



Insight and illness perception in Mexican patients with psychosis



Lizzette Gómez-de-Regil*

Hospital Regional de Alta Especialidad de la Península de Yucatán, Mérida, Yucatán, México

ARTICLE INFO

Article history:

Received 10 October 2014
Received in revised form 21 January 2015
Accepted 26 January 2015
Available online 5 March 2015

Keywords:

Insight
Illness perceptions
Psychosis
Schizophrenia
Mexico

ABSTRACT

Background: Insight and illness perception are two concepts of interest in the study of factors related to clinical outcome in patients with psychosis. Insight implies a risk of emotional distress for the patient. Illness perceptions, regardless of their accuracy, might be favorable or not to illness. Literature provides evidence of significant correlates of these factors with clinical outcome, but they are rarely included in a single study.

Objectives: 1) assessing insight and illness perception in a sample of Mexican patients who have experienced psychosis and, 2) analyzing how insight and illness perception relate to each other and how they relate to clinical status (i.e., positive, negative, and general psychopathology, depression, and anxiety).

Methods: Sixty-one participants (55.7% females) were recruited from a public psychiatric hospital; insight and illness perceptions were assessed with the SUMD and the Brief-IPQ, respectively. Clinical status was assessed with the PANSS, CDS and BAI scales.

Results: Participants showed good insight, favorable illness perceptions for the cognitive and comprehension dimensions, but unfavorable for the emotional dimension. Clinical status of sample was characterized by mild symptoms. Poor insight related to positive symptoms and general psychopathology. Cognitive and emotional perceptions of illness were significantly associated to most clinical status parameters, whereas comprehension showed no significant results.

Conclusions: The study not only replicates the significant association on insight and illness perception with clinical outcome, but shows how their patterns of interactions are different, reinforcing the idea that they are two distinct factors worthy of being habitually acknowledged in research and clinical practice.

© 2015 The Author. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Most patients with schizophrenia report partial or total awareness of their disorder (Buckley et al., 2007; Jablensky et al., 1992; Lincoln et al., 2007). In the past, insight used to be approached as either present or not present; nowadays, amongst the different conceptual lines, it is agreed that insight is multi-dimensional and varies throughout the illness course (Buckley et al., 2007; Cooke et al., 2005; Osatuke et al., 2008). Moreover, although most available measures of insight rely totally or partially on the clinician's perspective, it has been recognized that poor insight may be incoherent or incomplete for many different reasons which can only be studied through the individual's personal narrative (Lysaker et al., 2002; Roe et al., 2008; Tranulis et al., 2009). Discrepancies between the clinician's and the patient's points of view regarding illness can be approached with standardized insight measures, nevertheless these methods may not be sensitive enough to differentiate between profiles of narrative insight reflecting each person's cultural background, life experiences, and other social determinants (Lysaker et al., 2009; Roe et al., 2008; Tranulis et al., 2008).

Although its dynamic nature challenges research, the literature regarding its etiology has followed four main models: 1) clinical, poor insight is either a primary symptom itself or somehow related to another symptom; 2) neuropsychological, poor insight is due to brain deficiencies; 3) psychological, poor insight is a coping strategy against distress; and 4) social, insight level is influenced by the social context in which it is assessed (i.e., insight is rated by the clinician according to a perception of the difference between his view and the patients'). These models are supported by empirical data and are not necessarily mutually exclusive (Chakraborty and Basu, 2010; Cooke et al., 2005; Osatuke et al., 2008; Raffard et al., 2008). More recent models suggest poor insight is shaped and sustained by multiple factors, including neurocognition (deficits in memory and executive function hinder the recollection and coherent account of historical events related to illness), social cognition (processes involved in thinking about social interactions such as theory of mind, emotion processing and attribution), metacognition (activities involving thinking about thinking, representations of self and others), and stigma (devaluing beliefs about having a mental disorder) (Lysaker et al., 2013b). Along with these original interpretations a number of innovative integrative treatment approaches have been proposed, including the use of personal narratives (Lysaker et al., 2002, 2009, 2013a, 2013b).

Reported clinical correlates of insight are diverse: illness severity, psychotic symptoms, depression, treatment adherence, functioning,

* Hospital Regional de Alta Especialidad de la Península de Yucatán, Calle 7, No. 433 por 20 y 22, Fracc. Altabrisa, Mérida, Yucatán, México, 97130. Tel.: +52 999 942 7600; fax: +52 999 254 3535.

E-mail address: gomezderegil@gmail.com.

quality of life, violence, competence to consent, impaired social skills, reduced work performance, increased rates of psychotic relapse, and risks of suicidal and violent behaviors, among others (Buckley et al., 2007; Chakraborty and Basu, 2010; Drake, 2008; Segarra-Echebarría et al., 2010).

