

Preventing cognitive decline in chronic schizophrenia: Long-term effectiveness of integrated psychological therapy and emotional management training

María Ruiz-Iriondo^{1,2}, Karmele Salaberria^{1,2}, Rocío Polo-López¹, Alvaro Iruín^{1,3},
and Enrique Echeburúa^{1,2}

¹ Instituto de Investigación Sanitaria BIODONOSTIA, ² Universidad de País Vasco, and ³ Red de Salud Mental de Guipúzcoa

Abstract

Background: Effective group psychological therapies in the chronic phases of schizophrenia are rare. This paper describes the results of testing a group therapy that includes integrated psychological therapy (IPT) together with an adaptation of emotional management therapy (EMT), delivered in a sample of outpatients with chronic schizophrenia. **Method:** 42 patients received the psychological intervention during eight months and they were assessed at baseline, posttreatment and 1, 3, 6 and 12 months follow-up. **Results:** The program was well accepted, and there was only one dropped out during the therapy and 2 hospital admissions during the 20 months of contact with patients along the study. Improvements were observed in cognition, social functioning, and quality of life after the treatment, and these results were maintained to the long-term follow-up. To summarize, patients were better 12 months after the treatment than in baseline. **Conclusion:** The integrative psychological program applied was effective and it was well accepted and could be used in public mental health services as a protective factor, reducing hospitalizations, preventing cognitive decline, helping patients to manage their daily worries and making them feel more supported.

Keywords: Chronic schizophrenia, CBT, integrated psychological therapy (IPT), emotional management training (EMT), clinical study.

Resumen

Prevención del deterioro cognitivo en la esquizofrenia crónica: eficacia a largo plazo de la terapia psicológica integrada y el entrenamiento en manejo de emociones. **Antecedentes:** los programas de tratamiento psicológico grupal eficaces para las fases crónicas de la esquizofrenia son escasos. Este artículo describe los resultados obtenidos tras la aplicación de un programa grupal, que incluye la terapia psicológica integrada (IPT) junto con una adaptación de la terapia de manejo emocional (EMT), en una muestra de pacientes ambulatorios con esquizofrenia crónica. **Método:** 42 pacientes recibieron el programa durante ocho meses y se evaluaron al inicio, en el post-tratamiento y en los seguimientos de 1, 3, 6 y 12 meses. **Resultados:** el programa fue bien aceptado ya que únicamente hubo un abandono durante los 8 meses de tratamiento y 2 ingresos hospitalarios durante los 20 meses de duración del estudio. Se obtuvieron mejoras en la cognición, el funcionamiento social y la calidad de vida tras recibir el tratamiento, y éstas se mantuvieron en el seguimiento a largo plazo. En resumen, los pacientes estaban mejor 12 meses después de recibir el tratamiento que en la evaluación inicial. **Conclusión:** el tratamiento resulta efectivo, ha sido bien aceptado y podría ser útil en los servicios de salud para reducir las hospitalizaciones, prevenir el deterioro cognitivo y ayudar a los pacientes a manejar sus preocupaciones diarias.

Palabras clave: esquizofrenia crónica, TCC, Terapia psicológica integrada (IPT), entrenamiento en manejo de emociones (EMT), estudio clínico.

Historically, the course of schizophrenia has been described as chronic in approximately 40% of cases (Schultze-Lutter, Klosterkötter, & Ruhrman, 2006), only between 25 and 30% of patients achieve a complete recovery after a first episode. Relapses are typical of the chronic phase of the illness which is characterized using the following criteria (Häfner & an der Heiden, 2008): a) more than 5 years since the first episode; b) a history of several relapses; c) a failure to achieving their premorbid functioning; and

d) severe residual symptoms, emotional lability and difficulties establishing social relationships (Ruiz-Iriondo, Salaberria, & Echeburúa, 2013). There may also be delusional thoughts or auditory hallucinations, which are resistant to medication, and in 75 to 85% of patients, severe cognitive difficulties (Green & Harvey, 2014).

In chronic stages of the illness, the intensity of positive symptoms decreases with time, while the level of negative and depressive symptoms remains unchanged, and cognitive deterioration increases (Cohen, Forbes, Mann, & Blanchard, 2006). Longitudinal studies have found poorer scores in cognitive performance at 2.5- and 6-year follow-ups than baseline (Harvey et al., 1999; Friedman et al., 2001).

Empirical evidence demonstrates the importance of cognitive factors in schizophrenia; specifically, substantial cognitive

deficits have been documented. The characteristics of these are (Holthausen et al., 2002): a) they are found in most patients and even in first-degree relatives; b) they are considered an indicator of vulnerability to the disorder as they appear at the earliest stages of the illness, and can act as a trigger for relapse (Fioravanti, Bianchi, & Cinti, 2012; Fusar-Poli et al., 2013; Miret, Fatjo-Vilas, Peralta, & Fañanás, 2016); and, finally c) they remain fairly stable over time, although they can worsen with age (Bowie, Reichenberg, McClure, Leung, & Harvey, 2008).

