WHAT DO CANNABIS USERS WITH PSYCHOSIS WANT FROM A PSYCHOLOGICAL INTERVENTION?

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Thesis Abstract

The University of Manchester
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Doctor of Clinical Psychology (ClinPsyD)
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This thesis focusses on the self-reported reasons for cannabis use among people with psychosis, what is wanted from a psychological intervention, including the treatment preferences within this group.

Paper 1 provides a systematic review of the self-report literature on reasons for cannabis use among people experiencing psychosis. Fourteen studies were identified that satisfied inclusion criteria for the review and discussed using a narrative synthesis. The most commonly reported reasons for cannabis use were organised under three themes: to escape from or cope with negative affect, to enhance positive affect, and social reasons. The strengths, limitations and effectiveness of the literature as a whole are considered throughout the review and recommendations for future research are made. Theoretical and clinical implications are also discussed.

Paper 2 used both quantitative and qualitative research methods to investigate the treatment preferences of cannabis users with psychosis. Thematic analysis of the data revealed two themes: *Motivation to change behaviour,* with subthemes *Motivation to change cannabis use* and *Motivation to engage with services*; and *The ideal approach to treatment,* with subthemes *Preferred qualities of support* and *Preferred treatment outcomes*. Mixed views and experiences were described. Preferences for treatment included: for readiness to change to be considered, to be involved in treatment decisions (regarding type, delivery and goals of treatment), and development of practical skills through psychoeducation and physical health interventions. Clinical implications and recommendations for future research are discussed.

Paper 3 is a critical reflection of the submitted papers and research process as a whole. The strengths and limitations of the presented research, methodological considerations and implications for clinical practice and theory are discussed and directions for future research are highlighted.

In summary, this is the first study to explore treatment preferences in cannabis users with psychosis, providing detailed exploration of why people with psychosis use cannabis and what they would like from a psychological intervention.

Declaration

No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

Copyright Statement

Acknowledgements

I would like to say an enormous thank you to the friends and family that have supported me throughout this thesis, and clinical training overall. In particular, the wise words and strength sent from Sophi Tatlock and Nick Beech. This also includes all my wonderful course mates (the entire ClinPsyD cohort), my ever-patient housemates, and all the support from my academic supervisors Lynsey Gregg and Sandra Bucci. At times it has felt that this would not have been possible without their time, support and patience, and this will never be forgotten.

Thank you.

Paper 1: Systematic Review

Title

Reasons for cannabis use in psychosis: A Systematic Review

The following paper has been prepared for submission to 'Clinical Psychology Review'.

The guidelines for authors can be found in Appendix I.

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Abstract: 154

Abstract

Cannabis use and psychosis commonly co-occur. Cannabis is associated with increased risk of psychosis, exacerbation of symptoms and worse clinical outcomes. Various models attempt to explain the relationship between cannabis and psychosis; however, causation cannot be assumed. There is a lack of evidence for suitable interventions, highlighting the importance of understanding reasons for cannabis use in this group. A systematic review of the self-report literature was conducted, identifying fourteen studies. Data were organised into three themes surrounding reasons for cannabis use: *to escape from or cope with negative affect* (including depression, anxiety, stress, boredom and self-medication of psychosis), *to enhance positive affect (*for pleasure, enhanced performance and intoxication), and *social reasons* (social facilitation/enhancement, conformity/belonging, social identity). Despite negative psychosis outcomes, people with psychosis use cannabis for a number of reasons, varying between individuals, contexts and with time. Overall, evidence suggests a highly complex relationship, with multiple factors involved. Limitations and clinical implications are discussed.

Introduction

Cannabis is the most widely used illicit substance worldwide (World Drugs Report, United Nations Office on Drugs and Crime, 2015), with 29.2% of UK adults reporting cannabis use during their lifetime (Home Office, 2015). Cannabis use in the UK has increased over the last 30 years, with initiation of use from a younger age (Hickman, Vickerman, Macleod, Kirkbride, & Jones, 2007). Cannabis potency has also increased, with newer strains such as 'skunk' cultivated to be up to three times stronger in THC content (Potter, Clark, & Brown, 2008). Cannabis is associated with increased risk of psychosis and earlier onset (Large, Sharma, Compton, Slade, & Nielssen, 2011; Moore et al., 2007), particularly for higher potency strains (Bhattacharyya et al., 2012; Di Forti et al., 2009; Di Forti et al., 2014). Cannabis use is common in psychosis, particularly within first episode psychosis (FEP) (Addington & Addington, 2007) with prevalence estimated at 33.7% (Myles, Myles, & Large, 2016). Lifetime prevalence of cannabis use within psychosis is estimated from 42.2% (Green, Young, & Kavanagh, 2005) to as high as 65.7% in some samples (Schimmelmann et al., 2012).

Continued cannabis use in psychosis is associated with higher risk of relapse (Linszen, Dingemans, & Lenior, 1994; Pencer, Addington, & Addington, 2005), worse clinical outcomes, such as decreased functioning, anxiety and depression (Barrowclough, Gregg, Lobban, Bucci, & Emsley, 2015), increased hospital admissions (Patel et al., 2016), poorer treatment adherence, and worse course of illness (Sorbara, Liraud, Assens, Abalan, & Verdoux, 2003; Zammit et al., 2008). Cannabis contains delta-9 tetrahydrocannabinol (Δ9-THC), a psychoactive cannabinoid known to cause a 'high'. THC is associated with worsening medication side effects, cognitive impairment and exacerbation of psychotic symptoms in those with established psychosis (D'Souza et al., 2005) but can also produce transient psychotic symptoms in healthy individuals (Cortes-Briones et al., 2015; Morrison et al., 2009). Conversely, another component of cannabis, cannabidiol (CBD) has been found to have protective effects, counteracting the psychoactive properties of THC (Zuardi, Crippa, Hallak, Moreira, & Guimaraes, 2006). CBD has been found to have antipsychotic, antiemetic, anxiolytic and anticonvulsive effects (Ashton, Moore, Gallagher, & Young, 2005; Mechoulam, Parker, & Gallily, 2002; Zuardi et al., 2006).

Despite potential exacerbation of symptoms and worse clinical outcomes, motivation to reduce cannabis use is often low in people with psychosis (Barrowclough et al., 2014). It is well established that cannabis and psychosis occur together, but the origins of this comorbidity are subject to considerable debate (Degenhardt & Hall, 2006). Various models have been put forward to explain the relationship between substance use and serious mental illness (SMI) more broadly (Mueser, Drake, & Wallach, 1998). The Secondary Psychiatric Disorder Model

assumes that SMI occurs as a direct result of substance use. There is evidence to suggest cannabis is associated with increased risk of psychosis (Andréasson, Engström, Allebeck, & Rydberg, 1987; Arendt, Rosenberg, Foldager, Perto, & Munk-Jørgensen, 2005; Arseneault et al., 2002; Boydell et al., 2006; Fergusson, Horwood, & Ridder, 2005; Thomas, 1996; van Os et al., 2002; S. Zammit, Allebeck, Andreasson, Lundberg, & Lewis, 2002), supported by reviews of longitudinal and case control studies (Arseneault, Cannon, Witton, & Murray, 2004; Moore et al., 2007; Stanley Zammit et al., 2008). Neurodevelopmental factors i.e. during development of the endocannabinoid system (Malone, Hill, & Rubino, 2010) have also been considered. Nonetheless, the prevalence of psychosis, estimated at 0.87% (Perälä et al. 2007) has remained constant despite increases in both cannabis use and potency (Hickman, 2007; Potter, Clark, & Brown, 2008). Available evidence instead implies increased risk of cannabis use and psychosis occurring together, rather than causation.

Secondary Substance Use Models suggest that SMI leads to substance use. This is thought to be due to psychiatric disorder increasing sensitivity to the effects of substances (van Os et al., 2002; The Super Sensitivity Model), or using substances to manage psychosis symptoms (Self-Medication Hypothesis, SMH) or other negative mental states (alleviation of dysphoria). The Self-Medication Hypothesis (Khantzian, 1985, 1997) has been widely studied and suggests substances are used to alleviate symptoms of psychosis or medication, e.g.to reduce hallucinations or paranoia (Gregg, Barrowclough, & Haddock, 2009). Improved psychosis symptoms have also been reported following synthetic THC (dronabinol) (Schwarcz, Karajgi, & McCarthy, 2009). The alleviation of dysphoria model is supported by several self-report reasons for use studies, highlighting dysphoria as a motivator for using substances (Dixon, Haas, Weiden, Sweeney, & Frances, 1990; Dixon, Haas, Weiden, Sweeney, & Frances, 1991; Gregg, Haddock, & Barrowclough, 2009; Gregg, Barrowclough, & Haddock, 2009; Spencer, Castle, & Michie, 2002) and cannabis specifically (Blanchard, Brown, Horan, & Sherwood, 2000).

Bidirectional Models state that substance use and SMI initiate and maintain each other. For example, prodromal psychosis symptoms (e.g. hallucinations) increased with cannabis use (Corcoran et al., 2008) and cannabis use was shown to be a predictor of future psychotic symptoms and cannabis use behaviour when psychosis occurred first (Ferdinand et al., 2005). The Common-Factor Model proposes that SMI and substance use share biological, individual or social risk factor(s) causing both. Possible common factors may be biological; for example, the role of COMT (catechol-o-methyltransferase) enzyme polymorphism in dopamine

metabolism (Caspi et al., 2005; Henquet et al., 2006), or via alterations to the endocannabinoid system through increased cannabinoid receptor binding (the 'endocannabinoid hypothesis of schizophrenia' (Muller-Vahl & Emrich, 2008). Environmental factors include a history of trauma (Morrison, Read, & Turkington, 2005; Read, van Os, Morrison, & Ross, 2005; Shakoor et al., 2015) or even cannabis itself (Schlosser, Pearson, Perez, & Loewy, 2012). Multiple Risk Factor Models (summarised by Gregg et al. 2007) include one model suggesting that environmental cues positively reinforce substance use in psychosis (Barrowclough et al. 2007) and another suggests substance use is experiential avoidance (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996), acquired via social learning theory (Bandura, 1977).

The evidence shows that cannabis use and psychosis occur together and possibly serve to maintain each other, but due to inconsistent evidence causation cannot be assumed. It is plausible that some individuals have certain vulnerabilities making them more sensitive to the effects of cannabis, and that some people use the drug to 'self-medicate'. However, there is little evidence to suggest this is unique to symptoms of psychosis. Self-medication of symptoms constituting 'dysphoria' seems a likely explanation; however, further research is required to identify the role of any additional common factor(s).

Interventions are available to help support people with psychosis to reduce their cannabis use, as recommended by professional guidelines. In the US, The National Institute on Drug Abuse highlight the need for a comprehensive, integrated approach, simultaneously addressing both comorbid disorders (National Institutes of Health, U.S. Department of Health and Human Services, NIDA, 2007). The American Psychiatric Association (APA) recommends psychosocial interventions combining motivational interventions with coping skills (APA, 2010). The National Institute for Health and Care Excellence (NICE) in the UK suggest person-centred, evidence-based psychosocial interventions for substance use in psychosis (NICE CG 120, 2011). Group counselling, contingency management and long-term residential treatment were thought to be effective for treating substance use in SMI (Drake, O'Neal, & Wallach, 2008). However, the literature shows a distinct lack of evidence specifically for reducing cannabis use in psychosis. Motivational Interviewing (MI) has been found to have short term success, but baseline rates of cannabis use returned one year later (Baker et al., 2002). In another study, a standard psychiatric interview produced a significant reduction in cannabis use compared to MI (Martino, Carroll, Nich, & Rounsaville, 2006). When combined with cognitive behavioural therapy (CBT), MI showed no greater success than treatment as usual (TAU; Baker et al., 2006) or psychoeducation alone (Edwards et al., 2006), regardless of the length of intervention

(Barrowclough et al., 2014). MI/CBT even resulted in more A&E admissions than TAU (Hjorthøj et al., 2013).

It is therefore possible that current interventions are not acceptable for this group. In addition, it is questionable how much individuals will engage with treatments for reducing cannabis when their reasons for using it are not well understood. As a result, it is unclear which models of psychological intervention would be both effective and acceptable for people with co-occurring cannabis use and psychosis. Given the often negative effects of cannabis use on distress and psychotic symptomatology, understanding why people with psychosis use cannabis is crucial for developing and targeting appropriate interventions. One way to understand reasons for cannabis use within this population is to review the self-report literature.

There are five existing systematic reviews exploring reasons for cannabis use in psychosis (Dekker, Linszen, & De Haan, 2009; Gomez Perez, Santacana, Berge Baquero, & Perez-Sola, 2014; Kolliakou, Joseph, Ismail, Atakan, & Murray, 2011), with two of these considering substances in addition to cannabis (Gregg, Barrowclough, & Haddock, 2007; Thornton, Baker, Johnson, & Lewin, 2012). Reasons for cannabis use specifically have been considered. The two most common self-reported reasons were alleviation of dysphoria (i.e. to reduce depression or anxiety) and improvement of positive sensations (i.e. to 'get high', increase pleasure), as cited by several reviews (Dekker et al., 2009; Gomez Perez et al., 2014; Gregg et al., 2007; Kolliakou et al., 2011; Thornton, Baker, Johnson, & Lewin, 2012). Social reasons for cannabis use were also commonly reported (Dekker et al., 2009; Gomez Perez et al., 2014; Kolliakou et al., 2011), including reasons of social conformity (i.e. to go along with the group), identified by two reviews (Dekker et al., 2009; Thornton, Baker, Johnson, & Lewin, 2012). Some identified support for the self-medication hypothesis (Dekker et al., 2009; Thornton, Baker, Johnson, & Lewin, 2012) but this was not the case with others (Gomez Perez et al., 2014; Gregg et al., 2007), with one review citing use of cannabis for positive symptoms or medication side effects as the 'least popular motive' (Kolliakou et al., 2011).

Generally, the studies included in these reviews showed heterogeneity, but there were some methodological inconsistencies. These included differences between samples (e.g. size, diagnosis duration, inpatient/outpatient status) (Dekker et al., 2009; Gomez Perez et al., 2014), criteria for diagnosis (e.g. 'co-morbidity' vs 'substance use disorder') and assessment measures used (questionnaire, interview) (Kolliakou et al., 2011), making synthesis of results more difficult (Gomez Perez et al., 2014). Generally, studies included in the reviews were not

consistent in how reasons were reported (e.g. all reasons vs. 'main' reason; Gregg et al., 2007) and used measures without known reliability or validity, meaning findings cannot be easily replicated in future research (Kolliakou et al., 2011). All reviews included both quantitative and qualitative studies, except for Thornton et al. (2012) who identified lack of qualitative data as a significant limitation. In summary, the findings of the reviews conducted in the last 10 years present evidence largely in support of the alleviation of dysphoria model. This includes some support of the SMH; however, the 'self-medication' described relates to mental states not specific to psychosis (e.g. depression, anxiety, stress). However, further research is necessary.

Cannabis use in psychosis is clearly an area of significant interest among researchers, and mental health professionals, with the growing popularity of cannabis contributing to an ever-increasing evidence base. It is therefore important to systematically review the literature regularly as new evidence becomes available. The aim of the current review is to provide an up to date review of self-reported reasons for cannabis use in people with psychosis, including both quantitative and qualitative research. This will allow questionnaire data to be examined alongside qualitative accounts, including quality assessment, providing richer information and deeper meaning regarding reasons for use. With developed understanding, interventions can be improved and therefore targeted more appropriately.

Method

Eligibility criteria

A systematic review of the literature was conducted to explore reasons for cannabis use in psychosis. Eligibility criteria were established prior to the literature search. This review was carried out in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; Moher, Liberati, Tetzlaff, & Altman, 2009) statement. This review aimed to identify papers that presented reasons for cannabis use among people who have experienced psychosis. This approach did not restrict the search by type of methodology used. Studies were eligible if they: (i) were available in English; (ii) were published in a peer-reviewed journal; and (iii) included reasons or motives for cannabis use in the context of psychosis. Studies investigating substances or medication other than cannabis, other psychological presentations, or not relating to reasons for continued cannabis use were excluded. Examples of this may include reasons for cannabis initiation, as these typically differ from reasons for *continued* use (Baigant et al. 1995). Similarly, studies investigating cannabis *expectancies* rather than reasons for use, as expectation of experiencing a positive effect of a substance may not be the same as

a reason for using it. Studies with SMI samples (including people with psychosis) were included only if data regarding psychosis were presented separately.

Search procedures and data extraction

Electronic database searches were carried out on the following databases: PubMed (1990-present), EMBASE (1990-present), PsycINFO (1990-present), and Web of Science (1990-present) between the 10th July 2015 and 15th January 2016. The search was restricted to studies of human beings published in English from 1990 onwards. This allowed research conducted in a relatively modern setting to be considered for review. Three search sets were used which were linked with the Boolean operator 'AND'. The first search set related to reasons for use and included the terms reason* OR motiv*. The second search set related to substances and included the terms substance use OR cannabis OR marijuana. The third search set related to psychosis and included the terms psychotic OR schizophren* OR psychosis. Search terms were agreed by all authors following review of terms used to describe cannabis, psychosis and motivation to use substances within the psychosis population.

Once 1,351 duplicates were removed, titles and abstracts were screened for relevance and eligibility in line with the above criteria. Following this, the full texts were obtained and reviewed and reference lists of these papers examined for any additional manuscripts not identified in the original search. The research team made decisions about whether articles met the inclusion criteria. Any discrepancies were discussed and resolved through consensus within the research team. Figure 1 shows a diagram detailing the flow of studies through the different stages of the search. In summary, a total of 2,837 papers were identified via database search, 1,206 of which were excluded at the initial screen. Eighty articles were screened for inclusion: 66 were excluded, which resulted in a total of 14 articles included in this review. Papers were reviewed and data extracted using a standardised form incorporating details on sample, design, measures and key findings.

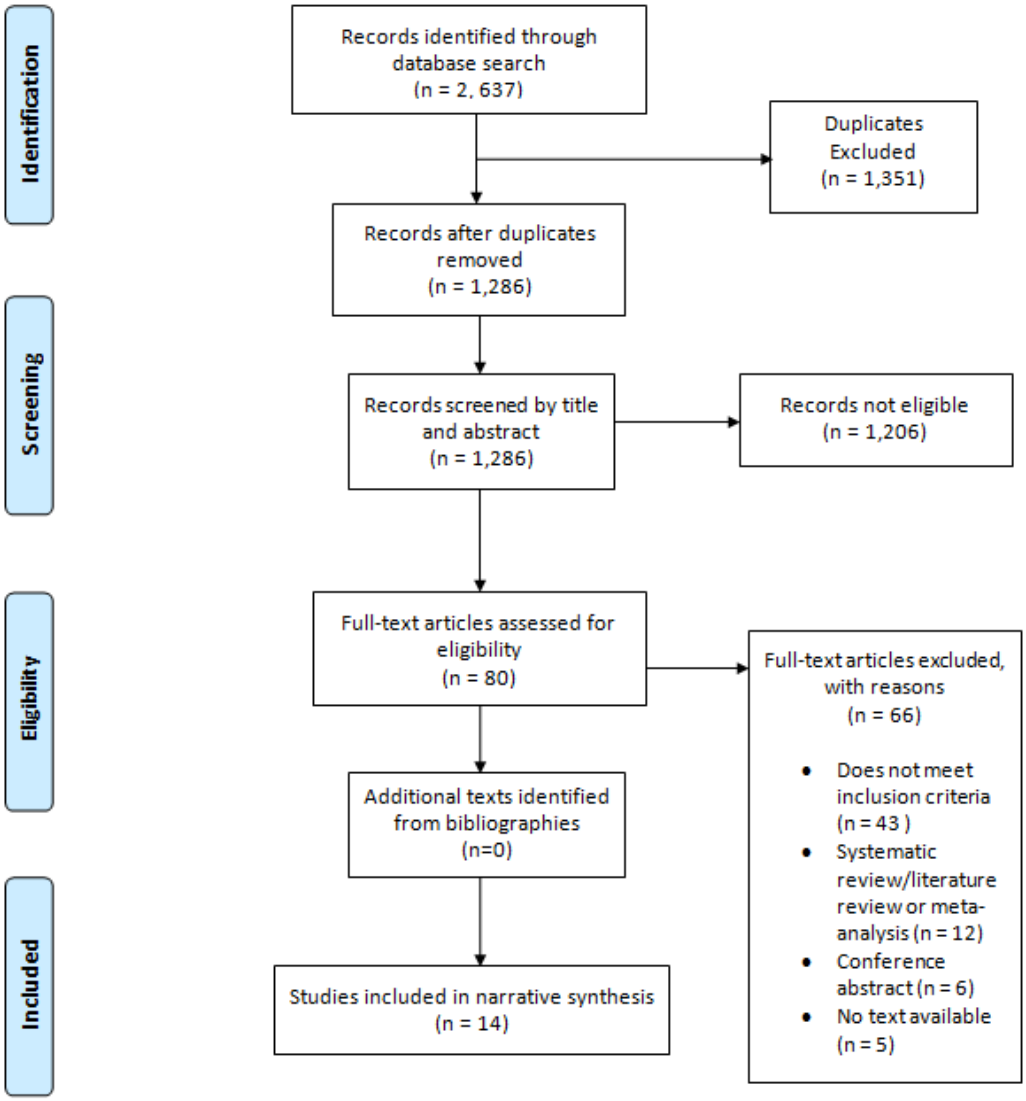

Figure 1. PRISMA flowchart on identification of studies

Reliability

During the search and screening, any disagreements were resolved within the research team. In order to assess the reliability of the systematic review process, the process was partially replicated by an independent volunteer. Ten percent of the abstracts identified in the search were randomly selected and subject to review. The decisions made by the current author and the independent reviewer were compared and Cohen's Kappa analysis used to assess the level of inter-rater reliability. At the abstract level, Kappa= 0.89 ($p<.001$), which indicates almost perfect agreement, respectively (Landis & Koch, 1977).

Quality assessment

The methodological quality of the studies was assessed to identify strengths and weaknesses in order to guide interpretation of results. Papers were quality assessed using the Mixed Methods Appraisal Tool (MMAT; Pluye et al. 2011; see Appendix A), which is designed to appraise the methodological quality of qualitative, quantitative and mixed methods literature. The MMAT has been shown to have high validity (MMAT, 2011) and reliability (Pace et al., 2012). The scale comprises two screening questions, followed by individual items for different methodologies. Quantitative studies were assessed on four domains: sampling strategy, sample representation, appropriate measurement and acceptable response rates for the chosen research tool (i.e. questionnaire). Qualitative studies were assessed according to: relevance of data source (i.e. interviews), appropriateness of data analysis process (i.e. suitable information provided), consideration of how findings relate to the context (i.e. setting), and consideration of how the researcher influenced findings (i.e. interaction with participants). Studies were given an overall quality score for each domain met using the following star ratings: Four* = 100%, Three* = 75%, Two* = 50%, One* = 25%, No stars X = 0% (See Appendix B).

The first author consulted the research team to make final decisions regarding inclusion of papers when necessary. Quality assessment of the final texts included in the review was conducted by the first author and an independent reviewer. The decisions made were compared and Cohen's Kappa analysis used to assess the level of inter-rater reliability. At the full paper level, Kappa=0.76 ($p<.001$), which indicates a substantial strength of agreement (Landis & Koch, 1977).

For included studies, data was extracted to record and code the following information, where available: country, study methodology (design, setting, sampling method), sample characteristics (size, age, gender), and assessment of outcome measure (main reported reasons for cannabis use, percentage of endorsement for each reason). Quality was defined as the confidence that the design, conduct and analysis of each study minimized bias in the estimation of the effect of the exposure on the outcome. Studies were considered to be of good quality if they minimised selection bias, utilised reliable measures and controlled for confounding variables. Data were extracted and tabulated for all papers included in the review.

Results

Overview of studies

Table 1 provides an overview of sample characteristics, methodologies and reasons for use identified for all 14 reviewed studies. The studies took place across a number of countries, with the majority conducted in the UK. Studies included samples of primarily adults (n=12) or adolescents (n=2). Sample sizes ranged from 7 to 101 and included people across a range of settings: inpatients (n=2), outpatients/community mental health teams (n=9) and Early Intervention Services (EIS; n=3). Reasons for use were assessed using a range of methodologies. Five studies used qualitative methods only. Seven studies used quantitative methods; four with a clinical group only (Addington and Duchak, 1997; Schofield et al. 2006; Kolliakou et al. 2015, Lejoyeux et al. 2014), and three used a case-control design (Mane et al. 2015; Pencer and Addington, 2008; Shaub et al. 2008). The most popular self-report measure was the Reasons for Use questionnaire (n=5 studies; Dixon et al. 1991). Two studies used mixed methods: Interpretative Phenomenological Analysis (IPA) with the Drug Use Motives Questionnaire (DUMQ, adapted from Cooper et al. 1992; Thornton et al. 2012) and a 'coding scheme' developed by the authors was analysed alongside quantitative drug use data (amount, frequency; Green et al. 2004).

For each paper, the reasons for use presented were extracted by the first author and recorded in a data extraction table (See Appendix C). The reasons identified for each study were organised under table columns. The author began with quantitative studies, as the reasons identified related clearly to questionnaire items (e.g. 'To relax', 'To get high'). Qualitative papers were then reviewed and data were organised into the columns appropriately. As new reasons were identified, new table columns were added until all data were included in the table. The column categories were then reviewed and grouped into the overarching themes. This provided a means of organising and summarising findings from a large, diverse body of research. Data analysis was guided by narrative synthesis techniques (Popay et al., 2006), which relies primarily on the use of words and text to 'tell the story', allowing the summary of the findings of multiple studies. Three key themes relating to reasons for cannabis use were identified in the literature reviewed. These were: *To escape or cope with negative affect, To enhance positive affect,* and *Social reasons*. Evidence supporting each reported theme is presented below. Exemplar quotes from qualitative papers considered most representative of each theme by the author were selected.

Table 1. Table of characteristics of studies (n=14) including main reported reasons for cannabis use.

