Asian Journal of Psychiatry 46 (2019) 15–18

Contents lists available at ScienceDirect

Asian Journal of Psychiatry

journal homepage: www.elsevier.com/locate/ajp

Well-informed but not aware: The P.A.C.T.® psychoeducation program for schizophrenia improves knowledge about, but not insight into, the illness

Clément Dondé[a,b,c,*], Muriel Senn[d], Julien Eche[e], Lassaad Kallel[f], Mohamed Saoud[a,b,c,e], Jérôme Brunelin[a,b,c]

[a] INSERM, U1028, CNRS, UMR5292, Lyon Neuroscience Research Center, Psychiatric Disorders: from Resistance to Response Team, Lyon, F-69000, France
[b] University Lyon 1, Villeurbanne, F-69000, France
[c] Centre Hospitalier Le Vinatier, Bron, France
[d] Centre Hospitalier de la Côte Basque, F-64109, Bayonne, France
[e] Department of Liaison Psychiatry, University Hospital Neurologique, Hospices civils de Lyon, Lyon, France
[f] Résidence ENNESRINE, Gab G12, 2036 La Soukra, Tunisia

ARTICLE INFO

Keywords:
Schizophrenia
Psychoeducation
Insight
Knowledge
Cognition

ABSTRACT

Background: Most individuals with schizophrenia (SZ) have little to no insight regarding the presence of their illness. Psychoeducational programs are state-of-the-art interventions that consist in delivering stabilized patients with accurate knowledge about their illness and its treatment. Evidence suggests a significant relationship between levels of illness-related knowledge and insight in SZ patients. However, the effect of psychoeducation on these related outcomes needs to be explored further.

Methods: In this open label study involving 30 French-speaking patients with SZ, we propose to compare levels of knowledge and insight before and after the French P.A.C.T.® psychoeducation program to investigate how this approach affects both outcomes. Knowledge levels were measured with the self-questionnaire "*What do I know?*". Insight levels were measured using the Scale to Assess Unawareness of Mental Disorder (SUMD). Symptoms were assessed with the Positive And Negative Syndrome Scale (PANSS).

Results: A large significant improvement of knowledge was observed ($p < 0.001$; $d = 0.77$). By contrast, the analysis reported no significant effect of psychoeducation on insight ($p = 0.86$; $d = 0.07$). PANSS total scores were significantly decreased after treatment ($p = 0.001$; $d = 0.66$).

Conclusions: Although the P.A.C.T.® program is a promising tool for improving illness-related knowledge in SZ patients, its use is not sufficient to significantly improve insight levels.

1. Introduction

Most individuals diagnosed with schizophrenia (SZ) have little to no insight regarding the presence of their illness (Amador and Gorman, 1998; McCormack et al., 2014). In other words, SZ is associated with impaired ability to label own psychotic experiences as pathological, being aware of the illness course and risk of relapse, and acknowledge the interest of validated treatment (Dam, 2006; David et al., 1995). Lack of insight in these individuals ultimately leads to poor treatment adherence, more relapses and longer hospitalizations (Schwartz et al., 1997). Poor insight is also correlated with lower global functioning (Parellada et al., 2011), altered quality of life (Mohamed et al., 2009; Pu et al., 2018) and directly associates with worsened outcome (Lincoln et al., 2007). As a result, when working patients with SZ, improving insight into the illness is an important objective since currently available therapeutic approaches such as antipsychotic drugs have only a limited influence on insight capacities (Phahladira et al., 2019).

During the last decade, numerous psychoeducational approaches have been developed and are now considered as state-of-the-art interventions for SZ (Galletly et al., 2016; Lehman et al., 2004). Psychoeducation consists in delivering stabilized patients with accurate knowledge about their illness and treatment, thereby improving symptoms, adherence and prognosis (Xia et al., 2011). The programs are preferentially based on an interactive group model with a definite number of structured sessions. In such model, a healthcare provider, oftentimes with the assistance of other professionals, videos or demonstrations, takes on the role of an educator to help patients become better cognizant and informed about their condition. To foster learning

* Corresponding author at: CH Le Vinatier, Batiment 416, 95 boulevard Pinel, BP 300 39, 69 678 BRON cedex, France.
E-mail address: clement.dondecoquelet@gmail.com (C. Dondé).

https://doi.org/10.1016/j.ajp.2019.09.034
Received 1 August 2019; Received in revised form 26 September 2019; Accepted 26 September 2019
1876-2018/ Published by Elsevier B.V.

and "real-life" application of new knowledge, psychoeducation often involves skill learning and positive reinforcement throughout the group. Meta-analyses covering almost 50 studies have reported better adherence, fewer relapse, as well as improvements of clinical symptoms and global functioning after psychoeducation (Xia et al., 2011; Zhao et al., 2015).

