

Cannabis use reduction and relapse prevention in psychosis

Alyssa Milton

Principle Research Associate

UCL Mental Health Sciences

a.milton@ucl.ac.uk



***National Institute for
Health Research***

Principle Investigator – Sonia Johnson

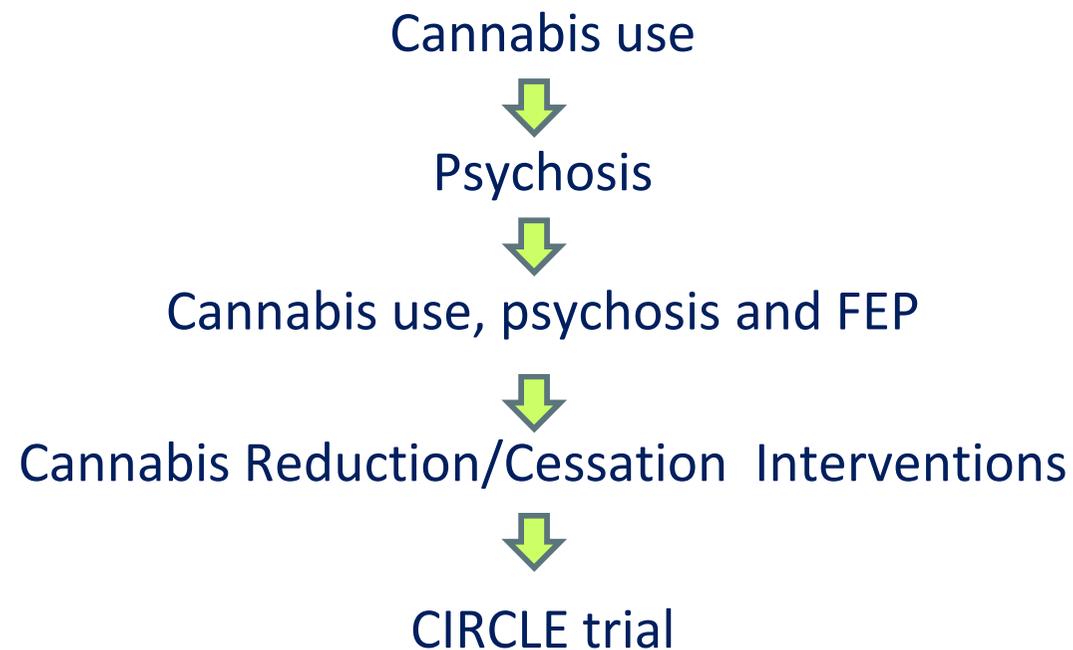
s.johnson@ucl.ac.uk

Trial Manager – Luke Sheridan-Rains

l.sheridanrains@ucl.ac.uk

Funding and Acknowledgements: This project was funded by the National Institute for Health Research Health Technology Assessment (NIHR HTA) Programme (project number 09/144/50) and will be published in full in Health Technology Assessment. The views and opinions expressed therein are those of the authors and do not necessarily reflect those of the HTA programme, NIHR, NHS or the Department of Health.