Authors (year), country.	Sample Characteristics, e.g. sample size (%male), setting.	Methodology, measures	Main reasons for continued cannabis use identified (% of sample endorsed)	MMAT Quality appraisal rating (Max.: Four*)
Addington and Duchak (1997), Canada	41 (82.9), Outpatient clinics	PANSS (Kay et al. 1991), Reasons for Use scale (Dixon et al. 1991), subjective effects, reasons for stopping.	All reasons endorsed by >19% of the sample, except To increase voices (5). Most endorsed: To relax (81), To increase pleasure (95), To 'get high' (95), To relieve depression (81). To go along with the group (71), to give more interests (62), to give more thoughts (57)	Two*
Asher and Gask (2010), UK	17 (94.1), Outpatients.	Qualitative interviews, Grounded theory.	Five reasons identified for continued substance use: Drug use as an identity-defying vocation, To belong to a peer group, Feelings of hopelessness, Beliefs about symptoms and how street drugs influence them, and Viewing illicit drug use as equivalent to taking psychotropic medication.	Four*
Childs, McCarthy-Jones, Rowse and Turpin (2011), UK	7(85.7), EIS	Qualitative interviews, IPA	RfU change over time (initiation vs continuation) Social and Cultural influences, threat (social pressure to use), Maintaining (via social group), Protective (people supporting you to stop), development of personal and social identity, to escape distressing experiences.	Four*
Green, Kavanagh and Young (2004), Australia	47 (100), outpatients, district mental health services.	Mixed methods. Case-control. 4 week follow-up. Qualitative telephone interviews coded, 'dictionary' developed (reasons for use, effects experienced), drug check screen, Severity of Dependence Scale (Gossop et al. 1995), California QoL interview (1999)	(Baseline, follow-up) Mood alteration (35.6, 42.2), Social activity/offered (37.8, 28.9), Anxiety/depression (26.7, 28.9), Availability (24.4, 28.9). Reasons reported by <5% at baseline were Cognitive enhancement (4.4, 11.1), Preferred alternative (2.2, 6.7) and Relaxation (2.2, 15.6). (Although reported as an *effect* (26.7, 48.9). Only significant difference from controls was cannabis use for 'negative emotion'.	Three*
Kolliakou et al. (2015), UK.	At baseline: 69 (not reported), FEP inpatients	Longitudinal design, random intercept model. Reasons for Use Scale (RFUS; Spencer, Castle, Michie, 2002), plus urine drug screen (UDS) to corroborate self-reported cannabis use, rated at baseline, 3m and 12m.	Enhancement, Coping with unpleasant affect and Social motives. (Mean subscale scores reported in lieu of percentage endorsement)	Four*

Lejoyeux, Basquin, Koch, Embouazza, Chalvin and Ilongo (2014), France	101(62), psychiatric inpatients	Cross-sectional design. PANSS (Kay et al. 1987), Montgomery-Asberg Depression Rating Scale (MADRS; 1979). Six reasons presented on analogic visual scales 0 (do not agree)-10(Fully agree).	Most frequent motives: To have a wild time, To take away hallucinations, From force of habit and To relax.	Three*
Lobban, Barrowclough, Jeffery, Bucci, Taylor, Mallinson, Fitzsimmons and Marshall (2010), UK	19 (79), EIS.	Qualitative interviews, Thematic Analysis.	Four themes identified: Influence of perceived drug norms on behaviour, Attributions for initial and ongoing drug-taking behaviour, Changes in life goals affecting drug use, and Beliefs about the links between mental health and drug use.	Four*
Mané et al. (2015), Spain	96 (70) FEP, inpatients.	Case-control (cannabis users without psychosis). PANSS (Kay et al. 1987) Reasons for Use scale (Dixon et al. 1991)	All reasons were endorsed by >12% of the sample. Most frequently endorsed: To relax (87.5), To reduce boredom (60.4), To increase the feeling of pleasure (50.0), To sleep better (50.0), and To be high (47.9). Least frequently endorsed: Work better, Increase energy and Decrease hallucinations and suspiciousness, (all at 12.5). Patients used it to "arrange their thoughts, decrease hallucinations and suspiciousness"	Three*
Pencer & Addington (2008), Canada	70 (80.0), Case-control. Adolescent outpatients (FEP) matched with students	Personal Experience Screening Questionnaire (PESQ, Winters, 1991) Reasons for Use Scale (cannabis and alcohol, Dixon et al. 1991)	Most frequently endorsed: To 'get high' (61.5), To increase pleasure (53.8), To relax (50), To go along with the group (38.5), To relieve depression (38.5). All reasons endorsed by over 15% of sample, except from To decrease 'slowed-down' feeling caused by prescribed medication (11.5), To increase energy levels (7.7), To decrease tiredness (7.7), and To decrease voices (3.8). To decrease suspiciousness and To increase 'voices' were not endorsed (0).	Three*
Pettersen, Ruud, Ravndal and Landheim (2013), Norway	11 (81.8), Assertive Community Treatment teams	Qualitative interviews, analysed by systematic text condensation (Malterud, 2012)	Three subthemes: Controlling the symptoms of mental illness, Counteracting medication side effects, and Balancing the ambiguity.	Four*

Schaub, Fanghaenel and Stohler (2008), Switzerland	72 (66.0), outpatients and matched controls.	Case-control. Reasons for Use Scale (Dixon et al. 1991) PANSS (Kay et al. 1991)	No differences in reasons for use between groups, except Reduce Boredom (more common in patients, 63.9). All reasons endorsed by >19% of schizophrenia group, except Decrease side effects of medication (8.3). Most frequently endorsed: To relax (88.9), To be high (83.3), Increase pleasure (72.2), Sleep better (69.4), and Reduce boredom (63.9).	One*
Schofield, Tennant, Nash, Degenhardt, Cornish, Hobbs and Brennan (2006), Australia	49 (89), Community mental health centres	Reasons for Use Scale (Dixon et al. 1991), Psychosis and Drug Abuse Scale (PADAS; Lingjaerde et al. 1987), Cannabis Use Effects Survey.	To relax (86), Something to do with friends (81), relieving boredom (79), Improve sleep (58), Reduce anxiety (49), To feel good about oneself (39), Reduce medication side effects (15), Decrease voices (11), Reduce paranoia (8). Medication side effects motivating cannabis use: Inner unrest/agitation (47), Difficulty sleeping (43)	Three*
Seddon, Copello and Birchwood (2013), UK	30 (73.0); EIS	Qualitative semi-structured interviews, Grounded Theory	Reported reasons related to cannabis abstention, initiation, continued use and consumption change. Socially-related reasons: peer influence, peer pressure and the use of cannabis for social facilitation.	Three*
Thornton, Baker, Johnson, Kay-Lambkin and Lewin (2012), Australia	64 (65.0), members of the Australian Schizophrnia Research Bank (ASRB; Loughland et al. 2011)	Mixed methods. Self-report assessment battery: Cannabis Use Disorder Identification Test (CUDIT; Adamson and Sellman, 2003), Drug Motives Use Questionnaire (DUMQ; Cooper et al. 1992). Qualitative telephone interviews (n=8); IPA.	Four themes identified: Substance use for intoxication (for pleasure, increased creativity), Substance use to cope (with stress, to escape reality, to self-medicate), Substance use for social reasons (social pressure, enjoyable in social situations), and Impact of substance use on mental health (positive and negative effects). Cannabis use mainly for 'pleasurable intoxication', to relieve stress and as cognitive avoidance. Less likely for self-medication of psychosis symptoms, medication side effects.	Three*

To Escape from, or cope with, negative affect

All fourteen studies identified motivation to reduce unpleasant emotional states as a reason for cannabis use. Examples of negative affect included: depression (Addington and Duchak, 1997; Asher and Gask, 2010; Childs et al. 2011; Green et al. 2004; Kolliakou et al. 2015; Mané et al. 2015; Pencer & Addington, 2008; Pettersen et al. 2013; & Schaub et al. 2008), anxiety (Green et al. 2004; Lobban et al. 2010; Schofield et al. 2006), boredom (Green et al. 2004; Lejoyeux, 2014; Mané et al. 2015; Schaub et al. 2008; Schofield et al. 2006), poor sleep (Lobban et al., 2010; Mané et al., 2015; Schaub, Fanghaenel, & Stohler, 2008; Schofield et al., 2006) and stress (Seddon et al. 2013; Thornton et al. 2012). In each study, participants reported using cannabis to cope with, or escape from, these experiences.

High rates of endorsement for items pertaining to negative affect were identified by the five studies using Dixon's (1991) Reasons for Use questionnaire (Addington and Duchak, 1997; Mané et al. 2015; Pencer & Addington, 2008; Schaub et al. 2008; Schofield et al. 2006). Two studies recruited clinical samples without control groups: cannabis users with a psychotic disorder/schizophrenia diagnosis from community teams (Addington & Duchak, 1997; Schofield et al., 2006). Of the three studies including controls, two recruited adolescent samples experiencing a FEP (Mané et al., 2015; Pencer & Addington, 2008), and Shaub et al. (2008) compared outpatient cannabis users meeting criteria for schizophrenia with matched controls. People experiencing acute symptoms were excluded by Shaub et al. (2008); consequently reasons for use among people who are acutely unwell were not captured. This contributed to a lower quality rating for this paper.

Percentage endorsement for each reason on the questionnaire was presented in all five papers; however, the questionnaire items included differed to some extent. Some items were included in some papers only (e.g. '*to arrange my thoughts*' (29.2-33.3%) (Mané et al., 2015; Schaub et al., 2008), '*to decrease tiredness*' (7.7-24.0%) (Addington & Duchak, 1997; Pencer & Addington, 2008). Dixon's questionnaire is an unstandardized measure, taken from a larger scale designed to assess drug and alcohol use within schizophrenia (Dixon et al. 1991). Subsequently, this indicates a key weakness of the studies, highlighted by the MMAT, as a missing item does not indicate lack of endorsement.

The most common reason endorsed was '*to relax',* endorsed by at least half of participants in all five samples (50-88.9%) and received highest endorsement in two (Mané et al., 2015; Schaub et al., 2008). Other reasons were 'to reduce boredom' (60.4-79%) and 'to sleep better' (50-69.4%) (Mané et al., 2015; Schaub et al., 2008; Schofield et al., 2006). Poor relaxation, poor sleep or boredom may not indicate dysphoria, but citing these as reasons

suggests an attempt to cope with or escape them. This implies the existence of desired state achieved more easily by using cannabis. One paper only (Schofield et al., 2006) assessed *'to reduce anxiety'*, endorsed by 49% of participants. All others reported *'to relieve depression'* (38.5-81%). Unlike the other four studies, Schofield et al. (2006) did not include data for all questionnaire items. These results show that in each of these samples, desire to relieve unpleasant feelings motivated people to use cannabis.

Dixon's questionnaire also comprised items relating to self-medication of experiences specific to psychosis: coping with medication side effects (i.e. feeling 'slowed down') and symptoms of psychosis (i.e. feelings of suspiciousness, paranoia, hallucinations, voices). Questionnaire items relating to any experiences surrounding psychosis were endorsed by 0-40% of all five samples: cannabis 't*o decrease side effects of medication'* (8.3-38%) was included in all but one study (Mané et al., 2015). Mané et al. (2015) grouped symptoms of psychosis within only one self-medication questionnaire item: *'to decrease hallucinations and suspiciousness',* endorsed by 12.5%. In other papers these items were investigated separately: two included *'to decrease* suspiciousness', endorsed by nearly a fifth in one paper (Addington & Duchak, 1997) but by no participants in the other (Pencer & Addington, 2008). A similar item, 't*o reduce paranoia'* was included in one paper (Schofield et al., 2006) and received low endorsement at 8%. It is possible that the terms 'paranoia' and 'suspiciousness' may be subject to differing interpretations hence disparate responses. Cannabis use 't*o decrease voices'* was reported by 3.8-40% of three samples (Addington & Duchak, 1997; Pencer & Addington, 2008; Schofield et al., 2006) and more generally, *'to decrease hallucinations'* by 19.3% (Schaub et al., 2008).

In addition to Dixon's questionnaire, Schofield et al., (2006) investigated the influence of medication side effects on cannabis use (i.e. self-medication) using the Psychosis and Drug Abuse Scale (PADAS; Lingjaerde, Ahlfors, Bech, Dencker, & Elgen, 1987). The symptoms most commonly 'self-medicated' with cannabis were 'inner unrest/agitation' (47%) and 'difficulty sleeping' (43%). The authors found a trend in cannabis use when patients experienced distress due to medication side effects, which supports the self-medication hypothesis. Certain symptoms may motivate cannabis use; however, it is not clear how successful this method is. Endorsement of 'self-medication' reasons in this paper indicates some motivation to use cannabis, but to a lesser degree than other items. It seems likely that substances could be used to self-medicate secondary morbidity associated with psychosis (i.e. depression) (Pencer & Addington, 2008). Perhaps 'self-medication' could be replaced with the concept of self-management, or coping with psychosis in general.

Similar findings arose from the other questionnaire studies. To maximise generalisability, Kolliakou et al. (2015) recruited a large sample of inpatients and outpatients with a first episode of any psychotic disorder. The Reasons For Use Scale (RFUS; Spencer, Castle, & Michie, 2002) was implemented at three time points: baseline, three months and twelve months. This 26-item self-report questionnaire explores level of agreement with various motives to use cannabis, under five subscales: 'Enhancement', 'Social motives', 'Coping with unpleasant affect', 'Conformity and acceptance' and 'Relief of positive symptoms and side effects'. The second most strongly endorsed subscale was 'coping with unpleasant affect'. The authors acknowledged the possibility that in FEP, emerging psychotic symptoms and hospital admissions can prove distressing (i.e. increased dysphoria meaning greater motivation to 'cope'). The subscale endorsed least often was 'Relief of positive symptoms and side effects', suggesting self-medication of psychosis was not a strong motivator amongst this sample. The need for longitudinal data was outlined by Kolliakou et al. (2015), stating that reasons endorsed may be subject to change with time and circumstance.

Lejoyeux et al. (2014) recruited inpatients meeting criteria for schizophrenia within their first week of hospitalisation, using visual analogue scales (0-10) to ascertain level of agreement with the following six motives for cannabis consumption: to relax, to have a wild time, from force of habit, boredom, to be stimulated, and to remove hallucinations. Percentage endorsement was not presented in this paper, with the average rating out of ten reported instead. The motive rated most highly was 'To relax" (mean rating: 6.2/10). Neither the origin of the scales, nor rationale for the proposed reasons, were discussed by the authors. The lack of a validated measure was again highlighted by the MMAT.

Participants were also found to view cannabis as 'a means to cope with negative affective states' by Green, Kavanagh, and Young (2004). Mixed methods were used to examine whether reasons differed between men with and without psychosis. A 'dictionary' of reasons developed from qualitative telephone interviews comprised percentage endorsement for baseline (BL) and 4-week follow up (FU). Reasons surrounding self-medication of psychosis were not common, with 'psychotic symptoms' reported by 4.4% and 'side effects' by 2.2% (results available at follow-up only). Cannabis use as a 'preferred alternative' was mentioned by 2.2% only (FU: 6.7%); it is unclear whether this refers to medication. Cannabis use 'because of negative emotion' included 'mood alteration' (BL: 35.6%, FU: 42.2%), 'anxiety/depression' (BL: 26.7%, FU: 28.9%), followed by 'to reduce boredom' (BL: 22.2%, FU: 31.1%) and 'relaxation' (BL: 2.2%, FU: 15%). 'Mood alteration' does not indicate negative mood necessarily, but motivation to alter one's mental state indicates a form of coping or escape.

Details for whether anxiety or depression was the stronger motivator are unknown. The authors suggested that interventions could address boredom and 'lack of activity as a risk factor'. In addition, potentially greater stress experienced within the psychosis group may have resulted in achieving less of a 'relaxation state' than other cannabis users. It is difficult to generalise this finding due to the all-male sample.

Thornton et al. (2012) also used mixed methods to investigate differences in reasons for tobacco, alcohol and cannabis use between people with different psychotic disorders. This allowed trends in substance use to be examined alongside individual accounts of reasons for use. Participants with 'psychotic disorder' were recruited from a research database. They were considered 'relatively high functioning', potentially limiting generalisability among the psychosis population. This was highlighted as a limitation. The Drug Use Motives Questionnaire (DUMQ, adapted from the Drinking Motives Questionnaire; Cooper et al. 1992) explored reasons for using substances, covering social, coping and pleasure enhancement and illness motives. Participants rated how often they used each substance for each reason, revealing 'coping' as the second most frequently endorsed motive. A subset of eight participants completed semi-structured qualitative telephone interviews, including reasons for substance use. This allowed richer information to be gathered, although the MMAT highlighted lack of consideration of the interviewer's potential influence. Cannabis was not used to manage psychosis symptoms or medication side effects.

IPA analysis revealed the theme *Substance Use to cope*, including the subthemes *To cope with stress, To escape reality* and *To self-medicate* (in general). Data relating to cannabis only has been included here. Cannabis reportedly helped individuals escape their worries, symptoms or situation:

> *"To settle myself down, to stay on a nice level plane, whereas I'm normally either manic or morbid and the pot tends to calm it down. Like I smoke constantly, so it's a self-medication is the best way to put it…I'd be on a whole lot bigger medications If I didn't have the pot."*

> *"[Cannabis] was an escape from reality…it was an escape from the pain and hurt that I felt when I was awake….it, it takes your mind away from the real world…it just numbs you to, to the real world".*

Here, self-medication is not in relation to symptoms of psychosis. Cannabis was reported to provide an escape; helping individuals to feel calm, settled and 'normal'. This again supports the idea that increasing relaxation reduces dysphoria.

Similar reports were found in the qualitative literature. Asher and Gask (2010) used grounded theory to identify themes surrounding reasons for illicit drug use in people with a

diagnosis of schizophrenia. Three themes regarding reasons for use were: *To deal with feelings of hopelessness, Beliefs about symptoms and how drugs influence them* and *Using drugs as an equivalent to psychotropic medication*. The validity of these themes was confirmed by a service user group, suggesting good generalisability despite low ethnic diversity in the sample. The themes refer to 'illicit drug use' rather than cannabis use specifically; quotations relating to cannabis use have been extracted. Cannabis use was viewed by many as 'coping':

> *"….after a couple of weeks the voices got steadily and consistently worse, even though I wasn't using drugs whatsoever and I thought to myself, well I was relieved a little bit when I was on the weed so I went back on it and I just relaxed then and made me able to cope with the voices a bit better".*

One interviewee initially blamed cannabis for his voices, but after abstaining, found his voices worsened and began using cannabis 'to cope with his anxiety.' Another described using cannabis regularly to relieve anxiety. Regarding self-medication, one participant described using cannabis as an inpatient to manage excess saliva (a side-effect of antipsychotic medication), *"because cannabis gives you dry mouth".* Another said cannabis was his way of coping with voices and paranoia, to *"relax, just forget about things".* This contradicted the participant's comment that cannabis also made him paranoid. It is possible that relaxation and coping are described here as an effect of, rather than a reason for, cannabis use.

Another strong qualitative study was conducted by Pettersen et al. (2013) using a Norwegian sample with SMI. Semi-structured interviews were analysed using systematic text condensation, revealing themes surrounding reasons for substance use a) *Controlling the symptoms of mental illness,* b) *Counteracting medication side effects* and c) *Balancing the ambiguity.* It is difficult to generalise results to cannabis use in psychosis specifically. Overall, substances were reportedly used to 'self-medicate' participants' mental health. Reasons mostly surrounded 'managing difficult emotional states and severe symptoms'. Many statements suggested the need to escape the challenges of life; for example, cannabis was used to have *"a break from life"*. The authors interpreted substance use to 'escape' as management of dysphoria. Regarding self-medication of psychosis, one participant stated cannabis had a more calming effect than antipsychotic medication:

> *"Hash helps me calm my inner voices when they get loud. I feel it's the only medicine that helps".*

Contrary to this, Seddon et al. (2013) found that within FEP, cannabis was not used to medicate psychotic symptoms but cope with negative affect in general. Grounded theory was used to investigate reasons for cannabis abstention, initiation, continuation and consumption change

within EIS. A semi-structured interview schedule covered patterns of use, impact on relationships and reasons for cannabis maintenance. The influence of the researcher during interviews was not considered. Within the theme *Reasons for the continuation of cannabis*, reasons given were to aid relaxation, boredom and cope with stress:

> *"Yeah boredom and not feeling very well, being depressed and being fed up and I just wanted to not feel so fast and to chill out because I couldn't relax, I couldn't sleep and I found that it [cannabis] helped me sleep and there was a lot of reasons… it made me feel better".*

Using cannabis to *"feel better"* could again be viewed as coping, or escaping negative affect. The authors proposed that psychosis leads to general dysphoria e.g. boredom, stress, and as dysphoria is high in FEP this may particularly support this view (Seddon et al. 2013).

Childs et al. (2011) used qualitative methods to explore personal experiences of young adults under EIS, including reasons and meanings of cannabis use. Interviews were analysed using IPA. Four master themes emerged: i) *The Journey through Cannabis Use* (how reasons for use change over time), ii) *The social and cultural world,* iii) *The Struggle to Make Sense* and iv) *The depths and beyond*. Participants reported using cannabis due to unpleasant feelings (including symptoms specific to psychosis) and again described motivation to cope with or escape from these. For example, some described using to cope with feeling 'addicted' or paranoid, or escape distress. However, it was acknowledged that relief was often short lived:

> *"All my thoughts are just pushed away and…(..)..I feel good for a bit but once…it's gone, it, it just, it just goes back to normal if not worser"*

The views of younger people were also explored by Lobban et al. (2010), who aimed to identify the factors motivating substance use in a group with recent onset psychosis (all participants had used cannabis). Qualitative interviews were analysed using thematic analysis to reveal four themes: i) *Influence of perceived drug norms on behaviour,* ii) *Attributions for initial and ongoing drug behaviour,* iii) *Changes in life goals affecting drug use* and iv) *Beliefs about the links between mental health and drug use*. Interview questions surrounded 'drug use' in general but quotes relating specifically to cannabis have been included here. Within theme iv), participants spoke about using cannabis as a coping mechanism:

> *"That's probably one of the reasons cannabis worked for me so well, 'cause that just wipes out anxiety, you don't worry about anything, erm, if I could use it in moderation I probably still would use it, er to deal with anxiety as a sort of self-medication"*

In these examples, participants used cannabis to help with 'symptom management' (poor sleep, anxiety). However, as Childs et al. (2011) stated, these effects may be temporary,

meaning repeated self-medication may be necessary. This need to self-medicate could lead to increased use over time, which is implied by *"if I could use it in moderation..."* The more negative effects of continued, long term drug use were explored within the interview, but participants continued to use despite this contradiction (Lobban et al., 2010).

Within this theme, the evidence suggests support for reducing negative affect, providing support for the alleviation of dysphoria hypothesis. It seems cannabis is used for self-medication in general, rather than the SMH, as the unpleasant symptoms experienced were not necessarily exclusive to psychosis. It is possible that participants were in fact reporting relaxation as a desired *effect* of the substance, rather as a reason for its use. However, one paper found reasons for use were not reflected in reported effects of cannabis, i.e. minimal relief was experienced (Addington and Duchak, 1997) despite intention to use for this purpose

To Enhance Positive Affect (Expansion/Intoxication)

The second theme to emerge surrounded the enhancement of positive affect. The theme includes reports of cannabis use to 'expand' an existing mental state, sometimes to the point of intoxication. Twelve papers cited cannabis use for increasing positive affect, to 'get high' or enhance performance in some way.

All five studies that utilised Dixon's questionnaire reported endorsement of items relating to enhanced positive affect. Again, the items included and wording used varied between these studies. Schofield et al. (2006), who presented the measure to cannabis users with a diagnosis of schizophrenia, reported results for some questionnaire items only. The only item relating to the current theme was '*to feel good about oneself',* endorsed by 39% of the sample. No other items presented by Schofield et al. (2006) are discussed within this theme. In the other samples, endorsement of '*to increase the feeling of pleasure*' ranged from 50-95% (Addington and Duchak, 1997; Mané et al. 2015; Pencer and Addington, 2008; Schaub et al. 2008). Cannabis use to increase an existing level of pleasure was more commonly endorsed than using to feel 'good'. Schaub et al. (2008) identified that this item was most frequently endorsed by a subgroup of daily cannabis users, highlighting a subgroup who respond favourably to cannabis 'or might even profit in some way from its use'. '*To increase intensity of emotions and feelings'* was endorsed by 26.9-58.3% in all samples except Scofield et al. (2006), Some papers named this item *'to feel more emotions';* however, 'more' could indicate increased frequency or intensity so has been grouped here.

High levels of endorsement were also found for items relating to intoxication. Cannabis use for the reason '*to get high'* ranged from 47.9-95.0% endorsement; reported as the most common reason for use in two studies (Pencer and Addington, 2008; Addington and Duchak, 1997). This indicates intoxication is a popular motivator of cannabis use. The item '*to increase sexual interest',* included in two studies, was endorsed by 11.5% (Pencer and Addington, 2008) and 24% (Addington and Duchak, 1997). The other studies omitted this item, perhaps not viewing motivation to increase sexual interest as separate from increasing pleasure. Some questionnaire items related to enhancement of performance as well as mood. Under a third of each sample used cannabis '*to increase energy levels* (7.7-30.6%) or '*to concentrate better'* (15.4-33%) (Addington and Duchak, 1997; Mané et al. 2015; Pencer and Addington, 2008; Schaub et al. 2008). '*To work better' received* 12.5% (Mané et al., 2015) and 33.3% (Schaub et al., 2008) endorsement.

Enhancement of physical and cognitive performance also motivated cannabis use. Some endorsed reasons suggested that cannabis was used to create additional experiences; for

example, *'to be more creative'* (41.7%, Mane et al. 2015; 55.6%, Schaub et al. 2008), *'to give one more thoughts'* (30.8% Pencer and Addington, 2008; 57%, Addington and Duchak, 1997) and '*to give one more interests'* (19.2%, Pencer and Addington; 62%, Addington and Duchak). This could be more accurately described as expansion of mood or experience. Cannabis was reportedly used for enhancing existing affect, and for expanding a normal range of experiences. For each of these items, lower endorsement was reported in adolescent samples with FEP (Mané et al., 2015; Pencer & Addington, 2008). Perhaps motivation to expand upon positive affect was stronger in longer-established psychosis. Cannabis use to enhance symptoms of psychosis was investigated in two papers only, with '*to increase voices'* reported in 5% of participants in Addington and Duchak's (1997) sample and none by Pencer and Addington (2008).

Evidence of using cannabis to enhance performance was also reported by men with psychosis (Green et al. 2004). Cannabis use for 'cognitive enhancement' was reported by 4.4% (11.1% at FU) and 'physical enhancement' by 11.1% (FU: 2.2%). Endorsement was found to be lower than in studies where reasons are presented to participants e.g. via questionnaire. Perhaps these benefits are not thought to be typical of cannabis and are therefore reported less frequently when participants were asked to freely respond. Higher endorsement was given for 'entertainment' reasons (BL: 15.6%, FU: 13.3%), which could suggest enhancement or intoxication. Cannabis use to enhance positive affect was correlated with the amount used per day. This could suggest enhancement motivated cannabis use, or cannabis use enhanced positive affect, but the interaction is unclear. It is difficult to generalise this research due to the relatively small, all male sample. 'Enhancement' was found to be the most strongly endorsed RFUS subscale (Spencer, Castle, & Michie, 2002) among inpatients and outpatients in South London (Kolliakou et al. 2015). Participants rated level of agreement with statements on a Likert scale. The large sample size suggests reliable findings, easily generalizable to the wider population.