These cognitive deficits mediate in the complete rehabilitation of patients (Green & Harvey, 2014; Keefe & Harvey, 2012), since they affect tasks such as the acquisition of social skills, the resolution of interpersonal problems, the recovery of premorbid activity and the quality of life (Harvey & Strassnig, 2012).

From a therapeutic point of view, psychopharmacology has been the first choice treatment, but recent studies have reported that cognitive deficits do not improve with pharmacological treatment and can even worsen with continuous long-term use of medications (Wunderink, Nieboer, Wiersma, Sytema, & Nienhuis, 2013; Harrow, Jobe, & Faull, 2014). Psychological therapies, such as cognitive-behavior therapy (CBT), cognitive remediation and family interventions, have shown a high level of efficacy in the treatment of psychosis (Australian Psychological Society, 2018; National Institute for Clinical Excellence for psychosis and schizophrenia in adults, 2014; Moriana, Gálvez-Lara, & Corpas, 2017). Regarding psychological treatments, integrated psychological therapy (IPT) shows good results (Mueller, Schimdt, & Roder, 2013; Mueser, Deavers, Penn, & Cassisi, 2013) in experimental conditions (Roder, Mueller, Mueser, & Brenner, 2006; Roder, Mueller, & Schmidt, 2011) and in clinical settings (Barlatti, Valsecchi, Galluzo, Turrina, & Vita, 2018). IPT improved symptom severity, neuropsychological and psychosocial functioning at 1-year follow-up (Vallina et al., 2001).

In recent years, various studies have investigated difficulties in emotional processing in patients with schizophrenia (Jaramillo, Ruiz, & Fuentes, 2011; Underwood et al., 2016), as well as the relationship between these difficulties and the emergence and worsening of psychotic symptoms (Kramer et al., 2014; Marwaha et al., 2014). Patients with schizophrenia find it difficult to identify and regulate emotions (Lincoln et al., 2015; O'Driscoll, Laing, & Mason, 2014).

Hodel, Brenner, Merlo, & Teuber (1998) and Hodel, Kern, & Brenner (2004) developed emotional management training (EMT) to work on specific factors related to social cognition. Little data has been published on the results of IPT plus EMT for patients with chronic schizophrenia (Hodel et al., 2004).

To address this gap, the primary objective of this study was to assess the effectiveness of IPT together with EMT in the long-term in Spanish samples.

Method

Participants

This study was evaluated and approved by the Ethics Committees of the University and the Public Health Services. Patients were recruited through the mental health centers and all were selected and diagnosed by their assigned psychiatrist. The inclusion criteria were: a) having ≥ 5 years since their first episode and aged between 25 and 65 years; b) being in a stable phase of

the illness and under psychopharmacological treatment; c) having negative or attenuated positive symptoms; d) failing to achieve premorbid functioning; and e) having no diagnosis of mental retardation or associated neurological disorders.

The participants who had agreed to participate signed an informed consent form and started the baseline assessment (N=42). This was conducted by a clinical psychologist during three 1-hour sessions in the mental health centers. Participants were assessed at the end of treatment, and 1, 3, 6 and 12 months follow-up.

Instruments

Screen for Cognitive Impairment in Psychiatry (SCIP) (Pino et al., 2008; Purdon, 2005). This test assesses cognitive impairment through five areas: immediate and delayed verbal learning, working memory, verbal fluency and information processing speed. The test-retest reliability ranged from .74 to .90 and Cronbach's alpha was .73. To avoid learning process bias, parallel forms of the instrument have been used throughout the follow-ups.

Wechsler Adult Intelligence Scale-Third Edition (WAIS-III) (Wechsler, 1999). Short forms of this scale have been designed for individuals with schizophrenia. In clinical patients, scores on these short forms are correlated (.91) with the overall intelligence quotient (IQ) of the full scale (Fuentes, Romero, Dasí, & Ruiz, 2010).

Wisconsin Card Sorting Test (WCST) (Heaton, Chelune, Talley, Kay, & Curtiss, 1993). This test assesses attention span, planning and execution, and hence, is considered a valid measure of executive function. We used standardized and validated Spanish version by TEA Editions.

Social Functioning Scale (SFS) (Birchwood, Smith, Cochrane, Wetton, & Copestake, 1990). We have used the short version of this classical scale, validated in a Spanish clinical sample, with a Cronbach's alpha of .76 (Alonso et al., 2008).

Lancashire Quality of Life Profile (LQoLP) (Oliver, Huxley, Priebe, & Kaiser, 1997; Spanish version by Vázquez-Barquero et al., 1997). This instrument assesses patient satisfaction with various aspects of their life, as well as global wellbeing.

Procedure

Participants received psychopharmacological treatment together with IPT plus EMT. The therapy is designed to be used in groups and consists of a five-level program that is structured and hierarchical, with a focus on improving basic and social skills. The first two levels concentrate on improving basic cognitive processes such as attention, perception and memory, while the other three include activities focused on the acquisition and improvement of social and problem solving skills. The EMT module has the same format as the IPT program. It works at three levels: 1) evaluation of emotional expression; 2) analysis of participants' maladaptive coping strategies, that may interfere in social functioning; and 3) learning and acquisition of more adaptive strategies for managing emotions. The psychological therapy was applied in groups of 4 to 6 patients, in 1-hour sessions, delivered twice a week for a total of 60 sessions during 8 months per group (Roder, Brenner, Hodel, Kienzle, & Fuentes, 2007). The therapists were two psychologists with expertise in CBT for psychosis. The program is summarized in Table 1. After the therapy, patients were assessed in the one, three, six and twelve month's follow-ups. They were in contact with the study for a total of 20 months.