There is an apparent direct connection between poor insight and poor treatment adherence, and, consequently, with poorer outcome and functioning; although this pattern seems rather unstable in the long term (Buckley et al., 2007; Lincoln et al., 2007; Segarra-Echebarría et al., 2010). Psychosocial and pharmacological interventions have been implemented to improve the patients' level of insight (Buckley et al., 2007); nevertheless, the achievement of adequate insight often poses a different set of problems including demoralization, hopelessness, depression, low self-esteem and high suicide rates (Cavelti et al., 2014; Crumlish et al., 2005; Dantas and Banzato, 2007; Lincoln et al., 2007; Lysaker et al., 2013b; Schwartz and Smith, 2004), which must be considered. Thus, clinical practice faces a challenging paradox: higher insight is associated with positive outcomes, such as better treatment adherence and recovery, and negative outcomes, such as depression, hopelessness, low self-esteem and low quality of life. Research has not only replicated this pattern, but also supported self-stigma, social cognition and metacognition as key moderating factors (Cavelti et al., 2012b; Lysaker et al., 2007, 2013a, 2013b; Misdrahi et al., 2014; Schrank et al., 2014).

When experiencing an illness some patients might be at least partially aware of it whereas others might not; nevertheless, they all have an appraisal of their health status and behave accordingly. Illness perceptions, sometimes referred to as beliefs, appraisals, or representations, refer to thoughts, whether accurate or not, that a patient has about his health problems (Cavelti et al., 2012a). Cognitive representation was the first proposed dimension of illness perception, involving beliefs about the cause of the illness, the expected physical consequences, the illness's emotional or functional effects on life, the extent to which the patient believes he can recover from it, if recovery will occur with or without treatment, how the illness and its symptoms are identified and named, and ideas about how long it will last (Lau et al., 1989; Leventhal et al., 1984). Later, the emotional dimension, which focuses on negative reactions such as fear, anger, and distress, is added, along with the understanding/comprehension dimension (Broadbent et al., 2006).

Psychosis, whether perceived as an illness or not, raises the individual's beliefs involving not only the acknowledgement of his health, but also the appraisal of personal and social consequences (Watson et al., 2006). In the presence of symptoms, patients might recognize that "something is wrong", naming it "stress", "nervousness" or "a period of difficulties". A patient might even seek and accept treatment by himself and still not be willing to acknowledge a mental illness; this might be due to denial, fear of stigmatization, a limited educational level, or even to low symptoms severity. Interest in the study of illness perceptions in patients with schizophrenia and related psychoses has encouraged research from diverse countries such as the United Kingdom (Freeman et al., 2013; Karatzias et al., 2007; Lobban et al., 2004, 2005; Shah et al., 2009; Theodore et al., 2012; Watson et al., 2006; Williams and Steer, 2011), Germany (Cavelti et al., 2012a), Turkey (Güner, 2014), and New Zealand (Sanders et al., 2011), with quantitative (e.g., Williams and Steer, 2011) as well as qualitative methods (e.g., Güner, 2014). Results have shown significant correlations between positive and negative psychotic symptoms (Cavelti et al., 2012a; Lobban et al., 2005), anxiety and depression (Cavelti et al., 2012a; Karatzias et al., 2007; Lobban et al., 2004, 2005; Watson et al., 2006), functioning (Lobban et al., 2004), engagement with treatment (Freeman et al., 2013; Shah et al., 2009; Williams and Steer, 2011), coping style, satisfaction with mental health (Lobban et al., 2004), self-esteem (Watson et al., 2006), and quality of life (Lobban et al., 2004; Theodore et al., 2012).

Although at some point insight and illness perception might overlap, results suggest that they are two fairly different constructs thus, they

would relate differently to outcome (Cavelti et al., 2012a; Watson et al., 2006). Nevertheless, they are not usually considered simultaneously when performing a research study in psychosis. The present study aimed at: 1) assessing insight and illness perception in a sample of Mexican patients who have experienced psychosis and, 2) analyzing how insight and illness perception relate to each other and how they relate to measures of clinical status (i.e., positive, negative, and general psychopathology, depression, and anxiety). It was hypothesized that the correlations between insight and illness perceptions would be neither strong ($r \geq 0.70$) nor significant ($p \leq 0.05$). Moreover, clinical status would show some significant ($p \leq 0.05$) and at least moderate ($r \geq 0.40$) correlations with insight and illness perception, but the patterns of associations with these two factors would not be alike.

2. Methods

2.1. Sample

Participants were recruited from a public psychiatric hospital providing mental health services to anyone in need regardless of place of residence and medical insurance conditions. Formal authorization and ethical approval was provided by the Hospital Committees.