Lejoyeux et al.'s (2014) visual analogue study investigated use of cannabis '*to have a wild time'* and '*to get stimulated', rated as 4.4 and 2.7 out of* 10, respectively. As a score of 10 indicates 'full' agreement, these scores provide limited support for 'enhancement' as a reason for cannabis use. However, the reliability of these results is questionable as the scales were developed for the purpose of this study and are not validated. A more reliable measure was used by Thornton et al. (2012), who asked participants to rate how often they used substances for each reason on the DUMQ (Cooper et al. 1992). Pleasure enhancement motives for

cannabis use were most frequently endorsed. In addition, qualitative data from interviews with eight of the participants was analysed using IPA, revealing the theme *Substance use for intoxication*, comprising the following subthemes: *Substance use for pleasure* and *Substance use for increased creativity.* This refers to substance use in general; information regarding cannabis only has been extracted. The authors comment that 'cannabis intoxication' was perceived as a positive experience by all participants, implying cannabis use was for pleasure, an enjoyable feeling of intoxication. The increased ability to think creatively with cannabis was also highlighted. Cannabis was reported to improve mental abilities, allowing a 'disconnect from constraints of reality', with cognitive flexibility to be more creative:

> *"Well I used to use cannabis because I was a musician and all that. And I used to think people who don't use their minds and listen to music when they smoked cannabis were a bit weird. Like I sort of used it as an aid"*

Support for enhancement of positive feelings as a reason for cannabis use was shown within the qualitative literature reviewed. Pettersen et al. (2013) interviewed adults with psychosis treated in the community who reportedly used cannabis to *"promote clear thoughts"*, possibly referring to cognitive enhancement. The authors note that the majority of the sample was individuals with substance use secondary to SMI, perhaps suggesting issues with problem solving or organising thoughts since being diagnosed. It is also possible that using cannabis for this reason is motivated by medication side effects, rather than enhancement. It is difficult to generalise this to cannabis users with psychosis specifically. Enhancement motives were cited by two studies interviewing participants from EIS: Childs et al. (2011) reported cannabis use for enhancement (e.g. *"I'll smoke it to, say, enjoy a film"*). Lobban et al. (2010) identified the theme *Attributions for initial and ongoing drug-taking behaviour*, incorporating internal (an active, personal choice) and external (the influence of others) factors. Participants identified the main advantage for internal attributions as drug use is "fun and enjoyable":

> *"everything we did it was just more fun you know everything we had to have weed with it because it would just be much more fun and it always was".*

Authors of both these studies acknowledged that views of their young, and largely white, male samples, and although representative of EIS, must be interpreted within this context.

Overall, the papers reported strong support for 'enhancement' reasons for cannabis use. In particular, motives for cannabis use comprised increased frequency and intensity of positive feelings, mainly for pleasure and intoxication. Some support was shown for cannabis

use to enhance performance (i.e. physical and cognitive enhancement, improved concentration) as well as evidence for expansion (i.e. creative reasons). Two of the studies did not report expansion or intoxication as reasons to use cannabis (Asher & Gask, 2010; Seddon, Copello, & Birchwood, 2013).

Social Reasons (Enhancement, facilitation, belonging)

Twelve of the fourteen papers identified 'social motives' for cannabis use. Again, this includes all papers which utilised Dixon's questionnaire.

Schofield et al. (2006) presented one item relating to social reasons: '*something to do with friends',* which received high endorsement (81%). Other papers using this measure (Addington & Duchak, 1997; Mané et al., 2015; Pencer & Addington, 2008; Schaub et al., 2008) presented items relating to social facilitation and belonging. Cannabis use *'to talk better to others'* was endorsed by 14.6-48.0% of samples. In two papers, this item was named *'to become more talkative'* (Addington & Duchak, 1997; Pencer & Addington, 2008). It is possible that using cannabis to be '*more talkative*' could indicate expansion; however, this may relate specifically to social expansion (i.e. using cannabis to facilitate social interactions), so has been included here. Another item, *'to go along with the group'*, indicates conformity or belonging. This was endorsed by 33.3-71.0% of samples, suggesting that desire to be part of a social group motivates cannabis use. Shaub et al. (2008) identified that a subgroup of daily cannabis users endorsed this conformity item more frequently. The authors suggested this group experienced social marginalisation to some degree.

Social reasons for cannabis use were found to be important at three time points (baseline, three and twelve months) by Kolliakou and colleagues (2015), using the Reasons for Use Scale (Spencer et al., 2002). 'Social motives' for cannabis use were endorsed more frequently than reasons surrounding 'conformity and acceptance'; however, rates of endorsement were not presented. The sample showed low psychopathology according to the PANSS, but people were selected to be able to tolerate completing measures, for ethical reasons. Strength of endorsement remained fairly constant at follow up.

Social reasons for cannabis use, including motivation to conform or belong, were supported by four of the qualitative studies (Asher & Gask, 2010; Childs, McCarthy-Jones, Rowse, & Turpin, 2011; Lobban et al., 2010; Seddon et al., 2013). Asher and Gask (2010) asked participants to describe their reasons for continued drug use and mental health history, also describing their social context, and analysed the data using grounded theory. Quotes relating to reasons for cannabis use only are included here. One theme identified was *An identity-*

defining vocation. Within this theme, drug use was viewed as knowledge and 'mastery of a subject' for developing identity, social activity and self-esteem. Cannabis use specifically was thought to protect against other drug use (e.g. heroin, alcohol). For some, cannabis use was seen a 'normal' part of social identity:

> *"My brother was really protective of us then and he had his friends smoking buckets* [cannabis apparatus]*, smoking cannabis in the house. And he wouldn't let me go near it. But on other instances….they used to save me some cos I was [his] little brother, look after me that way."*

Four participants described a 'connoisseurship' or strong technical knowledge of substances. This shared knowledge or understanding was seen to create a sense of belonging. A second theme identified was *To belong to a peer group,* where using substances seen as a 'rite of passage'. One participant described the 'togetherness' enjoyed through cannabis use:

> *"Now all the time even though we're laughing and enjoying a joke, each one is holding each other up all the time, looking out for [protecting] each other, it's just natural"*

The authors note that all participants in this study reported 'persistent difficulties with social interaction', perhaps strengthening motivation for social belonging. The importance of a meaningful social identity was also discussed by Childs et al. (2011), who analysed interviews with seven young adults under EIS using IPA. The theme *The Social and Cultural World* revealed that being characterised by 'cannabis culture' or 'stoner identity' was desirable or attractive for some:

> *"The cooler kids did it and, well, it was kind of like, there was always that kind of chicness about it"*

Using cannabis may lead to an enhanced social life for some. Participants were asked specifically about what maintained their use. One participant's repeated cannabis use was rooted in his social network:

> *"Bit of a vicious cycle like I give up, they carry on, I carry on and they give up"*

Seddon et al. (2013) identified *Reasons for continuing cannabis use* and *Reasons for changes in the consumption of cannabis* using grounded theory, with a FEP sample. Social reasons such as 'to fit in with friends' were again cited:

> *"I do it because I enjoy it but I do it also because all my mates do it"*

Having a social group that smoked cannabis provided motivation to continue, and possibly increase use, for this sample. Using cannabis for social reasons could also be viewed as social *enhancement;* however, as *"all my mates do it"* suggests the participant was more able to 'fit in' socially, cannabis use facilitated social 'belonging'. A similar subtheme - that drugs (particularly cannabis) could improve social behaviour – was identified by Lobban et al. (2010). This study aimed to identify factors affecting cannabis use among young people with recent onset psychosis. Within theme i) *Influence of perceived drug norms on behaviour* (i.e. level of stigma, whether drug use is considered "normal"), interviewees were found to take drug classifications into account. The legal status of cannabis may affect how it is perceived socially. People reported taking drugs to belong to a 'normal' peer group, or deliberately challenging social norms to live a more exciting life. One person spoke about cannabis improving social behaviour:

> *"It keeps us out of trouble to be honest and that's what it used to do when we were younger as well, I mean, it stops you from going out and doing, causing riots basically…"*

Within theme ii) *Attributions for initial and ongoing drug-taking behaviour,* internal and external influences were considered. The authors comment that external attributions (others' influences) may indicate low motivation or lack of confidence in changing behaviour. It is possible the motivation to reduce social anxiety with substances is greater within a FEP group due to their developmental stage, and the impact of psychosis (Lobban et al., 2010). Unpleasant affect may provide similar motivation. The authors stated that drugs, including cannabis, have positive effects on interpersonal relationships, via reduced social anxiety or improved perceived social performance. Participants reported problems with fitting in with social groups and drugs helped them to connect to others. The social function of drug use was found to be central to motivation to use. Perception of a 'shared experience or membership' was reinforced as the social network grew. This was viewed as protective.

A theme entitled *Substance use for Social Reasons* was identified by Thornton et al. (2012), who used IPA to analyse the telephone interviews conducted with a subset of participants. The authors discussed social pressure – a desire to be part of a group, or pressure from friends, family or society to use cannabis. Interviewees reported a 'sense of belonging' that was not related to their mental illness, and how using cannabis allowed them to socialise with others:

> *"It has a sort of culture to it I guess sort of too…Culture like, um, there's groups of friends and people that get together you know…"*

Within the theme *Impact of substance use on Mental Health*, cannabis was reportedly associated with a negative effect on mental health. One interviewee said she used cannabis to help her function normally in society:

> *"The pot tends to calm me down…it does what other medications just don't do for me…so it makes me normal I suppose you'd put it".*

This could also be viewed as a form of *coping with negative affect*; however, it is considered a social motive here as the function of the cannabis use was to achieve 'normal' social functioning.

Green et al. (2004) investigated reasons for cannabis use in men with and without psychosis. Data was collected at baseline and then each week for four weeks. Frequency and amount of cannabis was recorded, including cannabis use behaviours and reasons for use, via telephone interview. Social reasons for cannabis use were again cited, possibly due to lacking a social life (Green et al., 2004). At baseline, the psychosis group reported using cannabis due to 'social activity/offered' more often than controls at baseline (37.8%) and at follow up (28.9%). No correlation was found between social reasons for use and amount or frequency of cannabis use.

In the studies reviewed, cannabis was reported to facilitate social interaction in a number of ways; providing a social activity 'to do with friends', enabling people to 'talk better' within the group, or even provide a sense of social 'belonging'. Some described a social 'pressure' to conform (Thornton, Baker, Johnson, Kay-Lambkin, & Lewin, 2012). Cannabis was described as making people feel more comfortable socially, creating a more attractive social identity, or something familiar that was considered 'normal' behaviour. Social factors were also cited by some as motivation for potentially increased cannabis use, although no correlation was found (Green et al., 2004). It appears that how the drug is perceived socially affects how it is used, and was even considered to promote pro-social behaviour by some.

Discussion

Overall, the results of self-report studies examining reasons for cannabis use in psychosis reveal a highly complex relationship, with multiple factors involved. Similar to previous reviews, more support was found for the alleviation of dysphoria model than the self-

medication hypothesis; although, multiple factors seem to be involved in this complex relationship.

Methodological problems were present in most of the included studies, with variations between samples (e.g. size, gender, diagnosis) and quality of methodologies used (e.g. presence of validated questionnaires vs. individually developed interviews). Some studies were considered to have limited generalisability due to small, unrepresentative samples (e.g. Green et al., 2004; Pettersen, Ruud, Ravndal, & Landheim, 2013). In general, and through the quality appraisal process, the included studies were considered to suitably address the research question. Some of the studies included here have been included in earlier reviews (Addington & Duchak, 1997; Green et al., 2004; Pencer & Addington, 2008; Schaub et al., 2008; Schofield et al., 2006). The current review aimed to explore reasons for cannabis use specifically within psychosis in general. This meant the search was not limited to one particular diagnosis, allowing the views of the wider psychosis population to be captured. Inclusion of studies utilising qualitative methods only allowed more detailed information to be presented in support of the questionnaire data (Asher & Gask, 2010; Childs et al., 2011; Lobban et al., 2010; Pettersen, Ruud, Ravndal, & Landheim, 2013; Seddon et al., 2013). Unfortunately, these results cannot inform us about the views of people not accessing treatment, not confident enough to speak to a researcher, or too unwell to tolerate a research interview.

Five of the papers utilised the Reasons for Use questionnaire (Dixon, Haas, Weiden, Sweeney, & Frances, 1991). This measure has been widely used in research but has not been validated. Reporting of results varied considerably between papers (e.g. Schofield et al., 2006), highlighting a difference between data not being reported and a reason not being endorsed. It is possible that the measure was not exhaustive of all potential reasons for cannabis use, meaning some information was lost. With qualitative interview questions, more idiosyncratic data can be obtained. Dixon's measure uses directive language and requires dichotomous responses, which could account for the high rates of endorsement found within each sample. Kolliakou et al (2015) and Lejoyeux et al. (2014) both made use of Likert scales rather than binary responses, a method that may provide richer, more varied information (Kolliakou et al., 2015). However, presenting several potential options may reveal endorsement of reasons that may not have been generated otherwise (e.g. via free response). Nevertheless, both the quantitative and qualitative data were found to fit within the same themes. It is possible the themes were dictated by the quantitative measures in the first instance.

All studies included people with psychosis who reported cannabis use. However, only one study provided objective validation of substance use other than self-report (Kolliakou et al., 2015). Participants report being cannabis users, but data surrounding specific cannabis use behaviour (frequency, amount) is largely missing. It is possible that several subtypes of cannabis user exist, citing different reasons for use. This raises the question of the validity of self-report data in general. Addington and Duchak (1997) pointed out that experiences were recalled retrospectively, and likely occurred under the influence of cannabis. For example, Green et al (2004) used photographs to 'prompt recollection' of smoking cannabis during the interview. This leads to questions about reliability due to possible recall problems within this group. Not all included studies used a control group; however, the views of controls were not of interest for the purpose of this review.

The results of these studies were found to fit with the following themes: *To escape from or cope with negative affect, To enhance positive affect,* and *Social reasons*. The theme most commonly endorsed by the literature was *To escape from or cope with negative affect*. All studies reported motivation to relieve unpleasant emotional states (e.g. depression, anxiety, stress, boredom) as a reason for cannabis use. This reflects the findings of previous research in psychosis, as well as reasons for cannabis use reported in the general population (Gomez Perez et al., 2014). Generally this was not taken as evidence for the self-medication hypothesis, as these negative experiences to be managed are not necessarily directly associated with psychosis. Instead, these symptoms seem to more closely describe 'dysphoria', motivating people to use cannabis either as a way of coping with or escaping this. If this is the case, it is possible that given reasons will change depending on contextual factors, e.g. the individual's emotional state, and should not be assumed to be constant. Reasons for use should therefore be viewed as variable over time (Dekker, 2009). Reports of cannabis use to reduce negative affect support the alleviation-of-dysphoria model.

All but three studies reported cannabis use for 'self-medication' reasons (Childs et al., 2011; Lobban et al., 2010; Thornton, Baker, Johnson, Kay-Lambkin, et al., 2012). The items relating to psychosis symptoms, 'suspiciousness' and 'paranoia' were presented separately, as these terms could be interpreted differently amongst those completing it. Some participants were found to report past success reducing voices with cannabis (Asher & Gask, 2010). This could be through distraction, but could perhaps be attributed to the antipsychotic effects of CBD (Mechoulam, Parker, & Gallily, 2002; Zuardi et al., 2006). However, with higher THC in modern strains potentially limiting any beneficial effects (Potter et al., 2008); self-medication

of psychotic symptoms may not be successful. It is possible that participants of earlier studies had access to cannabis of varying THC composition (e.g. Addington & Duchak, 1997); however, reported reasons for its use were not found to be different.

In general, some support was shown for the SMH, but cannabis use supporting alleviation of dysphoria was the reason most commonly reported. Studies exploring cannabis use were reviewed, but perhaps it is also important to consider the role of other substance use as a potential common factor (or factors). Studies considered substances other than cannabis (e.g. alcohol, tobacco, amphetamine, cocaine) except two in which other substances were not considered (Seddon et al., 2003; Green et al., 2004) and two that cited any other substance use disorder as exclusion criteria (Schaub et al, 2008; Mane et al., 2015). Two considered prescribed medication (Addington and Duchak, 1997, Schofield et al., 2006). In one paper, health professionals were considered unfair or hypocritical for saying participants shouldn't use substances but *should* use medication (Asher & Gask, 2010). Tobacco could be considered as a common factor; it can be used with cannabis, and cravings may subsequently motivate increased cannabis use. Furthermore, as a stimulant, tobacco itself could be used to 'self-medicate' negative side effects of antipsychotic medication, such as feeling 'slowed down'. This suggests the possibility of multiple additional factors playing a role in this complex relationship.

Perhaps social reasons could be considered as a common factor between cannabis use and psychotic experiences. For example, an association with both emerging psychotic symptoms and substance use has been shown for socioeconomic disadvantage (Morgan et al., 2009; Daniel et al., 2009), and with 'peer victimisation' amongst adolescents (Arseneault et al., 2011; Tharp-Taylor et al., 2009). Social stigma could also be considered. Substance use by those with mental health problems may lead to social acceptance and therefore reduce feelings of stigma (Edwards, Holden, Felitti, & Anda, 2003).

There were several limitations to this review. The samples of included studies are fairly small and selection criteria for study participants unequal (both regarding diagnosis and cannabis use). A range of methodologies were used in included studies, with variying reliability, making synthesis of results difficult at times. It is possible that the search terms used may have limited results. Exemplar quotes were selected by the first author according to how accurately they were perceived to represent the overarching theme. This subjective and non-systematic approach is not ideal, and may be considered a limitation in how data are presented in this review. Narrative synthesis was an appropriate method for presenting the data but there is arguably some overlap between themes. It has been discussed that reducing dysphoria could be viewed as a form of self-medication. Moreover, using cannabis specifically to 'get high'

could be for pleasure, or escape feeling negative. Cannabis use to reduce boredom could be achieved via social facilitation, or reduced negative affect. Shaub et al. (2008) suggested that citing boredom as a motive indicates dissatisfaction regarding leisure time or relationships, as well as self-medicating mental distress. Cannabis use to 'live a more exciting life' could fit with social motives, or expansion (Lobban et al., 2010); or to achieve social acceptance, but as a form of coping (Childs et al.2011). It seems that the relationship between motives and what is actually gained (or alleviated) varies significantly between individuals. It is possible that the motivation behind cannabis use is subjective, meaning entirely separate reasons. Perhaps a motive can relate to two or more themes at once. Overall, there seem to be multiple factors affecting motivation to use. This provides further support for the likelihood of a multi-factor model, but further research is required to explain the factors at play in this complex relationship.

In the same way that a person's motives behind using cannabis should be considered on an individual basis, so should the planning of any intervention. Perhaps any person's cannabis use is an attempt to meet needs, but those experiencing psychosis have fewer more adaptive resources available to them (Kolliakou et al., 2011). Therefore, clinicians could explore one's reasons for drug use to identify the underlying need, and design interventions to help meet this need in another way. Managing substance use is only one aspect necessary for support (Lobban et al., 2010). For example, if a person's primary motive for using cannabis was 'to go along with the group' (i.e. seeking conformity), we could speculate that conformity brings about a sense of belonging for that individual that is not available to them without cannabis. An intervention allowing access to social activities may help bring about this sense of belonging in a more positive way. Similarly, if a person's reasons for using cannabis are due to boredom, more meaningful activities may be suggested as part of intervention (Green et al., 2004). If an individual reports feeling socially isolated, using cannabis for social facilitation or expansion reasons, perhaps confidence or self-esteem building interventions (Lobban et al., 2010) or assertiveness training (Kolliakou et al., 2015) may be appropriate, to increase social comfort without cannabis.

The results of this review highlighted cannabis use for relaxation reasons, possibly due to high levels (or worse tolerance) of stress within this group. Services should be aware of any distress, and suggest interventions incorporating stress management or relaxation components if necessary. This could be particularly relevant in FEP, firstly due to increased stress during this transition (Seddon et al., 2013) but also there is higher motivation to change cannabis use in

the period immediately following admission for treatment (Lambert et al., 2005). Similarly, as 'coping' reasons were commonly cited, perhaps interventions could offer psychoeducation or skills development to meet this need. Education could comprise information about the effects of cannabis, and how these may affect reasons for use. For example, people who reported psychosis-inducing effects of cannabis were not deterred as the perceived beneficial effect (mood enhancement) outweighed any costs (Henquet et al., 2006). Perhaps interventions could support cannabis users to explore their reasons for use alongside perceived and actual effects of the drug. Highlighting discrepancies could challenge people's positive expectations, create ambivalence and weaken confidence in the stated reasons for using, particularly if for emotional enhancement (Addington & Duchak, 1997). Dekker et al. (2009) suggest applying an instrument to help distinguish between these short and long-term effects, such as the Cannabis Experiences Questionnaire, to obtain greater insight (Stirling et al., 2008). Personal experience is likely to shape beliefs around drug use and MH (Healey, Peters, Kinderman, McCracken, & Morriss, 2009); therefore, psychoeducation may be more helpful to an individual if it relates to personal experience (Lobban et al., 2010).

In general, it may be helpful for interventions to consider any other contributing factors to the relationship between psychosis and cannabis use. For example, other substances, such as tobacco and medications, or amount, frequency and strain of cannabis used. Future research could incorporate longitudinal approaches to assess changing reasons for cannabis use and its long-term effects. Experience sampling methods could be implemented to monitor reasons for use and actual usage over time (e.g. Swendsen, Ben-Zeev, & Granholm, 2011) or urine drug screens to support self-report data (Kolliakou et al., 2011), although this may be stigmatising as part of an intervention outside of a research capacity. Further investigation into patterns of cannabis use is also recommended, such as whether reasons for use differ between binge and long-term users, and how reasons are affected by perceived function (effects), e.g. enhanced performance or concentration, over time.

Despite negative psychosis outcomes, people with psychosis use cannabis for a number of reasons and many people report benefits that cannabis can bring. The evidence suggests multiple factors influencing the complex relationship between cannabis use in psychosis, with reasons for use varying considerably between individuals, specific contexts and over time. With greater understanding and individually targeted interventions, suggestions can be made for better management of mood, social life, and for people's needs to be met in a healthier way. Reducing motivation to use cannabis may not only improve the prognosis of psychosis on an individual basis, but help reduce the strain on services in the future.

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Paper 2: Empirical Paper

Title

What do cannabis users with psychosis want from a psychological intervention?

The following paper has been prepared for submission to 'Qualitative Health Research (QHR)'. The guidelines for authors can be found in Appendix J.

Word Count:

Total (excluding references and tables): 10,149

Abstract: 150

Abstract

Interventions addressing cannabis use within psychosis lack empirical support. Understanding what people want can be achieved through investigating treatment preferences.

A mixed-methods design was used, including qualitative interview. Data were analysed using thematic analysis.

Two themes were revealed: *Motivation to change behaviour (*subthemes *Motivation to change cannabis use*, *Motivation to engage with services*); *The ideal approach to treatment, (*subthemes *Preferred qualities of support*, *Preferred treatment outcomes)*. Negative experiences affected motivation; i.e. feeling judged or labelled, lack of involvement in decisions. Trust in services, and feeling 'heard' were ideal components of support. Preferred outcomes concerned cannabis use (reduction/cessation), practical skills, education, and improved physical/emotional wellbeing.

Participants reported mixed views and experiences. Treatments may not be unsuccessful, instead not targeted to individuals, or offered before motivated to change. Clinical implications and recommendations are discussed. More research is required; however an important insight into an ideal approach for this group is provided.

Introduction

Cannabis use among people with psychosis is a topic of great clinical interest. Cannabis use and psychosis commonly occur together, with higher rates of cannabis use reported in people with psychosis than in the general population. Lifetime prevalence is reported at 29.2% among UK adults (Home Office, 2015), whereas estimates within psychosis samples range from 42.2% (Green, Young, & Kavanagh, 2005) to 65.7% (Schimmelmann et al., 2012). Cannabis use is particularly common among those presenting with a first episode of psychosis (FEP; Addington & Addington, 2007), with current prevalence estimated at 33.7% (Myles, Myles, & Large, 2016).

The main psychoactive component of the cannabis plant is the cannabinoid delta-9 tetrahydrocannabinol (Δ9-THC), causing what is known as a 'high'. THC is known to produce transient psychotic symptoms in healthy individuals (Cortes-Briones et al., 2015; Morrison et al., 2009) and is associated with worsening of medication side effects and exacerbation of psychotic symptoms in existing psychosis (D'Souza et al., 2005). Persistent cannabis use is associated with significant clinical and social impact. The World Health Organisation (WHO) reported that the

health and social impact of nonmedical cannabis use includes cognitive impairment, poorer educational outcomes and development of mental health problems, including psychosis (WHO, 2016). Cannabis has been shown to be a risk factor for the development of, and earlier onset of psychosis (Large, Sharma, Compton, Slade, & Nielssen, 2011; Moore et al., 2007), and a contributor to worse clinical outcomes for people with psychosis such as decreased functioning, anxiety and depression (Barrowclough, Gregg, Lobban, Bucci, & Emsley, 2015). There are links with increased hospital admissions (Patel et al., 2016), worse course of illness (Sorbara, Liraud, Assens, Abalan, & Verdoux, 2003) and relapse (Linszen, Dingemans, & Lenior, 1994; Pencer, Addington, & Addington, 2005; Zammit et al., 2008). Furthermore, cannabis potency has increased over recent decades with newer, more potent strains ('skunk') containing up to three times the THC concentration of older strains (Potter, Clark, & Brown, 2008). Stronger cannabis has been associated with increased risk and earlier onset of psychosis (Bhattacharyya et al., 2012; Marta Di Forti et al., 2015; M. Di Forti et al., 2009; M. Di Forti et al., 2014).

Interventions are available to help support people with psychosis to reduce their cannabis use, as recommended by professional guidelines. In the US, The National Institute on Drug Abuse highlight the need for a comprehensive, integrated approach, simultaneously addressing both comorbid disorders as treatment of one problem will likely improve prognosis for the other (National Institutes of Health, U.S. Department of Health and Human Services, NIDA, 2007). The American Psychiatric Association (APA) recommends psychosocial interventions over pharmacotherapy. For example, relapse-prevention approaches combining motivational interventions with coping skills (APA, 2010). In the UK, the National Institute for Health and Care Excellence (NICE) suggest person-centred, evidence-based psychosocial interventions addressing both psychosis and substance use. The treatment plan must be tailored to the individual, taking into account the relative severity of both psychosis and substance use, the person's social and treatment context, and readiness for change (NICE CG 120, 2011).

There has been much research conducted into interventions for psychosis and for cannabis use. The mainstay treatment for psychosis involves pharmacological approaches, namely antipsychotic medications. Some pharmacological interventions have been found to treat acute effects of cannabis (Crippa et al., 2012), but there are no successful pharmacological approaches to treat cannabis use in general (Weinstein & Gorelick, 2011).