Table 1
Components of the Intervention program

Subprograms	Focus of the intervention	Techniques
Cognitive differentiation (10 sessions)	Attentional Skills Concept formation	Card sorting Exercises of verbal concepts
Social perception (10 sessions)	Analysis of social stimuli	Description and interpretation of social stimuli Discussion of the meaning of the situation
Verbal communication (10 sessions)	Conversation Skills	Verbal repetition exercises Similar Repeat Exercises Development of questions Conversation on a current topic Free Conversation
Social skills (10 sessions)	Social skills	Work on thoughts Social Behavior Training Role-playing
Interpersonal problem solving (10 sessions)	Interpersonal problem solving strategies	Identification and analysis of problems Identification and discussion of maladaptive ideas Generalization into everyday life
Emotional Management Training (10 sessions)	Reducing the influence of negative emotions	Knowledge about emotions Analysis of negative emotions Emotional management strategies Relaxation techniques Implementation

Data analyses

IBM SPSS Statistics for Windows, Version 23.0 was used. Data were analyzed using descriptive statistics: means and standard deviations for quantitative variables, and frequencies and percentages for qualitative. Since the assumption of normality, checked using the Kolmogorov-Smirnov test, was not met in some variables, non-parametric tests were used. In order to assess changes in the participants over the course of the assessments, the Friedman test and the Wilcoxon signed-rank test were performed, and effect sizes were calculated.

Results

Participants, 27 men and 15 women, had a mean age of 43.33 years ($SD = 9.55$) and were Caucasian. Approximately 86% were single and 88% did not have children. More than half of the participants had primary education (38%) or professional training (36%), and only 12% had a university-level education. 71% were classified as incapable of work or retired and only 17% were economically active, usually in a sheltered job.

They had a mean illness duration of 18.19 years ($SD = 7.57$) and a mean of more than three psychiatric admissions ($M = 3.14$,

$SD = 3.92$). In 57% of the cases, participants were diagnosed with paranoid schizophrenia, according to ICD-10 (WHO, 1992) criteria. The mean age at first psychiatric admission was 26.08 years in women and 24.25 in men. Two-thirds (65%) of patients used psychosocial rehabilitation services and the others (35%) refused to go to a daycare center.

Results of treatment

Patients were in contact with the program over a period of 20 months. Adherence was very high, only one patient dropped out during the 8 months treatment. Treatment attendance was high (therapeutic compliance was 80% of sessions). During the treatment period, none of the participants required hospital admission. Table 2 shows the evolution of the group throughout the follow-up assessments.

Results of cognitive functioning

In the SCIP, Table 3 shows the size of the differences between the scores of participants and the normative values (Gómez-Benito et al., 2013). At baseline, there was a large difference between

Table 2
Evolution of participants

Cause	Assessment				
	Post treatment	1 month	3 months	6 months	12 months
Drop out	1	6	2	3	0
Hospitalization	0	0	1	1	0
Day care center enrollment	0	0	0	1	1
Sheltered job enrollment	0	1	1	1	0
Total	41	33	29	25	25

patients and reference population ($d = 0.89$); in contrast, at the 12-month follow-up, there was only a small difference ($d = 0.37$) in total score.

Between pretreatment and 12 months follow-up, patients improved on the total score of the SCIP ($\chi^2(3) = 13.53; p < .01$) and VLT-D ($\chi^2(3) = 9.42; p < .05$). Between pre- and posttreatment significant differences were found in the total score ($z = -3.38, p < .01, r = .37$) and all subscales: VLT-I ($z = -2.05, p < .05, r = .23$); WMT ($z = -3.00, p < .01, r = .33$); VFT ($z = -2.08, p < .05, r = .23$); VLT-D ($z = -2.80, p < .01, r = .31$); and PST ($z = -1.93, p < .05; r = .21$). Results were maintained to the 12-month follow-up.

Data from WAIS-III shown that performance improved from pre- to 12 month follow-up on total IQ score ($\chi^2(3) = 13.38, p < .01$), digit symbol coding ($\chi^2(3) = 24.22, p < .001$); picture completion ($\chi^2(3) = 13.96, p < .01$) and information ($\chi^2(3) = 18.47, p < .001$). Between pre and posttreatment significant differences were found in total IQ score ($z = -4.88, p < .001, r = .53$); similarities ($z = -3.14, p < .01, r = .34$); information ($z = -3.14, p < .01, r = .34$); picture completion ($z = -3.42, p < .001, r = .37$); block design ($z = -2.03, p < .05, r = .22$); and digit symbol-coding ($z = -4.08, p = .001, r = .44$). These results were maintained until the 12-month follow-up.

