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Effects of a Brief Intervention for Substance Use on Tobacco Smoking and Family Relationship Functioning in Schizophrenia and Related Psychoses: A Randomised Controlled Trial

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ABSTRACT

Surveys indicate that substance use is prevalent in populations with schizophrenia. Family members may be able to support brief interventions (BI).

We conducted a randomised controlled trial with 6-month follow-up among adult patients with schizophrenia and related psychoses who were referred to two hospitals in southern Thailand. Patients with psychosis were screened using the Alcohol Smoking and Substance Involvement Screening Test (ASSIST). 169 participants (all at moderate substance risk on the ASSIST) were randomised to receive simple advice (the clinics' treatment-as-usual, TAU condition), or single-session brief intervention (BI), or a single-session BI with family support (BI-FS).

Given observed substance use, the primary outcome was the ASSIST tobacco smoking involvement score (SIS). Secondary outcomes were cigarettes smoked per day, change motivation (*Taking Steps* from the Stages of Change and Treatment Eagerness Scale), and *DSM-IV* Axis V Global Assessment of Relational Functioning (GARF).

At follow-up, BI-FS participants reported a lower SIS (mean difference, −2.82, 95% confidence interval [CI] −4.84 to −0.81; Glass' effect size [Δ] = 0.57, 95% CI 0.19 to 0.95), smoked fewer cigarettes per day (mean difference −3.10, 95% CI −5.45 to −0.74; Δ = 0.56, 95% CI 0.18 to 0.94), had greater change motivation (mean difference 3.05, 95% CI 0.54 to 5.57; Δ = 0.41, 95% CI 0.03 to 0.79) and GARF (mean difference 6.75, 95% CI 1.57 to 11.93; Δ = 0.54, 95% CI 0.16 to 0.92). The BI-FS group also had better relational functioning in comparison to those receiving BI only (mean difference 5.44, 95% CI 0.20 to 10.67; Δ = 0.46, 95% CI 0.08 to 0.84).

In schizophrenia and related psychoses, a brief intervention supported by a family member reduces smoking involvement, cigarette smoking intensity, and increases change motivation and relational functioning.

1. Introduction

Psychiatric epidemiology surveys report higher rates of psychoactive substance in schizophrenia compared to the general population (Volkow, 2009) and a marked global burden of disease for mental and substance use disorders (7.4% of all disability-adjusted life years worldwide; Whiteford et al., 2013).

Use of alcohol, tobacco (*smoking* herein) and non-medical substances in people with schizophrenia is much higher than the general population. For example, in a community survey conducted in the USA, the rate of lifetime substance use among schizophrenics was as follows: alcohol (89%), smoking (70%), cannabis (45%), cocaine (20%), opioids (18%) and amphetamines (17%; Martins & Gorelick, 2011). A recent cohort study of schizophrenia and related psychoses (the latter including bipolar disorder with psychotic features and schizoaffective disorder), calculated the following odds ratios for substance use relative to the general population: smoking (4.6), heavy alcohol use (4.0), heavy cannabis use (3.5) and recreational drug use (4.6; Hartz et al., 2014).

A wide range of different explanations have been advanced to explain the high rate of substance use and related problems in schizophrenia. For example, people with schizophrenia and other psychoses may be motivated to use psychoactive substances as self-medication or because of social facilitation motivations (Blanchard, Brown, Horan, & Sherwood, 2000). Other explanations include biological factors such as increased sensitivity to the effects of substances (Mueser, Kavanagh, & Brunette, 2007), and "common factors" that increase vulnerability to both substance use and mental illness including personality disorders, poverty or early trauma (Hides, Lubman, & Dawe, 2004; Mueser, Drake, & Wallach, 1998).

Substance use in this population adds complexity to clinical care and is associated with greater illness severity (Harrison et al., 2008), reduced medication compliance (Jonsdottir et al., 2013), more hospital episodes (Schmidt, Hesse, & Lykke, 2011), legal problems (Cantwell, 2003), family relationship difficulties (Salyers & Mueser, 2001; Wilson, Bennett, & Bellack, 2013), and an increased likelihood of relapse (Sorbara, Liraud, Assens, Abalan, & Verdoux, 2003).

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Psychological interventions may be effective at helping to reduce substance use and related harms. Controlled trials of brief interventions (BI) based on motivational interviewing (Miller & Rollnick, 1991, 2002) have reported positive outcomes among those with psychosis, including: reduced alcohol consumption (Milner, Barry, Blow, & Welsh, 2010), increased rate of referral for smoking cessation treatment (Steinberg, Ziedonis, Krejci, & Brandon, 2004) and fewer and shorter hospital treatment episodes (Kavanagh et al., 2004). In trials of longer-term treatment (over 9–18 months) which have involved family members, Barrowclough et al. (2001) and Mueser et al. (2013) reported increased abstinence from substance use, reduced psychiatric symptoms, and improvements in general health and social functioning.

To date, longer-term interventions have been evaluated only in Western health care systems with relatively high resources. The cost of intensive psychological therapies is likely to deter delivery in many treatment systems with modest resources, including Thailand. To our knowledge there has been no involvement of family members in BI for schizophrenia and related psychoses.