The literature shows a distinct lack of evidence regarding the efficacy of psychological interventions for reducing cannabis use in the context of psychosis, with many studies showing limited improvements for the clinical outcomes examined. Motivational interviews produced a significant reduction of cannabis use at 3 months (Baker et al., 2002). Similarly, with motivational interviewing (MI) combined with cognitive behavioural therapy (CBT), or treatment as usual (TAU)

(Baker et al., 2006), and psychoeducation (PE) only, or PE, CBT and MI combined (Edwards et al., 2006). One study found a significant effect (92.1%) via a standard interview (Martino, Carroll, Nich, & Rounsaville, 2006). Hjorthøj et al. (2013) found MI/CBT group had more admissions to emergency care than the TAU group. In addition, MI/CBT was found to have no effect on cannabis use, or positive and negative symptoms of psychosis (Madigan et al., 2013).

As a result, it is unclear which models of psychological intervention are both effective and acceptable for this group, and despite potential exacerbation of symptoms and worse clinical outcomes, motivation to reduce cannabis use is often low (Barrowclough et al., 2014). 'Motivation' considers the behaviour and need for change, and willingness to take responsibility to sustain this (Miller and Rollnick, 2002). 'Readiness to Change' (RtC) indicates motivation to change a problematic behaviour. Motivation is key in understanding people's (unhelpful) health behaviours (Miller, 1985) but there is limited research in this area. There is limited support for efficacy of psychological interventions, with many studies showing no improvements (Barrowclough et al., 2015). Furthermore, service users are rarely asked about treatment preferences (Baker, Thornton, Hides, & Dunlop, 2012). One way of understanding preferences is to involve service users directly in treatment decisions. Indeed, service-user involvement is considered a significant ethical concern (Lilford, 2003) and is recommended by NICE guidance (CG136, 2011). Research has been conducted into preferences for the treatment of psychosis. Sumner et al. (2014) reported a specific dislike of group situations, with TAU plus manualised self-help and telephone CBT preferred (Sumner et al., 2014). These findings suggest service users welcome choice about their treatment. Preferences regarding cannabis within psychosis were considered by Baker et al. (2012). Participants stated preference for 'detoxification', followed by 'support from a counsellor'. Others preferred not to seek treatment, regardless of desires to stop using cannabis. Generally, people opted for face-to-face treatment over less traditional methods.

Despite high levels of co-morbidity and disengagement, limited research has been conducted into treatment preferences. Investigating preferences could identify barriers to therapy and increase engagement with, and response to, treatment. Therefore, the aim of the current study was to better understand service user preferences regarding treatment for cannabis use in the context of psychosis, and the potential factors influencing such preferences.

Method

Participants

Participants were recruited from multiple NHS trusts in the North West of England, UK. The researcher presented the study to community mental health teams (CMHTs) and early intervention

services (EIS) during team business meetings or via ward managers at inpatient services. Eligibility criteria were: i) currently accessing mental health services ii) experienced an episode of psychosis, iii) used cannabis in the previous 12 months. People were excluded from the study if they were not fluent in English and did not meet the inclusion criteria above. Clinicians were asked to identify people meeting inclusion criteria and obtain their consent to be approached by the researcher. The researcher then obtained formal consent to take part in the study. Meetings took place at the service user's home, community health centre, or private room on an inpatient ward, for up to 60 minutes. A purposive recruitment strategy was planned to achieve variation in age, gender and ethnic background so as to reflect the whole service population. The sample size for this study was driven by the concept of data saturation (Marshall, 1996). Ethical approval for the study was given by the relevant local NHS research ethics committee.

Procedure

A mixed-methods design involving both quantitative and qualitative research methods was used. After initial introductions, any queries were addressed; the limits of confidentiality discussed and written informed consent obtained. Demographic information, a substance use checklist (Appendix D), Reasons for Substance Use in Schizophrenia scale (ReSUS, Gregg, Barrowclough and Haddock, 2009; Appendix E) and Readiness to Change (RCQ; Rollnick et al. 1992; Appendix F) were recorded. The ReSUS questionnaire is a 38-item scale used to assess self-reported reasons for substance use. Amount of agreement with each item is rated from 0 (Never) to 3 (Always). The highest score on one of three subscales determines the primary reason for substance use. Cronbach's alpha showed good internal reliability and validity for each subscale: Coping with distressing emotions and symptoms (0.91), Social enhancement and intoxication (0.81), or Individual enhancement (0.82) (Gregg, Barrowclough, & Haddock, 2009). The RCQ is a 12-item scale and ascertains stage of change regarding substance use (Rollnick, Heather, Gold, & Hall, 1992). Items are rated on a Likert scale (strongly disagree-strongly agree) determining stage of change as Pre-contemplation, Contemplation, or Action. This measure has been assessed for reliability in medical settings, with a modified version for treatment purposes (Heather, Luce, Peck, Dunbar, & James, 1999).

Participants then completed the treatment preferences ranking task. This involved reading treatment descriptions presented on flashcards, and ranking them in order of hypothetical preference. Descriptions were developed by the research team and reviewed by a service user involvement group to ensure an unbiased description of therapy and delivery (See Appendix G). The task comprised eight treatments (cognitive behavioural therapy, CBT; motivational interviewing, MI; psychodynamic interpersonal therapy, PIT; family therapy, FT; psychoeducation, PE; physical health, PH; contingency management, CM; treatment as usual, TAU), and five modes of delivery (Individual, I; group, G; telephone, T; eTherapy, e; mHealth, m). The information reflected what

would be presented to aid informed consent for treatment in a real-world setting (Tarrier et al. 2006). Preferences were recorded by the researcher to be examined in the context of the qualitative interview.

The qualitative interview was guided by a bespoke topic guide (Appendix H), covering mental health history, cannabis use, previous experience of therapy and preferences regarding therapy type and delivery. Interviews lasted between 25-60 minutes and participants were offered comfort breaks throughout. Consent was given for interviews to be digitally recorded and transcribed verbatim.

Data Analysis

Qualitative data were analysed by the same researcher by whom the interviews were conducted. Transcripts were read repeatedly allowing immersion in the data and analysed following the protocol suggested by Braun & Clarke (2006). Transcripts were coded by the first author. Initial codes were reviewed within the wider research team to identify key themes emerging from the data. Transcripts were re-read and codes refined further to ensure validity, and grouped into themes. An inductive approach was taken to analysis such that themes were driven by the data allowing an open approach to the research question. The primary outcome data for the study are the themes surrounding treatment preferences derived via the qualitative thematic analysis. Themes were examined in the context of treatment preferences (ranking task) and participant demographics to determine possible contributing factors. Descriptive statistics and questionnaire responses were used to describe the sample. NVivo software was used for data management and analysis (NVivo 10 qualitative data analysis software, 2012).

The quantitative data were examined alongside the qualitative themes, for descriptive purposes. The ranking task data were inspected for patterns in preferences, both regarding treatment type and mode of delivery. Participants' RTC stage of change and main reported reason for cannabis use (ReSUS) were presented in support of qualitative quotes given.

Results

Twenty participants were interviewed, four of which (20%) were female. The mean age was 34 (range 19–52), treated either in the community (n=7, 35%) or as inpatients (n=13, 65%). Interviews took place between December 2015 and April 2016. Participants were largely white British (n=11, 55%). The majority of the sample was unemployed (90%), left school before age 16 (90%), Participants described their relationship status as single (n=17, 85%) and were prescribed medication (n=17, 85%). Prescribed medications included antidepressants, antipsychotics (e.g. via depot), benzodiazepines and mood stabilisers. See Table 1 for participant characteristics.

Quantitative data

Results of the ranking task and questionnaire data can be found in Table 2.

Examination of responses to the ranking task revealed significant variation in treatment preferences. The rank score given for each hypothetical treatment type ranged from 1-8 (most preferred - least preferred) between all participants. Physical Health (PH) was not ranked as least preferable by any participant. The mean rank score for each treatment ranged from 3.8-5 out of a possible eight. The number of times each treatment was ranked at one of the three top positions was examined. CBT was ranked as 'top three' most frequently (n=10, 50%), Family Therapy (FT) least frequently (n=3, 15%). FT was however most frequently ranked in one of the bottom three positions (n=10, 50%), with PH appearing least frequently (n=4, 20%). No other patterns in the ranking data were observed. Considerable variation was also observed among the five treatment modes. All treatment modes were ranked at each position, except eTherapy, which was not ranked as most preferable. Mean ranking scores ranged from 2.1-3.7 out of 5. Most preferred was individual therapy (n=10, 50%), least popular was mHealth (n=7, 35%).

All participants had used cannabis in the previous 12 months as per eligibility criteria. Drug checklist data showed five participants had not used cannabis within 3 months, two reportedly used no substances on the checklist (both were inpatients). Eleven had consumed alcohol. Other substances reported were: cocaine (n=4), crack (n=2), hallucinogens (LSD, 25i-NBOMe; n=3) and heroin (n=1). Primary reasons for cannabis use were: 'Coping with distressing emotions and symptoms' (n=9), 'Social enhancement and intoxication' (n=8), or 'Individual enhancement' (n=3). The readiness to change questionnaire (RCQ) revealed the stage of change occupied by each person regarding change of both alcohol and cannabis use. Participants' readiness to change cannabis behaviour occupied all three stages: Pre-contemplation (n=7), Contemplation (n=8), Action (n=5). See table 2.

Qualitative Data

The interview data revealed a range of views regarding experiences of services, beliefs about cannabis and mental health, and attitudes surrounding preferred qualities of support (both from personal experience and hypothetically). It seemed that views varied according to individuals' degree of motivation to change behaviour. The data revealed two overarching themes: *Motivation to change behaviour,* which comprised the subthemes *Motivation to change cannabis use* and *Motivation to engage with services* (Figure 1)*;* and *The ideal approach to treatment,* with subthemes *Preferred qualities of support* and *Preferred treatment outcomes* (Figure 2). The themes make this complex data accessible, but this does not suggest all details of the accounts are captured. Considerable variation in experiences of cannabis use, psychosis and mental health services/treatment, and appraisals of these were noted. Direct quotes from interviews have been included and quotes taken from the interviewer are included in bold for contextual purposes.

Theme 1: Motivation to change behaviour

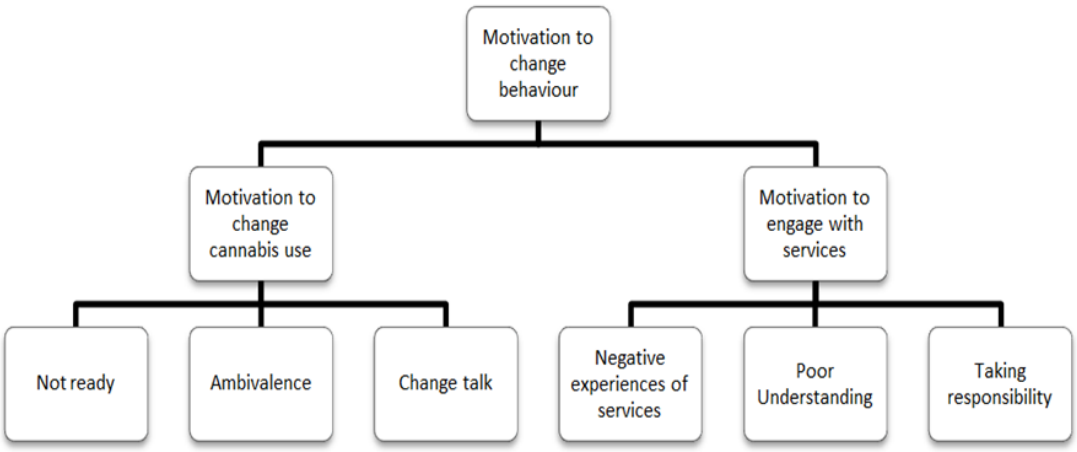

Figure 1. Structure of Theme 1: Motivation to change behaviour, including subthemes.

Motivation to change cannabis use: "I've got to want to"

Reflections surrounding cannabis behaviour change were explored during the interviews. All participants spoke about the need to feel motivated to change their cannabis use behaviour and that it is up to the individual to make that choice:

> *They need to understand what it's going to do to them. If they don't stop after that then, pfft, on your bike mate. You know, you can lead the horse to water but you can't make it drink, can you? I found that out* [2; male, 46, Pre-contemplation stage, coping reasons]

> *I'd rather not try and make, them try to make me stop the cannabis, I mean, they're happy to obviously advise it, 'cause it's their opinion, but obviously I've got to want to do that before I'm going to* [7; male, 19, Pre-contemplation stage, coping reasons]

Many participants expressed no desire to change their cannabis use:

> *It's...it's...all from the ground! *Laughs* I don't mean to be so, I don't know. I just think, why stop something that helps you?* [16; Pre-contemplation stage, individual reasons]

> *It's not that I don't want to stop, I just want to be able to manage it better* [10; Action stage, individual reasons]

Some considered that their behaviour would never change:

> *The cannabis is a key part of my life now* [7; male, 19, Pre-contemplation stage, coping reasons]

> *Hopefully when I go home I'll still stay off it, but I doubt it* [1; female, 24, Contemplation stage, social reasons]

Table 1. Participant characteristics

ID No.	Age	Gender	Living arrangements	Ethnicity	Partnership Status	Highest Educational Achievement	Prescribed Medication	Duration psychosis in years	Age first used cannabis
1	24	Female	Inpatient	Mixed - white & black Caribbean	Divorced	O level or GCSE	Olanzapine (depot), lorazepam, diazepam	5	10
2	46	Male	Inpatient	Caribbean	Single	No formal qualifications	Clozaril, Depakote, sodium valproate, metformin, insulin.	27-29	13
3	46	Male	Inpatient	Pakistani	Single	O level or GCSE	Clozapine, olanzapine.	30	16
4	48	Male	Inpatient	White British	Single	O level or GCSE	Beta blockers, sodium valproate, clozapine	6	16
5	40	Male	Inpatient	Mixed - white and black African	Single	No formal qualifications	Depakote, clozaril, clozapine, risperidone.	20	13
6	49	Male	Inpatient	Mixed - black Caribbean & Asian	In a relationship	O level or GCSE	Zopiclone	25	16
7	19	Male	Community	White British	Single	O level or GCSE	Sertraline, thiamine, vitamin B, haloperidol (depot)	4	16
8	51	Male	Community	White British	Single	O level or GCSE	None	51 "All my life"	19
9	28	Male	Inpatient	White British	Single	O level or GCSE	Depakote (depot), olanzapine.	3	16
10	42	Male	Inpatient	Caribbean	Single	O level or GCSE	None	30 years	13
11	20	Female	Community	White British	Single	O level or GCSE	Diazepam	5 months	14 or 15
12	19	Male	Community	White British	In a relationship	O level or GCSE	Depixol depot; procyclidine, sertraline.	"About a year"	13 or 14
13	20	Female	Inpatient	White British	Single	No formal qualifications	Depixol, fluoxetine, diazepam, tramadol	<5years "I don't actually know"	15
14	37	Male	Inpatient	White British	Single	O level or GCSE	Lisinopril, pioglitazone, pregabalin, venlafaxine, omeprazole, glucophage, mirtazapine, procyclidine, lithium, atorvastatin.	20	16
15	29	Male	Inpatient	Caribbean	Divorced	No formal qualifications	Quetiapine, Depakote, atorvastatin, lorazepam.	13-14	13
16	34	Male	Inpatient	Caribbean	Single	O level or GCSE	None	13	13
17	41	Female	Inpatient	Mixed - white and black Caribbean	Cohabiting	O level or GCSE	Olanzapine, mirtazapine.	30	13 or 14
18	52	Male	Community	White British	Single	O level or GCSE	Sodium valproate, lithium, haloperidol	22-23	18
19	19	Male	Community	White British	Single	Degree	Quetiapine, inhaler	9	15 or 16
20	21	Male	Community	White British	Single	A levels	Clopixol (depot)	1.5	16

Table 2. Quantitative data: details of drug use, primary reason for cannabis use and stage of change

ID No.	Ranked Order – Treatment Type	Ranked Order – Mode	Substance Use (days used per week in previous 3 months)	Main reason for Cannabis use (ReSUS)	Stage of Change - Cannabis
1	CM, PIT, PE, FT, PH, CBT, MI, TAU	T, G, e, I, m.	Alcohol (1) cannabis (5) cocaine (2)	Social enhancement and intoxication	Contemplation
2	PH, CBT, PE, MI, CM, FT, PIT, TAU	I, T, G, e, m	None	Coping w. distressing emotions & symptoms	Pre-contemplation
3	PIT, MI, PH, FT, CBT, CM, PE, TAU	I, G, m, T, e	Cocaine (1)	Social enhancement and intoxication	Pre-contemplation
4	CBT, PIT, CM, PH, MI, PE, FT, TAU	I, G, T, e, m.	Alcohol (7) cannabis (7) cocaine (2) crack (3)	Coping w. distressing emotions & symptoms	Contemplation
5	TAU, CM, MI, CBT, PIT, FT, PH, PE	G, I, m, T, e	Alcohol (1)	Individual enhancement	Action
6	MI, CBT, CM, PH, PE, PIT, TAU, FT	G, I, T, m, e.	Cocaine (up to 7)	Social enhancement and intoxication	Action
7	PIT, PH, CBT, TAU, MI, PE, CM, FT	m, T, e, I, G.	Cannabis (7)	Coping w. distressing emotions & symptoms	Pre-contemplation
8	PIT, CBT, PH, MI, FT, CM, PE, TAU	I, G, T, e, m.	Cannabis (7)	Coping w. distressing emotions & symptoms	Pre-contemplation
9	CBT, PE, PH, FT, TAU, PIT, CM, MI	I, G, m, T, e.	Cannabis (2)	Social enhancement and intoxication	Contemplation
10	TAU, MI, CM, PH, PE, CBT, PIT, FT.	m, T, e, I, G.	Cannabis (1)	Individual enhancement	Action
11	CBT, CM, TAU, MI, PIT, PH, PE, FT	I, G, m, e, T	Alcohol (1/month) cannabis (7)	Coping w. distressing emotions & symptoms	Contemplation
12	CBT, FT, CM, TAU, PH, PE, MI, PIT	I, m, e, G, T.	Alcohol (1/month) cannabis (7)	Social enhancement and intoxication	Contemplation
13	FT, PH, MI, PIT, CM, TAU, CBT, PE.	m, G, I, T, e.	Alcohol (1) cannabis (4) 25i hallucinogenic (once only)	Social enhancement and intoxication	Contemplation
14	PIT, CM, TAU, PE, FT, MI, PH, CBT	T, e, G, I, m.	Alcohol and cannabis ("twice in 3 months")	Coping w. distressing emotions & symptoms	Action
15	CM, FT, TAU, MI, PH, PE, CBT, PIT	T, I, e, m, G	None	Coping w. distressing emotions & symptoms	Action
16	CBT, PH, PIT, TAU, MI, PE, FT, CM	I, T, m, e, G	Alcohol (7 "when out of hospital") cannabis (1)	Individual enhancement	Pre-contemplation
17	PIT, CBT, MI, PE, PH, CM, FT, TAU.	I, G, e, T, m.	Cannabis (1/month), crack (2), heroin, ("7 days until 3 months ago")	Social enhancement and intoxication	Contemplation
18	MI, TAU, PE, FT, PIT, CBT, PH, CM	m, e, T, G, I	Alcohol (3) cannabis (7 "when I can afford it")	Social enhancement and intoxication	Pre-contemplation
19	PE, PIT, PH, MI, CBT, TAU, FT, CM.	I, T, m, e, G.	Alcohol (1) cannabis (7) hallucinogens (once)	Coping w. distressing emotions & symptoms	Contemplation
20	PH, PE, TAU, CM, FT, CBT, PIT, MI.	T, I, e, G, m.	Alcohol (3) cannabis (3)	Coping w. distressing emotions & symptoms	Pre-contemplation

Note. Treatment Types: CBT = cognitive behavioural therapy; MI = motivational interviewing; PIT = psychodynamic interpersonal therapy; FT = family therapy; PE = psychoeducation; PH = physical health; CM = contingency management; TAU = treatment as usual. Treatment modes: I = Individual; G = group; T = telephone; e = eTherapy; m = mHealth

Views about cannabis differed considerably within this theme, particularly regarding its positive and negative effects. Participants spoke about how cannabis itself is not responsible for things going wrong in a person's life:

> *Because it's not that bad. It doesn't ruin your life; you ruin your life if you want to ruin your life. […] You're the one burning it. It's your hand on the lighter, not a cannabis leaf is it, you know what I mean?* [19; male, 19, Contemplation stage, coping reasons]

> *Anything that's a problem for you is not a substance a person or an event, it's you projecting yourself to outside, onto a substance* [18; male, 52, Pre-contemplation stage, social reasons]

Participants also spoke about cannabis having beneficial effects:

> *I have no intention to stop smoking cannabis again now. 'cause it, I, I, there's too many pros than there is cons, to drugs and mental state*
> [7; male, 19, Pre-contemplation stage, coping reasons]

> *It don't make me feel paranoid or anything like that, it stops me feeling paranoid, if anything* [20; male, 21, Pre-contemplation stage, coping reasons]

Cannabis was even considered to have motivating properties:

> *It makes me feel as if I can move on. It feels like it pushes me*
> [19; male, 19, Contemplation stage, coping reasons]

Other participants viewed cannabis as having negative effects. Some attributed their psychosis to cannabis use:

> *I'd say that some mental health problems that I've had, yeah, were definitely because I was smoking too much cannabis*
> ***Right, so your first experience of psychosis was…***
> *Drug induced* [9; male, 28, Contemplation stage, social reasons]

> *I think, to be honest, when you've got psychosis and you've used cannabis, I think the cannabis use can make it worse. So if you cut down on the cannabis, the psychosis might not get worse* [12; Contemplation stage, social reasons]

Participants reported that cannabis can have positive and negative effects, particularly relating to psychosis, which vary from person to person. For one participant, the negative effect of paranoia led to stopping their cannabis use:

> *I stopped it when the paranoia got too bad… Finances have stopped me taking it, but I'd say mostly the paranoia* [17; Contemplation stage, social reasons]

In this example, financial reasons also appeared to motivate the decision to stop. Others described a negative effect of cannabis on their mental health overall:

> *I just get a bad effect off it, or intrusive thoughts*
> [16; male, 34, Pre-contemplation stage, individual reasons]

> *I've just been thinking 'Yeah it'll never do that to me', but like, it has messed with my thinking pattern totally* [11; female, 20, Contemplation stage, coping reasons]

Despite some reports of negative experiences as a result of using cannabis, much ambivalence was noted upon consideration of change. Many participants who identified negative effects continued to use cannabis. This was often directly associated with experiences of psychosis:

> *I was seeing demons coming through the walls and things like that. Looked quite frightening… But it still didn't stop me from using the cannabis. I still carried on.* [4; male, 48, Contemplation stage, coping reasons]

> *Cos sometimes my voices go "Oh we want you to smoke" but sometimes the voices go "No we don't want you smoking"* [15; male, 29, Action stage, coping reasons]

In these examples, people used cannabis despite mixed messages from voices and frightening hallucinations. Both these participants used cannabis primarily for coping reasons, suggesting benefits from cannabis despite continuing psychotic experiences. It is not unusual for people to be able to hold positives and negatives in mind at once; however, ambivalence was noticed in participants in 'Action' stage, expected after contemplation. Perhaps experiences of psychosis can serve to disrupt one's motivation to change, resulting in ambivalence.

"Change talk" regarding cannabis use behaviour was observed in several participants (again at different stages of change), including the participant experiencing ambivalent voices:

> *So I know I can't do it no more. So I'm putting it on top of my head and taking consideration*
> [15; male, 29, Action stage, coping reasons]

> *It is one of them things I do need to cut down on, because I can't live my life constantly using a drug* [13; female, 20, Contemplation stage, social reasons]

> *I don't want to smoke it for the rest of my life*
> [11; female, 20, Contemplation stage, coping reasons]

It seemed that many people did not intend to continue using cannabis throughout life. Throughout this subtheme, participants expressed mixed views about the positive and negative effects of cannabis, and whether they were considering changing their use. There seems to be a complex interaction between the effects of cannabis and psychosis, resulting in significant ambivalence in some individuals. We must therefore take care not to make assumptions about how ready cannabis users with psychosis may be to change their use, as psychosis symptoms and self-reported readiness to change may confound this.

Motivation to engage with services

Similar variation was observed surrounding people's willingness to engage with services. Several participants spoke about negative experiences of services in general, finding them to be unreliable or to give mixed messages:

> *Oh I've had a CPN.*
> ***Yeah? And how do they support you? What do they do?***
> *Well they're supposed to be supporting me here, and my next accommodation and everything, but I just haven't seen them around really* [3; male, 46, Pre-contemplation stage, social reasons]

> *Well I agreed to start it, but then I changed my mind. And then I agreed again and he was meant to come but he didn't come, then he was meant to come again and he didn't come, so I just thought, "fuck that"* [20; Pre-contemplation]

In these examples, people may have been willing, but support was not available when promised. The support offered here may not have been specific to cannabis, but could result in lack of future engagement with targeted cannabis interventions, if offered. Another issue influencing people's engagement with services surrounded stigma; being judged or labelled:

> *I didn't tell many people I was seeing things, because they'd just think I was crackers.* [20; male, 21, Pre-contemplation stage, coping reasons]

> *You know what, the problem in these places, you know, it can make your behaviour seem a bit odd because you're in here* [10; Action stage, individual reasons]

Participants showed awareness of how they may be perceived negatively by others, including services. Regardless of stage of change, it is possible that a fear of judgement could be a barrier to seeking out or continuing to access help. Other negative experiences were reported from contact with inpatient services. For example, decisions regarding treatment being made for you, and the message this sends:

> *Nobody thirteen, fourteen years of age should be going into hospital, taking medication, people telling them what to do. You know what I'm.. No teenager's gonna be taking depots of haloperidol, going into hospital… what teenager want that? You're just telling your teenagers like, nobody…nobody wants them* [10; male, 42, Action stage, individual reasons]

> ***While you were an inpatient, what support were you offered?***
> *Nothing. I'm just left to it. If I'm arguing with staff, I walk to my room and they just leave me. They'll come with just 2 blue tablets. "You don't take these we'll get the team". I can't be arsed getting injected no more. I'm too old for that stuff* [2; male, 46, Pre-contemplation stage, coping reasons]

It seems many negative views developed through being prescribed medication without consent. This directive and potentially isolating approach from services *"telling them what to do"* and

"they just leave me" was generally not seen as supportive. It might be understandable for an individual to feel unmotivated to engage when their main experience of support has been via medication. In fact, the demotivating effects of medication were mentioned by some, for example, "*I think it makes me lazy*" [20; male, 21, Pre-contemplation stage, coping reasons] and "*it's so hard to concentrate"* [16; male, 34, Pre-contemplation stage, individual reasons].