Table 3
SCIP: size differences between cut point and results

	Cut point		PRE			POST			12 month		
	M	SD	M	SD	d	M	SD	d	M	SD	d
VLT-I	18.83	4.07	14.71	5.09	0.89	16.29	4.05	0.62	15.84	4.65	0.68
WMT	17.10	4.46	15.57	4.94	0.32	17.10	3.97	0.00	17.32	4.67	-0.04
VFT	15.13	5.74	13.83	4.44	0.25	14.93	4.57	0.03	15.60	4.95	-0.08
VLT-D	5.17	2.35	2.36	2.31	1.02	3.22	2.34	0.83	3.20	2.41	0.83
PST	9.25	3.54	6.79	2.46	0.80	7.37	2.59	0.60	7.28	2.40	0.65
Total	65.50	14.41	53.07	14.86	0.89	57.49	15.62	0.53	60.04	15.30	0.37

SCIP: screen for cognitive impairment in psychiatry; VLT-I: verbal learning test immediate; WMT: working memory test; VFT: verbal fluency test; VLT-D: verbal learning test delayed; PST: processing speed test

Table 4
Results in cognitive functioning

SCIP	Pre N=42		Post N=41		Follow-up							
	M	SD	M	SD	1 month N=32		3 month N=29		6 month N=25		12 month N=25	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
VLT-I (range 0-30)	14.71	5.09	16.29	4.05	16.53	4.28	16.28	4.39	15.76	4.16	15.84	4.65
WMT (range 0-24)	15.57	4.94	17.10	3.97	17.28	4.30	16.83	4.01	17.48	4.28	17.35	4.67
VFT (range >0)	13.83	4.48	14.93	4.57	15.83	5.78	15.10	5.08	15.88	4.27	15.60	4.95
VLT-D (range 0-10)	2.36	2.31	3.22	2.34	3.50	2.06	3.31	2.53	3.56	1.93	3.80	2.41
PST (range 0-30)	6.79	2.46	7.37	2.59	7.72	2.46	7.52	2.29	7.84	2.07	7.28	2.40
Total	53.07	14.86	57.49	15.62	60.34	14.72	59.07	14.29	60.36	12.06	60.04	15.30
WAIS-III												
Similarities	8.90	3.24	10.12	1.86	10.34	2.76	10.17	2.08	9.96	2.01	9.88	1.66
Arithmetic	7.60	2.56	8.17	2.41	8.59	2.06	8.34	2.27	8.36	2.27	7.76	2.43
Digit span	8.64	2.86	9.05	2.40	9.06	2.60	8.76	2.40	8.56	2.75	7.84	2.54
Information	8.83	3.03	9.73	2.22	9.97	2.36	9.97	2.45	10.04	2.97	9.68	2.71
Picture completion	8.43	2.87	10	3.08	10.75	3.18	10.76	3.87	11.80	4.61	11.72	4.40
Block design	7.90	2.50	8.76	2.55	8.62	2.64	9.03	2.57	9.20	2.84	8.92	2.81
Digit symbol coding	5.62	2.06	7.10	1.89	7.09	1.92	7.07	1.55	7.60	2.10	7.00	2.00
Full Scale IQ	83.46	12.43	91.29	11.25	91.50	12.29	92.41	12.71	92.24	15.55	90.76	13.52
WCST												
N° of trials	117.55	16.86	112.24	20.77	111.19	20.13	111.07	22.84	112.08	22.50	110.72	21.85
N° of categories	4.40	1.78	4.46	1.85	4.78	1.60	4.66	1.51	4.12	2.02	4.20	2.02
N° of correct answer	74.57	12.17	74.76	12.86	76.25	11.23	74.03	13.07	74.64	14.01	75.68	14.59
N° of errors	42.88	19.06	36.39	21.95	35.03	19.14	37.07	21.27	37.96	24.08	32.40	19.74
N° of perseverative errors	19.12	12.13	13.05	11.67	11.75	10.61	11.69	11.27	9.88	10.51	9.64	10.60

SCIP: screen for cognitive impairment in psychiatry; VLT-I: verbal learning test immediate; WMT: working memory test; VFT: verbal fluency test; VLT-D: verbal learning test delayed; PST: processing speed test; WAIS-III: Wechsler adult intelligence scale-third edition; WCST: Wisconsin card sorting test

Results in WCST also indicated improvements after the program until 12 months follow-up. Patients significantly reduce the number of total errors ($\chi^2(3) = 8.42, p < .05$) and number of perseverative responses ($\chi^2(3) = 24.06, p < .001$). In posttreatment, patients need fewer attempts to achieve more correct answers ($z = -2.73, p < .01, r = .30$), making fewer errors ($z = -2.93, p < .01, r = .32$); and perseverative responses ($z = -4.10, p < .001, r = .45$). Patients get better long-term results than baseline, especially in areas that require cognitive flexibility.

Results in social functioning and quality of life

With regards to social functioning, their scores were generally higher in post-treatment. Significant increases were observed in the overall scale score from pre- to posttreatment ($z = -2.68, p < .01, r = .29$); and in interpersonal communication from the 6- to the 12-month follow-up ($z = -3.02, p < .01, r = .43$).