Outline

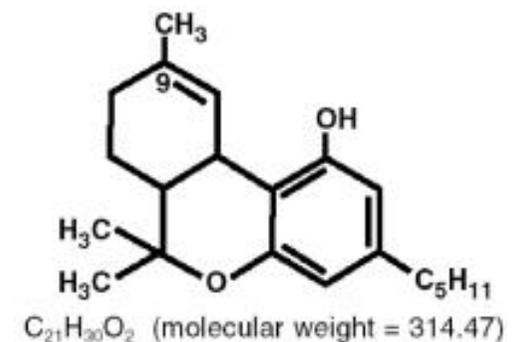


CANNABIS

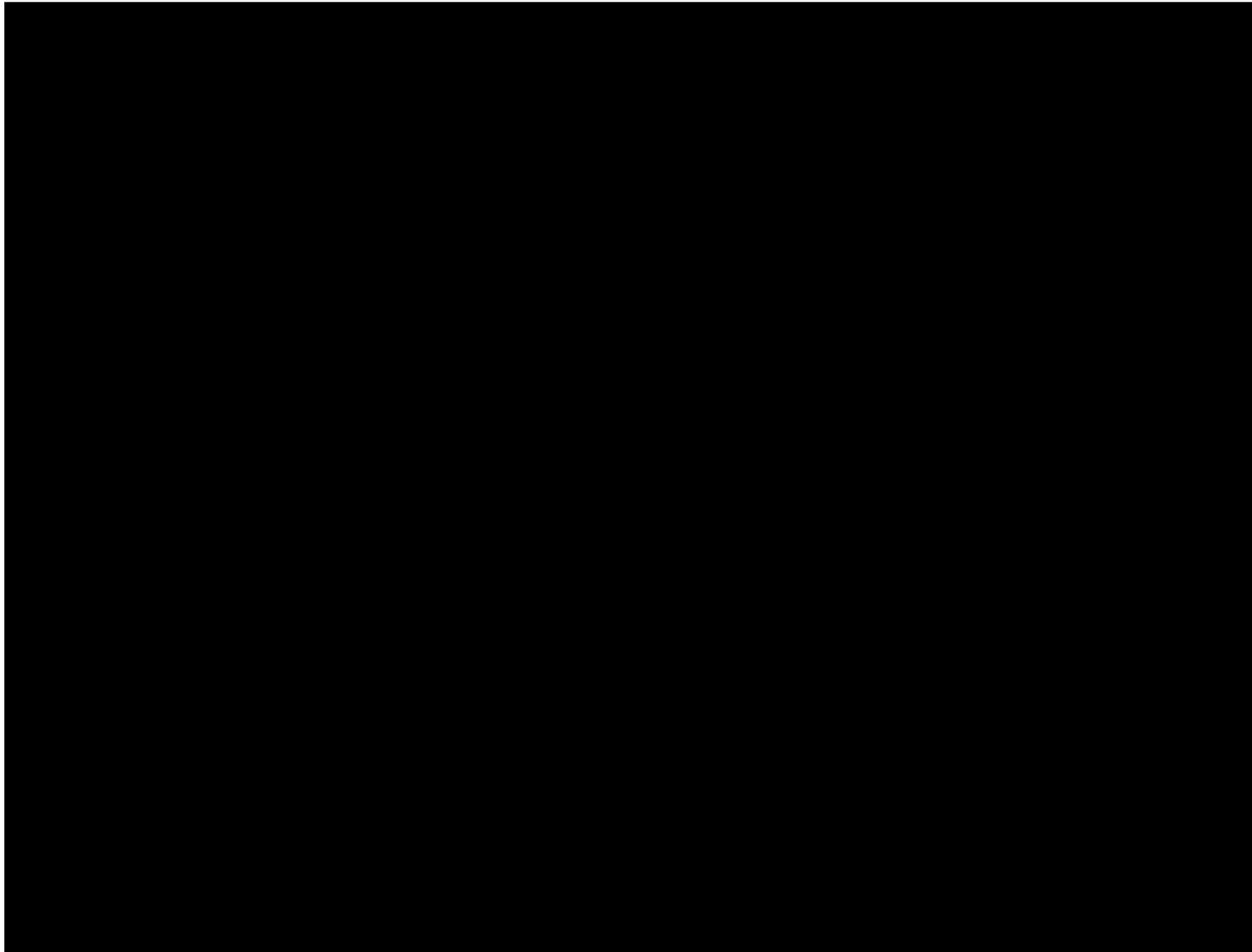


Background : Cannabis Context

- Cannabis refers to any preparation derived from the plant *Cannabis sativa*, containing chemical substances referred to as cannabinoids.
- For years cannabis available 'to the public' was marijuana (grass) and resin (hash) but in recent times a more potent variant has emerged, sinsemilla (skunk).
- The psychoactive ingredient in cannabis is delta 9-tetrahydrocannabinol (THC) and marijuana has 'typically' contained about 4% THC but the concentration of THC in skunk in England & the Netherlands is in the region of 16-20%.



Watch Video: <http://www.talktofrank.com/drugs-on-the-brain>



Cannabis and Young People



Negative impacts:

- **Relationship/life satisfaction** (relationships/life satisfaction, including with work, family, friends, romantic relationships, and leisure pursuits (Fergusson & Boden, 2008))
- **Long and short term physical health** (cardiovascular & cancer (esp. lung/mouth; (Hall & Degenhard, 2009) respiratory illnesses (Taylor & Hall, 2003) testosterone and sperm abnormalities (Kolodny et al., 1974). Deposit more chemicals in their lungs than cigarette smokers (Hall et al., 2001).
- **Work, education and money** (poor school performance, higher dropout rates (Lynskey et al., 2003), lower levels of educational attainment (King et al., 2006), and lower workforce productivity at age 23 (Hera et al., 2012).