Some participants suggested that services should not be the only voice in treatment decisions:

> *I could do it and it might not work, but it'd be nice to obviously have the opportunity to even attempt it* [7; Pre-contemplation stage, coping reasons]

> *Um, well I think services should be asking you, not be telling you what you should do* [18; male, 52, Pre-contemplation stage, social reasons]

This was the case even for participants not directly expressing motivation to change. The possibility that services may have different motivations or values was also considered, i.e. punishment over support:

> *What you're talking to me about, what do I think would be best for me in the future to stop me doing it - their emphasis is not on that. It's more about slapping my hand.* [17; female, 41, Contemplation stage, social reasons]

However the feeling of being supported was viewed as helping to increase confidence, and subsequently, motivation to engage:

> *And people, like, if that help's there, and they're trying and they know people want to help them, it gives them that bit more confidence in wanting to stop doesn't it?* [20; Pre-contemplation stage, coping reasons]

A second factor influencing people's engagement with treatment came from limited knowledge of psychosis, cannabis, or available treatments. This meant that many participants were not able to say what they want or need from treatment, or what treatment would involve.

> ***What do you want help with?***
> *I don't know really. I've not got that much. Everything, I just need to start off again* [3; male, 46, Pre-contemplation stage, social reasons]

> *I'm not well up on you know the treatment for cannabis, but I can imagine that it's quite difficult and I can't really handle that* [8; male, 51, Pre-contemplation stage, coping reasons]

It is possible that a poor understanding of potential support played a part in poor motivation to engage with treatment. Another sub-theme within motivation to engage with services centred around taking responsibility. Sometimes, having no choice about treatment was viewed as a good thing, i.e. for attending appointments:

> *Yeah, make me go out. I won't do anything for myself*

[8; Pre-contemplation stage, coping reasons]

If you come then I've got no choice to do it, because you've come, I bloody have to, 'cause I'm not going to waste your time. So it makes me do it more, which is helping me better, sorta thing [20, male, 21, Pre-contemplation stage, coping reasons]

For some, 'change talk' surrounded taking ownership of behaviour, including motivation to help oneself, alongside support. E.g.: "*someone to tell me to keep going when I'm not willing to"* [19; Contemplation stage, coping reasons]. This was in reference to emotional support:

I think, I think the psychology, or therapy, or whatever it's called could be alright, but I just…I don't think I gave it a chance
[12; male, 19, Contemplation stage, social reasons]

I, I just, I really need help. Really, I seem to be laughing but I want to cry. I want to cry.
So you want someone that can understand you and help you?
No, I want someone, I want someone to, to help me understand myself
[5; male, 40, Action stage, individual reasons]

It seems some people used the opportunity to reflect on past engagement with services, to consider what they may want to be different. Some expressed a preference in interviews for self-management for their cannabis use, but this was often regarded as a short-term option:

You know, the way I look at it is, I'll try and deal with it myself, I will. But if it gets to the point where I can't, then I can't. And I just can't. So I'll need to get help
[19; male, 19, Contemplation stage, coping reasons]

Think you could do it on your own?
Probably, but if I had a hard time quitting and I know I wanted to quit, then I would look for treatment for it.
Yeah ok. So you'd try on your own first…
I'd try on my own first and then see [12; male, 19, Contemplation stage, social reasons]

However, others did not feel ready to access support:

At this present time I don't think I need any help
[16; male, 34, Pre-contemplation stage, individual reasons]

And then she asked me to go to like, another session and I just didn't show up for it. Plus it was after school. I was not wasting my after school time
[13; female, 20, Contemplation stage, social reasons]

Participants' motivation to change was not consistent, both regarding cannabis use behaviour, and engagement with services. Participants' were found to be at different stages of change by the RCQ, suggesting no assumptions regarding an individual's motivation should be made based on quantitative data alone. This was reflected in interview responses; however, the stage of change identified did not always correspond to the view being expressed. Current or future

motivation, either to change cannabis use behaviour or to engage with support, appeared to be dependent on the individual's past experiences of cannabis and services, particularly negative experiences. People's degree of knowledge and perceived level of responsibility for their behaviour were also found to be an influencing factor within this theme. Overall, participants expressed mixed views about reasons for and expectations of cannabis use, with much ambivalence expressed about making a change. It was agreed by some that it must be up to the individual to make that choice, in order for change to come about. Motivation to engage with services was affected by negative experiences, when promised support was not available, feeling judged or labelled, and not having a voice in treatment decisions, which affected people's confidence and subsequent views of services.

Theme 2: The ideal approach to treatment

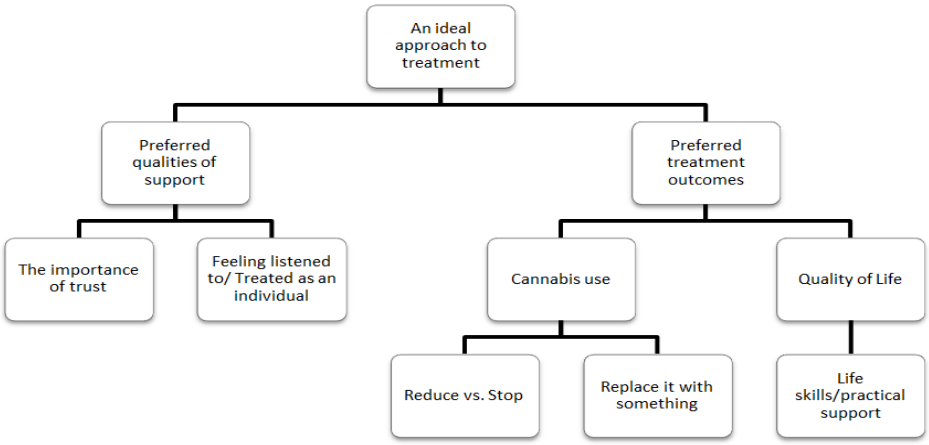

*Figure 2.*Diagram to represent Theme2: The ideal approach to treatment, including subthemes.

The interview encompassed topics such as types of support accessed in the past, preferred mode of support if given a choice and overall, what an ideal treatment may look like. These topics make up the broader theme of 'the ideal approach to treatment'. The subthemes within consist of qualities of support found helpful (trust, honesty, feeling listened to, as an individual) including preferred treatment delivery (what treatment would offer and how this may be accessed), and preferred treatment outcomes, regarding both cannabis use (reduction vs. cessation, what to replace it with) and general wellbeing (practical support, education, feeling better physically and psychologically). Participant numbers are shown next to each quotation.

Preferred qualities of support

Participants spoke about types of support they found helpful from services and significant others. One participant described how his therapist had made a relaxation recording to help him sleep [20]. Another described his social worker as his "Fairy godmother" [19]. One quality identified as helpful by many participants was simply having someone to talk to:

> *Sometimes it can be helpful just to, just have someone I can just, come in, just, let it all out to* [7]

> *Um, yeah, just being there. You know, just being there.* [9]

When asked about what people would like to receive from a treatment, participants gave a range of views. The focus of support and its delivery varied according to past and current treatment experiences. For example, a preference for a gentle approach and to build a relationship was stated by some; however, a firmer approach was also suggested: "*I'd just want them to ask me. Be direct with it"* [12]. Some felt incentives may help improve their motivation to change, others simply wanted someone to speak to, "someone who understands" [19]. Some participants wanted a less formal approach from professionals:

> *Whether it was to do with my treatment or not, he was happy to just have a general chat. He treated me as a friend more than a patient* [7]

> *It's always better when you have a laugh and they do it back with you* [5]

Perhaps this provided a social component to professional support, received positively by some. Other aspects of support reported as most important to participants covered a wide range; however, two main components of helpful support were highlighted. Firstly, the importance of trust:

> *I think the overall relationship between me and that person would be more important than what they say or do* ***….****Because at the end of the day, if I can trust that person with that information, then it means something doesn't it?* [19]

One participant found a therapist attempting to gain his trust as "sneaky" and "paranoia-inducing", with fears of them breaking confidentiality if he told them anything:

> *And that's just being sly, trying to get into your trust to tell. You don't need to tell* [18]

The same participant [18] spoke about his experience of paranoia, stating that "all clinical paranoia comes from reasonable paranoia". It seems that several participants felt similar feelings of suspiciousness, perhaps signifying a particularly strong need for trust for those experiencing paranoia as part of psychosis.

Participants described how lack of trust in professionals might affect outcomes of therapy:

> *The one thing that made me stop* [using cannabis] *was people telling me how bad it was… Which is ironic, because that's the one thing that made me start again, finding out that they're all liars [19]*

> *They're going off what they've done in university or what they've read out of a book you can get from a library, unless they've experienced it themselves, I don't understand how they can, how would they understand?* [7]

Not everyone felt it was necessary for professionals to have had a lived experience:

> *You can mentor if you haven't lived it. You don't have to be trampled on by an elephant to know that you better get out of its way, but it helps if you've nearly been trampled on* [18]

It seemed that for those experiencing paranoia, placing trust in professionals came with complexities. Perhaps working with professionals who have had similar experiences would be helpful for some, but others understood this wasn't essential for a trusting therapeutic relationship. In general, sensing competency in professionals was valued:

> *Somebody who knows what they're doing* [13]

> *As long as they're knowledgeable of what they're talking about, yeah* [9]

Largely, an open, honest, non-judgemental approach was preferred:

> *I like someone who could build that trust up, but if I was to step out of line, to slap me back down.* […] *Don't beat around the bush* [19]

> *I'm happy to just talk about it and openly. 'Cause, obviously it benefits you and obviously I need to talk about cannabis. So I'm happy with that* [7]

> *Truth is very important* [17]

The second main quality of support found to be important was that of feeling listened to by others. A strong preference was shown for being treated as an individual, i.e. "*Everyone's experience is different"* [17], and how this can lead to needs being met in therapy*:*

> *But everybody's different though aren't they? Some people can cope with things that other people can't* [8]

> *Well sometimes I find it quite hard to talk. I find it quite hard to express how I'm feeling or what my thoughts are and stuff like that. But they are quite patient with you and say you know, take it at your own pace basically* [4]

An understanding that people differ in resilience and work at different speeds was valued. This finding was reflected in the quantitative data, as a preference for individual therapy was identified in the treatment modes ranking task. One participant described repetitive questioning from professionals, wondering "*can't you just take a record of this or something?*" The same participant also described a different experience of his needs being heard:

> *I said, "I understand that it's your job to continue to ask me these questions because I've got memory issues* […] *But just stop, because it's making me feel ignored." So she said fine, I'll stop* [19]

Some people offered suggestions on how services may achieve individualised care for more service users, as it is possible that pressure on services may increase in the future:

> *That's what maybe could be improved, making people more aware of what help's out there, 'cause people don't know.* […] *People knowing that would improve it* [20]

> *I think the next decade is gonna be a real issue with cannabis drug use because of… you know, it's become a lot more popular now I think, more people are smoking cannabis that what it was a decade ago. So I think there's gonna be a big issue with people with psychotic symptoms and effects of cannabis coming into hospital at a later date. But I don't think the mental health services are prepared for it to be honest* [9]

These suggestions include increasing people's awareness of available support, and anticipating an increased demand on services in coming years. Perhaps this individual approach to treatment may also be applicable to the future of services, with service users providing a unique insight into this issue. Success of future services may be improved if they are able to provide tailored care. This further stresses the need for individuals to feel 'listened to' in order to more accurately meet their needs.

Preferred Treatment Outcomes

All participants spoke about what they would like to achieve from a psychological therapy. This subtheme is divided according to whether outcomes pertained to cannabis use, or general wellbeing. With regards to treatment for cannabis use, participants held mixed views about whether the focus of treatment should be to reduce or discontinue cannabis use.

> *I prefer something that'd just help me cut down, and like… I don't want to completely stop because I still do like it. But I don't want to be smoking it as much as what I am doing……Yeah, the aim's to reduce [13]*

> *Not totally cutting it out. If you totally cut it out, it just sends them depressed, it just dries up their motivation.*
> ***Interviewer: Yeah, so to talk about reducing it, but not cutting it out entirely.***
> *Client: No, not cutting it out entirely [3]*

Others thought the focus should be on psychosis rather than cannabis, "*It's not 100% all the weed"* [11]:

> *I've got schizophrenia. I need treatment. I need to start the treatment really, to get my schizophrenia a bit better* [3]

> *I'd rather have help towards getting me head sorted than err, cannabis. That won't be a problem anyway* [8]

Several people suggested that reducing cannabis would not be successful if it could not be replaced with something, i.e. "*where to get a similar fulfilment*" [18]

> *It's just like having an extra friend there that doesn't talk back, and to just stop the cannabis, I'd need something to go in place of that, keep me occupied* [7]

One participant suggested physical activity as an alternative to cannabis use:

> *Kind of takes your mind off drug use then, cause getting yourself fit you're learning new skills*
> […] *the time when I was doing karate and martial arts stuff like that, I didn't smoke cannabis at all* [4]

Some expressed a desire to replace their cannabis lifestyle with "*normal everyday things*" [3] and others considered a distraction from cannabis would be most helpful:

> *Cause boredom's got a lot to do with it as well, hasn't it? You know* […] *I've been swimming, I've enjoyed that, and it's filled up my day so you know, you know, them 3 hours I could have been smoking, I've done something. Makes you feel good* [17]

> *I'd rather be distracted. 'cos I mean if I'm doing something else, like, if i'm like reading a book or something, I don't see the need to .. make a cig or a biff, you know what I mean?* [7]

> *The main one would probably be like distraction. Like, getting a job, getting a part time job, just doing something to get my mind away from going out and smoking* [12]

Participants held the view that cannabis use could be reduced by taking one's mind off it, as boredom may increase the chance of wanting to use. This need for distraction as a treatment outcome could be met through facilitating people to gain employment, or again, via hobbies such as physical exercise.

As well as considering possible cannabis outcomes from treatment, participants spoke about treatment outcomes concerning improved quality of life. For those without immediate plans to reduce or replace cannabis use, there were hopes that treatment could help deliver support in line with what is considered important in life:

> *No there should be an aim. The aim is to get me back on my feet* [19]

> *It might be 5 days, 5 months, 5 years, but...I know that I can learn skills while I'm here to keep me busy, keep me focussed to get some goals that I want to work towards. Like getting a good relationship with my daughter and they're more important than that drug to me* [17]

> *Mainly just to give me that purpose, a reason to.. to get up in the morning* [7]

Here it seems that general wellbeing was considered an important outcome, providing a more positive outlook, improved coping and strengthened relationships. Supporting the development

of new skills could provide a distraction, as well as a helpful, practical form of support. One example of this was a desire for greater knowledge; for example, education about cannabis:

> *They should tell you more stuff about it what it* [cannabis] *does long term* [11]
>
> *Yeah, because if you're made aware of what the problems and problems are further down the line then I think people will think twice about taking it* [9]
>
> *To let 'em know it's not a joke - it's a life we're dealing with, and brains don't grow cells back* [5]

Education was thought to provide "*alternative options*" [18] and "*methods on to how you can try and quit*" [12]. Participants also spoke about wanting to increase other "life skills" via practical support, perhaps outside of a structured education session. Practical support such as this was valued, e.g. a CPN to "*take you shopping*"[3], help to "*save up my money for my holidays*" [14], or improve relationships with professionals:

> *I got a lot better now – life skills, you know, living skills, communication skills, trusting more, especially with staff and the doctors. Opening up, talking to them* [10]
>
> *All that budgeting, and like anything, who's coming to see you, the CPN or your social worker, they're all going to need the knowledge, so you've got to pick some of it up* [3]
>
> *She helps me with letters and phone calls and trying to get me out, things like that* [8]

Support with completing tasks such as letters, phone calls and budgeting was regarded as helpful. Generally, the preferred outcome for treatment surrounded a desire for feeling better overall. Several thought this could be achieved in treatment by helping people to see the positives, a solution-focussed approach:

> *Reminding people that we've got strengths, you know. Those negative things can be turned into creative ones. And they are! We're just using them in a different way to get what we want* [17]
>
> *But that's life. Life is like Jason and the Argonauts. You can't avoid struggle. What you've got to do is enjoy struggle, tune your spirit, see it like working out in the gym spiritually. And not see everything as a problem. There are no problems, only solutions* [18]

Others suggested that feeling better psychologically could be achieved through improvements to one's physical health, e.g. "*Hopefully it might just bat off the whole weed thing*" [11]. This was separate from exercising as a distraction technique. Instead, engaging in physical activity was viewed as a practical, healthy treatment outcome:

> *I'm doing things I want to be doing. I wanna be doing things like saving my money and buying clothes, like I said, going gym, going football. I'm doing stuff that's practical, you know, exercising and, you know, it's helping me out* [15]
>
> ***What's good about exercise? What does, how does it make things better?***

Well it releases endorphins into your system, which gives you a natural high after you've exercised [4]

Yeah, exercise the brain! Exercise the body! That's the answer to life' [18]

Within this theme, participants expressed differing views regarding an ideal approach to treatment. Little consistency was found within how treatment could be delivered; however, participants largely agreed that trust in services, and feeling listened to were highly important components of support. Similar variation was seen when considering the preferred outcomes of treatment. These concerned cannabis use outcomes, i.e. reduction or cessation, and more general outcomes, such as improved quality of life. Many participants expressed preference for developing practical skills, such as gaining knowledge through education, and others simply wanted treatment to help improve their wellbeing, physically and emotionally.

Discussion

The current study aimed to better understand service user preferences for the treatment of cannabis use in the context of psychosis, and the potential factors influencing this. Overall, the data show cannabis users with psychosis vary considerably on what they want from intervention. People's views about treatment depended on level of motivation to change behaviour. Participants were found to occupy all three stages of change (Pre-contemplation, Contemplation, Action) via the RTQ (Rollnick et al., 1992) and a range of views surrounding cannabis cessation were observed during the interview. Engagement with services was dependent on past negative experiences, level of understanding of what services could offer, and perceived ownership or responsibility for change. Generally, participants reported preference for readiness to change to be considered in treatment. Participant views on qualities necessary for support (trust in services, being treated as an individual) and preferred treatment outcomes (regarding cannabis and general wellbeing) determined what constitutes an ideal approach. The results and recommendations regarding treatment are discussed below.

The mixed methods used in the study allowed the qualitative interview data to be viewed in the context of the quantitative data. The ranking tasks revealed greater preference for individual interventions, i.e. CBT, and less preference for family interventions, or more modern modes of delivery e.g. online therapy. No participants discussed CBT when interviewed about treatment preferences; however, CBT for psychosis (CBTp) has been shown to have a therapeutic effect on psychosis symptoms (Jauhar et al., 2014), and is showing promise as a 'helpful and acceptable therapeutic approach', as part of a collaborative therapeutic relationship (Wood, Burke, & Morrison, 2015). The ReSUS questionnaire revealed less cannabis use for 'Individual enhancement', instead, participants reported social and intoxication reasons for use, or coping.

The individual variation observed in the ranking tasks and questionnaire data were reflected in the mixed views captured in the qualitative interviews.

The first theme, *Motivation to change behaviour* comprised the subthemes: Motivation to change cannabis use and Motivation to engage with services. As was shown with the RCQ data, participants differed vastly regarding readiness to change cannabis use. Some participants were contemplating change, or had already stopped using cannabis. Others enjoyed using it and intended to continue, but some held ambivalent views. Participants' opinions did not always correspond to their RCQ stage of change. Both positive and negative experiences of cannabis were reported, including exacerbation of psychosis symptoms, but many people were undecided, despite several examples of "change talk" demonstrated. It is possible that symptoms of psychosis or medication side effects could impact on participants' decision making (Kovnick, Appelbaum, Hoge, & Leadbetter, 2003), possibly explaining some of the ambivalence observed. Several people agreed that an individual must be ready to change their cannabis use behaviour, and that stage of change is something services should consider. In dual diagnosis (psychosis and substance use) samples, one study found that people ready for change reported taking steps towards change, higher problem recognition, cons of continuing and pros of quitting (Carey, Purnine, Maisto, & Carey, 2002). Conversely, another found that treatment-adherence was higher when motivation to change was low (Pantalon & Swanson, 2003). There is limited research investigating motivation specifically to change cannabis use among people with psychosis (Kolliakou, Joseph, Ismail, Atakan, & Murray, 2011). This supports the view that services should consider individuals' readiness for change when offering an intervention.

People's engagement with services was influenced by several factors. Negative experiences of services included unreliable professionals, feeling stigmatised, and having decisions regarding treatment made for you, particularly concerning medication. Several negative side effects of medications were reported, highlighting another mixed message from services regarding which 'substances' are considered acceptable. Feeling supported by services seemed to influence motivation to engage by enhancing individual's self-belief in the possibility of change. It is possible that experiencing services to be unreliable implies feeling unsupported, resulting in ambivalence. Secondly, several participants shared a poor understanding of cannabis, psychosis and treatments available. Some participants had previous experience of therapy, but many had not. It is possible that this lack of knowledge regarding what one could receive help for or what treatment would involve, contributed to a lack of motivation to engage. Thirdly, the concept of taking responsibility for accessing one's own support was also found to influence motivation. Some people did prefer having decisions made for them, but most people expressed desire to take ownership, with or without additional support.

No participants said they didn't think services could help them; but many stated no desire to change their behaviour, or preference for self-management. This may contribute to stigma, i.e. that cannabis causes apathy and poor concentration (i.e. 'Cannabis amotivational syndrome'; McGlothlin & West, 1968). THC has also been shown to disrupt reward-based learning (Lane & Cherek, 2002), with regular cannabis-using adolescents opting for a 'no work' option in a task, despite receiving a lower financial incentive for this (Lane, Cherek, Pietras, & Steinberg, 2005). Perhaps this may explain why participants in the current study did not express preference for CM or incentive-based interventions for cannabis. This does indicate lack of motivation to engage with services altogether, perhaps the focus of the intervention instead.

Overall, the theme *Motivation to change behaviour* revealed that a person's motivation can be influenced by many factors. Services could help people to feel better supported in general by adopting a consistent approach to avoid giving mixed messages, provide information about cannabis, psychosis and treatments available (including self-help), or offering interventions with a motivational component. Studies have shown that motivation can be influenced temporarily via MI/CBT (Barrowclough et al. 2010); suggesting motivational interventions may have short term effects. Not all people under services will be at a stage where they are considering changing their behaviour. Perhaps providing information will help empower people to take ownership of their own wellbeing, by increasing motivation to change cannabis use or to engage better with support. However, motivation is not consistent and should therefore be assessed over time (Kolliakou et al. 2011).

The second theme, *The ideal approach to treatment,* comprised the subthemes: Preferred qualities of support and Preferred treatment outcomes. Participants gave accounts of good quality support (i.e. having someone to talk to, feeling understood) and preferences for treatment (i.e. gentle vs. direct approach, individual vs. group support, incentives, focus on cannabis vs. wellbeing in general). Again, participant views varied, but central to these were the subthemes of the importance of trust (how this links with paranoia, the need for openness and honesty) and being treated as an individual and feeling listened to.

For some, paranoia was a barrier to trusting professionals. Some negative experiences with services suggested paranoia and suspiciousness are rooted in some truth. As one participant said, "*all paranoia comes from reasonable paranoia*" [18]. Cannabis and psychosis are both linked to paranoid experiences, so these must be taken into account. Many participants expressed preference for honesty and openness from professionals. Considering individual differences in experiences and opinions, it may be beneficial for services to develop trust by maintaining a non-judgemental approach. Services could help people feel listened to by giving them choice about treatment, and following through. This can help people feel better

supported by services through allowing their voice to be heard, ultimately increasing motivation to engage with treatment. It may not be possible to offer service users a range of treatment options, as is possible with hypothetical research tasks (Tarrier, Liversidge, & Gregg, 2006).

Perhaps considering individual needs and priorities - preferred delivery style or offering a choice of appointment times - could help service users retain their individual identity. This is supported by Byrne & Morrison (2014) who found a range of treatment preferences given by people with psychosis, reflecting a desire for more information, choice and involvement in treatment. This seems particularly important as participants' experiences and therefore 'ideal approach' differed considerably, including the preference to not receive treatment. This suggests limited success of a one-size-fits-all intervention. Indeed, this describes person-centred care, as is recommended by NICE guidelines (NICE 136, 2011); however, perhaps given limited NHS resources, this is not always possible. Shared treatment decision making promotes empowerment of service-users, which could help reduce this strain on services, particularly regarding ownership of self-care (Stovell, Morrison, Panayiotou, & Hutton, 2016).

Participants' preferred treatment outcomes related to either cannabis use or quality of life. Generally participants said they would prefer support with reducing their use, suggesting it be replaced with something equally rewarding or distracting (e.g. hobbies). Again, it is important for services to consider an individual's hopes for cannabis use outcomes, so that the therapist's goals match the client's (Evans-Jones, Peters, & Barker, 2009). Other preferred treatment outcomes related to improved quality of life, i.e. improved relationships, having a purpose, or developing knowledge and new life skills through education. Suggestions for how a greater sense of wellbeing could be achieved included adopting a solution-focussed approach (focusing on strengths, what the person could be doing if they weren't smoking cannabis), and improving physical health. Indeed, many participants expressed desire to improve their health generally. Exercise was also suggested as a distraction technique, giving a "natural high". Education surrounding cannabis and health issues related to smoking could help people make an informed choice about their health. This could be combined with physical health interventions (Baker et al., 2011; Baker et al., 2015), or through a manualised physical health interventions (e.g. IMPACT therapy; Gaughran et al., 2013). Perhaps improved lung capacity and a more active lifestyle will further reduce motivation to use cannabis.

There were several limitations to this study. Sample bias is a possibility as all participants were people currently accessing services and were willing to speak to a researcher about their experiences. It is possible that people who agree to take part in research might be different from those who don't. However, it is likely results are still generalizable to future research. The majority of the sample were inpatients, meaning a potentially narrower range of

experiences. However, this was not reflected in the varied interview responses. These sampling issues may be overcome by actively recruiting people from different treatment backgrounds to better represent cannabis users experiencing psychosis as a whole. This could have resulted in a considerable impact on the themes which emerged, for example, different levels of motivation reported by non- current service users, or more specific recommendations for an ideal approach from individuals who have completed treatment. A more assertive recruitment strategy could reduce the impact of such sampling issues.

The quality of information offered by participants during interviews varied a great deal. It was observed that interviews with participants supported in the community tended to be longer. It is possible that completing the ranking task prior to the interview influenced responses, as this may have provided people with information they may not have been able to freely recall. For example, a disadvantage not previously considered. However, specific therapies from the task were rarely mentioned when asked about what participants would want from treatment. The focus of the interview may have been too broad, meaning details of ideal treatment were not captured. Perhaps direct questions regarding specific therapy types may have produced more focussed responses about treatment preferences. This could have influenced the results, in giving details of which aspects of treatment specifically encourage people to engage. It is acknowledged that the results of this study are not closely related to content of treatment and experience thereof. Nevertheless, consideration of one's motivation as part of treatment was identified here as a specific preference.

