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Inflexibility processes as predictors of social functioning in chronic psychosis

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ABSTRACT

Within the context of a transdiagnostic perspective, the Psychological Inflexibility (PI) construct refers to rigid attempts to control undesirable private events at the expense of value-guided actions. Given the framework of PI as a construct associated with poor recovery and social functioning in people with psychosis, the main objective was to explore the role of two processes related to inflexibility (experiential avoidance (EA), and self-concealment) in predicting social functioning. One hundred and three patients with psychosis were administered the *Acceptance and Action Questionnaire-II*, the *Self-Concealment Scale*, and the *Social Functioning Scale* as the main measures. The differential weight of insight and clinical impression, also associated with social functioning, was analyzed by regression analysis. The results showed that the process that best predicted social functioning in people with psychosis was EA, which explained 21.6% of the variance. EA, chronicity and global clinical impression together explained 35.2% of the variance. These results contribute to progress in understanding the role of PI in psychosis, as well as associated factors. The use of strategies facilitating acceptance, and not the elimination of psychotic experiences, may be a possible strategy for addressing the impaired daily functioning of these patients.

Introduction

Psychosis is often related to poor functioning, including occupational and social functioning, unemployment and living alone (Burns & Patrick, 2007; Echarri-Santesteban et al., 2017). When psychosis becomes chronic, deficits in social functioning remain prominent and increase the risk of social exclusion, poverty and loneliness. These personal and social consequences impede recovery, especially as understood in terms of life goals and acceptance, with or without symptoms, of the fact of living with psychosis (Andresen et al., 2003; Bradstreet & Connor, 2005)

The psychological inflexibility construct (PI) is not supportive of this concept of recovery. PI refers to rigid attempts to control or change undesirable private events (e.g. thoughts, affect, bodily sensations) at the expense of value-guided actions (Bond et al., 2011). PI was introduced within the context of Acceptance and Commitment Therapy (ACT; Hayes et al., 2012), a third-wave CBT therapy which emphasizes a non-defensive relationship with the symptoms and encourages pursuance of a life concentrated on personal values. The converse of PI is the acceptance of private experiences and psychological flexibility. The psychological flexibility model focuses on changing how people relate to distressing internal experiences and on engaging in value-based actions,

regardless of such experiences (Levin et al., 2014). PI has demonstrated evidence of its utility as a transdiagnostic dimension of a broad range of psychological disorders (Ruiz, 2010).

The observation that PI is a construct linked to substandard recovery and to poor functioning in people diagnosed with schizophrenia has also served as justification for study of the use of ACT in this population (Varese et al., 2016). Several studies have reported that many patients with psychosis, especially those who hear voices and have delusional beliefs related to guilt, humiliation and shame, show many avoidance and inflexibility patterns and little acceptance behavior (Morrison et al., 1995). At the same time, robust relationships have been found between quality of life reported by people with psychosis and ways of regulating behavior based on acceptance (Vilardaga et al., 2013). Cramer et al. (2016) concluded that recent reviews in the field of psychosis have found that ACT was associated with shorter hospitalization periods, lower hospitalization rates and fewer positive symptoms in patients treated.

Another variable which is related to the PI model is self-concealment (SC). Larson and Chastain (1990, p. 440) define it as the tendency to hide distressing and potentially embarrassing personal information. Although these authors originally suggested that more traumatic experiences are concealed more often, recent studies link SC to personal inadequacy, rumination and worry (Wismeijer, 2011). Conceptually, while considered an adaptive behavioral tendency in some socio-cultural contexts (Wallace & Constantine, 2005), SC may serve as a maladaptive control and avoidance-focused emotion/behavior regulation strategy in other contexts (Masuda et al., 2011). In a review, Larson et al. (2015) found positive correlations between SC and PI, suggesting that PI functions as a mediator of SC. SC is probably detrimental when it is linked to general maladaptive emotion and behavior regulation. This finding is not surprising as both constructs reflect intentional rigid efforts to avoid and downregulate unwanted internal experiences (Masuda et al., 2017). Recent findings support the notion that PI is a key underlying process that establishes the link between self-concealment and a range of psychopathology variables (Larson et al., 2015; Masuda et al., 2017).