Accordingly, our group set out to develop a low-cost BI for substance-related problems that includes a member of the patient's family to support the intervention. We targeted individuals at moderate (rather than high or low) risk for substance-related problems and following the recommendation from WHO that patients with severe scores on the ASSIST should be referred for intensive care.

Our study was conducted at in two outpatient psychiatric treatment clinics: Songkhla Rajanagarinda Psychiatric Hospital (SKPH) and Satun General Hospital (SGH) in the Southern Region of Thailand. SKPH coordinates a network of local community psychiatry services across seven provinces, and SGH is one of the local members of the network.

In each clinic, all patients admitted with schizophrenia or a related psychosis are screened for substance use using the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST; Humeniuk et al., 2008), and simply advised to cut down or quit. The ASSIST was designed to be responsive to the specific range of psychoactive substances uses by a specific population. There have been no substance use prevalence surveys of people with psychosis in Thailand, but surveys of the general population were used to guide the expected substance use profile for the past month, as follows: smoking (23.6%); harmful alcohol use (3.1%); *kratom* (0.6%; the chewed leaves of *mitragyna speciosa*, a μ-opioid receptor agonist; Assanangkornchai, Muekthong, Sam-Angsri, & Pattanasattayawong, 2007; Stolt et al., 2014); inhalants (0.07%); amphetamine (0.05%); and cannabis (0.03%; Aekplakorn et al., 2008; Assanangkornchai et al., 2008). We assumed that the target patient population would have a higher prevalence of substance use than these rates.

Our study was a pragmatic, three-group, randomised controlled trial undertaken in parallel at SKPH and SGH. We hypothesised that in comparison to standard screening and simple advice (the treatment-as-usual [TAU] control), participants receiving a BI-FS or a BI would have a better outcome, and that the BI-FS intervention would be more effective than BI alone. This report presents the findings from the study.

2. Methods

2.1. Participants

Patients targeted for the study were diagnosed with psychosis and assigned to one of the following *International Classification of Disease* (*ICD-10*) psychosis disorders: schizophrenia (F20); acute and transient psychotic disorder (F23); and unspecified non-organic psychosis (F29) (World Health Organization [WHO], 1992). Eligible patients were: adult (18 years and over), able to read and write Thai, had regular contact with one or more family members, and screened positive with the ASSIST for recent psychoactive substance use in a moderate range of severity (see Section 2.5 below for information on scoring). A psychiatrist ruled out amphetamine-induced psychotic disorder (*ICD-10*; F15-15) differentially by clinical history and negative urine drug screen. Other exclusion criteria were communication or cognitive problems, aggression, presumed substance intoxication or onset of withdrawal.

The study was implemented according to Good Clinical Practice guidelines. The protocol and research materials were reviewed by the Institutional Ethics Committees at the Faculty of Medicine, Prince of Songkla University (PSU: 55-222-18-5-2) and SKPH (15/2554) and the protocol was registered with the Australian New Zealand Clinical Trials Registry (ACTRN12612001059853). A Trial Management Group at the PSU Faculty of Medicine (headed by author S.A.) was responsible for day-to-day running of the study. All enrolled participants gave their written informed consent.

2.2. Randomisation

Patients were randomised in a 1:1:1 ratio to one of three study groups: a single-session BI, a single-session BI with family support (BI-FS), or an advice-only TAU.

Prior to the study, an independent researcher from PSU generated a random list of participant-to-group assignments for the sequential, non-stratified randomisation procedure (using R software; R Core Team, 2014) and sealed these in sequentially numbered opaque envelopes. The procedure was implemented by the research team at each site after screening, and coordinated by lead investigator N.T.

2.3. Interventions

All study interventions were delivered by a team of four psychiatric nurses (two at each site) who worked on the study throughout.

The TAU group reflected the standard procedure at each clinic in which any patient diagnosed with psychosis who is screened at moderate risk with the ASSIST is advised to stop or reduce their use of each substance declared. For the study, a nurse met the participant in an interview room to report their ASSIST score and give this advice which took approximately 5 minutes.

The BI group received a 30–45 minute face-to-face session by a study nurse giving personalised feedback from the ASSIST and motivating change using Motivational Interviewing techniques for BI interventions adapted by the WHO ASSIST group (Humeniuk et al., 2012).

The BI materials were developed in treatment manual format and two expert reviewers in Thailand commented on a complete draft version before final editing of materials. The BI session included the following elements:

- discussion of substance use patterns and motives;
- education on intoxication, tolerance and withdrawal symptoms;
- how physical and mental health problems can be caused or exacerbated by substance use;
- behaviour change options designed to build motivation, intentions and goals;
- cognitive and spiritual strategies to identify high-risk situations and cope with cravings; and
- information on changing substance use, and accessing local services and supports.

The BI-FS group received a 45–75 minute face-to-face session with a nurse with the participant's nominated key relative in attendance. The BI-FS session covered the six content areas from the BI above, supplemented with the following topics:

- the importance and methods of good communication between family members;
- general problem-solving techniques that the family can use to help members who face personal difficulties; and
- specific methods the family can use to help the participant stop or reduce their use of the substances declared during the ASSIST screening.