Some participants offered richer information in support of the themes, therefore quotes from some participants feature more frequently. This varied according to previous experiences of therapy and current medication; however, shorter responses were observed more often among inpatients, and one inpatient requested a break due to medication drowsiness. Some participants disclosed having used cannabis immediately prior to interview. It is also questionable to what extent preferences tasks are reflected in real decisions. Indeed, studies investigating hypothetical vs. true preferences have shown found discrepancies (Berry, Lobban, Emsley, & Bucci, 2016), but others found views to be relatively consistent (Volkow, Swanson, Evins, & et al., 2016). All participants were able to tolerate the ranking task and interview. The themes highlight views shared by interviewees, however some data was acknowledged to be at odds with these themes (Silverman, 2005). Coding was completed by one researcher only; however, codes and themes were discussed within the research team during data analysis allowing any inconsistencies to be refined before presenting the final themes.

The results of this study lead to several recommendations for treatment. Firstly, assessing an individual's stage of change before offering an informed choice about their treatment is recommended. If a person is not willing to engage, limited benefits would be expected from even a preferred treatment. For example, low motivation to change behaviour (theme 1) and choosing to decline treatment when offered (theme 2) are two separate processes. An 'ideal' treatment may have limited success if an individual is not contemplating change. Interventions could initially involve a motivational component before tailoring treatment in line with individual differences. This may not improve psychosis outcomes, but MI/CBT has been shown to affect readiness to change (Barrowclough et al., 2010), possibly improving engagement.

Participants identified trusting professionals as an important, preferred quality of support. Services should be mindful of how symptoms such as paranoia may impact on the therapeutic relationship. Efforts could also be made to ensure consistent treatment and good communication (both with service users and within teams) to avoid giving mixed messages, or be viewed as unreliable. Effective communication could help strengthen a trusting relationship as well as help people feel listened to. Moreover, it is recommended that services involve people in their treatment decisions (NICE 136, 2011). This serves to develop ownership and empowerment, increasing motivation to engage. One example could be in asking whether the aim of cannabis treatment should be to reduce or stop, and then adhering to this collaborative goal. Other preferred treatment outcomes surround improved quality of life. For example, physical health interventions, and psychoeducation about cannabis and psychosis could not only increase a person's awareness and subsequent ownership of this issue, but improve general physical wellbeing, in addition to providing a distraction with which to replace the cannabis. Again, these should be tailored to the individual regarding preference, ability and pace. Lastly, further research into treatment preferences of cannabis users with psychosis is recommended. This could involve qualitative aspects to obtain information rich in detail from individual accounts, or longitudinal research to examine the therapeutic outcome and engagement with preferred treatment, over time.

Overall, participants in this study shared mixed views and experiences. It may not be the case that treatments are unsuccessful, but perhaps instead that they are not targeted to individuals, or are offered at time when the individual is not ready to engage. More research is required; however the current study provides an important insight into what people want from treatment. Suggestions have been made for ways in which current practice may be improved. This may ensure better engagement with services, and subsequently improved health outcomes overall.

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Paper 3: Critical Reflection

Word Count (excluding references): 4,394

Introduction

This paper will outline the author's review and reflections on conducting a research project investigating the treatment preferences of cannabis users with psychosis. The review will describe the author's decision-making processes, and strengths and limitations of choices. Challenges experienced and overall learning gained are considered. Implications of the two papers for clinical practice and future research are discussed.

Paper 1: Systematic Review

Rationale for topic selection

Cannabis use is common in psychosis, and yet despite worsening of symptoms and overall clinical outcome, people are not often motivated to reduce their use. There exists a considerable amount of research regarding this interesting topic, therefore frequent reviews of the literature are required.

Some alternative review questions were initially considered, for example an update of treatments currently available for cannabis use, and a review of studies investigating treatment preferences for cannabis use in psychosis. This may have successfully supported the empirical paper, however it was decided that there was insufficient literature available for more than one paper, so a review would not be possible. Therefore, the author, with support of the supervisory team, came to the decision to conduct an updated review of the self-report literature on reasons for substance use in mental illness. Initially, it was discussed that an update of 'Reasons for increased substance use in psychosis' (Gregg, Barrowclough, & Haddock, 2007) may be timely. However, due to the focus of the author's empirical research (cannabis use in psychosis specifically) and the emergence of new literature, the decision was made to focus the review on self-reported reasons for cannabis use in psychosis.

Literature Search

The literature search was a challenging and time consuming process. Search terms were chosen to include all possible studies investigating psychotic disorders (i.e. psychosis, psychotic, schizophren*), cannabis use and reasons for use. The author focused the search on reasons for cannabis use in psychosis specifically. Some papers investigated substance use including cannabis, but did not report the results separately. Other studies identified were investigating anticipated effects, the 'outcome expectancies' of using cannabis, rather than self-reported reasons for use, which are conceptually distinct. The initial search

produced over ten thousand results. The author discussed search results with supervisors and the search terms were refined to include 'marijuana' as well as cannabis, and 'motiv*', to capture motives and motivation for cannabis use in addition to 'reasons'. The author appreciated that repeated searches, although often disheartening at times, were a crucial part of the review process. Regular discussion with supervisors who had more experience in the systematic review process was invaluable throughout. Many of the studies identified at title level, however upon further investigation, did not report reasons for cannabis use in psychosis. Every effort was made for the search within these parameters to be exhaustive; however it is possible that some studies were missed.

Rationale for narrative synthesis

The searches resulted in the inclusion of both qualitative and quantitative research. Inclusion of qualitative research was important as this allowed more detailed exploration of people's reasons for using cannabis whilst experiencing psychosis. It was also important to include quantitative data, as reasons for use are explored in slightly different ways. For example, questionnaire data may prompt participants to endorse reasons for use that may not have come to mind as easily as those endorsed via free recall. Due to the differences in methodologies and richness of information presented, it was important to include and compare the two.

A number of possible methodologies were considered for presenting the results of the review. As studies with a range of methodologies were identified in the search, a narrative synthesis was thought to be the most appropriate option. Meta-analyses focus on compiling findings from of multiple quantitative studies, whereas meta-syntheses or thematic syntheses focus integrating results of qualitative research only. Narrative synthesis is able to provide a unique approach to 'tell the story' of findings of quantitative, qualitative and mixed methodologies (Popay et al., 2006).

Quality Appraisal

Quality appraisal is often used during literature reviews to query reliability of results based on the quality of methodologies used. The use of such a tool to determine inclusion is debatable in qualitative methodology, as formal appraisal may not be appropriate or realistic (Popay et al., 2006). However, it was decided that the use of an appraisal tool was relevant to comment on quality, which can help ascertain validity of findings.

Many appraisal tools are available for this task, however it was decided to make use of the Mixed Methodologies Appraisal Tool (MMAT) (Pace et al., 2012) as this allowed for

appraisal of multiple methodologies. Overall the tool was an appropriate choice. The tool was user-friendly and was accompanied by comprehensive guidance which was useful for clarification in some sections. Inter-rater reliability was assessed for all included papers, with two papers requiring further discussion regarding final ratings. There was no need to consult a third reviewer. A substantial strength of agreement was obtained, suggesting reliable use of the tool. Some limitations to this process were encountered by the author. For example, in some papers criteria were assessed as 'can't tell' (i.e. did the research demonstrate consideration of influence of interviewer, or presence of a representative sample). It was often difficult to ascertain if this information was missing or had not been adequately addressed. For example, the views obtained from any qualitative sample are idiosyncratic to that group, and arguably cannot be generalised. This should not be considered a weakness of the methodology necessarily. In some papers, this was hard to establish, but the level of agreement found restored the author's confidence in the quality appraisal. Some studies did not include a control group, which may be considered a methodological weakness, however for the purpose of this review, only the reasons for cannabis use in the psychosis groups were of interest .This perhaps indicates weaker methodology according to the MMAT, but not invalid findings according to the current research question.

Conducting the quality appraisal assisted the author in the critique of the empirical papers in this thesis. At times, the checklist did not seem appropriate for the review as a whole. For example, studies using a non-validated reasons for use measure (Dixon's questionnaire) made up over a third of included studies. Mixed methods papers were also difficult to rate. The appraisal tool instructed appraisal via qualitative and quantitative sections, followed by a separate checklist for mixed methods. This produced an overall rating out of 3 for mixed methodologies, which makes them appear lower in quality than the others by default. Other challenges were experienced by the author when commenting on data quality during the narrative synthesis. Much appropriate data was obtained from poorer quality papers, and other stronger studies produced limited data. This varied according to what the papers were exploring (i.e. substances, SMI) so many discrepancies were encountered. Perhaps assessing quality of overall methodology was less helpful. Relevant information was still captured despite weaker designs, so it is important that they were included in the review

Conducting the narrative synthesis

The narrative synthesis was guided by (Popay et al., 2006) whose guidance includes advice on developing the research question, identifying studies to include, data extraction, and descriptions of techniques to synthesise the results. The author made use of the guidance in order to direct the synthesis process, ensuring the process was reliable and robust. For example, the author made use of a data extraction table to group the results of each paper into themes surrounding reasons for cannabis use. At times, the author experienced difficulties organising the data, as a simple narrative was not evident. Instead, the author found it helpful to organise the studies according to quantitate and qualitative methodologies to structure the narrative.

Limitations of the Narrative Synthesis

There are limitations to narrative synthesis process as its reliability is only as good as the data available. Many of the included papers were of good quality; however, differences in measurements used (validated versus invalidated scales, qualitative interviews), and some bias of samples was found, limiting generalisability. Examples of sample biases included views of young people or EIS services only versus longer-established psychosis, and inpatient versus community samples. However, inclusion of a wide range of people experiencing psychosis, and the services they are accessing was important for the purpose of this review. Study methodologies may have lacked generalisability, but reasons for use reported fitted within the themes in the narrative. But this allowed for the views of several different groups to be captured, plus highlighting areas where future research may be required.

Conclusions about paper 1

Narrative synthesis was used for its inclusive nature and the author felt confident that this was achieved. The results of this review reflected reasons for use previously reported in the literature, supported by qualitative accounts. Use of the quality appraisal tool also added strength to the quality of this review, providing a comprehensive overview of the existing knowledge on reasons people with psychosis use cannabis.

Paper 2: Empirical paper

Rationale for topic

There are many key issues in this area of research - high rates of cannabis use; the link between cannabis and poor outcomes; the fact that existing treatments for cannabis use

have not been particularly effective, and many people do not engage with or drop out of treatment. More research is needed to explore what people want from their treatment, with the aim to make treatment more effective.

One way of understanding what people want and need from their treatment is to directly involve them in the decision. Indeed, this is a significant ethical issue, and service user involvement is recommended by the National Institute of Health and Clinical Excellence (NICE 136, 2011). In the past there have been studies investigating how people would like their mental health to be treated, and others looking into different treatments for cannabis use. However, people with psychosis have rarely been asked about how they would like their cannabis use to be treated (Baker, Thornton, Hides, & Dunlop, 2012), if at all. Asking people what they actually want from their treatment helps us to understand what needs to be prioritised, allowing treatments to be targeted specifically.

The author aimed to keep the topic of the review and empirical paper closely linked. The empirical paper was seen as an opportunity to address some of the limitations of previous research in this area, i.e. the lack of literature on preferences for treatment of cannabis use in psychosis. As the systematic review revealed, much research exists on reasons for cannabis use. However, as current treatments are largely not acceptable for this group for whatever reason, the logical next step would be to ask people themselves.

The author has a strong interest in substance use and mental health, particularly cannabis. The fact that treatments were shown to be unsuccessful in clinical trials was of great interest, as this could be due to interventions not being targeted appropriately, or that the people being offered were not ready to accept treatment. Either way, treatments offered currently have limited success, and despite worse clinical outcomes for this group, people report several reasons for continuing to use cannabis, and have very little motivation to stop. Asking people what sort of support they would find helpful and how this could be delivered had not been done before, and is clearly important as this can influence the design of new treatment. This also provided the opportunity for people to express preference not to receive treatment – again there are several reasons for not stopping cannabis use, but there exists a group of people who prefer 'self-medicating' their mood with cannabis and do not want services to tell them to stop. Others who are struggling to stop using cannabis due to negative side effects, but no treatments are appropriate. This study aimed to capture the views of both, with the aim of helping people get more out of their treatment, and help the NHS offer a better service in the future.

Rationale for methodology

The author had previous research experience in quantitative methods, but had not worked with qualitative methods before. Towards the beginning of the project, discussions in supervision surrounded the possibility of a larger, quantitative study investigating self-reported reasons for cannabis use. The possibility of conducting a mixed methods design was discussed, using participants included in a recent trial (Rethinking choices after psychosis, ReCAP; Barrowclough, Gregg, Lobban, Bucci, & Emsley, 2015) who agreed to be contacted for future research. One original suggestion was to recruit 50-60 participants and complete a treatment ranking study similar to Tarrier, Liversidge, and Gregg (2006) with a "think aloud" qualitative component. However, it was decided that a qualitative interview surrounding treatment preferences would be preferable, due to the large volume of highly-detailed information that could be obtained. Through this method, participants would be freer to produce more open responses. Use of the topic guide was thought to prompt more information about previous experiences of treatments, what could have been improved upon, and what would be people's individual treatment preferences, than might have been possible via a ranking task alone. It was recognised that qualitative research would require longer sessions for data collection, but recruitment of fewer participants overall. This was appealing to the author, and seemed appropriate as recruitment from psychosis services can be challenging. Therefore a smaller sample size was approved. The author was enthusiastic about developing skills in a new area of research.

The topic guide was developed by the first author, under supervision. It aimed to capture first experiences of psychosis, cannabis use and contact with services, previous experiences of treatment, and what participants would like from an intervention in the future.

The treatment descriptions were developed by the first author based on treatment descriptions devised by Tarrier et al. (2006), and discussed with the field and research supervisors. Descriptions were written for 8 different hypothetical treatments for cannabis use in psychosis (e.g. CBT, MI, family therapy), and different modalities in which these may be delivered (i.e. individual, group, telephone). These were written in the same format as used by Tarrier et al. (2006) to be as unbiased as possible, including equal numbers of advantages and disadvantages for each. These were presented to the community liaison group, who stressed the need for layman's language. They advised the author to 'be themselves' during interviews to put participants at ease, and to stress the confidential nature of interviews – for example, that the author was not associated with participants' care teams, and that no information regarding illicit drug use would be repeated, to

facilitate open discussion. Treatment descriptions were also presented to a group of non-psychology peers for comments. Some alterations were suggested, such as to not describe the interaction with a therapist in MI as "a joint conversation", as this unintentional pun may have caused amusement in some participants. This was originally missed by the author, but they agreed that rephrasing was appropriate.

Quantitative measures were selected to ascertain current substance use (over past 3 months), readiness to change drug use (RTC, (Rollnick, Heather, Gold, & Hall, 1992), and reasons for use (ReSUS, (Gregg, Barrowclough, & Haddock, 2009). These measures were chosen due to strong reliability (Gregg et al., 2009; Heather, Luce, Peck, Dunbar, & James, 1999) in treatment settings, and therefore no other measures were considered for this purpose.

Recruitment

The original recruitment strategy was to re-contact participants of a recent research trial (ReCAP, (Barrowclough et al., 2014). Participants for ReCAP has been recruited from local EI services and had provided consent to be re-contacted for future research. Unfortunately, when the author came to re-contact these lists, many problems were encountered. Firstly, many of the care coordinators involved with the previous trial had moved on from the service. The author began the recruitment process by contacting teams from one local NHS trust involved in ReCAP. Only one care coordinator was contactable. When presented with this list of previous study participants, the staff member was only able to identify two people currently still supported by the service. One of these was non contactable, the other did not consent to taking part in the current study. People are supported within EIS for the first three years after diagnosis, before being discharged or moving to different services. The author did not have ethical clearance to contact participants without going through services; therefore, this recruitment strategy was unfortunately abandoned.

Subsequently, the author and supervisors made the decision to implement the contingency plan. This involved presenting the research at team business meetings of various local psychosis services. The inclusion criteria specified anyone with an experience of psychosis be eligible, regardless of duration of psychosis or type of support received. This allowed the search criteria to be widened significantly. Several participants were identified by speaking with care coordinators at team meetings,. This was an inefficient recruitment strategy as it required significant travel between meetings, with one or two participants identified at each meeting only. It is also possible that service users not

currently accepting visits from their care-coordinators would not have been represented. Perhaps those more engaged with services to start with would have different views.

Subsequently, the majority of participants were recruited from inpatient services. This involved presenting the research to ward managers (to advertise the research and start the process of potential participants being identified). The author had great success recruiting inpatients, but was mindful not to bias the sample through over representation of this group. More than half of the sample were inpatients, which was acknowledged as a limitation. It seemed that many inpatients were keen to take part in research, viewing it as exciting compared to regular ward activities. The author was advised by ward support staff to bring refreshments for participants to facilitate engagement (i.e. biscuits, fizzy drinks). The author was mindful of the unhealthy message that providing sugar-based incentives portrayed. However, potentially due to feeling sedated by medication or under-stimulated in general, many people accepted refreshments willingly. Equally, some participants refused snacks when offered.

Largely, opportunity sampling was adopted. The recruitment strategy aimed to capture views from people who have accessed different kinds of support (past and currently). Ethnicity and gender were not explicitly considered as a purposive recruitment strategy as this felt discriminatory. A fairly diverse sample was recruited, possibly due to the diverse population in this part of the country. However, the final sample captured the views of mostly white males accessing services.

Participants

People who took part generally engaged well. There was some variation in length of interview but this was not necessarily related to amount of experience within services. All participants completed all measures and the treatment preferences ranking tasks. Discussions of illicit drug use were to be kept confidential to facilitate open discussion, and this was felt to have been achieved. Two of the participants disclosed having smoked cannabis immediately prior to the interview. It is possible that this affected how talkative participants were in interviews. It is hard to say how views may have been affected, if it all, and how many participants did not admit to using the drug before the interview. With hindsight, perhaps this could have been taken into account, or even explored further regarding reported reasons for use.

Measures

The Reasons for Substance Use in Schizophrenia questionnaire is a 38-item scale used to assess self- reported reasons for substance use (ReSUS, Gregg, Barrowclough and Haddock, 2009. Amount of agreement with each item is rated from 0 (Never) to 3 (Always). The highest score on one of three subscales determines the primary reason for substance use: Coping with distressing emotions and symptoms, Social enhancement and intoxication, or Individual enhancement. The scale is assessed for validity and reliability (Gregg et al. 2009). The Readiness to Change Questionnaire (RCQ; Rollnick et al. 1992) is designed to ascertain the stage of change regarding substance use in non-treatment seeking individuals (Rollnick et al. 1992). Each item is rated on a Likert scale (strongly disagree-strongly agree), determining an overall current stage of change as Pre-contemplation, Contemplation, or Action. This measure has been assessed for reliability in medical settings, with a modified version for treatment purposes (Heather et al. 1999). Readiness to change alcohol use was also recorded, but not included in paper 2.

These measures were not considered too long to complete and no participants declined completing them. Some did not complete the 'readiness to change' for alcohol due to not using the substance. Some participants accepted comfort/cigarette breaks when offered.

Thematic Analysis

The process of thematic analysis is a subjective task so inter-coder reliability may not be possible (Vaismoradi, Turunen, & Bondas, 2013). This approach does seem appropriate as reliability in thematic analysis is more about confirmation that that coder's perspective can be understood by others (Joffe and Yardley, 2004). Development of themes was guided by the data. A strong theme was identified surrounding motivation/responsibility/ownership of the problem, and wanting to be involved in treatment. A second theme arose surrounding the ideal approach to treatment, based on basic qualities of support found to be helpful, and preferred treatment outcomes with regard to both cannabis use and therapeutic relationships in general.

Many people spoke about not wanting to change their cannabis use – this was important to highlight as a theme to services. The legal status of cannabis brings with it great stigma, and due to the process of smoking (particularly if combined with tobacco) is considered unhealthy and therefore must be stopped, without considering potential benefits people with psychosis report. Most participants spoke about wanting to receive treatment; however, the majority did not want the aim of this to be to stop cannabis use.

Many recognised that cannabis could have negative effects on mental health, as well as being expensive and antisocial due to illegality, however, there was a common view that the aim of treatment should be to reduce use, rather than stop completely. Participants spoke about wanting to be involved in this decision, feeling judged or mistrusting of services and therefore reluctant to engage.

Due to time constraints the author felt immense pressure when coding and organising the data. As is often the case with qualitative data, the luxury of more time to refine codes and further develop the themes would have been preferable. Nevertheless, due to the interviews, transcription and coding occurring within such close proximity, the author felt this assisted significantly with becoming immersed effectively within the data.

Limitations of methodology

It is possible that completing the ranking task before interview may have influenced responses. Some participants commented that they had little idea that so many treatments were available, and considered the research interview as quite informative. However, when asked directly about what was wanted from treatment or what treatment would be most helpful, few participants referred directly to the ranking task, or named specific treatments. Moreover, participants expressed surprise at there being several potential options available, and none of them having been offered, despite a preference for treatment. The types of support requested were feeling listened to/supported, wanting to have more control over their own treatment and learning new skills, including psychoeducation and improvements to physical health.

Prior to data collection, the author presented the research to the Community Liaison Group (CLG, a service user group at the University of Manchester) to discuss general feasibility of the study and any potential obstacles the group could foresee. The CLG felt that the proposed interview was not likely to prove burdensome to participants, provided frequent comfort breaks were offered. People recruited were able to tolerate sitting for an extended period, complete measures and tolerate an interview. Therefore a certain type of service user was recruited, and those who agreed were willing to discuss their views. It is possible that those with stronger views were more likely to agree to participate. This may have resulted in sample bias, but this is arguably the case in all research samples.

The topic guide explored treatment preferences, but did not explore reasons behind preferences extensively. Interviews were transcribed as they were conducted, which revealed that not enough prompts were being used in earlier interviews. This was amended as recruitment progressed, but may have resulted in less detailed information

being obtained in the early interviews. Perhaps the topic guide could have included an opportunity for participants to design an ideal treatment. Some questions produced one-word or yes/no responses, which were difficult to interpret. This was particularly evident with some of the inpatient participants. These participants tended to be taking more medication, were less likely to have been offered treatments other than medication/inpatient support in the past, and subsequently had fewer comments about treatment preferences when questioned. Perhaps the views of heavily medicated inpatients were therefore not represented.

Data were collected during one-off visits, which did not allow for an extensive rapport to be built. Many people with psychosis have difficulties engaging with or trusting new people (Morrison et al., 2004) meaning potential limitations for data collection, however most participants interviewed were able to engage with the interview, and many commented that they felt able to be more honest due to the fact that that it was a one-off, and the researcher was separate to the care team. The author aimed to put participants at ease (e.g. by stressing confidentiality), however, was still able to acknowledge possible mistrust.

Conclusions about the empirical paper

Overall, the information gathered in the empirical paper felt necessary to address gaps in the existing literature for cannabis use in psychosis. The qualitative interview provided a large quantity of information, giving an insight into what people experiencing psychosis want from their treatment. The author felt the aims of this study were achieved, however, due to time constraints, felt that themes may have been refined further given time. The current sample included the views of people who had never been offered treatment; either having accepted, refused or dropped out. Future research could explore the views of people not currently accessing services. Overall, the paper produced some good recommendations for how service may approach this issue in the future.

In summary, this is the first study to explore treatment preferences in cannabis users with psychosis. Providing a detailed exploration of why people with psychosis use cannabis and what they would like from a psychological intervention is essential as this can help inform new interventions and understand factors which impact on engagement, with the hope of providing a more acceptable service for this group in the future.

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Appendix

Appendix A: Mixed Methods Appraisal Tool (MMAT)

McGill

Mixed Methods Appraisal Tool (MMAT) – Version 2011
For dissemination, application, and feedback: Please contact pierre.pluye@mcgill.ca, Department of Family Medicine, McGill University, Canada.

The MMAT is comprised of two parts (see below): criteria (Part I) and tutorial (Part II). While the content validity and the reliability of the pilot version of the MMAT have been examined, this critical appraisal tool is still in development. Thus, the MMAT must be used with caution, and users' feedback is appreciated. Cite the present version as follows.

> Pluye, P., Robert, E., Cargo, M., Bartlett, G., O'Cathain, A., Griffiths, F., Boardman, F., Gagnon, M.P., & Rousseau, M.C. (2011). *Proposal: A mixed methods appraisal tool for systematic mixed studies reviews*. Retrieved on [date] from http://mixedmethodsappraisaltoolpublic.pbworks.com. Archived by WebCite® at http://www.webcitation.org/5tTRTc9yJ

Purpose: The MMAT has been designed for the appraisal stage of complex systematic literature reviews that include qualitative, quantitative and mixed methods studies (mixed studies reviews). The MMAT permits to concomitantly appraise and describe the methodological quality for three methodological domains: mixed, qualitative and quantitative (subdivided into three sub-domains: randomized controlled, non-randomized, and descriptive). Therefore, using the MMAT requires experience or training in these domains. E.g., MMAT users may be helped by a colleague with specific expertise when needed. The MMAT allows the appraisal of most common types of study methodology and design. For appraising a qualitative study, use section 1 of the MMAT. For a quantitative study, use section 2 or 3 or 4, for randomized controlled, non-randomized, and descriptive studies, respectively. For a mixed methods study, use section 1 for appraising the qualitative component, the appropriate section for the quantitative component (2 or 3 or 4), and section 5 for the mixed methods component. For each relevant study selected for a systematic mixed studies review, the methodological quality can then be described using the corresponding criteria. This may lead to exclude studies with lowest quality from the synthesis, or to consider the quality of studies for contrasting their results (e.g., low quality vs. high).

Scoring metrics: For each retained study, an overall quality score may be not informative (in comparison to a descriptive summary using MMAT criteria), but might be calculated using the MMAT. Since there are only a few criteria for each domain, the score can be presented using descriptors such as *, **, ***, and ****. For qualitative and quantitative studies, this score can be the number of criteria met divided by four (scores varying from 25% (*) -one criterion met- to 100% (****) -all criteria met-). For mixed methods research studies, the premise is that the overall quality of a combination cannot exceed the quality of its weakest component. Thus, the overall quality score is the lowest score of the study components. The score is 25% (*) when *QUAL=1 or QUAN=1 or MM=0*; it is 50% (**) when *QUAL=2 or QUAN=2 or MM=1*; it is 75% (***) when *QUAL=3 or QUAN=3 or MM=2*; and it is 100% (****) when *QUAL=4 and QUAN=4 and MM=3* (QUAL being the score of the qualitative component; QUAN the score of the quantitative component; and MM the score of the mixed methods component).