Similarly, between pre and 12 month follow-up, in LQoLP, scores generally increased in leisure time ($\chi^2(3) = 9.15, p < .05$) and living situation ($\chi^2(3) = 8.45, p < .05$). In posttreatment scores increased in work ($z = -2.18, p < .05, r = .24$); living situation ($z = -2.20, p < .05, r = .24$); and feelings of safety ($z = -2.11, p < .05, r = .23$). In general, the results obtained were maintained at the long term.

Discussion

The sample characteristics were similar that those found in other works (Fervaha, Foussias, Agid, & Remington, 2014; San et al., 2013). They had significant cognitive deficits and, a high percentage of participants, were unable to work and had poor prosocial behavior and interpersonal communication skills.

Related to treatment effectiveness we can state that group cognitive-behavioral therapy significantly improves cognitive functioning; interpersonal communication and increases feeling of safety related to quality of life. In general, the results obtained in the posttreatment were maintained until 1 year of follow-up. These results are similar to those of Vallina et al. (2001), Lemos et al. (2004), Roder et al. (2006 & 2011), McGurk et al. (2007 & 2008), Barlatti et al. (2018) and are also in line with those of Bowie et al. (2012).

We observed a high rate of adherence to the treatment with no clinical relapses until 3- month follow-up after the end of the therapy. Given the format of the intervention, it can be applied in clinical outpatient structures (Lemos et al., 2013), and it facilitates social reinsertion and reintegration and helps to improve their quality of life (Pathak, Pradas, & Chaturvedi, 2016).

One year after the intervention, patients had better results than at baseline. As pointed out by Dickerson & Lehman (2012), the application of psychological therapies for schizophrenia is of great use even in stable and chronic stages of the disease, as it has a protective function, preventing patient decline.

Despite the promising results concerning the therapy used, this study has some limitations, including the small sample size, the lack of a control group, the fact that we did not use specific instruments to assess the emotional regulation strategies, the possible effects of learning process in results of WAIS and WCST, and the absence of external criteria in the measurement of social functioning and quality of life.

Nevertheless, we conclude that group-based therapy developed in a natural context may help patients with chronic schizophrenia to improve and maintain cognitive functions that are considered to be precursors for better social functioning and lower levels of

Table 5
Results in SFS and LQoLP

SFS	Range	Follow-up											
		Pre N=42		Post N=41		1 month N=32		3 months N=29		6 months N=25		12 months N=25	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Isolation	0-6	3.95	1.08	4.24	0.91	3.78	1.15	4.03	1.21	4.24	1.09	4.08	1.35
Communication	0-3	1.64	0.75	1.88	0.74	1.69	0.78	1.76	0.87	1.72	0.79	1.96	0.73
Prosocial behavior	0-12	3.62	2.84	4.24	3.06	4.09	3.09	4.10	2.52	4.08	2.99	3.76	2.26
Execution	0-9	6.71	2.28	7.05	2.31	6.72	2.42	6.34	2.22	6.08	2.41	6.92	1.82
Skills	0-6	5.45	1.08	5.39	1.28	5.34	1.03	5.17	1.25	5.12	1.20	5.28	1.13
Activities	0-3	0.93	0.99	1.02	1.01	0.81	1.06	1.10	1.29	1.04	1.02	1.12	1.50
Work	2-4	3.62	0.49	3.56	0.55	2.91	0.64	3.07	0.84	3.12	0.60	3.12	0.66
Overall score	0-43	25.90	5.52	27.39	5.96	25.63	5.86	25.29	6.46	25.56	5.33	26.28	5.30
LQoLP													
Wellbeing	1-7	4.55	1.25	4.85	1.13	5.22	0.83	5.21	1.01	5.28	0.84	5.24	0.83
Work	3-21	11.24	4.55	12.98	4.10	13.63	2.92	12.83	2.97	13.04	3.39	12.88	2.94
Leisure	3-21	13.88	3.49	14.46	3.05	14.94	2.39	15.07	2.63	15.28	3.00	14.84	3.33
Religion	2-14	8.12	2.98	8.27	3.31	8.72	3.24	8.21	2.59	9.52	3.17	8.96	3.15
Finances	2-14	9.19	3.01	9.46	2.80	9.75	2.82	9.90	2.45	8.92	3.14	9.32	2.85
Living situation	7-49	32.29	7.08	34.51	6.09	34.34	4.73	34.52	4.63	32.92	6.16	35.72	7.59
Safety	2-14	9.90	2.91	11.05	2.36	14.63	21.34	10.83	1.75	10.68	2.09	10.44	2.39
Family relations	3-21	11.17	3.03	11.20	2.70	11.44	2.27	11.55	2.02	11.48	2.60	11.40	2.93
Social relations	3-14	9.57	2.70	10.00	2.72	10.09	2.00	10.38	2.24	9.56	3.05	10.04	3.03
Health	3-21	14.19	3.58	14.39	3.06	15.56	2.81	14.93	3.70	15.04	2.54	15.12	2.40
Overall score	1-7	5.10	1.47	5.27	1.02	5.16	1.05	5.69	1.10	5.36	1.31	5.64	1.03

symptoms. Further, we consider that these promising findings warrant further larger studies, according to the guidelines for randomized controlled trials, to confirm the effectiveness of this type of combined intervention in the chronic schizophrenia.