Cannabis and Young People



So why smoke?

- Young people commonly reported using cannabis for relaxation and social activity reasons (Green et al., 2004).
- Young people with psychosis reported the same reasons plus mood alteration (Green et al., 2004).

PSYCHOSIS

First Episode Psychosis

- FEP often occurs at a critical developmental stage when "one's place in the world is being defined" (Redmond et al., 2010), in terms of personality, social role, educational or vocational achievement (Rinaldi et al., 2010)
- Can exclude a young person from a sense of autonomy, employment and youth culture (Birchwood et al, 1997)



Causes of Psychosis?

- No definitive explanation
- Some indication of caused by a combination of biological factors in early development which creates a vulnerability to experiencing psychotic symptoms during adolescence or early adult life.
- Symptoms (hallucinations, changed behaviour, altered thinking etc.) may be (but not always) triggered in response to stress, social changes or substance use (like cannabis) in vulnerable individuals.
- Cortisol release has been implicated - resulting from activation of the hypothalamic-pituitary-adrenal (HPA) axis (Walker & Diforio, 1997).
- Some of these factors may be more or less important in different individuals.

CANNABIS and PSYCHOSIS

Cannabis and psychosis

- Pre-onset Cannabis use at least doubles risk of psychosis
- Risk is raised if
 - Have a genetic predisposition (Henquet et al. 2005)
 - Use more cannabis premorbidly - dose response relationship
 - Commence regular use when younger – under 15.
- Uncertainty about causal connection between cannabis & psychosis continues despite high quality studies (Moore et al., 2007) – neither essential or sufficient!
- Can conclude, cannabis use will increase risk at young age will increase the risk of psychosis later in life.