Rationale: There are general criteria for planning, designing and reporting mixed methods research (Creswell and Plano Clark, 2010), but there is no consensus on key specific criteria for appraising the methodological quality of mixed methods studies (O'Cathain, Murphy and Nicholl, 2008). Based on a critical examination of 17 health-related systematic mixed studies reviews, an initial 15-criteria version of MMAT was proposed (Pluye, Gagnon, Griffiths and Johnson-Lafleur, 2009). This was pilot tested in 2009. Two raters assessed 29 studies using the pilot MMAT criteria and tutorial (Pace, Pluye, Bartlett, Macaulay et al., 2010). Based on this pilot exercise, it is anticipated that applying MMAT may take on average 15 minutes per study (hence efficient), and that the Intra-Class Correlation might be around 0.8 (hence reliable). The present 2011 revision is based on feedback from four workshops, and a comprehensive framework for assessing the quality of mixed methods research (O'Cathain, 2010).

Conclusion: The MMAT has been designed to appraise the *methodological quality* of the studies retained for a systematic mixed studies review, not the quality of their *reporting* (writing). This distinction is important, as good research may not be 'well' reported. If reviewers want to genuinely assess the former, companion papers and research reports should be collected when some criteria are not met, and authors of the corresponding publications should be contacted for additional information. Collecting additional data is usually necessary to appraise *qualitative research and mixed methods studies*, as there are no uniform standards for reporting study characteristics in these domains (www.equator-network.org), in contrast, e.g., to the CONSORT statement for reporting randomized controlled trials (www.consort-statement.org).

Authors and contributors: Pierre Pluye[1], Marie-Pierre Gagnon[2], Frances Griffiths[3] and Janique Johnson-Lafleur[1] proposed an initial version of MMAT criteria (Pluye et al., 2009). Romina Pace[1] and Pierre Pluye[1] led the pilot test. Gillian Bartlett[1], Belinda Nicolau[4], Robbyn Seller[1], Justin Jagosh[1], Jon Salsberg[1] and Ann Macaulay[1] contributed to the pilot work (Pace et al., 2010). Pierre Pluye[1], Émilie Robert[5], Margaret Cargo[6], Alicia O'Cathain[7], Frances Griffiths[3], Felicity Boardman[3], Marie-Pierre Gagnon[2], Gillian Bartlett[1], and Marie-Claude Rousseau[8] contributed to the present 2011 version.

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PART I. MMAT criteria & one-page template (to be included in appraisal forms)

Types of mixed methods study components or primary studies	Methodological quality criteria (see tutorial for definitions and examples)	Responses			
		Yes	No	Can't tell	Comments
Screening questions (for all types)	• Are there clear qualitative and quantitative research questions (or objectives*), or a clear mixed methods question (or objective*)?				
	• Do the collected data allow address the research question (objective)? E.g., consider whether the follow-up period is long enough for the outcome to occur (for longitudinal studies or study components).				
	Further appraisal may be not feasible or appropriate when the answer is 'No' or 'Can't tell' to one or both screening questions.				
1. Qualitative	1.1. Are the sources of qualitative data (archives, documents, informants, observations) relevant to address the research question (objective)?				
	1.2. Is the process for analyzing qualitative data relevant to address the research question (objective)?				
	1.3. Is appropriate consideration given to how findings relate to the context, e.g., the setting, in which the data were collected?				
	1.4. Is appropriate consideration given to how findings relate to researchers' influence, e.g., through their interactions with participants?				
2. Quantitative randomized controlled (trials)	2.1. Is there a clear description of the randomization (or an appropriate sequence generation)?				
	2.2. Is there a clear description of the allocation concealment (or blinding when applicable)?				
	2.3. Are there complete outcome data (80% or above)?				
	2.4. Is there low withdrawal/drop-out (below 20%)?				
3. Quantitative non-randomized	3.1. Are participants (organizations) recruited in a way that minimizes selection bias?				
	3.2. Are measurements appropriate (clear origin, or validity known, or standard instrument; and absence of contamination between groups when appropriate) regarding the exposure/intervention and outcomes?				
	3.3. In the groups being compared (exposed vs. non-exposed; with intervention vs. without; cases vs. controls), are the participants comparable, or do researchers take into account (control for) the difference between these groups?				
	3.4. Are there complete outcome data (80% or above), and, when applicable, an acceptable response rate (60% or above), or an acceptable follow-up rate for cohort studies (depending on the duration of follow-up)?				
4. Quantitative descriptive	4.1. Is the sampling strategy relevant to address the quantitative research question (quantitative aspect of the mixed methods question)?				
	4.2. Is the sample representative of the population understudy?				
	4.3. Are measurements appropriate (clear origin, or validity known, or standard instrument)?				
	4.4. Is there an acceptable response rate (60% or above)?				
5. Mixed methods	5.1. Is the mixed methods research design relevant to address the qualitative and quantitative research questions (or objectives), or the qualitative and quantitative aspects of the mixed methods question (or objective)?				
	5.2. Is the integration of qualitative and quantitative data (or results*) relevant to address the research question (objective)?				
	5.3. Is appropriate consideration given to the limitations associated with this integration, e.g., the divergence of qualitative and quantitative data (or results*) in a triangulation design?				
	Criteria for the qualitative component (1.1 to 1.4), and appropriate criteria for the quantitative component (2.1 to 2.4, or 3.1 to 3.4, or 4.1 to 4.4), must be also applied.				

*These two items are not considered as double-barreled items since in mixed methods research, (1) there may be research questions (quantitative research) or research objectives (qualitative research), and (2) data may be integrated, and/or qualitative findings and quantitative results can be integrated.

PART II. MMAT tutorial

Types of mixed methods study components or primary studies	Methodological quality criteria
1. Qualitative Common types of qualitative research methodology include: A. Ethnography The aim of the study is to describe and interpret the shared cultural behaviour of a group of individuals. B. Phenomenology The study focuses on the subjective experiences and interpretations of a phenomenon encountered by individuals. C. Narrative The study analyzes life experiences of an individual or a group. D. Grounded theory Generation of theory from data in the process of conducting research (data collection occurs first). E. Case study In-depth exploration and/or explanation of issues intrinsic to a particular case. A case can be anything from a decision-making process, to a person, an organization, or a country. F. Qualitative description There is no specific methodology, but a qualitative data collection and analysis, e.g., in-depth interviews or focus groups, and hybrid thematic analysis (inductive and deductive). Key references: Creswell, 1998; Schwandt, 2001; Sandelowski, 2010.	**1.1. Are the sources of qualitative data (archives, documents, informants, observations) relevant to address the research question (objective)?** E.g., consider whether (a) the selection of the participants is clear, and appropriate to collect relevant and rich data; and (b) reasons why certain potential participants chose not to participate are explained. **1.2. Is the process for analyzing qualitative data relevant to address the research question (objective)?** E.g., consider whether (a) the method of data collection is clear (in depth interviews and/or group interviews, and/or observations and/or documentary sources); (b) the form of the data is clear (tape recording, video material, and/or field notes for instance); (c) changes are explained when methods are altered during the study; and (d) the qualitative data analysis addresses the question. **1.3. Is appropriate consideration given to how findings relate to the context, e.g., the setting, in which the data were collected?** * E.g., consider whether the study context and how findings relate to the context or characteristics of the context are explained (how findings are influenced by or influence the context). "For example, a researcher wishing to observe care in an acute hospital around the clock may not be able to study more than one hospital. (…) Here, it is essential to take care to describe the context and particulars of the case [the hospital] and to flag up for the reader the similarities and differences between the case and other settings of the same type" (Mays & Pope, 1995). The notion of context may be conceived in different ways depending on the approach (methodology) tradition. **1.4. Is appropriate consideration given to how findings relate to researchers' influence, e.g., through their interactions with participants?** * E.g., consider whether (a) researchers critically explain how findings relate to their perspective, role, and interactions with participants (how the research process is influenced by or influences the researcher); (b) researcher's role is influential at all stages (formulation of a research question, data collection, data analysis and interpretation of findings); and (c) researchers explain their reaction to critical events that occurred during the study. The notion of reflexivity may be conceived in different ways depending on the approach (methodology) tradition. E.g., "at a minimum, researchers employing a generic approach [qualitative description] must explicitly identify their disciplinary affiliation, what brought them to the question, and the assumptions they make about the topic of interest" (Caelli, Ray & Mill, 2003, p. 5).

*See suggestion on the MMAT wiki homepage (under '2011 version'): Independent reviewers can establish a common understanding of these two items prior to beginning the critical appraisal.

Types of mixed methods study components or primary studies	Methodological quality criteria
2. Quantitative randomized controlled (trials) Randomized controlled clinical trial: A clinical study in which individual participants are allocated to intervention or control groups by randomization (intervention assigned by researchers). Key references: Higgins & Green, 2008; Porta, 2008; Oxford Center for Evidence based medicine, 2009.	**2.1. Is there a clear description of the randomization (or an appropriate sequence generation)?** In a randomized controlled trial, the allocation of a participant (or a data collection unit, e.g., a school) into the intervention or control group is based solely on chance, and researchers describe how the randomization schedule is generated. "A simple statement such as 'we randomly allocated' or 'using a randomized design' is insufficient". *Simple randomization:* Allocation of participants to groups by chance by following a predetermined plan/sequence. "Usually it is achieved by referring to a published list of random numbers, or to a list of random assignments generated by a computer". *Sequence generation:* "The rule for allocating interventions to participants must be specified, based on some chance (random) process". Researchers provide sufficient detail to allow a readers' appraisal of whether it produces comparable groups. E.g., blocked randomization (to ensure particular allocation ratios to the intervention groups), or stratified randomization (randomization performed separately within strata), or minimization (to make small groups closely similar with respect to several characteristics).
	2.2. Is there a clear description of the allocation concealment (or blinding when applicable)? *The allocation concealment protects assignment sequence until allocation.* E.g., researchers and participants are unaware of the assignment sequence up to the point of allocation. E.g., group assignment is concealed in opaque envelops until allocation. *The blinding protects assignment sequence after allocation.* E.g., researchers and/or participants are unaware of the group a participant is allocated to during the course of the study.
	2.3. Are there complete outcome data (80% or above)? E.g., almost all the participants contributed to almost all measures.
	2.4. Is there low withdrawal/drop-out (below 20%)? E.g., almost all the participants completed the study.

Types of mixed methods study components or primary studies	Methodological quality criteria
3. Quantitative non-randomized Common types of design include (A) non-randomized controlled trials, and (B-C-D) observational analytic study or component where the intervention/exposure is defined/assessed, but not assigned by researchers. A. Non-randomized controlled trials The intervention is assigned by researchers, but there is no randomization, e.g., a pseudo-randomization. A non-random method of allocation is not reliable in producing alone similar groups. B. Cohort study Subsets of a defined population are assessed as exposed, not exposed, or exposed at different degrees to factors of interest. Participants are followed over time to determine if an outcome occurs (prospective longitudinal). C. Case-control study Cases, e.g., patients, associated with a certain outcome are selected, alongside a corresponding group of controls. Data is collected on whether cases and controls were exposed to the factor under study (retrospective). D. Cross-sectional analytic study At one particular time, the relationship between health-related characteristics (outcome) and other factors (intervention/exposure) is examined. E.g., the frequency of outcomes is compared in different population sub-groups according to the presence/absence (or level) of the intervention/exposure. Key references for observational analytic studies: Higgins & Green, 2008; Wells, Shea, O'Connell, Peterson, et al., 2009.	**3.1. Are participants (organizations) recruited in a way that minimizes selection bias?** At recruitment stage: For cohort studies, e.g., consider whether the exposed (or with intervention) and non-exposed (or without intervention) groups are recruited from the same population. For case-control studies, e.g., consider whether same inclusion and exclusion criteria were applied to cases and controls, and whether recruitment was done independently of the intervention or exposure status. For cross-sectional analytic studies, e.g., consider whether the sample is representative of the population. **3.2. Are measurements appropriate (clear origin, or validity known, or standard instrument; and absence of contamination between groups when appropriate) regarding the exposure/intervention and outcomes?** At data collection stage: E.g., consider whether (a) the variables are clearly defined and accurately measured; (b) the measurements are justified and appropriate for answering the research question; and (c) the measurements reflect what they are supposed to measure. For non-randomized controlled trials, the intervention is assigned by researchers, and so consider whether there was absence/presence of a contamination. E.g., the control group may be indirectly exposed to the intervention through family or community relationships. **3.3. In the groups being compared (exposed vs. non-exposed; with intervention vs. without; cases vs. controls), are the participants comparable, or do researchers take into account (control for) the difference between these groups?** At data analysis stage: For cohort, case-control and cross-sectional, e.g., consider whether (a) the most important factors are taken into account in the analysis; (b) a table lists key demographic information comparing both groups, and there are no obvious dissimilarities between groups that may account for any differences in outcomes, or dissimilarities are taken into account in the analysis. **3.4. Are there complete outcome data (80% or above), and, when applicable, an acceptable response rate (60% or above), or an acceptable follow-up rate for cohort studies (depending on the duration of follow-up)?**

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Types of mixed methods study components or primary studies	Methodological quality criteria
4. Quantitative descriptive studies Common types of design include single-group studies: A. Incidence or prevalence study without comparison group In a defined population at one particular time, what is happening in a population, e.g., frequencies of factors (importance of problems), is described (portrayed). B. Case series A collection of individuals with similar characteristics are used to describe an outcome. C. Case report An individual or a group with a unique/unusual outcome is described in details. Key references: Critical Appraisal Skills Programme, 2009; Draugalis, Coons & Plaza, 2008.	**4.1. Is the sampling strategy relevant to address the quantitative research question (quantitative aspect of the mixed methods question)?** E.g., consider whether (a) the source of sample is relevant to the population under study; (b) when appropriate, there is a standard procedure for sampling, and the sample size is justified (using power calculation for instance).
	4.2. Is the sample representative of the population understudy? E.g., consider whether (a) inclusion and exclusion criteria are explained; and (b) reasons why certain eligible individuals chose not to participate are explained.
	4.3. Are measurements appropriate (clear origin, or validity known, or standard instrument)? E.g., consider whether (a) the variables are clearly defined and accurately measured; (b) measurements are justified and appropriate for answering the research question; and (c) the measurements reflect what they are supposed to measure.
	4.4. Is there an acceptable response rate (60% or above)? The response rate is not pertinent for case series and case report. E.g., there is no expectation that a case series would include all patients in a similar situation.

Types of mixed methods study components or primary studies	Methodological quality criteria
5. Mixed methods Common types of design include: A. Sequential explanatory design The quantitative component is followed by the qualitative. The purpose is to explain quantitative results using qualitative findings. E.g., the quantitative results guide the selection of qualitative data sources and data collection, and the qualitative findings contribute to the interpretation of quantitative results. B. Sequential exploratory design The qualitative component is followed by the quantitative. The purpose is to explore, develop and test an instrument (or taxonomy), or a conceptual framework (or theoretical model). E.g., the qualitative findings inform the quantitative data collection, and the quantitative results allow a generalization of the qualitative findings. C. Triangulation design The qualitative and quantitative components are concomitant. The purpose is to examine the same phenomenon by interpreting qualitative and quantitative results (bringing data analysis together at the interpretation stage), or by integrating qualitative and quantitative datasets (e.g., data on same cases), or by transforming data (e.g., quantization of qualitative data). D. Embedded design The qualitative and quantitative components are concomitant. The purpose is to support a qualitative study with a quantitative sub-study (measures), or to better understand a specific issue of a quantitative study using a qualitative sub-study, e.g., the efficacy or the implementation of an intervention based on the views of participants. Key references: Creswell & Plano Clark, 2007; O'Cathain, 2010.	**5.1. Is the mixed methods research design relevant to address the qualitative and quantitative research questions (or objectives), or the qualitative and quantitative aspects of the mixed methods question (or objective)?** E.g., the rationale for integrating qualitative and quantitative methods to answer the research question is explained. **5.2. Is the integration of qualitative and quantitative data (or results) relevant to address the research question (objective)?** E.g., there is evidence that data gathered by both research methods was brought together to form a complete picture, and answer the research question; authors explain when integration occurred (during the data collection-analysis or/and during the interpretation of qualitative and quantitative results); they explain how integration occurred and who participated in this integration. **5.3. Is appropriate consideration given to the limitations associated with this integration, e.g., the divergence of qualitative and quantitative data (or results)?**

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Appendix B: MMAT Quality Appraisal Table

Paper	Quality assessment by criteria											MMAT Quality Rating	
	Qualitative				Quantitative				Mixed Methods			First author rating	Independent rating
	Are sources relevant to address the research question?	Is the analysis process relevant to address the research question?	Is appropriate consideration given to how findings relate to the context?	Is appropriate consideration given to how findings relate to researchers' influence?	Is the sampling strategy relevant to address the research question?	Is the sample representative of the population?	Are measure-ments appropriate?	Is there an acceptable response rate (60% or above)?	Is the mixed methods research design relevant to address the research questions?	Is the integration of data relevant to address the research question?	Is appropriate consideration given to the limitations associated with this integration?		
Addington and Duchak (1997)	-	-	-	-	Yes	Can't tell	No	Yes	-	-	-	Two*	Two*
Asher and Gask (2010)	Yes	Yes	Yes	Yes	-	-	-	-	-	-	-	Four*	Four*
Childs et al. (2011)	Yes	Yes	Yes	Yes	-	-	-	-	-	-	-	Four*	Four*
Green et al. (2004)	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Three*	Three*
Kolliakou et al. (2015)	-	-	-	-	Yes	Yes	Yes	Yes	-	-	-	Four*	Four*
Lejoyeux et al. (2014)	-	-	-	-	Yes	Yes	No	Yes	-	-	-	Three*	Three*
Lobban et al. (2010)	Yes	Yes	Yes	Yes	-	-	-	-	-	-	-	Four*	Four*
Mane et al. (2015)	-	-	-	-	Yes	Yes	No	Yes	-	-	-	Three*	Three*
Pencer and Addington (2007)	-	-	-	-	Yes	Yes	No	Yes	-	-	-	Three*	Three*
Pettersen et al. (2013)	Yes	Yes	Yes	Yes	-	-	-	-	-	-	-	Four*	Three*
Schaub, Fanghaenel and Stohler (2008)	-	-	-	-	No	Yes	No	Yes	-	-	-	One*	One*
Schofield et al. (2006)	-	-	-	-	Yes	Yes	No	Yes	-	-	-	Three*	Two*
Seddon et al. (2013)	Yes	Yes	Yes	Can't tell	-	-	-	-				Three*	Three*
Thornton et al. (2012)	Yes	Yes	Yes	-	Yes	No	Yes	Yes	Yes	Yes	Yes	Three*	Three*

Appendix C: Reasons for cannabis use data extraction table

Paper	Reasons for continued cannabis use										
	To cope with, or escape from, negative affect					To enhance positive affect			Social Reasons		
	Reduce unpleasant affect	Self-medication	To relax	Reduce boredom	Improve sleep	Increase positive affect (Expansion)	To 'get high' (Intoxication)	Creativity	Enhancement facilitation	Conformity belonging	Habit
Addington and Duchak (1997)	81% Relieve depression 24% Decrease tiredness	19% To decrease suspiciousness 38% Decrease feeling 'slowed down' by medication 40% Decrease voices	81% To relax			95% To increase pleasure 48% To feel more emotions 33% Concentrate better 29% To increase energy levels 57% To give one more thoughts 24% Increase sexual interest 5% Increase voices	95% To get high	62% To give one more interests	48% To become more talkative	71% To go along with the group	
Asher and Gask (2010)	Theme 3: Due to feelings of hopelessness Theme 4: Beliefs about symptoms and how drugs influence them	Theme 5: An equivalent to psychotropic medication							Theme 1: An identity-defining vocation	Theme 2: To belong to a peer group	
Childs et al. (2011)	Many participants described using cannabis to escape distressing experiences . ***"All my thoughts are just pushed away and...(..)..I feel good for a bit but once..."*** Some described feeling "addicted" or paranoid, but many also used it to cope with these unusual experiences.					To enhance pleasure: ***"I'll smoke it to, say, enjoy a film"***		Creativity: ***"Why I do is because of my poetry"***	Identity: "Cannabis culture" "Stoner identity" was a desirable, attractive identity. ***"Bit of a vicious cycle like I give up, they carry on, I carry on and they give up".***	Belonging: ***"I were at school, because everyone smoked it at school and I did"***	

Green et al. (2004)	Anxiety/depression BL: 26.7% FU: 28.9% Cope with other negative mood BL: 6.7% FU:4.4% Mood alteration BL: 35.6% FU 42.2%	Preferred alternative BL: 2.2% FU: 6.7% Psychotic symptoms BL: - FU: 4.4% Side effects BL: - FU: 2.2%	Relaxation BL: 2.2% FU: 15.6%	Boredom BL: 22.2% FU: 31.1%		Cognitive enhancement BL: 4.4% FU: 11.1% Physical enhancement BL: 11.1% FU: 2.2%	Entertainment BL: 15.6% FU: 13.3% Wanted to BL: 20.0% FU: 15.6%	Social activity/offered BL: 37.8% FU: 28.9%	Addiction BL: 13.3% FU: 17.8% Availability BL: 24.4% FU: 28.9% Habit BL: 11.1% FU: 6.7%
Kolliakou et al. (2015)	Mean Score Coping with unpleasant affect: BL: 2.3 3m FU: 2.5 12m FU: 2.1	Mean Score Relief of positive symptoms and side effects: BL: 1.4 3m FU: 1.6 12m FU: 1.4				Mean Score Enhancement: BL: 3.2 3m FU: 3.2 12m FU: 3.2		Mean Score Social motive: BL: 2.3 3m FU: 2.2 12m FU: 2.0	Mean Score Conformity and acceptance: BL: 1.5 3m FU: 1.3 12m FU: 1.1	
Lejoyeux et al. (2014)		Mean score To take away hallucinations: 2.5/10	Mean score To relax: 6.2/10	Mean score Boredom : 3.2/10		Mean score To have a wild time: 4.4/10	Mean score To get stimulated: 2.7/10			Mean score From force of habit: 3.8/10
Lobban et al. (2010)	Theme 2: Attributions for initial and ongoing drug-taking behaviour Theme 3: Changes in life goals affecting drug use Theme 4: Beliefs about the links between mental health and drug use ***"Deal with anxiety"*** Symptom management				"So I could get to sleep at nights"	Drug use is "fun and enjoyable" Challenging social norms to live a more exciting life. ***"We had to have weed with it because it would just be much more fun and it always was"***		Theme 1: Influence of perceived drug norms on behaviour Improve social behaviour, Drugs help reduce social anxiety/improve perceived social performance. increased availability to drugs via social network ***"shared experience or membership"***	Took drugs to belong to a "normal" peer group	"Just one of those things that I do"

Mane et al. (2015)	43.8% Reduce sadness and depression 29.2% To arrange my thoughts	12.5% Decrease hallucinations and suspiciousness	87.5% To relax	60.4% Reduce boredom	50.0% Sleep better	50.0% To increase the feeling of pleasure 29.2% Increase intensity of emotions and feelings 12.5% To work better 12.5% To increase energy 27.1% Concentrate better	47.9% To be high	41.7% To be more creative 31.3% To satisfy curiosity	14.6% Talk better to others	33.3% Go along with the group
Pencer and Addington (2007)	38.5% To relieve depression 7.7% Decrease tiredness	0% To decrease suspiciousness 11.5% Decrease feeling 'slowed down' by medication 3.8% Decrease voices	50% To relax			53.8% To increase pleasure 26.9% To feel more emotions 15.4% Concentrate better 7.7% To increase energy levels 30.8% To give one more thoughts 11.5% To increase sexual interest 0% Increase voices	61.5% To get high	19.2% To give one more interests	15.4% To become more talkative	38.5% To go along with the group
Pettersen et al. (2013)	Subtheme 1: Controlling the symptoms of mental illness Managing difficult emotional states	Subtheme 2: Counteracting medication side effects. Cope with hearing voices, managing severe symptoms	***"calming effect"***			***"enhances my senses"***				
Schaub, Fanghaenel and Stohler (2008)	41.7% To relieve depression 33.3% To arrange my thoughts	19.3% To decrease hallucinations 8.3% Decrease side-effects of medication	88.9% To relax	63.9% To reduce boredom	69.4% Sleep better	72.2% To increase pleasure 58.3% Increase emotions or feelings 33.3% Work better 30.6% Concentrate better 30.6% To increase energy	83.3% To get high	55.6% To be more creative	27.8% Talk better to others	33.3% To go along with the group
Schofield et al. (2006)	49% Reduce anxiety	15% To reduce medication side-effects 11% To decrease voices 8% To reduce paranoia	86% To relax	79% Relieve boredom	58% Improve sleep	39% To feel good about oneself			81% Something to do with friends	

Seddon et al. (2013)	***"cope with stress"*** ***"it made me feel better"***	'..Participants rarely cited psychosis related reasons... Instead cannabis was perceived to aid relaxation, boredom and coping with stress'			Social factors for initiation and continuation: ***"fit in with friends"*** ***"I talk more, I talk to my friends more"*** ***"friends ... used to smoke loads of it ... and as a result I smoked more"***	
Thornton et al. (2012)	Relieve stress: ***"as a cognitive avoidance strategy"*** ***"To help her control her mental illness"***		the process of smoking ***"added to relaxation"*** ***"To settle myself down, to stay on a nice level plane"***	'Cannabis was used most frequently for pleasure enhancement motives'		a ***"sense of belonging"***

Appendix D: Substance Use Checklist

SUBSTANCE USE CHECKLIST

Name of Substance Circle the name of each substance used	**Used in the last 3 months?** (please circle Yes/No) If yes, on how many days each week is this substance used?
Alcohol	Yes/No
Cannabis marijuana	Yes/No
Cocaine	Yes/No
Hallucinogens/Dance Drugs Ecstasy, ketamine, LSD Other_____	Yes/No
Opioids Heroin, methadone, codeine, morphine other_____	Yes/No
Stimulants Amphetamines other_____	Yes/No
Sedatives/Hypnotics/Anxiolytics Benzodiazepines, barbiturates other_____	Yes/No
Steroids	Yes/No
Other Glue, paint, inhalants, butyl nitrate (poppers) other_____	Yes/No

Appendix E: The Reasons for Substance Use in Schizophrenia scale (ReSUS)

Reasons for substance use questionnaire: ReSUS D

Subject No.		Date	

We are interested in finding out more about the situations in which people use drugs. The list below describes a number of situations in which drug use often takes place.

Please read each item carefully and tell us whether you use ..... in each of these situations by circling one of the numbers next to it. There are no 'right' or 'wrong' answers, choose the most accurate answer for you.