Acknowledgments

This work was supported by the Ministry of Economy and Competitiveness of Spain (grant number PSI2011-27590).

References

- Alonso, T., Olivares, J. M., Ciudad, A., Manresa, J. M., Casado, A., & Guilbert, I. (2008). Desarrollo y validación de la escala de funcionamiento social en la esquizofrenia para su uso en la práctica clínica [Development and validation of the social functioning scale, short version, in schizophrenia for its use in the clinical practice]. *Actas Españolas de Psicología*, *36*, 102-110.
- Australian Psychological Society (2018). Evidence-based psychological interventions in the treatment of mental disorders. A review of the literature, 4th edition. Retrieved from <http://psychology.org.au/getmedia/23c6a11b-2600-4e19-9a1d-6ff9c2f26fae/Evidence-based-psych-interventions.pdf>
- Barlatti, S., Valsecchi, P., Galluzzo, A., Turrina, C., & Vita, A. (2018). Implementing cognitive rehabilitation interventions for schizophrenia patients in mental health services: Focus on Integrated Psychological Therapy (IPT). *Journal of Psychopathology*, *24*, 79-87.
- Birchwood, M., Smith, J., Cochrane, R., Wetton, S., & Copestake, S. (1990). The social functioning scale: The development and validation of a new scale of social adjustment for use in family intervention programs with schizophrenic patients. *British Journal of Psychiatry*, *157*, 853-859.
- Bowie, C. R., McGurk, S. R., Mausbach, B., Patterson, T. L., & Harvey, P. D. (2012). Combined cognitive remediation and functional skills training for schizophrenia: Effects on cognition, functional competence, and real-world behavior. *American Journal of Psychiatry*, *169*, 710-718. doi: 10.1176/appi.ajp.2012.11091337
- Bowie, C. R., Reichenberg, A., McClure, M. M., Leung, W. L., & Harvey, P. D. (2008). Age-associated differences in cognitive performance in older community-dwelling schizophrenia patients: Differential sensitivity of clinical neuropsychological and experimental information processing test. *Schizophrenia Research*, *106*, 50-58. doi: 10.1016/j.schres.2007.10.026
- Cohen, A. S., Forbes, C. B., Mann, M. C., & Blanchard, J. J. (2006). Specific cognitive deficits and differential domains of social functioning impairment in schizophrenia. *Schizophrenia Research*, *81*, 227-238. doi: 10.1016/j.schres.2005.09.007
- Dickerson, F. B., & Lehman, A. F. (2012). Evidence-based psychotherapy for schizophrenia, an update. *Focus*, *10*, 217-225. doi: 10.1097/NMD.0b013e318225ee78
- Fervaha, G., Foussias, G., Agid, O., & Remington, G. (2014). Motivational and neurocognitive deficits are central to the prediction of longitudinal functional outcome in schizophrenia. *Acta Psychiatrica Scandinavica*, *130*, 290-299. doi: 10.1111/acps.12289
- Fioravanti, M., Bianchi, V., & Cinti, M. E. (2012). Cognitive deficits in schizophrenia: An updated metaanalysis of the scientific evidence. *BMC Psychiatry*, *12*, 64. doi: 10.1186/1471244x-12-64
- Friedman, J. I., Harvey, P. D., Coleman, T., Moriarty, D. J., Bowie, C., Parrella, M., ... Davis, K. L. (2001). Six-year follow-up study of cognitive and functional status across the lifespan in schizophrenia: A comparison with Alzheimer's disease and normal aging. *American Journal of Psychiatry*, *158*, 1441-1448.
- Fuentes, I., Romero, M., Dasí, C., & Ruiz, J. C. (2010). Versión abreviada del WAIS III para su uso en la evaluación de pacientes con esquizofrenia [Short forms of WAIS-III for use with patients with schizophrenia]. *Psicothema*, *22*, 202-207.
- Fusar-Poli, P., Borgwardt, S., Bechdolf, A., Addington, J., Reicher-Rössler, A., Schultze-Lutter, F., ... Yung A. (2013). The psychosis high-risk state: A comprehensive state of the art review. *JAMA Psychiatry*, *70*, 107-120. doi: 10.1001/jamapsychiatry.2013.269
