

Impact of psychotropic drugs and correlations to schizophrenia in adolescents



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Abstract

The study of (Hiemstra al et, 2018) aims to investigate how a genetic predisposition to schizophrenia was associated with a pattern of substance use. It is hypothesized that the schizophrenic risk would be more strongly associated in women and that increased age would be directly proportional to increased rates of substance abuse. The participants will be secondary students who self-report their substance abuse over a longitudinal study design. Participants between 2005-2012 took self-reported questionnaire in relation to their substance abuse with a rating system of 1 to 5 (5 being every day) and those who agreed got their DNA extracted for analysis. It was predicted that the results would reflect the hypothesis by concluding that with age; taking psychotropic drugs such as marijuana will increase amongst adolescents and with this trend, tendencies for schizophrenia will also become more prevalent and that females will have an increased risk of potential psychosis.

Psychotropic drugs are any types of medication that can hinder the sobriety of their host and their ability to process thought, emotions and differentiate between acceptable behaviour. These are not just illicit drugs, this also includes over the counter prescription drugs such as lithium which is associated with bipolar disorder. During early adolescence, many young individuals start using drugs such as alcohol and marijuana. Earlier studies prior to 2018 had shown an association of schizophrenia with drug use. (e. g. Van Gastel et al, 2012, Hartberg et al 2018 and Shahzade et al 2018) It is <https://assignbuster.com/impact-of-psychotropic-drugs-and-correlations-to-schizophrenia-in-adolescents/>

widely held that adolescent cannabis usage is associated with an earlier onset of psychotic symptoms and a worsened prognosis thereafter (Manrique- Garcia et al., 2014) They appear predominantly in individuals with elevated family risk of schizophrenia (Proal al et, 2014), thus indicating that marijuana is connected to the intensification of genetic predispositions. A study conducted by (Hiemstra al et, 2018) that is titled ' Genetic vulnerability to schizophrenia is associated with cannabis use patterns during adolescence' demonstrates this relationship via longitudinal study design that suffices as key evidence of the genetic overlap between schizophrenia and cannabis use over a period (Hiemstra al et, 2018).

Whilst previous research has provided important insights such as factor-analysis of reported motives for initiating cannabis and its effect on healthy users and those diagnosed on the schizophrenic spectrum (Shahzade al et, 2018) or using MRI scans to determine the effects/damage of marijuana on the cortical surface and its correlation to psychosis (Hartberg, 2018) Neither of these studies have the longitudinal study design of (Hiemstra al et, 2018) which enables to see the visible changes to the participants over a long period of time.

The study of (Hiemstra al et, 2018) aims to investigate how a genetic predisposition to schizophrenia was associated with a pattern of substance use as reflected in schizophrenia PRS during adolescence (from ages 13-20 years) in a general population sample. It is hypothesized that differences in schizophrenic risk between men and women may differentiate between schizophrenic genes and substance use. It was expected that genetic

predisposition to schizophrenia would be more strongly associated in girls
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considering the stronger relationship between cannabis and psychotic-like experiences in women. (Van Gastel al et., 2013). It was also further hypothesised that increased age will be directly proportionate to increased substance abuse.

Method

The study was conducted by Data of the RADAR-Y (Research on Adolescent Development and Relationships Young cohort), which is a Dutch community study in which adolescents have been followed from mean age 13 onwards. The participants obtained for this experiment were recruited via random sampling from several secondary students in the Netherlands. The sample consisted of 497 adolescents, in which only 372 of them gave consent to a DNA extraction and thus they were only included in the study. Adolescents' mean age at T1 was 13.00 years (SD = 0.44) and included 57% boys. All families were of ethnic Dutch. Most adolescents had middle or high socioeconomic status based on parents' job level

All procedures performed in the study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained by every participant in this experiment. The study was approved by the Medical Ethical Committee of the Utrecht Medical Centre in the Netherlands. (Hiemstra al et, 2018).

Design

This study was conducted over a 7-year time between 2005 and 2012

(repeated-measures using the same participants). The independent variable <https://assignbuster.com/impact-of-psychotropic-drugs-and-correlations-to-schizophrenia-in-adolescents/>

was the potential use of psychotropic drugs, whilst a genetic predisposition for schizophrenia will be the dependent variable. There was no data collected on a psychiatric diagnosis. Those who didn't agree to DNA extraction was not included in this study.

Materials

' Between 2005 and 2012 (time T1-T7), trained research assistants first annually (T1-T6) and

later biannually (T7) visited the adolescents in their homes to supervise the data collection and

provide verbal instructions in addition to the written instructions that accompanied the

questionnaires which were scored with a system 1 to 5, with 5 being a lot. At T5, buccal swabs

were obtained, and DNA was extracted using the Chemagic saliva isolation kit on a Chemagen

Module I workstation (Chemagen Biopolymer Technologie AG, Baesweiler, Germany).'(Hiemstra, 2018)

Procedure

The questionnaire was split up into subsections, smoking, cannabis use, frequency of alcohol use and binge drinking. For 2. 3. 1 of the procedure, each participant was asked ' in the past 12 months, how often do you use

