Synopsis no.: S2.7

Preliminary title: Improving Detection of Harmful Cannabis Use

Contact info for the person(s) proposing the synopsis

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Publication category: 2

Working and writing group: Cannabis and psychosis group

Work Packages involved: WP2

Partners involved from whom candidate co-authors (*additional to working and writing group*) should be nominated:
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Objectives (scientific background, hypothesis, methods, and expected results):

EU GEI preliminary cannabis data plan of analyses to develop a set of indicators that best predict the harmful (psychotogenic) effect of cannabis :

Incidence sample N=1200 cases; N=1200 controls

Hypotheses to be tested regarding harmful cannabis use:

1. I expect significant differences in lifetime patterns of cannabis use between cases and controls. These differences will indicate markers of pattern of cannabis use (to be included in the Cannabis Harmful Use - Questionnaire) which most accurately identify those cannabis users at risk of developing psychosis, after taking into account a wide range of potential confounders.

Power calculation of cannabis use main effect: Assuming 20% of the control group is exposed to cannabis, 1200 psychosis cases and 1200 controls gives 99% power to detect association with an OR of 2 (4,5) at a significance level of 0.05 (Epi-Info).

Data needed for the study: 1. Basic Socio-demographics from social scale questionnaire (i.e. age, gender, ethnicity, level of education…). 2. All data from the EU GEI CEQ

Plan for statistical analysis (overall strategy):

a) Development and Validation of CHU-Q,

1) Using STATA 12, I plan to examine the frequency distribution for questions in the CEQmdv by

cases and controls with a history of cannabis use. Comparably to the development of the AUDIT (24), I will exclude from the next step questions to which less than 2% of cases responded in the affirmative.

2) Using Cronbach's alpha coefficient, I will calculate, for each of the 5 EU GEI sites, an intrascale reliability of each conceptual domain. I will set a satisfactory reliability threshold ≥ 0.7 (24).

3) Including half of the whole sample (each country equally represented) (cases=600; controls=600), using logistic regression and Structural Equation Modelling, I will use the CEQmdv data on level of exposure to cannabis use (i.e. duration of use, age at 1st use, frequency of use, and type used =proxy of potency) combined with data on age at 1st use and daily number of joints to develop a simple set of markers of lifetime "cannabis harmful use" (CHU) to be built into a questionnaire implemented both in research and clinical settings with the primary aim to identify those most at risk of cannabis-associated psychosis. Other potential harmful effects, such as on cognition (which is also being measured), detected by the questionnaire will be tested as part as the future outputs of the proposal.

4) The data on the type of cannabis used will be translated into potency categories according to the estimates of THC/CBD content obtained from the analyses carried out in the potency estimate arm of the proposal.

Confounders: A unique strength of the proposal lies in the detailed information on demographic, clinical, neuropsychological, social and biological environmental exposures data collected on participants. This allows for important confounders to be included in all the statistical models.

5) The above analyses will be replicated in the remaining sample (cases=600; controls=600) to test the validity and generalizability of the markers of harmful cannabis use to be included into the CHU-Q. The data from UK and the other 4 EU GEI countries will be meta-analysed and a pooled OR will be calculated for each of the markers of cannabis harmful use which have been identified in the primary analyses.

6) Finally, to complete the selection of questions for the CHU-Q, I plan to test for correlation (Cronbach's alpha ≥ 0.40) between the above markers of harmful cannabis use and the CEQ items on attitudes towards use: reasons for cannabis use initiation, for continuing to use, awareness of risks to health and circumstances of use. These analyses will be carried out in each sample and the data built into a correlation matrix to perform a factor analysis and to test which domains from the items concerning attitudes towards cannabis use strongly correlate with the markers of CHU.

Other analyses/methods: N/A

Involvement of external Parties (non EU-GEI): Prof Michael Lynskey, Prof of Addiction IoP, KCL. He will supervise my data analyses and contribute to the development of the CHU-Q with his extensive experience in the application of composite measure of exposure to illicit drugs to estimate their harmful use.

Synopsis for EU-GEI Publication

IPR check:
Timeframe: 6 weeks from the release of the preliminary data
Additional comments: This work also aims to generate a measure of CHU that can be used, for consistency, across the work packages when testing cannabis use related hypothesis.