In just a few years, SC has become a fruitful line of research in the framework of eating disorders, especially anorexia (Vandereycken & Van Humbeeck, 2008). It has also been positively associated with severity of depression (Friedlander et al., 2012) and anxiety (Edmonds et al., 2014; Wheaton et al., 2016), as well as suicidal behavior (Friedlander et al., 2012), with maladaptive perfectionism (Kawamura & Frost, 2004) and with stigma in mental health (Mendoza et al., 2015). However, this variable has never been studied in psychosis.

Some of the literature suggest that PI underlies different forms of psychopathology, including psychosis, and can be manifested in different topographies including SC (Edmonds et al., 2014). Although there is no past research on the effects of SC on social functioning in people with psychotic experiences, there is an increasing amount of research identifying this maladaptive pattern of deliberately keeping personal information from others in a range of psychological problems. The aim of this study was to explore the role of EA and self-concealment in predicting social functioning in patients with chronic psychosis. Furthermore, and since factors such as insight, severity and chronicity of psychosis have been linked to worse social functioning, this study attempted to analyze the differential weight of each of these variables in social functioning.

Method

Participants and study procedure

The study was carried out with a convenience sample of outpatients from a Mental Health Public Service in Asturias, a province in northern Spain. Demographic and clinical features of the sample are presented in Tables 1 and 2. Participants who showed signs of severe physical illness, episode of acute psychosis, intellectual disability and/or primary diagnosis of substance dependence were excluded. One hundred and three of 286 outpatients volunteered to participate in the study after signing an informed consent form. All of them met ICD-10 criteria (World Health Organization, 1992)

Table 1. Main demographic characteristics. Frequencies and percentages of the sample (N = 103).

		F	%
Sex	Male	60	58.3
	Female	43	41.7
Age	Mean: 49.68		
	SD.: 12.28		
Marital status	Single	65	63.1
	Married/with partner	19	18.5
	Separated/divorced	17	16.5
	Widow	2	1.9
	Total	103	100
Living arrangements	Alone	28	27.2
	Family of origin	58	56.3
	Shared flat	2	1.9
	With partner	12	11.7
	Residence/supervised flat	3	2.9
	Total	103	100
Education	No education	7	6.8
	Primary	32	31.1
	Secondary	50	48.5
	University	14	13.6
	Total	103	100
Employment situation	Housework	5	4.9
	Inactive (unemployed)	20	19.4
	Active (employed)	17	16.5
	Inactive (Employment disability)	43	41.7
	Inactive (Retired)	6	5.8
	Other	12	11.7
	Total	103	100

for the diagnostic categories included in Table 2. The sample had been developing the disorder over many years (M = 19 years; SD: 10.88), and 70% had some degree of recognized employment disability. Two-thirds of the participants had never been married (63.1%) and most were living with their families of origin (56.3%). All participants were receiving psychopharmacological treatment at the time of the study. The mean age of the entire group was 49.63 years (SD = 12.28).

From July 2017 to September 2018, participants were evaluated by the psychiatrist responsible for them (ICG-ESQ y SUMD) and by a mental health nurse (SFS, AAQ-II y SCS) with over 10 years of clinical experience. All procedures were approved by the local ethics committee. Participant flow is outlined in Figure 1.

Measures

The *Acceptance and Action Questionnaire – II (AAQ-II;* Bond et al., 2011) was used to assess unwillingness to experience undesirable thoughts and feelings and interference of these internal events in daily functioning. AAQ-II is a 7-item questionnaire where respondents rate the degree to which each statement applies to them, from 1 (never true) to 7 (always true). The total score is derived from the sum of responses to all items, with greater values indicating greater psychological inflexibility. Lower scores suggest greater acceptance of mental experiences and persistence with life goals in the face of these experiences. The scale shows good internal consistency (α = .88) (Ruiz et al., 2013).

