford Press, pp. 19–66.

Kolliakou, A., Joseph, C., Ismail, K., Atakan, Z., & Murray, R.M. (2011). Why do patients with psychosis use cannabis and are they ready to change their use? *International Journal of Developmental Neuroscience*, *29*, 335-346.

Kuepper, R., van Os, J., Lieb, R., Wittchen, H., & Höfler, M., (2011). Continued cannabis use and risk of incidence and persistence of psychotic symptoms: 10 year follow-up cohort study. *British Medical Journal*, *342*, d738.

Lee, C.M., Neighbors, C., & Woods, B.A. (2007). Marijuana motives: Young adults' reasons for using marijuana. *Addictive behaviors*, *32*, 1384-1394.

Loehlin J.C. (1992). *Genes and Environment in Personality Development*. Newbury Park, CA: Sage.

Lynskey, M.T., Heath, A.C., Nelson, E.C., Bucholz, K.K., Madden, P.A.F., Slustke, W.S., Statham, D.J., & Martin, N.G. (2002). Genetic and environmental contributions to cannabis dependence in a national young adult twin sample. *Psychological Medicine, 32*, 195–207.

Marsman, R., Swinkels, S.H.N., Rosmalen, J.G.M., Oldehinkel, A.J., Ormel, J., & Buitelaar, J.K. (2008). HPA-axis activity and externalizing behaviour problems in early adolescents from the general population: the role of comorbidity and gender – the TRAILS study. *Psychoneuroendocrinology, 33*, 789–798.

Miller, P., Lawrie, S. M., Hodges, A., Clafferty, R., Cosway, R., & Johnstone, E.C. (2001) Genetic liability, illicit drug use, life stress and psychotic symptoms: preliminary findings from the Edinburgh study of people at high risk for schizophrenia. *Social Psychiatry and Psychiatric Epidemiology, 36*, 338–342.

Monshouwer, K., Smit, F., Graaf, R., Van Os, J., Volleberg, W. (2005). First cannabis use: does onset shift to younger ages? Findings from 1988 to 2003 from the Dutch National School Survey on Substance Use. *Addiction, 100*, 963-970.

Moore, T.H.M., Zammit, S., Lingford-Hughes, A., Barnes, T.R.E., Jones, P.B., Burke, M., & Lewis, G. (2007). Cannabis use and risk of psychotic or affective mental health outcomes: a systematic review. *Lancet, 370*, 319–328.

Offord, D.R., Boyle, M.H., Racine, Y., Szatmari, P., Fleming, J.E., Sanford, M., Lipman, E.L., 1996. Integrating assessment data from multiple informants. *J. Am. Acad. Child Adolesc. Psychiatry 35*, 1078–1085.

Pedersen, W., Mastekaasa, A., & Wichstrom, L. (2001). Conduct problems and early cannabis initiation: a longitudinal study of gender differences. *Addiction, 96*, 415–431.

Petratis, J., Flay, B.R., & Miller, T.Q. (1995). Reviewing theories of adolescent substance use: organizing pieces in the puzzle. *Psychological Bulletin, 117*, 67 – 86.

Pokhrel, P., Sussman, S., Rohrbach, L. A., & Sun, P. (2007). Prospective associations of social self-control with drug use among youth from regular and alternative high schools. *Substance Abuse and Treatment Prevention Policy*, 2, 22.

Raine, A., (1996). Autonomic nervous system factors underlying disinhibited, antisocial, and violent behaviour. Biosocial perspectives and treatment implications. *Annals of the New York Academic Sciences*, 794, 46–59.

Rijsdijk F.V., Gottesman I.I., McGuffin, P., Cardno, A.G. (2011). Heritability estimates for psychotic symptom dimensions in twins with psychotic disorders. *American Journal of Medical Genetics part B: Neuropsychiatric Genetics*, 156B, 89-98.

Rutter, M., Silberg, J., O’Conner, T., & Simonoff, E. (1999). Genetics and child psychiatry: II empirical research findings. *Journal of Child Psychology and Psychiatry*, 40, 19–55.

Schneider, M. (2008). Puberty as a highly vulnerable developmental period for the consequences of cannabis exposure. *Addiction Biology*, 13, 253-263.

Solowij, N., & Battisti, R. (2008). The chronic effects of cannabis on memory in humans: a review. *Current drug abuse reviews*, 1, 81-98.

Sussman, S., McCuller, W. J., & Dent, C. W. (2003). The associations of social self-control, personality disorders, and demographics with drug use among high-risk youth. *Addictive Behaviors*, 28, 1159–1166.

Tarbox, S.I., & Pogue- Geile, M.F. (2008). Development of social functioning in preschizophrenia children and adolescents: A systematic review. *Psychological Bulletin*, 134, 561 – 583.

Tarter, R. E. (1988). Are there inherited behavioral traits that predispose to substance abuse? *Journal of Consulting and Clinical Psychology*, 56, 189–196.

Tobler, N. S., Roona, M. R., Ochshorn, P., Marshall, D. G., Streke, A. V., & Stackpole, K. M. (2000). Schoolbased adolescent drug prevention programs: 1998 meta-analysis. *Journal of Primary Prevention*, 20, 275–336.

Verdoux, H., Gindre, C., Sorbara, F., Tournier, M., & Swendsen, J.D. (2003). *Psychological Medicine*, 33, 23-32.

Verhulst, F.C., & Achenbach, T.M. (1995). Empirically based assessment and taxonomy of psychopathology – cross-cultural applications – a review. *European Child and Adolescent Psychiatry*, 4, 61–76.

Von Sydow, K, Lieb, R., Pfister, H., Höfler, M., Wittchen, H. (2002). What predicts insistent use of cannabis and progression to abuse and dependence? A 4-year prospective examination of risk factors in a community sample of adolescents and young adults. *Drug and Alcohol Dependence*, 68, 49 – 64.

Warner, R., Taylor, D. & Wright, J. (1994) Substance use among the mentally ill: prevalence, reasons for use and effects on illness. *American Journal of Orthopsychiatry*, 74, 30–39.

White, H.R., Loeber, R., Stouthamer-Loeber, M., & Farrington, D.P. (1999). Developmental associations between substance use and violence. *Developmental Psychopathology*, 11, 785–803.

de Winter, A., Oldehinkel, A.J., Veenstra, R., Brunnekreef, J.A., Verhulst, F.C., Ormel, J., 2005. Evaluation of non-response bias in mental health determinants and outcomes in a large sample of pre-adolescents. *Eur. J. Epidemiol.* 20, 173–181.

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