- Gómez-Benito, J., Guilera, G., Pino, O., Rojo, E., Tabarés-Seisdedos, R., Safont, G., ... Reja, J. (2013). The Screen for Cognitive Impairment in Psychiatry. Diagnostic-specific standardization in psychiatry in patients. *BMC Psychiatry*, *13*, 127. doi: 10.1186/1471-244X-13-127
- Green, M. F., & Harvey, P. D. (2014). Cognition in schizophrenia: Past, present and future. *Schizophrenia Research: Cognition*, *1*, 9. doi: 10.1016/j.scog.2014.02.001
- Häfner, H., & an der Heiden, W. (2008). Course and outcome. In K.T. Mueser & D. V. Jester (Eds.), *Clinical handbook of schizophrenia* (pp. 100-113). New York: The Guilford Press.
- Harrow, M., Jobe, T. H., & Fauli, R. N. (2014). Does treatment of schizophrenia with antipsychotic medication eliminate or reduce psychosis? A 20-year multi-follow-up study. *Psychology Medicine*, *44*, 3007-3016. doi: 10.1017/S0033291714000610
- Harvey, P. D., & Strassnig, M. (2012). Predicting the severity of everyday functional disability in people with schizophrenia: Cognitive deficits, functional capacity, symptoms, and health status. *World Psychiatry*, *11*, 73-79.
- Harvey, P. D., Silverman, J. M., Mohs, R. C., Parrella, M., White, L., Powchick, P., Davidson, M., & Davis, K. L. (1999). Cognitive decline in late-life schizophrenia: A longitudinal study of geriatric chronically hospitalized patients. *Biological Psychiatry*, *45*, 32-40.
- Heaton, R. K., Chelune, G. J., Talley, J. L., Kay, G. G., & Curtiss, G. (1993). *Wisconsin card sorting test manual* (revised and expanded). Odessa, Florida: Psychological Assessment Resources, Inc.
- Hodel, D., Brenner, H. D., Merlo, M. C., & Teuber, J. F. (1998). Emotion Management Therapy in early psychosis. *British Journal of Psychiatry*, *172*, 128-133.
- Hodel, D., Kern, R. S., & Brenner, H. D. (2004). Emotion Management Training (EMT) in persons with treatment-resistant schizophrenia: First results. *Schizophrenia Research*, *68*, 107-108.
- Holthausen, E. A. E., Wiersma, D., Sitskoorn, M. M., Hijman, R., Dingemans, P. M., Schene, A. H., & an der Bosch, R. J. (2002). Schizophrenia patients with and without neuropsychological deficits: Subgroup, disease severity or cognitive compensation. *Psychiatry Research*, *112*, 1-11.
- Jaramillo, P., Ruiz, J. C., & Fuentes, I. (2011). Relationships between neurocognition, emotional processing and social functioning in schizophrenia. *Psychology, Society and Education*, *3*, 99-112.
- Keefe, R. S., & Harvey, P. D. (2012). Cognitive impairment in schizophrenia. *Handbook of Experimental Pharmacology*, *213*, 11-37. doi: 10.1007/978-3-642-25758-2_2
- Kramer, I., Simons, C. J., Wigman, J. T., Collip, D., Jacobs, N., Derom, C., ... Wichers, M. (2014). Time-lagged moment-to-moment interplay between negative affect and paranoia: New insights in the affective pathway to psychosis. *Schizophrenia Bulletin*, *40*, 278-286. doi: 10.1093/schbul/sbs194
- Lemos, S., Vallina, O., & Fernández, M. P. (2013). *Intervenciones psicológicas en la esquizofrenia* [Psychological Interventions in Schizophrenia]. Madrid: Consejo General de la Psicología de España.
- Lemos, S., Vallina, O., García, A., Gutiérrez, A. M., Alonso, M., & Fernández, J. (2004). Evaluación de la efectividad de la terapia psicológica integrada en la evolución a largo plazo de pacientes esquizofrénicos [Evaluation of the effectiveness of integrated psychological therapy in long-term evolution of patients with schizophrenia]. *Actas Españolas de Psiquiatría*, *32*, 166-177.
- Lincoln, T. M., Hartman, M., Köther, U., & Moritz, S. (2015). Dealing with feeling: Specific emotion regulation skills predict responses to stress in psychosis. *Psychiatry Research*, *228*, 216-222. doi: 10.1016/j.psychres.2015.04.003
- Marwaha, S., Broome, M. R., Bebbington, P. E., Kuipers, E., & Freeman, D. (2014). Mood instability and psychosis: analyses of British National