Inclusion criteria were: i) age at onset 16–45 years old, ii) a primary current DSM-IV-TR (American Psychiatric Association, 2000) diagnosis of schizophrenia or other schizophrenia-spectrum psychotic disorder, and iii) inhabitant of the city of Merida, where the hospital is located. Exclusion criteria were: i) a DSM-IV-TR diagnosis of psychosis of affective, organic, or toxic type (American Psychiatric Association, 2000), ii) evident intellectual disorder, and iii) inadequate contact information.

Following the above-mentioned criteria, clinical files were reviewed resulting in 161 potential cases. Only 103 could be contacted (3 had passed away, 55 no longer lived in the area or could not be located); 66 (64%) agreed to collaborate.

2.2. Measures

Insight was assessed using the three general items of the Scale of Unawareness of Mental Disorder (SUMD) (Amador and Strauss, 1990; Amador et al., 1993; Ruiz et al., 2008): 1) awareness of mental disorder, 2) awareness of achieved effects of medication, and 3) awareness of social consequences of mental disorder. Higher scores, based on a scale of 1–5, reflect poorer insight.

Illness perception was assessed with the Brief Illness Perception Questionnaire (Brief-IPQ) (Broadbent et al., 2006; Pacheco-Huergo et al., 2012). This self-report Likert Scale includes eight items regarding the three dimensions of illness perception: cognitive representation ("Illness affects my life", "Illness will last long", "I control my illness", "Treatment is helpful to my illness", "I experience severe symptoms from my illness"); emotional representation ("I am concerned about my illness", "Illness affects me emotionally"); and comprehensibility ("I understand my illness"). Higher scores (1–4) of cognitive and emotional representations indicate an unfavorable perception of illness, whereas higher scores of comprehensibility reflect satisfactory understanding of the disorder.

Current clinical status was assessed with the Positive and Negative Syndrome Scale (PANSS) (Kay et al., 1987; Peralta and Cuesta, 1994), which comprises three subscales: positive (7 items), negative (7 items) and general psychopathology (16 items). The severity of 30 symptoms is rated from 1 (absent) to 7 (extreme). Additionally, depression and anxiety were assessed using the Calgary Depression Scale (CDS) and the Beck Anxiety Inventory (BAI), respectively. The CDS (Addington et al., 1990, 1992; Ortega-Soto et al., 1994; Sarró et al., 2004) is a nine-item structured interview scale specifically developed to assess depression in schizophrenia patients, in which each item is scored from 0 (absent) to 3 (severe). A general score (0–27) is obtained by adding up all item scores. The BAI (Beck et al., 1988; Robles et al.,

2001) presents 21 anxiety symptoms, and respondents are asked to report the extent to which they feel affected by each of the symptoms, from 1 (not at all) to 4 (severely). Scores are totaled (from 21 to 84).

2.3. Statistical analysis

Descriptive analyses were performed. On a first stage, Spearman's two-tailed correlations were used to analyze the association between insight and illness perception. On a second stage, the association between clinical status and these two factors was determined.

3. Results

At the time of the assessment, no participants were hospitalized; nevertheless, five subjects were excluded due to symptoms severity, which prevented them from providing reliable answers during the interview. Thus, the final sample included 61 participants (55.7% females) who signed and informed consent with no economic compensation involved. In terms of DSM-IV-TR diagnoses (American Psychiatric Association, 2000; First et al., 1995) 41 patients had schizophrenia (14 paranoid, 2 disorganized, and 25 residual) and 20 patients had other types of schizophrenia-spectrum psychoses (8 schizoaffective, 7 delusional, 2 schizophreniform, 2 brief, and 1 not specified). Mean illness course was 6.7 years ($SD = 1.9$). Current and at onset of psychosis mean age were 35.9 years ($SD = 10.0$) and 29.1 years ($SD = 9.8$), respectively. There were no significant sex differences for either current ($t_{(59)} = -1.06, p = 0.29$) or onset ($t_{(59)} = -1.01, p = 0.32$) age. Thirty-four (55.7%) participants had secondary or lower educational level (up to 9th grade) and the remaining 27 (44.3%) had partial/complete medium or higher education. Thirty (49.2%) participants were single, 26 (42.6%) were married/in union, and 5 (8.2%) were divorced/separated.

Participants showed good insight; only 5 (8.2%) to 8 (13.1%) people scored high (4 or 5) in the SUMD dimensions. Overall, illness perceptions for cognitive and comprehension dimensions were favorable, but unfavorable for the emotional dimension. Clinical status of sample was characterized by mild symptoms as measured by the PANSS, CDS, and BAI scales. Descriptive data are presented in Table 1.