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weed?’ from 0 to 13. This grading system was problematic; thus, responses were dichotomised into 0 (never used it in last 12 months) to 1 (yes). For 2. 3. 2, at each wave participants were asked which stage of smoking applied to them. Response categories ranged from 1 “ I have never smoked, not even one puff” to 9 “ I smoke at least once a day” and for 2. 3. 3. participants are asked two questions, one for the frequency of alcohol use; ‘ how often did you drink more than 6 glasses of alcohol in the last 4 weeks?’. Responses ranged from 1 (no alcohol use) to 5 (everyday). Due to the skewed distribution, this question was recoded into four categories for “ alcohol in the last 4 weeks” (0= no alcohol; 1= 1-3 days in the last 4 weeks, 2 = 1-2 days per week; 3 = more than 3 days per week) and 3 categories for “ drinking more than six glasses alcohol” (0 = no alcohol; 1 = 1-3 day in the last 4 weeks; 2 = at least 1-2 days per week). At T5, buccal swabs were obtained from participants to check for drug use and DNA was extracted via chemagic saliva isolation kit. Participation were voluntary, and participants will be free to withdraw at any time. The participants were aware of the researcher’s intentions the whole time. Minors were used for the duration of the experiment and the parents gave informed consent.

Expected Outcomes and Implications

If the hypothesis is supported, then the correlation between psychotropic drugs and schizophrenia will be related to this current study. Through this method, the researchers aim to measure drug use via self-directed questionnaires whilst taking DNA extractions for the detection of genetic predispositions of schizophrenia. The results would reflect the hypothesis by concluding that with age; taking psychotropic drugs such as marijuana will

increase amongst adolescents and with this trend, tendencies for schizophrenia will also become more prevalent and that females will have an increased risk of potential psychosis. Further findings suggested excess cortisol thinning was prevalent in schizophrenic upon the onset of their illness. The present findings support the understanding that cannabis use is associated with limited brain effects in schizophrenia (Hartberg, C. B. 2018).

If the hypothesis is not supported, in which those participants with a more lenient PRS threshold showed the reverse association with drugs instead and thus had no correlation to schizophrenia and there will be no difference in the trend in relation to gender. This may be related to individual circumstance as cannabis use only increases risk factors as opposed to an actual definite cause. In Hartberg's experiment, there was no structural brain changes associated with psychotropic drug use amongst those with severe mental illness and thus the definite contribution of cannabis to schizophrenia was unknown.

The proposed study has some potential design limitations Firstly, adolescents only reported their substance abuse using one method of attainment. This could lead to measurement errors, though previous researchers have demonstrated that self-reported questionnaires have been reliable when confidentiality is promised. (Buchan et al 2002).

Future research should provide additional testing such as laboratory testing of blood, urine or saliva and MRI scan to indicate the impact of cannabis in relation to genetic risk factors of schizophrenia and an evidential trend between cannabis and schizophrenia and how it affects the body overtime.

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Furthermore, psychotropic drugs such as marijuana have been demonstrated for the increased risk factors associated with schizophrenia via self-report questionnaires and buccal swabs which indicated potential genetic predispositions contributed with SZ.

References

- Buchan, B., L. Dennis, M., Tims, F. and Diamond, G. (2002). *Cannabis use: consistency and validity of self-report, on-site urine testing and laboratory testing. Addiction, 97* , pp. 98-108. Doi: 10. 1046/j. 1360-0443. 97. s01. 1. x
- Hartberg, C., Lange, E., Lagerberg, T., Haukvik, U., Andreassen, O., Melle, I. and Agartz, I. (2018). *Cortical thickness, cortical surface area and subcortical volumes in schizophrenia and bipolar disorder patients with cannabis use. European Neuropsychopharmacology, 28(1)*, pp. 37-47. Doi: 10. 1016/j. euroneuro. 2017. 11. 019
- Hiemstra, M., Nelemans, S., Branje, S., van Eijk, K., Hottenga, J., Vinkers, C., van Lier, P., Meeus, W. and Boks, M. (2018). *Genetic vulnerability to schizophrenia is associated with cannabis use patterns during adolescence. Drug and Alcohol Dependence , 190*, pp. 143-150. Doi: 10. 1016/j. drugalcdep. 2018. 05. 024
- Manrique-Garcia, E., Zammit, S., Dalman, C., Hemmingsson, T., Andreasson, S. and Allebeck, P. (2013). *Characteristics of schizophrenia in persons with and without a history of cannabis use. European Journal of Public Health, 23(suppl_1)* . Doi: 10. 1093/eurpub/ckt126. 127

- Shahzade, C., Chun, J., DeLisi, L. and Manschreck, T. (2018). *Patterns in adolescent cannabis use predict the onset and symptom structure of schizophrenia-spectrum disorder. Schizophrenia Research* , 197, pp. 539-543. Doi: 10. 1016/j. schres. 2018. 01. 008
- van Gastel, W., MacCabe, J., Schubart, C., Vreeker, A., Tempelaar, W., Kahn, R. and Boks, M. (2013). *Cigarette smoking and cannabis use are equally strongly associated with psychotic-like experiences: a cross-sectional study in 1929 young adults. Psychological Medicine*, 43(11), pp. 2393-2401. Doi: 10. 1017/s0033291713000202