I use	Never	Sometimes	Often	Always
1 When I want to feel stoned or high	0	1	2	3
2 When I am bored and want something to do to pass the time	0	1	2	3
3 When I want to feel more creative	0	1	2	3
4 When I am having trouble communicating with others	0	1	2	3
5 When I feel anxious or tense	0	1	2	3
6 When I want to chill out, relax or feel calm	0	1	2	3
7 When I am experiencing medication side effects	0	1	2	3
8 When I am feeling depressed	0	1	2	3
9 When I am feeling lonely	0	1	2	3
10 When I want to fit in with other people	0	1	2	3
11 When I want to feel more self aware	0	1	2	3
12 When I am feeling suspicious or paranoid	0	1	2	3
13 When I think about how good it tastes	0	1	2	3
14 When my thoughts are racing	0	1	2	3
15 When I want to feel normal	0	1	2	3
16 When I am having trouble thinking or concentrating	0	1	2	3
17 When I am feeling stressed	0	1	2	3

I use	Never	Sometimes	Often	Always
18 When I want to feel good, have a laugh or be happier	0	1	2	3
19 When I want to feel more confident	0	1	2	3
20 When I start to feel guilty about something or feel that I have let myself down	0	1	2	3
21 When I am angry at the way things have turned out	0	1	2	3
22 When I want to feel sexy or increase my sexual enjoyment	0	1	2	3
23 When I am with friends and we want to have a good time	0	1	2	3
24 When I am thinking about bad things that have happened to me in the past	0	1	2	3
25 When I am hearing sounds or voices that other people can't hear	0	1	2	3
26 When I want to stay awake, be more alert, or be more energetic	0	1	2	3
27 When I feel excited about something	0	1	2	3
28 When I feel ashamed or bad about myself	0	1	2	3
29 When I need motivation to do things	0	1	2	3
30 When I have been drinking and think about using these drugs	0	1	2	3
31 When I want to escape from my problems and worries	0	1	2	3
32 When I have trouble sleeping	0	1	2	3
33 When I feel under pressure from other people to take drugs	0	1	2	3
34 When I want to feel more emotions	0	1	2	3
35 When I am experiencing unpleasant thoughts	0	1	2	3
36 When I feel I have been discriminated against	0	1	2	3
37 When I am happy and feeling content with my life	0	1	2	3
38 When I am in pain physically	0	1	2	3

Scales: *(sum items listed, with no reversals of coding, and divide by number of items in subscale)*

1) Coping with distressing emotions and symptoms:
   4, 5, 8, 9, 12, 14, 16, 17, 20, 21, 24, 25, 28, 31, 32, 35, 36, 38 / **18**

2) Social enhancement and intoxication:
   1, 2, 6, 10, 13, 18, 23, 27, 30, 33, 37 / **11**

3) Individual enhancement:
   3, 7, 11, 15, 19, 22, 26, 29, 34 / **9**

Reference:

Gregg, Barrowclough and Haddock (2009). Development and validation of a scale to assess reasons for substance use in Schizophrenia, Addictive Behaviors, 830-837.

Appendix F: Readiness to Change Questionnaire (RCQ)

Readiness to Change Questionnaire – DRUGS

DRUG NAME Cannabis

The following questions are designed to identify how you personally feel about your DRUG NAME use right now. Please think about your current situation and cannabis use habits, even if you have given up your cannabis use completely. Read each question below carefully, and then decide whether you agree or disagree with the statements. Your answers are private and confidential.

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1. It's a waste of time thinking about my **cannabis** use because I do not have a problem	-2	-1	0	1	2
2. I enjoy using **cannabis** but sometimes I use too much	-2	-1	0	1	2
3. I am trying to stop using **cannabis** or use less than I used to	-2	-1	0	1	2
4. There is nothing seriously wrong with my **cannabis** use	-2	-1	0	1	2
5. Sometimes I think I should quit or cut down on my **cannabis** use	-2	-1	0	1	2
6. Anyone can talk about wanting to do something about their **cannabis** use, but I'm actually doing something about it	-2	-1	0	1	2
7. I am a fairly normal **cannabis** user	-2	-1	0	1	2
8. My **cannabis** use is a problem sometimes	-2	-1	0	1	2
9. I am actually changing my **cannabis** using habits right now (either cutting down or quitting)	-2	-1	0	1	2
10. Giving up or using less **cannabis** would be pointless for me	-2	-1	0	1	2
11. I am weighing up the advantages and disadvantages of my present using habits	-2	-1	0	1	2
12. I have started to carry out a plan to cut down or quit using **cannabis**	-2	-1	0	1	2
13. There is nothing I really need to change about my **cannabis** use	-2	-1	0	1	2
14. Sometimes I wonder whether my using is out of control	-2	-1	0	1	2
15. I am actively working on my **cannabis** use problem	-2	-1	0	1	2

*PLEASE ENSURE A **DRUG NAME** HAS BEEN ENTERED ON THIS FORM

Appendix G: Ranking task treatment descriptions

Description of Treatments for Cannabis Use

Types of Treatments

Motivational Interviewing (MI)
Motivational Interviewing is a brief counselling intervention intended to strengthen a person's motivation and commitment to change. It has been used across a wide range of physical and mental health conditions. Therapy will involve a conversation with a therapist to address the pros and cons of using cannabis. The therapist will help you move towards your chosen goal by exploring the advantages and disadvantages of changing your cannabis use, or staying the same. Therapy usually lasts between 1-4 sessions.

Advantages

- Therapy is taken at your own pace as it explores how ready you are to change
- This approach is brief

Disadvantages

- You may not be ready to think about change
- You may prefer a longer-term therapy

Cognitive-Behaviour Therapy (CBT)
CBT is an intervention that explores how your thoughts affect your feelings and behaviour. Therapy will involve a conversation with a therapist, helping you to identify unhelpful thought patterns and understand how your cannabis use fits with this. You will complete homework tasks between sessions to help you to problem solve, and develop strategies for coping with negative thoughts, emotions or experiences. Therapy usually lasts between 6-16 sessions.

Advantages

- Research has shown that this treatment is helpful in reducing cannabis use
- It has long-term benefits

Disadvantages

- Identifying and changing unhelpful thoughts might be hard for you
- You might find completing homework tasks difficult

Family Therapy
Experiencing mental health difficulties or using cannabis can cause stress in the home, affecting you and those around you. Family interventions have been designed to take family issues into account. Family therapy will involve you and your relative(s) having a conversation with a therapist to discuss the effects of your cannabis use, giving everyone a chance to explain what they are experiencing. You will work together to develop problem-solving skills so as to improve any conflicts and tension. Therapy usually lasts between 12-16 sessions.

Advantages

- Sharing thoughts, feelings and experiences can help your family create a more supportive, less stressful home environment
- The focus is on the whole family rather than just you

Disadvantages

- You may feel that having your relative(s) know about your problems and experiences intrusive and see this as 'meddling'
- It can be difficult for everyone to attend appointments

Psycho-education

Psycho-education involves learning about the physical and psychological effects of cannabis use. This can help you understand how cannabis affects you in different areas of your life. You will be provided with information about cannabis use and its effects on your mental and physical health. You will have the opportunity to ask questions as your therapist explains the information for you. Treatment usually lasts between 1-2 sessions. This treatment can also be extended to include a relative or carer if thought this could prove helpful.

Advantages

- This approach is informative and allows an understanding and normalising of what you may be experiencing
- It is easy to administer and brief

Disadvantages

- Sessions would involve education, rather than a therapeutic intervention
- You might prefer a more collaborative approach

Psychodynamic Interpersonal Therapy (PIT)

PIT involves talking to a therapist with a focus on your past and current relationships with people. The therapist will ask questions that focus on your feelings about cannabis use and explore how these feelings might have developed. This can help you learn more about *why* you might be using cannabis, rather than the focus being on *stopping* your cannabis use. The feelings experienced by you and the therapist during sessions are explored to help you improve your understanding. There is no time limit for PIT. Usually PIT lasts a minimum of 8 sessions (1-2 per week) and can continue for a number of years.

Advantages

- You will have the opportunity to explore your feelings in detail, rather than focus on directly changing your behaviours or actions
- This approach gives you the opportunity to spend a lot of time with a therapist

Disadvantages

- It may be difficult for you to talk about your past relationships
- Therapy can be for a long duration which may not suit you

Contingency Management (CM)

Contingency management is a treatment designed to incentives for changing your behaviour. When people are rewarded for their behaviour, they are more likely to keep behaving in this way. This treatment encourages you to change your cannabis use by giving you a reward if you stick to your treatment plan of reducing cannabis. Rewards can include vouchers, privileges, prizes, or modest financial incentives that are of value to you. Contingency management lasts around 5-8 sessions.

Advantages

- You may prefer to focus on changing your cannabis use rather than exploring your past, your thoughts, or getting others involved
- Research shows that CM can help people reduce their substance use, often alongside other interventions

Disadvantages

- This method just aims to modify your behaviour, rather than consider your feelings or experience
- Some people may prefer to learn 'skills' to help them in the future, rather than accept rewards

Physical Health

This treatment would aim to improve your general physical health and therefore your overall quality of life. The treatment would include education to increase your physical health awareness. This could be either face-to-face or via reading material. Education would cover healthy dietary advice, physical exercise information, and how to access general and community support for leading a healthier lifestyle. You would have contact with a health care professional over several months.

Advantages

- The treatment involves promoting good physical health in general and does not focus solely on cannabis. It could be used in combination with another type of treatment
- Taking an active role in the treatment could be viewed as "self-help", which you may prefer

Disadvantages

- It may be difficult to take in the reading material, or to stay motivated to not smoke cannabis
- You may have other physical health problems which prevent you from doing physical exercise

Treatment as Usual (TAU)

Treatment as usual is the treatment that is normally already available to you. This might include help from a mental health team, your GP, a support worker or another health professional. TAU might involve focusing on your psychotic experiences, your cannabis use, antipsychotic medication, psychological treatment, or help with any other health problems you might have.

Advantages

- You may like the professionals supporting you and are happy with the level of care you currently receive
- You might not like the idea of unfamiliar treatments and don't want anything to change

Disadvantages

- You may not receive a specific intervention for your cannabis use
- You may prefer to gain a second opinion, or to speak to a psychologist about your experiences

Modes of Treatment

Individual Therapy

This would involve attending therapy sessions, 1:1 with a therapist. This could either be in your own home, or in a mental health or GP setting. Appointments would be arranged at a time that is convenient for you and the therapist.

Advantages

- You would have the opportunity to speak with a therapist face-to-face over an agreed period of time
- You would have the choice of having appointments in a comfortable location, such as a familiar health setting or your own home

Disadvantages

- It may be difficult for you to travel to appointments
- Home visits by a therapist may be viewed as an invasion of your privacy

Group therapy

Treatment is face-to-face therapy, carried out in groups of people who both use cannabis and experience psychosis. It will involve meeting regularly. Groups are facilitated by a therapist. Group therapy will involve learning about cannabis and the effects it can have on your mental health and developing coping strategies to help support you to change your cannabis use (if you wish). Members of the group learn and support each other under the direction of the therapist. All members of the group are expected to attend each session over the agreed period of time. Group therapy usually lasts between 12–16 sessions.

Advantages

- You can learn from the experiences of others and how they have helped themselves, which may help you feel less isolated, improve your social skills, or gain peer support
- It may feel less intensive than 1:1 therapy

Disadvantages

- You may prefer individual attention if you do not feel comfortable talking about yourself in front of a group
- There is less flexibility about appointment times and location of appointments

eTherapy

This is a computer programme that has been designed to specifically for the treatment of cannabis use. This interaction takes place on a computer, either in your own home, a health setting or library. This will be secure and confidential. Sessions will incorporate elements of psychological therapies to help you to better understand your thoughts, feelings and behaviour. You will work through modules that focus on your thoughts and feelings about using cannabis and the effect it has on your mental health. You will learn coping strategies to help you reduce your cannabis use and manage psychotic experiences. You work through modules at your own pace meaning the duration of treatment is not determined.

Advantages

- There are no appointments to attend, so this treatment can be carried out at your own speed and convenience
- Some people like the anonymous nature of this type of interaction

Disadvantages

- There is no interaction with a therapist so you may find it too impersonal
- You may not have access to a computer or be concerned about confidentiality

mHealth

mHealth is similar to eTherapy as it is a computer program designed to help you reduce your cannabis use. The treatment is delivered via an App on your tablet or smartphone. Access to this will be secure and confidential. You will work through therapeutic modules focussing on your thoughts, feelings and behaviour surrounding your cannabis use, and learn strategies to help you reduce your cannabis use and manage your mental health. You would work through the App at your own pace meaning length of treatment is not determined.

Advantages

- It is taken at your own speed and convenience as there are no appointments to attend
- Some people like the anonymous nature of this type of interaction

Disadvantages

- It may be difficult to stay motivated without the support of a therapist
- You may not have access to the appropriate technology

Telephone Therapy

Telephone therapy involves talking to a therapist over the telephone. This interaction is kept secure and confidential. Telephone therapy sessions will involve aspects of different psychological therapies to help you gain understanding into your thoughts, feelings and behaviours surrounding your cannabis use, and help develop strategies for reducing this.

Advantages

- You may find this convenient as you can talk to the therapist from your own home, meaning no need to travel to appointments
- You may not need to meet with the therapist in person, which you may find less intense

Disadvantages

- You may find the interaction impersonal as you will not see someone face-to-face
- You may have concerns about security and confidentiality

Appendix H: Topic Guide

Treatment Preferences of Cannabis Users with Psychosis

Outline of topics to be covered within the Semi-Structured Interview

(Topic Guide)

Further questioning to clarify information or prompts will be judged by the researcher as necessary:

1. Introduction

1.1 Clarification of the purpose and length of the interview:

We want to know a bit more about your cannabis use, your experiences of treatment, and what you would like from a psychological treatment. The interview should take about 45 minutes, and we can take a break at any time you want to.

1.2 Clarification of anonymity and confidentiality:

If it's ok with you, I will audio record our conversation. It will then be written down (transcribed), and given an anonymous number. All identifiable information will be removed. The script of all conversations (transcriptions) will be kept locked away or in password protected computer files. Quotes from the interview might be published, but they will not be identifiable. Is that ok? Do you have any questions?

2. Mental Health History
How long have you experienced psychosis?
How did you first come into contact with mental health services?
When did you first come into contact with services?
Have you ever experienced any other mental health difficulties, such as anxiety or depression?

3. Experiences of Cannabis Use
At what age did you first use cannabis?
[Probe: So it's been about x years, is that right?]
What were your reasons for using it at first? [E.g. social, for relaxation, suppression of symptoms]
What are your reasons for continuing to use it now?
What do you like about cannabis?
What don't you like about cannabis?
What effect (if any) do you find cannabis has on your mood/mental health?
Have you ever stopped using cannabis?
What was helpful when you did? [E.g. self-care, exercise, coffee with a friend]
Has anyone told you they think you should stop?
[If still using] Do you intend to stop in the future?

Have you ever received any treatment for cannabis use? [If Yes: What? If no, why not?]
Would you like to receive treatment?

4. Experiences of Services

What kinds of support are/have you been able to receive? [For cannabis use and mental health; e.g. medical, psychological, friends/family?]
Have you ever been offered psychological therapy? [Was this for your cannabis use?]
What have you been offered?
Were you given an option?

[4.1 If you have been offered help]:

Of the types of help offered to you, what did you accept? [E.g. medication, talking therapy]
Why?
[Or] Can you tell me/remember what kind(s) of help have you experienced? [E.g. CBT, MI, psychotherapy]
What aspects of this were helpful? [I.e. 1:1, social support, education]
How was this support delivered? E.g. group, individual, telephone, computer
Who delivered this? E.g. Clinical Psychologist, CBT therapist
Do you think therapy helped you?
In what way(s)?
What were your thoughts about psychological therapy before you received it?
What were your thoughts about the support after having received it?
What would you have liked to be different?
Is there anything that could have made the experience better for you?

[4.2 If you were offered therapy but refused]:

What were your reasons for not accepting help? E.g. Not enough information was provided, I didn't think it could help me, I wasn't ready
Why do you think this was?
Do you think you may accept help in the future?
What would need to be different?

[4.3 If you have never been offered therapy]:

[Proceed to 5]

5. Treatment Preferences

If you were to be offered help/support/an opportunity to talk about your cannabis use (again), what kind of help would you prefer? [Based on experience of self and others]
What would be most useful for you? E.g. increased support via therapist, distractions, exercise, education, rewards (contingency management?)
Do you think you would accept support with reducing your cannabis use now?
[If not, why not?]
What kind of help (if any) would you prefer to receive? [E.g. Help managing thoughts, understanding past experiences, help to increase motivation/change behaviour]

How would you like this to be delivered? E.g. Face to face, in a group, with relative(s) involved, with use of incentives]
Where would be the best place to receive support? [E.g. at home, not at home]
Who would you prefer support to be delivered by?
[Should the aim be to reduce/stop cannabis use?]
What would you like to be the focus of this help? E.g. Focus on reducing cannabis use, or symptoms of psychosis, or something else?
What else could support focus on? E.g. Self-confidence, better mood-management, increased motivation to exercise more/try something new?
If a mental health professional were to ask you about your cannabis use, how would you want them to do this? [E.g. build rapport/trust first, get to the point]

Appendix I: Guide for Authors, Clinical Psychology Review

CLINICAL PSYCHOLOGY REVIEW

AUTHOR INFORMATION PACK

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DESCRIPTION

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Appendix J: Guide for Authors, Qualitative Health Research (QHR)

Author Guidelines: *Qualitative Health Research* (QHR)

Please read the guidelines below then visit the Journal's submission site http://mc.manuscriptcentral.com/qhr to upload your manuscript. Please note that manuscripts not conforming to these guidelines may be returned.

Only manuscripts of sufficient quality that meet the aims and scope of QHR will be reviewed.

As part of the submission process you will be required to warrant that you are submitting your original work, that you have the rights in the work, that you are submitting the work for first publication in the Journal and that it is not being considered for publication elsewhere and has not already been published elsewhere, and that you have obtained and can supply all necessary permissions for the reproduction of any copyright works not owned by you.

1. Article types

Each issue of QHR provides readers with a wealth of information — book reviews, commentaries on conceptual, theoretical, methodological and ethical issues pertaining to qualitative inquiry as well as articles covering research, theory and methods.

1.1 What types of articles will QHR accept?

QHR asks authors to make their own decision regarding the fit of their article to the journal. Do not send query letters regarding article fit.

- Read the Mission Statement on main QHR webpage.
- Search the QHR journal for articles that address your topic. Do we publish in your area of expertise?
- Ask these questions: Does it make a meaningful and strong contribution to qualitative health research literature? Is it original? Relevant? In depth? Insightful? Significant? Is it useful to reader and/or practitioner?
- Note the sections: General articles, critical reviews, articles addressing qualitative methods, commentaries on conceptual, theoretical, methodological, and ethical issues pertaining to qualitative inquiry.
- QHR accepts qualitative methods and qualitatively-driven mixed-methods, qualitative meta-analyses, and articles addressing all qualitative methods.
- QHR is a multi-disciplinary journal and accepts articles written from a variety of perspectives including: cross-cultural health, family medicine, health psychology, health social work, medical anthropology, medical sociology, nursing, pediatric health, physical education, public health, and rehabilitation.
- Articles in QHR provide an array of timely topics such as: experiencing illness, giving care, institutionalization, substance abuse, food, feeding and nutrition, living with disabilities, milestones and maturation, monitoring health, and children's perspectives on health and illness.

Look Out for These Regular Special Features

Pearls, Pith and Provocation: This section fosters debate about significant issues, enhances communication of methodological advances and encourages the discussion of provocative ideas.

Book Review Section: *Qualitative Health Research* includes a book review section helping readers determine which publications will be most useful to them in practice, teaching and research.

Mixed Methods: This section includes qualitatively-driven mixed-methods research, and qualitative contributions to quantitative research.

Advancing Qualitative Methods: Qualitative inquiry that has used qualitative methods in an innovative way.

Evidence of Practice: Theoretical or empirical articles addressing research integration and the translation of qualitatively derived insights into clinical decision-making and health service policy planning.

Ethics: Quandaries or issues that are particular to qualitative inquiry are discussed.

Teaching Matters: Articles that promote and discuss issues related to the teaching of qualitative methods and methodology.

2. Editorial policies

2.1 Peer review policy

QHR strongly endorses the value and importance of peer review in scholarly journals publishing. All papers submitted to the journal will be subject to comment and external review. All manuscripts are initially reviewed by the Editors and only those papers that meet the scientific and editorial standards of the journal, and fit within the aims and scope of the journal, will be sent for outside review.

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QHR maintains a transparent review system, meaning that all reviews, once received, are then forwarded to the author(s) as well as to ALL reviewers.

Peer review takes an average of 6–8 weeks, depending on reviewer response.

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The list of authors should include all those who can legitimately claim authorship. This is all authors who:

(i) Made a substantial contribution to the concept and design, acquisition of data or analysis and interpretation of data,
(ii) Drafted the article or revised it critically for important intellectual content,
(iii) Approved the version to be published.

Authors should meet the conditions of all of the points above. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content.

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It is the policy of QHR to require a declaration of conflicting interests from all authors enabling a statement to be carried within the paginated pages of all published articles. Please ensure that a "'Declaration of Conflicting Interests" statement is included at the end of your manuscript, after any acknowledgements and prior to the references. If no conflict exists, please state that "The Author(s) declare(s) that there is no conflict of interest."

For guidance on conflict of interest statements, please see the ICMJE recommendations here.

2.6 Research ethics and patient consent
Medical research involving human subjects must be conducted according to the World Medical Association Declaration of Helsinki.

Submitted manuscripts should conform to the ICMJE Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals, and all papers reporting animal and/or human studies must state in the methods section that the relevant Ethics Committee or Institutional Review Board provided (or waived) approval. Please ensure that you have provided the full name and institution of the review committee, in addition to the approval number.

For research articles, authors are also required to state in the methods section whether participants provided informed consent and whether the consent was written or verbal.

In terms of patient privacy, authors are required to follow the ICMJE Recommendations for the Protection of Research Participants. Patients have a right to privacy that should not be infringed without informed consent. Identifying information, including patients' names, initials, or hospital numbers, should not be published in written descriptions, photographs, and pedigrees unless the information is essential for scientific purposes and the patient (or parent or guardian) gives written informed consent for publication. Informed consent for this purpose requires that a patient who is identifiable be shown the manuscript to be published. Participant descriptors should not be listed individually. Because qualitative research is descriptive, it is recommended that participant quotations not be linked to identifiers in the manuscript.

2.7 Clinical trials
QHR conforms to the ICMJE requirement that clinical trials are registered in a WHO-approved public trials registry at or before the time of first patient enrolment as a condition of consideration for publication. The trial registry name and URL, and registration number must be included at the end of the abstract.

2.8 Reporting guidelines
The relevant EQUATOR Network reporting guidelines should be followed depending on the type of study. For example, all randomized controlled trials submitted for publication should include a completed Consolidated Standards of Reporting Trials (CONSORT) flow chart as a cited figure, and a completed CONSORT checklist as a supplementary file.

Other resources can be found at NLM's Research Reporting Guidelines and Initiatives.

2.9 Data

SAGE acknowledges the importance of research data availability as an integral part of the research and verification process for academic journal articles.

QHR requests all authors submitting any primary data used in their research articles alongside their article submissions to be published in the online version of the journal, or provide detailed information in their articles on how the data can be obtained. This information should include links to third-party data repositories or detailed contact information for third-party data sources. Data available only on an author-maintained website will need to be loaded onto either the journal's platform or a third-party platform to ensure continuing accessibility. Examples of data types include but are not limited to statistical data files, replication code, text files, audio files, images, videos, appendices, and additional charts and graphs necessary to understand the original research. [The editor(s) may consider limited embargoes on proprietary data.] The editor(s) [can/will] also grant exceptions for data that cannot legally or ethically be released. All data submitted should comply with Institutional or Ethical Review Board requirements and applicable government regulations. For further information, please contact the editorial office at vshannonqhr@gmail.com.

3. Publishing Policies

3.1 Publication ethics

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- ***Abstract:*** Unstructured, 150 words. This should be the first page of the main manuscript, and it should be on its own page.
- ***Length:*** QHR does not have a word or page count limit. Manuscripts should be as tight as possible, preferably less than 30 pages including references. Longer manuscripts, if exceptional, will be considered.
- ***Methods:*** QHR readership is sophisticated; excessive details not required.
- ***Ethics:*** Include a statement of IRB approval and participant consent. Present demographics as a group, not listed as individuals. Do not link quotations to particular individuals unless essential (as in case studies) as this threatens anonymity.
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- ***References:*** APA format. Use pertinent references only. References should be on a separate page.

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- Please do not refer to your manuscript as a "paper;" you are submitting an "article."
- The word "data" is plural.

4.2 Word processing formats

Preferred formats for the text and tables of your manuscript are Word DOC, RTF, XLS. LaTeX files are also accepted. The text should be double-spaced throughout and with a minimum of 1.25 inches for left and right hand margins and 2 inches at head and foot. Text should be standard font (i.e., Times New Roman) 12 point.

4.3 Artwork, figures and other graphics

- Figures: Should clarify text.
- Include figures, charts, and tables created in MS Word in the main text rather than at the end of the document.
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This journal is able to host additional materials online (e.g., datasets, podcasts, videos, images, etc.) alongside the full-text of the article. These will be subjected to peer-review alongside the article.

Supplementary files will be uploaded as supplied. They will not be checked for accuracy, copyedited, typeset or proofread. The responsibility for scientific accuracy and file functionality remains with the author(s). SAGE will only publish supplementary material subject to full copyright clearance. This means that if the content of the file is not original to the author, then the author will be responsible for clearing all permissions prior to publication. The author will be required to provide copies of permissions and details of the correct copyright acknowledgement.

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4.6 Reference style
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Articles must be professionally edited; this is the responsibility of the author. Authors seeking assistance with English language editing, translation, or figure and manuscript formatting to fit the journal's specifications should consider using SAGE's Language Services.

4.8 Review Criteria
Before submitting the manuscript, authors should have their manuscript pre-reviewed using the following QHR criteria:

1. **Importance of submission**: Does it make a meaningful and strong contribution to qualitative health research literature? Is it original? Relevant? In depth? Insightful? Significant? Is it useful to reader and/or practitioner?
2. **Theoretical orientation and evaluation**: Is it theoretically clear and coherent? Is there logical progression throughout?
3. **Methodological assessment:** Appropriate to question and/or aims? Approach logically articulated? Clarity in design and presentation? Data adequacy and appropriateness? Evidence of rigor?
4. **Ethical Concerns (Including IRB approval and consent):**
5. **Data analysis and findings:** Does the analysis of data reflect depth and coherence? In-depth descriptive and interpretive dimensions? Creative and insightful analysis? Linked with theory? Relevant to practice/discipline?
6. **Data analysis and findings:** Does the analysis of data reflect depth and coherence? In-depth descriptive and interpretive dimensions? Creative and insightful analysis? Linked with theory?

7. **Discussion:** Results linked to literature? Contribution of research clear? Relevant to practice/discipline?
8. **Manuscript style and format**: Please evaluate writing style: Length (as short as possible], organization, clarity, grammar, appropriate citations, etc.); presentation of diagrams/illustrations?

5. Submitting your manuscript

5.1 How to submit your manuscript

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7. Further information

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