Seminal viewpoint of Amador and Strauss (1993) has long suggested that poor insight of patients could stem from, among others potential deficits, a lack of general knowledge about the illness (Amador and Strauss, 1993). More recent studies have supported this assumption by demonstrating significant associations between levels of illness-related knowledge and insight in SZ individuals (Alenius et al., 2010; Chan et al., 2014). Studies investigating the effectiveness of the core psychoeducational component (i.e., conveying new knowledge) revealed significant improvements of illness knowledge questionnaires scores after psychoeducation (Jahn et al., 2011; Lincoln et al., 2007). Regarding insight, recent meta-analyses reported moderate, yet non-significant, effect sizes at post- test (Pijnenborg et al., 2013; Xia et al., 2011; Zhao et al., 2015). However, psychoeducation studies involved heterogeneous programs in term of number of session and content. Only one study has shown a positive impact of psychoeducation on both insight and knowledge levels in a same group of patients (von Maffei et al., 2015). Hence, the effect of psychoeducation programs on these related outcomes needs to be explored further.

In France, The P.A.C.T.® *(Psychose, Aider, Comprendre, Traiter)* program has been developed to provide French-speaking SZ patients with a validated psychoeducational approach in their treatment regiment (Bayle et al., 2019; Salomé et al., 2002). Although this program showed promising results on symptoms and illness-related knowledge (Dumas et al., 2000), no studies have yet investigated its concomitant impact on insight.

The primary objective of this study was to compare levels of knowledge and insight before and after the psychoeducational P.A.C.T.® program to investigate how this approach affects both outcomes in a same group of SZ subjects. We hypothesized that extending knowledge through psychoeducation will enable patients to learn and internalize relevant information about the illness and, in turn, develop better insight into their condition. As a secondary objective, we sought to explore whether the P.A.C.T.® program improves the clinical symptoms of SZ. We believed that our study could provide useful evidence about the potential benefits of psychoeducational approaches in SZ and allow for future refinement of the psychoeducation P.A.C.T.® program.

2. Methods

2.1. Participants

In this open label study, 30 patients diagnosed with SZ or schizoaffective disorder without a history of substance dependency according to the Diagnostic and Statistical manual of Mental Disorders (DSM-IV) criteria were recruited at a tertiary care facility (Centre Hospitalier Le Vinatier University Adult Psychiatry unit, Bron, France). All patients were interviewed with the French version of the Mini-International Neuropsychiatric Interview (MINI) to assess the presence of clinical symptoms and diagnose of SZ. The mean age was 30.5 ± standard deviation 1.3 years old, sex ratio 7 F/ 23 M and illness duration 7.8 ± 1.1 years. All participants had never been involved in a psychoeducation program before the study.

All assessments were performed at before and after the P.A.C.T.® program by trained clinicians, in accordance with relevant guidelines and regulations.

2.2. P.A.C.T.® psychoeducational program

The P.A.C.T.® program was divided into 16 weekly sessions consisting of watching a short thematic video followed by supportive group therapy focusing on problem-solving skills for approximately 90 min. After each session, participants were given printed material summarizing the session's content. The program was divided into three modules (~5 sessions each) placing emphasis on (i) what is actually like to live with SZ, (ii) vulnerability and relapse, and (iii) progress toward recovery. Each session was conducted by two nurses and one psychiatrist from the psychiatry unit team. A patient stakeholder participated in some sessions. The study was completed across 4 groups involving 6–8 patients each.

2.3. Evaluations

2.3.1. Knowledge

Knowledge about SZ was measured with the self-questionnaire "*What do I know?"* developed for this study, and tailored to the psychoeducational content of the P.A.C.T.® program. Its 30 questions are related to those topics discussed in the psychoeducation groups, concerning clinical symptoms, medication, vulnerability and recovery. Each question includes 3 true/false items (e.g., "auditory hallucinations is a symptom of SZ", "antipsychotic medication can help me decreasing the voices"). Total correct responses were used for analysis, with higher scores indicating higher knowledge.