The *Self-Concealment Scale* (SCS; Larson & Chastain, 1990) is a self-report inventory designed to measure a person's tendency to conceal personal information that is distressing (e.g. There are lots of things about me that I keep to myself). The SCS includes 10 items and employs a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) for each item. The total score is derived from the sum of responses to all items, with greater values indicating greater self-concealment. The SCS has adequate psychometric properties, with an inter-item reliability estimate of .81 (Masuda et al., 2011).

The *Social Functioning Scale (SFS;* Birchwood et al., 1990) was used to evaluate the seven dimensions of functioning: (1) social engagement/withdrawal, (2) interpersonal; (3) pro-social

Table 2. Main clinical characteristics of the sample.

|		F or M	% or SD
ICD-10 diagnosis	Paranoid schizophrenia (F20.0)	65	63.1
	Undifferentiated schizophrenia (F20.3)	2	1.9
	Residual schizophrenia (F20.5)	3	2.9
	Simple-type schizophrenia (F20.6)	4	3.9
	Schizophrenia, unspecified (F20.9)	2	1.9
	Schizotypal disorder (F21)	6	5.8
	Delusional disorder (F22)	13	12.6
	Acute and transient psychotic disorders (F23)	2	1.9
	Schizoaffective disorder (F25)	5	4.9
	Other schizophrenia (F28)	1	1
	Total	103	100
Employment disability	No	29	28.2
	Yes 33-49%	30	29.1
	Yes 50-64%	14	13.6
	Yes 65 o > 65%	30	29.1
	Total	103	100
Substance use	No	49	47.6
	Yes	40	38.8
	Ex-user	14	13.6
	Total	103	100
Age at onset of psychosis (years)		30.64	11.75
Diagnosis (years)		19.04	10.88
Pharmacological treatment (years)		17	10.43
Number of hospitalizations		2.21	3.83
Acceptance (AAQ-II)		26.12	11.23
Self-concealment ((SCS)		32	12.96
Social Functioning Scale (SFS)		98.62	11.07
Clinical Global Impression (CGI-SCH)		4.20	1.05
Insight (SUMD)		2.77	1.16
Awareness of effects of medication (SUMD)		2.70	1.12
Awareness of social consequences (SUMD)		2.74	1.11
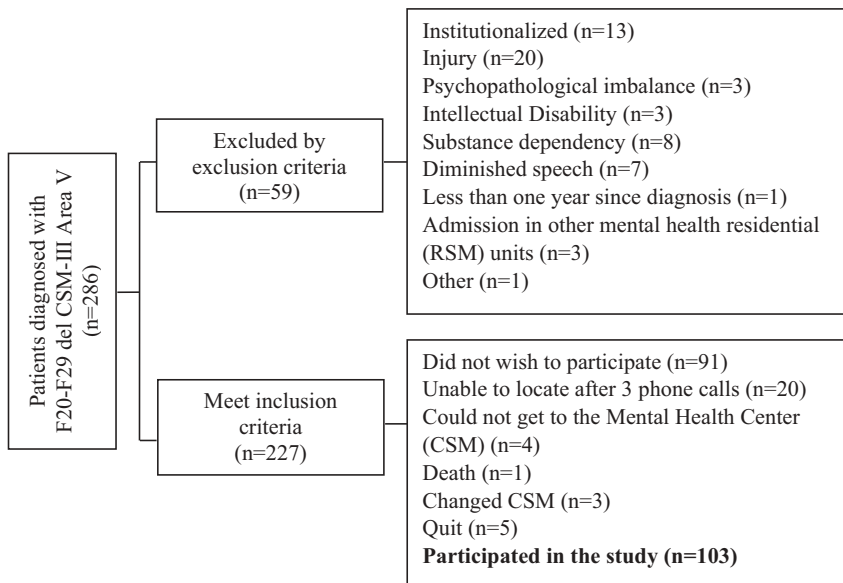
Figure 1. Flow diagram for study participants.

activities; (4) recreational activities (5) independence–competence (6) independence–performance; and (7) employment/occupation. The SFS is a reliable, valid and sensitive measure of social functioning relevant to the impairments and needs of individuals with schizophrenia, useful to researchers (Birchwood et al., 1990).