- Survey Data. *Schizophrenia Bulletin*, 40, 277-296. doi: 10.1093/schbul/sbt149
- McGurk, S. R., Twamley, E. W., Sitzer, D. I., McHugo, G. J., & Mueser, K. T. (2007). A meta-analysis of cognitive remediation in schizophrenia. *American Journal of Psychiatry*, 164, 1791-1802. doi: 10.1176/appi.ajp.2007.07060906
- McGurk, S. R., & Mueser, K. T. (2008). Response to cognitive rehabilitation in older versus younger persons with severe mental illness. *American Journal of Psychiatric Rehabilitation*, 11, 90-105. doi: 10.1080/15487760701853136
- Míret, S., Fatjó-Vilas, M., Peralta, V., & Fañanás, L. (2016). Basic symptoms in schizophrenia. Their clinical study and relevance in research. *Revista de Psiquiatría y Salud Mental*, 9, 111-122. doi: 10.1016/j.rpsm.2015.10.007
- Moriana, J. A., Gálvez-Lara, M., & Corpas, J. (2017). Psychological treatments for mental disorders in adults: A review of the evidence of leading international organizations. *Clinical Psychology Review*, 54, 29-43. doi: 10.1016/j.cpr.2017.03.008
- Mueser, K. T., Deavers, F., Penn, D. L., & Cassisi, J. E. (2013). Psychosocial treatments for schizophrenia. *Annual Review of Clinical Psychology*, 9, 465-497. doi: 10.1146/annurev-clinpsy-050212-185620
- Mueller, D. R., Schmidt, J., & Roder, V. (2013). Integrated Psychological Therapy: Effectiveness in schizophrenia inpatients settings related to patients' age. *The American Journal of Geriatric Psychiatry*, 21, 231-241. doi: 10.1016/j.jagp.2012
- National Institute for Clinical Excellence for psychosis and schizophrenia (2014). *Psychosis and schizophrenia in adults: Prevention and management (CG178)*. Retrieved from <http://nice.org.uk/guidance/cg178>
- O'Driscoll, O., Laing, J., & Mason, O. (2014). Cognitive emotion regulation strategies, alexithymia and dissociation in schizophrenia, a review and meta-analysis. *Clinical Psychology Review*, 34, 482-495. doi: 10.1016/j.cpr.2014.07.002
- Oliver, J. P. J., Huxley, P. J., Priebe, S., & Kaiser, W. (1997). Measuring the quality of life of severely mentally ill people using the Lancashire Quality of Life Profile. *Social Psychiatry and Psychiatric Epidemiology*, 32, 76-83.
- Pathak, A., Pradas, M. K., & Chaturvedi, S. K. (2016). Recovery and Quality of life in mental illness. *Journal of Psychosocial Rehabilitation in Mental Health*, 3, 35-37.
- Pino, O., Guilera, G., Rojo, E. J., Gómez-Benito, J., Bernardo, M., Crespo-Facorro, B., ... on behalf of the Spanish Working Group in Cognitive Function (2008). Spanish version of the Screen for Cognitive Impairment in Psychiatry (SCIP-S): Psychometric properties of a brief scale for cognitive evaluation in schizophrenia. *Schizophrenia Research*, 99, 139-148. doi: 10.1186/1477-7525-7-28
- Purdon, S. E. (2005). *The Screen for cognitive impairment in psychiatry (SCIP): Instructions and three alternative forms*. Edmonton, Alberta: PNL Inc.
- Roder, V., Brenner, H. D., Hodel, B., Kienzle, N., & Fuentes, I. (2007). *Terapia Psicológica Integrada para la esquizofrenia* [Integrated Psychological Therapy for schizophrenic patients]. Granada: Alborán.
- Roder, V., Mueller, D. R., Mueser, K. T., & Brenner, H. D. (2006) Integrated Psychological Therapy (IPT) for Schizophrenia: Is it effective? *Schizophrenia Bulletin*, 32, 81-93. doi: 10.1093%2Fschbul%2F32%2F81-93
- Roder, V., Mueller, D. R., & Schmidt, S. (2011). Effectiveness of integrated psychological therapy (IPT) for schizophrenia patients: A research update. *Schizophrenia Bulletin*, 37, 71-79. doi: 10.1093%2Fschbul%2F37%2F71-79
- Ruiz-Iriondo, M., Salaberria, K., & Echeburúa, E. (2013). Schizophrenia: Analysis and psychological treatment according to the clinical stage model. *Actas Españolas de Psiquiatría*, 41, 52-59.
- San, L., Bernardo, M., Gómez, A., Martínez, P., González, B., & Peña, M. (2013). Sociodemographic, clinical and treatment characteristics of relapsing schizophrenia patients. *Nordic Journal of Psychiatry*, 67, 22-29. doi: 10.3109/08039488.2012.667150
- Schultze-Lutter, F., Klosterkötter, J., & Ruhrman, S. (2006). Can schizophrenia be predicted phenomenologically? In J. O. Johannessen, B. V. Martindale & J. Culberg (Eds.), *Evolving psychosis* (pp. 104-123). New York: Routledge.
- Underwood, R., Kumari, V., & Peters, E. (2016). Cognitive and neural models of threat appraisal in psychosis: A theoretical integration. *Psychiatry Research*, 239, 131-138. doi: 10.1016/j.psychres.2016.03.016
- Vallina, O., Lemos, S., Roder, V., García, A., Otero, A., Alonso, M., & Gutiérrez, A. M. (2001). Controlled study of an integrated psychological intervention in schizophrenia. *European Journal of Psychiatry*, 15, 167-179.
- Vázquez-Barquero, J. L., Gaité, L., Ramírez, N., García, E., Borra, C., Sanz, O., Bobes, J., & Oliver, J. (1997). Desarrollo de la versión en castellano del perfil de calidad de vida de Lancashire [Development of the Spanish version of the Lancashire quality of life profile]. *Archivos de Neurobiología*, 60, 125-139.
- Wechsler, D. (1999). *WAIS-III Escala de Inteligencia de Wechsler para Adultos* [Wechsler Adult Intelligence Test 3rd Ed.] Madrid: TEA Ediciones.
- World Health Organization, WHO (1992). *The ICD-10 classification of mental and behavioural disorders*. Geneva: World Health Organization.
- Wunderink, L., Nieboer, R.M., Wiersma, D., Sytema, S., & Nienhuis, F. J. (2013). Recovery in remitted first-episode psychosis at 7 years of follow-up of an early dose reduction/discontinuation or maintenance treatment strategy long-term follow-up of a 2-year randomized clinical trial recovery in remitted first-episode psychosis. *JAMA Psychiatry*, 70, 913-920. doi: 10.1001/jamapsychiatry.2013.19