2.3.2. Insight

insight levels were measured using a French version of the Scale to Assess Unawareness of Mental Disorder (SUMD) (Raffard et al., 2010). This eleven-item semi-structured interview evaluates global awareness of having a mental disorder, the social consequences of the disorder, the effects achieved from antipsychotic medication, and specific insight into clinical symptoms and their attribution to the psychiatric disorder. Dimensions of insight were rated in present time on a five-point Likert scale ranging from 1 (aware) to 5 (unaware). Total SUMD score was used for analysis, with higher scores indicating lower awareness.

2.3.3. Symptoms

All patients were interviewed with The Positive and Negative Syndrome Scale (PANSS) (Kay et al., 1987) that assesses the presence of SZ clinical dimensions (positive symptoms, general psychopathology, negative symptoms) rated from 1 (absence) to 7 (extreme).

2.4. Analyses

Normality of the distributions was investigated with Shapiro-Wilkinson tests. Between-time comparisons were performed with paired t-tests and Mann-Whitney z-tests for normal and non-normal continuous outcomes, respectively. Effect of potential confounds (age, sex ratio and illness duration) were assessed using covariance analyses. Cohen's *d* effect sizes (ES) were computed to quantify between-groups significant differences, with 0.20 = small, 0.50 = medium and 0.80 = large ES. Relationships between measures were conducted with correlation tests. Significance threshold was set at $p < .05$. All analyses were performed using JASP software version 0.9.1. (https://jasp-stats.org).

3. Results

A significant improvement of knowledge scores ("*What do I know?*" questionnaire) was observed after the psychoeducation program with medium effect size ($z_(2,29) = 3.44$; $p < 0.001$; $d = 0.77$; Fig. 1A). By contrast, the analysis reported no effect of psychoeducation on insight (SUMD) scores ($z_(2,28) = 0.18$; $p = 0.86$; $d = 0.07$; Fig. 1B). Clinical symptoms indexed by the PANSS total score were significantly improved after treatment ($t_(2,28) = —3.53$; $p = 0.001$; $d = 0.66$; Fig. 1C). When considering PANSS subscales, only the general psychopathology dimension was significantly improved (PANSS positive: $z_(2,27) = —0.97$, $p = 0.33$; PANSS negative: $z_(2,27) = —0.58$, $p = 0.56$; PANSS

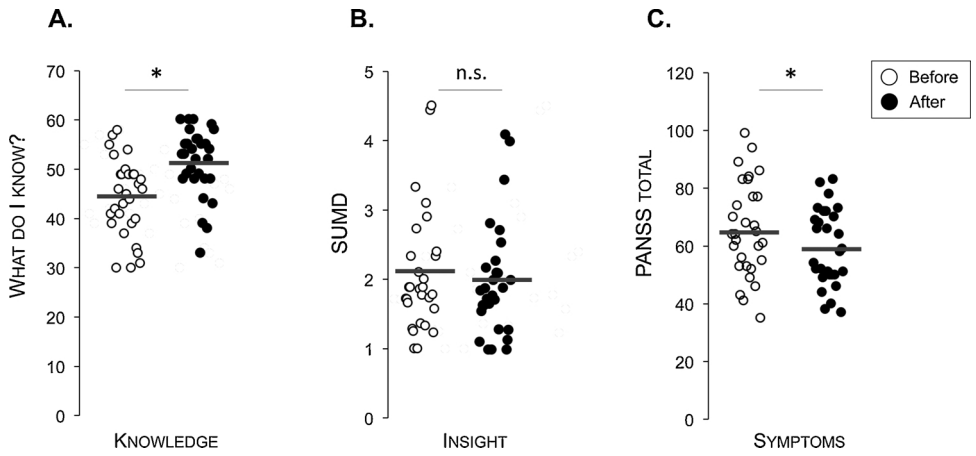

Fig. 1. Outcomes at pre- (before) and post- (after) psychoeducation assessments.Means are represented in grey bars.*$p < 0.05$ n.s.: non significant.
SUMD: Scale to assess Unawareness of Mental Disorder
PANSS: Positive and Negative Syndrome Scale

general psychopathology: $t_{(}2,28_{)} = —3.02$, $p = 0.0005$).