The *Clinical Global Impression–Schizophrenia Scale* (*CGI-SCH*; Haro et al. (2003) was administered to evaluate positive, negative, cognitive and depressive symptoms and overall severity in schizophrenia. The CGI-SCH has two categories: severity of illness and degree of change. Severity of illness evaluates the clinical situation during the week previous to the assessment, while the degree of change evaluates the change in disorder severity between two points in time. In this study, only disorder severity was used. A 7-point ordinal scale is applied to evaluate these categories. The CGI-SCH scale is a valid, reliable instrument for evaluating severity and treatment response in schizophrenia.

The *Scale to Assess Unawareness in Mental Disorders* (SUMD; Amador et al., 1993) was used to assess global awareness of having a mental disorder, awareness of the effects of medication and awareness of the social consequences of having a mental disorder. All scores range from 1 to 5, with higher scores indicating poorer awareness or attribution. Reliability and external validity of the Spanish adaptation of the SUMD scale are similar to the original version.

Data analysis

First, a descriptive analysis was done of all the sociodemographic and clinical variables. The qualitative variables were expressed as the frequency distribution and the quantitative variables as the arithmetic mean and standard deviation.

Then, the association between clinical variables was analyzed by calculating the Pearson's correlation coefficient.

Finally, we wanted to find out whether the insight variables (SUMD), global clinical awareness (CGI-SCH), experiential avoidance (AAQ-II), self-concealment (SCS) and chronicity could be adequate predictors of global social functioning (SFS), and if so, how much. A linear regression analysis was performed for this.

IBM SPSS Statistics (V.25.0) was used for data analysis.

Results

Sample characteristics

Over 60% of the participants were diagnosed with Paranoid Schizophrenia according to ICD-10 criteria (World Health Organization, 1992), followed by Delusional Disorder (13% of the participants). More than half were taking or had habitually taken some type of toxic substance during their lifetime. The psychotic symptoms began at around 30 years of age, although the range was quite wide and spanned ages from 9 to 65. The participants had been in pharmacological treatment for about 17 years (oral, depot or both), and had been hospitalized more than twice.

The sample could be said to have medium-to-low overall social functioning. The mean scores on both the AAQ-II (M = 26.12; SD: 11.23) and SCS (M = 32; SD: 12.96) were high, especially on the SCS scale.

None of the participants scored a maximum of 7 points on the Global Clinical Impression Scale. The mean of 4.20 (SD: 1.05) shows that patients were evaluated by their psychiatrists as moderately to very severe.

The three insight subscales (SUMD) showed a very similar mean of 2.70 to 2.80. Therefore, these participants would have an intermediate insight with respect to their own disorder, to the social consequences and the effects of medication.

Table 2 shows the descriptive data for the study of clinical variables.

Correlational and regression analysis

Significant correlations were found between social functioning and the rest of variables, with strong correlations between social functioning and PI (r = -.465, p ≤ .000), and between social functioning and SC (r = -.428, p ≤ .000). Significant correlations were not found between chronicity and PI or SC, or between insight and PI or SC. Table 3 shows the correlation matrix.

Finally, and after testing for the necessary statistical assumptions, a linear regression analysis was performed to fit a model that enabled the isolated and combined contributions of the PI variables (EA and self-concealment) to the overall social functioning of the participants (see Table 4).

The results showed that the variables entered in the regression equation explaining social functioning were EA, chronicity and global clinical impression. EA explained 21.6% of the differences in the criterion, EA and chronicity explained 33.3% and with the full model, the proportion of estimated variance was 35.2%.

Discussion

This study was carried out with the objective of analyzing the presence and weight of certain PI processes on the social functioning of persons with chronic psychosis. In general, the results suggest that EA, one of the main processes explaining PI, is related to the social functioning of people with chronic psychosis.

The scores on experiential avoidance evaluated using the AAQ-II show that the participants showed rigid patterns in their relationship with their private experiences. In our study, we observed a mean score slightly higher than reported by Morris et al. (2014) with a similar sample to the one in this study.