Cannabis and FEP

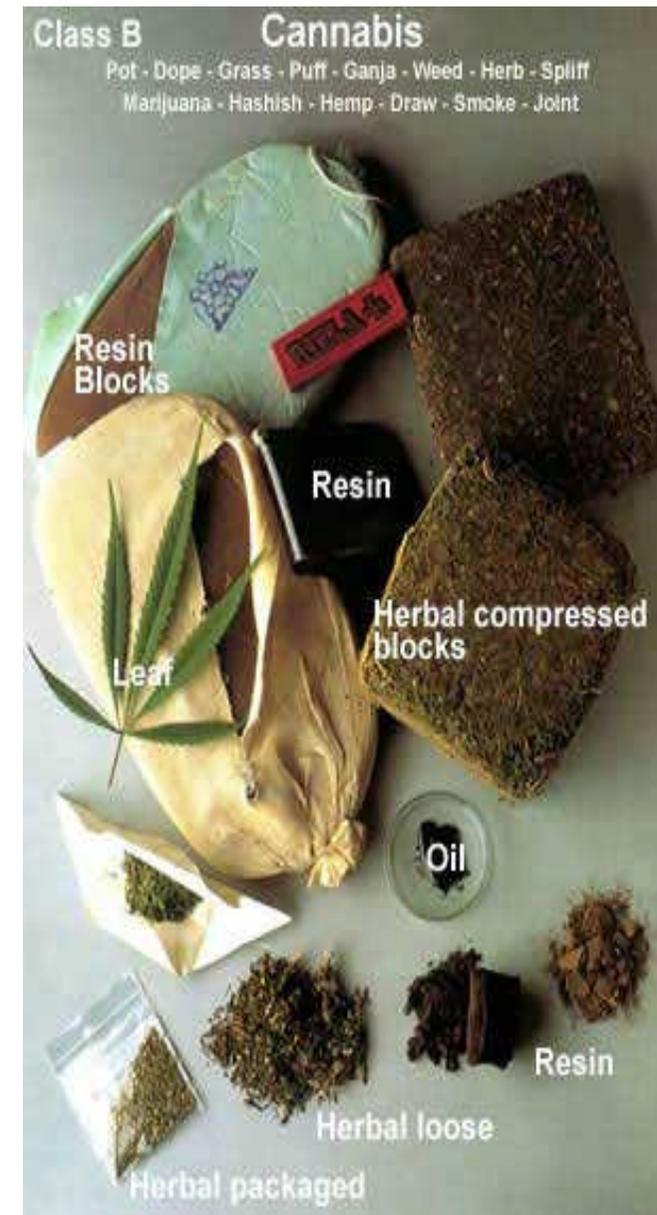


- Association between cannabis & psychosis establishes cannabis as a harmful drug and especially amongst the young although **the nature of the association is unclear.**
- Cannabis is the **most widely used** illicit substance in the UK – “around 21% of 16-24 yr olds reporting using cannabis within a 12 month period (Roe and Man, 2006) with FEP populations typically double that number.
- In populations with FEP - **Substance abuse is the most common comorbid disorder and Cannabis is the most popular drug** although poly-substance use is common.
- Co-morbid drug disorders are **more common in males** than females, **and in younger people.**
- **Regular use**, even at relatively low levels, **can have a negative impact on illness course** particularly in the context of psychosis but also with other mental disorders – ‘sensitivity’ hypothesis
- Cannabis use and psychosis **associated with illness complications - psychotic symptoms, poorer response to neuroleptic treatment & worse clinical course** (Degenhardt & Hall, 2006)

Background : What we know

- CANNABIS is the drug of choice in FEP populations
- USE AT ASSESSMENT reported as high as 62 - 65% (Jonsson et al., 2004)
- USE WHEN RECEIVING MH TREATMENT : After 2 months in treatment (EIS type services) 35-45%. (Lambert et al, 2005; Wade et al., 2006 Hinton et al., 2007)

SO WHAT?



Background : What we know



- In the first episode of psychosis in the context of Early Intervention Services, there is a window of opportunity for change in substance use not evident earlier nor later in the course of psychotic illness (Edwards et al., 2006)

WHAT HELPS? INTERVENTIONS

CANNABIS CESSATION TREATMENTS: Previous findings

Serious mental illness and substance misuse Interventions

- Overwhelming Conclusion from UK reviews: All treatments assessed to date have proved **no better than treatment as usual** (See Cochrane review, Cleary et al., 2008a) – (plus poor methodology and small sample sizes of studies to date).
- RCTs of combined CBT + MI versus TAU; NO differences between groups on outcomes (MIDAS Trial; Barrowclough et al., 2010).

CANNABIS CESSATION TREATMENTS: Previous findings

So what can be done?

- NICE Guidelines now include Contingency Management in recommended treatment list for Substance Misuse Disorders
- Trial in US (Bellack, 2006) – comparing Behavioural Programme (incl. CM) vs. Supportive Treatment for addiction recovery for people with schizophrenia diagnosis- improved outcomes.
- **BUT - No trials have examined using CM to assist to reduce cannabis use in FEP.**

Contingency Management

- Behaviour change approach derived from Learning Theory (B.F. Skinner)
- Provides systematic rewards-based reinforcement for abstinence from cannabis use in order to change and maintain the target behaviour.
- Provides the opportunity/ short term gap for change in behaviour > improve chances of longer term change

Contingency Management

- The active ingredients for CM include (Stranger & Budney, 2010)
 - **Schedule:** Immediate Reward
 - **Magnitude:** the larger the reward, the better the outcome; incremental increases ('avoid habituation')
 - **Choice of Target Behaviour:** Link reward to the target behaviour – Cannabis Abstinence & engagement initially.
 - **Type of Consequence:** Positive Reinforcement (rather than punishment) generally works best
 - **Monitoring:** Systematic application of the consequence Link reward to behaviour that is 'reliably' & 'consistently' implemented.

CIRCLE TRIAL

Funded by Health Technology Assessment stream of NIHR.

Chief Investigator - Professor Sonia Johnson

s.johnson@ucl.ac.uk

Trial Manager – Luke Sheridan-Rains

l.sheridanrains@ucl.ac.uk

CIRCLE TRIAL: What is it?

- Randomised Controlled Trail
- **Aim:** To test the effectiveness of contingency management compared to TAU at reducing cannabis in a FEP.
- $n = 544$



CIRCLE TRIAL OVERVIEW: Participants

Inclusion Criteria

- 18-36
- On EIS Caseload
- EIS entry criteria: psychotic episode of at least a week, significantly impairing functioning and/or resulting in acute service admission
- Problematic cannabis use i.e. used at least once in at least 12 of past 24 weeks

Exclusion criteria

- Non-English Speaking
- Do not meet service entry criteria
- Receiving substance misuse treatment from another agency
- Unstable living arrangements
- In prison or on probation/CTO which involves drug testing



CIRCLE TRIAL OVERVIEW: Design

- 2 arms:
 - **Control:** Optimised Psycho-education
 - **Treatment:** OPE + Contingency management
- Participants allocated to group by computerised sequence generator following assessment & eligibility checks
- Stratified by clinical site and severity of use
- Intervention lasts 12 weeks following randomisation
- Aim for 3 month (end-point) & 18 month follow up for all participants