Pre-to-post improvement of Knowledge was still significant when age, gender and illness duration were entered in a covariance analysis ($p = 0.03$), but symptoms improvement lost significance. The relationship between knowledge and PANSS total improvements (measured as the difference post-pre) was not significant (Spearman's $r = 0.30$, $p = 0.15$).

4. Discussion

The main objective of this study was to investigate the impact of the P.A.C.T.® psychoeducation program on knowledge about and insight into SZ in a sample of patients with SZ. In contrast to our primary hypothesis (i.e., concomitant improvement of both illness-related knowledge and insight after psychoeducation), the P.A.C.T.® program did not have a significant impact on insight as assessed by the SUMD. By contrast, we observed a significant improvement of learnt knowledge and overall symptomatology after the psychoeducational intervention, which reproduces a previous investigation of the P.A.C.T.® program in SZ groups (Dumas et al., 2000).

This differential impact means that the P.A.C.T. ® procedure did not allow patients to manipulate and appropriate new knowledge in a sufficient manner to gain better insight. A potential explanation could be related to the alteration of semantic knowledge described in SZ, a phenomenon where patients present with impaired ability to use new salient semantic knowledge appropriately (Doughty et al., 2008). Another study demonstrated that self-rating levels of insight (often referred as "cognitive insight") are not correlated with clinical ratings of insight as measured by the SUMD (Tranulis et al., 2008). Therefore, it is possible that subjective aspects of insight in our sample differentiated from the SUMD outcome and may have improved the same manner as subjective levels of knowledge evaluated by the "*What do I know"* self-questionnaire. This hypothesis remains to be explored by further studies including both self- and clinician- evaluations of insight. We initially posit that providing patients with relevant information about their condition would improve levels of insight, which implies that poor insight is related or even induced by a lack of knowledge regarding the illness. However, it is likely that knowledge-focused psychoeducation alone was not sufficient to overcome other mechanisms that potentially concurred to poor insight in our sample of SZ subjects. For instance, Amador et al., suggested that lack of insight might also be a consequence of shared neural alterations with anosognosia, that is, fronto-parietal impairments (Amador et al., 1991). This assumption is supported by lower neuropsychological performance of frontal executive functioning (Laroi et al., 2000; Raffard et al., 2009) and altered neuroimaging measures of frontal lobes (Orfei et al., 2013; Sapara et al., 2007) that were demonstrated strongly associated with poor insight in patients with SZ.

The absence of significant impact of the P.A.C.T.® program on insight in our group corroborates recent meta-analyses that have demonstrated moderate but non-significant improvement of insight measures after psychoeducation (Pijnenborg et al., 2013; Xia et al., 2011; Zhao et al., 2015). This highlights a need for complementary approaches that specifically target cognitive processes that are relevant for insight. For instance, brief intervention focused on self-reflection improvement (Pijnenborg et al., 2011) and meta-cognitive training (de Jong et al., 2019b) have shown promising results on insight impairments of SZ subjects. Ideally, core components of such approaches could be embedded to the P.A.C.T.® program. More broadly, the program may complement other cognitive interventions in SZ that efficiently target social skills deficits and internalized stigma (Li et al., 2018; Thonse et al., 2018), especially since a lack of insight can hamper the effect of such intervention (de Jong et al., 2019a).

Several limitations to the present study should be acknowledged. First, conversely to prior studies investigating knowledge gain after psychoeducation (Jahn et al., 2011; Lincoln et al., 2007), the questionnaire "*What do I know*" was not a validated assessment. Second, no measures were performed at further endpoints, which prevent us to draw conclusions about the potential long-term impacts of the P.A.C.T.® program on knowledge, insight and symptoms. Third, no control group was included in the study, which makes it impossible to rule out a placebo effect. Furthermore, we cannot know whether knowledge and symptoms improvement were due to the psychoeducational program or to other factors, such as spontaneous improvement, treatments changes, other concurrent therapies or lifestyle interventions.

In sum, although the P.A.C.T.® program is a promising tool for improving symptoms and illness-related knowledge in patients with SZ, its use is not sufficient to significantly improve levels of insight. Future investigations are warranted to define how to effectively target and assess levels of insight in this specific population.

Funding

The research study was not funded.

Declaration of Competing Interest

The authors declare no conflicts of interest with respect to the authorship, research, and publication of this article.

Acknowledgments

The authors acknowledge the Janssen-Cilag company for having provided the P.A.C.T.® psychoeducational resources to our Department.

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