Table 3. Bivariate relationships between clinical variables.

	1	2	3	4	5	6	7	8
[1] Self-concealment	1	.596**	−.428**	.103	.058	-.021	-.016	.242*
		.000	.000	.301	.564	.834	.870	.014
[2] Experiential avoidance		1	−.465**	-.007	.071	.109	.095	.369**
			.000	.948	.477	.274	.339	.000
[3] Overall social functioning			1	−.338**	−.289**	−.206*	−.281**	−.421**
				.000	.003	.037	.004	.000
[4] Years since diagnosed				1	.295**	.232*	.261**	.208*
					.002	.018	.008	.035
[5] Awareness of having a disorder					1	.852**	.788**	.445**
						.000	.000	.000
[6] Awareness of effects of medication						1	.749**	.397**
							.000	.000
[7] Awareness of social consequences							1	.402**
								.000
[8] Global clinical impression								1

Note.**Correlation is significant at 0.01 (two-tailed). *Correlation is significant at 0.05 (two-tailed). Values of uncorrelated variables are not shown.

Table 4. Predictor variables of social functioning.

	Unstandardized regression coefficients		Standardized regression coefficients				
	B	Std. Error	Beta	T	Sig.	R^2	Corrected R^2
(Constant)	123.589	3.771		32.772	.000		
Experiential avoidance	−.378	.084	−.388	−4.500	.000	.371	.352
Years since diagnosis	−.297	.082	−.295	−3.610	.000		
Clinical global impression	−2.244	.914	−.216	−2.453	.016		

Note. Dependent variable: global score in SFS.

Previous literature has documented both active avoidance and suppression as coping strategies usually used by people with psychosis (Kimhy et al., 2012; Livingstone et al., 2009; Moritz et al., 2016; Van der Meer et al., 2009). This study was able to confirm that evidence. The strong relationship observed between EA and SC shows that it is the avoiders who tend to hide negatively evaluated personal information the most. The results suggest that the participants were struggling against their unwanted psychological contents (thoughts, voices, feelings, emotions), which counterintuitively led them to the persistent presence of more of those undesirable contents, thus establishing a circular maladaptive regulation. This intolerance toward private contents, characteristic of the process called PI (Hayes et al., 2006), has been observed in samples of patients with psychological heterogeneity problems (e.g. Litwin et al., 2017, in eating disorders; Brem et al., 2017, in compulsive sex behavior; Wagener et al., 2016, in depression). All of this evidence has demonstrated the usefulness of the PI construct as a transdiagnostic variable of mental symptomatology (Levin et al., 2014).

The correlational study confirmed that PI patterns based on EA and SC negatively affect the social functioning of the participants. It seems that people with schizophrenia who tend to isolation, who have fewer leisure activities, and who are less involved in productive employment or in structured programs of daily activity are those who show the most rigid and inflexible behavior. These results are in line with previous research which shows clear associations in people with psychosis between forms of avoidance-based behavior regulation and lower quality of life (e.g. Vilardaga et al., 2013), and also with others which have found in patients with chronic psychosis, an increase in social and personal functioning by increasing acceptance and commitment-based regulation (Salgado et al., 2013). In our study, the inflexibility observed in patients with poor social functioning suggests a struggle with symptoms which impedes participants from becoming the managers of their own lives, which in the long run invade and disrupt all the facets that generally define it (work, intimate relations, family relations, etc.). Furthermore, patients who in the opinion of the psychiatrists assigned to them have the highest scores in the severity of psychosis (evaluated by the CGI), not only have worse social functioning and employment but are also those that show the most rigid experiential avoidance and self-concealment patterns.

We might wonder to what extent social functioning of the patients in the sample is determined by acceptance/avoidance of their private experiences. In this sense, the results of the predictive analysis are revealing. EA alone explained nearly 22% of the variance in overall social functioning. However, in spite of having a high correlation with the criterion, the SC variable did not enter in the regression equation. This shows that experiential avoidance and self-concealment are very closely related to each other, and that the correlation of SC with social functioning must be due mostly to what it has in common with EA.