CIRCLE TRIAL OVERVIEW: Procedures

After baseline Ax participants are randomised into one of 2 conditions



CONTINGENCY MANAGEMENT + OPE

- 12 weeks (weekly sessions)
- Contingency management – voucher rewards to reinforce desired behaviour (i.e. abstinence from cannabis use)
- Immediate provision of rewards for attending sessions and providing urine samples (measured by urinalysis reader).
- Variable reward schedule to enhance engagement & commitment
- Maximum attainable - £300

OPTIMISED PSYCHO-EDUCATION

- Part of TAU, but no standard provision & provision variable
- Recommended as important component of routine care
- Interactive media package
- Designed to enhance retention of information in the client group
- PC based
- Delivered over 6 - 12 sessions over 3 month

THE OPTIMISED PSYCHO-EDUCATION PACKAGE

Module 3 | A



Introduction



In earlier sessions, we have begun to think about the link between your psychological health and your cannabis use. This session is going to look beyond this, and think about how using cannabis affects various other areas of your life – both positively and negatively.

Looking at a full range of factors – including your family, friends, physical health, the law, work, finances – we will weigh up both the good things and the not so good things about using cannabis. Looking at this chart, think about the good things and not so good things about using cannabis and the impact it has on each area of your life? Click on each wedge for some ideas about how cannabis use can impact on different areas of life. At the end of this module you will be asked to give each impact a number based on the following scale:

negative impact			no impact	positive impact		
-3	-2	-1	+1	+2	+3	
intense	moderate	mild	neutral	mild	moderate	intense

But what are the effects on your psychological health?

Navigation icons: Home, Menu, 3, Previous, Next

Session 1: Personal experience of mental health issue; information on psychosis.

Session 2: Effect of cannabis on health; information about link between cannabis and mental health; shared experiences of others.

Session 3: Impact of cannabis on all areas of life (both good and bad) including physical and mental health, family, friends, finances, work, and the law.

Session 4: Positive and negative aspects of continuing or stopping cannabis use; risks associated with use.

Session 5: Ways to manage the hazards/risks.

Session 6: Recap.

THE OPTIMISED PSYCHO-EDUCATION PACKAGE

Module 3 | F



Money

One big area where cannabis impacts on your life is your finances!

Let's take a minute to calculate how much money you spend on cannabis in a week.

Cannabis (e.g. leaf, heads, hash) £ 56 per week x 6 weeks = £ 336 per year **or**
 Cannabis (e.g. leaf, heads, hash) £ 56 per month x 7 months = £ 392 per year



What else could you have spent this money on?
 Don't forget there are hidden costs too – tobacco, papers, bongs, etc.
 And maybe days off work too which all add up.

Impact Rating:
 To what extent is using cannabis having a positive/negative impact on your financial life?
 At the end of this module you will be asked to give the impact a number...

 [Back to pie chart page](#)

Navigation icons: Home, Menu, 3, Previous, Next

Example from PE package

CIRCLE TRIAL: Outcomes

Primary:

- Time to relapse

Secondary:

- Proportion of urines that are cannabis positive during intervention
- Cannabis free days (time line follow back)
- Positive symptoms (PANSS)
- Engagement in work or study
- QALYs for use in cost effectiveness analysis

Qualitative (completed during pilot study):

- Interviews & Focus groups with participants, carers and clinicians

CIRCLE TRIAL TIMELINE

Funded by Health Technology Assessment stream of NIHR. Full trial funded for £2,035,000 ✓



June 2012 – February 2013: Pilot (now completed) ✓



March – July 2013: Full Trial Set-up (in progress)



Aug 2013 – Oct 2014: Full Trial Recruitment (Target = 544) (in progress)



Oct 2014 – June 2016: Full Trial Follow-up



August 2016: Trial ends



CONCLUSIONS

- Cannabis is the drug of choice for FEP populations and has negative impact on illness course and severity of symptoms
- No specific interventions work better than TAU
- CM might be a way forward as it shows promise for people with SMU and schizophrenia **BUT** research *very* limited.
- Young people / EIS is a good platform for intervention
- CIRCLE trial results will help show effectiveness of CM for cannabis reduction in FEP
- To be continued



THANK YOU

For more details on the CIRCLE trail please contact:
Trial Manager – Luke Sheridan-Rains
l.sheridanrains@ucl.ac.uk