Although showing lower correlations than self-concealment, other variables that were predictors of subjects' functioning were duration of the disorder in years and psychosis severity score as evaluated by the CGI. In this case, the proportion of explained variance increased to 35.2%.

The duration of participant psychosis was a mean of over 19 years. The predictive capacity of this variable is not surprising, especially considering that psychosis normally begins at an early age, and that the diagnosis alone has consequences that prescribe more than proscribe poor social functioning (Angermeyer et al., 2011). In view of the above, we believe that chronicity *per se* is not the most relevant explanatory variable. Probably it is stigma/self-stigma associated with "mental illness", the obligatory medication and its effects, and the diagnostic label itself which are a threat to developing a normal life, contributing to the gradual decline in their capacity for adapting to school and employment, in psychosocial performance, and generally affecting the quality of life of the persons diagnosed (López-Santiago et al., 2012).

It is also worth mentioning the results found in evaluating insight. In samples with a diagnosis of schizophrenia, poor insight has consistently been associated with worse social adjustment, poor functioning and worse therapeutic compliance (Valiente et al., 2015). Some of these relationships were confirmed by our study, although not in the case of EA. None of the facets of insight evaluated by the SUMD scale were related to PI. Neither did insight enter in the regression equation as an

explanatory factor of psychosocial functioning, which suggests poor awareness of the disorder does not imply worse social, relational or employment adjustment, also contradicting previous research (e.g. Erol et al., 2014; Kurtz et al., 2013) where these relationships do appear. The result observed here is in line with other studies which shows that appropriate insight may not be advantageous in all circumstances and leads to worse results in anxiety, depression, satisfaction with life and suicidal behavior (Cavelti et al., 2012; Or et al., 2013). This phenomenon, known as the *paradox of insight* (Chio et al., 2018; Lysaker et al., 2018), poses clinicians the dilemma of whether to promote this form of insight in patients or not.

In fact, the evaluation of insight in this study reports exclusively on *medical insight*, illness, symptoms and medication, which is stigmatizing (Bouvet & Bouchoux, 2015) and obligates acceptance of biomedical explanations of psychotic experiences. Although the study of unawareness of the disorder in psychosis is a legitimate objective of the research, the promotion of narrative insight more than clinical would enable the personal sense, not necessarily medical, of the symptoms to be explored (Johnson et al., 2012), and also offer an appropriate alternative facilitating learning acceptance, not elimination, of psychotic experiences.

In brief, the evidence presented here joins what has been found in previous studies documenting the transdiagnostic role of PI in the onset, maintenance and evolution of many mental disorders, including psychosis (Bacon et al., 2014; Goldstone et al., 2011; Morris et al., 2014; Udachina et al., 2014; Varese et al., 2016; Vilardaga et al., 2013). According to these results, PI can explain the poor social functioning associated with these disorders. People with psychosis define recovery in terms of reconstructing their own lives and recovering their sense of self (Pitt et al., 2007). We think that the use of therapies emphasizing acceptance of psychotic experiences, authentic support of the patient avoiding value judgments, as well as empathetic understanding of the symptoms in the context of their own experience can improve the desired results in social functioning. The goal of ACT is the transdiagnostic focus. The processes analyzed in the therapy and which account for psychological flexibility make ACT a treatment anchored in recovery. ACT promotes compassion for oneself and social connection by changing the focus of the clients, who advance from control of symptoms to connection with what is important to them. It also encourages active participation in life, as something the clients desire, that they observe in others and may have had in the past. The focus of ACT also helps find personal significance, as it teaches people to dignify, not to conceal, the inescapable sorrow and suffering by living as part of the process of doing the things they really value.

The present findings are not without limitations. The cross-sectional nature of the study prevents any causal inferences. Future studies should analyze the moderating role of experiential avoidance on self-stigma and biomedical insight evaluated here. In addition, since self-concealment as evaluated by the SCS scale seems to be well represented by experiential avoidance, it would not be necessary to add its evaluation in samples of patients with psychosis.

Disclosure Statement

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