An analysis of differences in insight, illness perception and clinical status scores comparing groups by diagnosis, educational level, or having a partner, showed no significant results in general. Only in the PANSS negative dimension patients with schizophrenia ($t_{(59)} = 3.10, p \leq 0.01$), lower educational level ($t_{(59)} = 2.25, p \leq 0.05$), and without a partner scored higher ($t_{(59)} = 2.12, p \leq 0.05$). Time from onset, current age and age at onset showed no significant correlation with insight, illness perception and clinical status scores. Depression was associated with older current ($r = 0.48, p \leq 0.001$) and onset age ($r = 0.47, p \leq 0.001$).

Data for the association of insight and illness perception are presented in Table 2. Cognitive and emotional perceptions of illness were not related to any of the three dimensions of insight. Comprehension was negatively and significantly correlated to both, unawareness of mental disorder and of its social consequences; that is, patients who feel they understand well their disorder show better insight of illness and its social effects. Comprehension was not related to insight into medication effects. A detailed analysis of illness perception items revealed only three significant results: patients perceiving treatment as useful showed better insight of the disorder (but not of its social consequences) and of the effects of medication, and those who see the experienced symptoms as severe are more aware of the social consequences.

Regarding clinical status (Table 3), higher scores for positive symptoms and general psychopathology were significantly related to poorer insight (higher unawareness scores). Higher scores on negative symptoms were related to unawareness of social consequences. Overall, cognitive and emotional perceptions of illness were significantly related

Table 1

Descriptive statistics for the total sample (N = 61).

Insight (SUMD)	Mean (SD)	Poor insight ² n (%)
Unawareness of mental disorder	1.80 (1.12)	7 (11.5)
Unawareness of achieved effects of medication	1.61 (1.12)	5 (8.2)
Unawareness of social consequences of mental disorder	1.93 (1.34)	8 (13.1)
<i>Illness Perception (Brief-IPQ)</i>	<i>Mean (SD)</i>	<i>Score above 2.5³ n (%)</i>
<i>Cognitive</i>	2.13 (0.58)	16 (26.3)
Consequences	2.75 (1.16)	35 (57.4)
Timeline	2.21 (1.21)	24 (39.3)
Personal control ¹	3.18 (0.98)	47 (77.0)
Treatment control ¹	3.51 (0.89)	51 (83.6)
Identity	2.38 (1.25)	31 (50.8)
<i>Emotional</i>	2.50 (1.05)	38 (62.3)
Concern	2.64 (1.25)	33 (54.1)
Emotions	2.36 (1.17)	30 (49.2)
<i>Comprehension</i>	2.85 (1.14)	39 (63.9)
<i>Clinical Status</i>	<i>Mean (SD)</i>	<i>Score range</i>
PANSS positive (7 items)	1.45 (0.52)	1.00–2.86
PANSS negative (7 items)	1.67 (0.75)	1.00–3.71
PANSS general (16 items) (including item 12: insight)	1.55 (0.42)	1.00–2.75
PANSS general (15 items) (excluding item 12: insight)	1.53 (0.41)	1.00–2.67
Depression (CDS)	3.08 (3.94)	0–18
Anxiety (BAI)	31.62 (11.07)	21–75

SUMD: Scale of Unawareness of Mental Disorder; Brief-IPQ: Brief Illness Perception Questionnaire; PANSS: Positive and Negative Syndrome Scale; CDS: Calgary Depression Scale; BAI: Beck Anxiety Inventory.

¹ Item score was reversed to add total dimension score; values in table for individual items are from unreversed scores.

² Poor insight was considered if SUMD item score was 4 or 5 in a scale from 1 to 5.

³ In a scale from 1 to 4 the mid-point is 2.5; higher cognitive and emotional scores are unfavorable, higher comprehensibility scores are favorable.

to most clinical status parameters, whereas comprehension showed no significant results.

4. Discussion

Participants showed fairly good levels of insight and favorable cognitive and comprehension illness perceptions, but emotions towards illness were unfavorable. From a perspective of lack of insight as a symptom (Cooke et al., 2005; Osatuke et al., 2008), sample patients' good overall insight could be attributed to the fact that none of the participants was in a frank psychotic episode, and those who presented severe residual symptoms had to be excluded as they could not follow the interview. Furthermore, it should not be overlooked that positive

Table 2

Association of insight with illness perception (N = 61).

	Unawareness of mental disorder	Unawareness of achieved effects of medication	Unawareness of social consequences of mental disorder
<i>Cognitive</i>	-.08	.05	-.17
Consequences	-.07	-.05	-.13
Timeline	-.17	.02	-.02
Personal control ¹	-.16	-.10	-.21
Treatment control ¹	-.28*	-.48***	-.22
Identity	-.15	-.16	-.43***
<i>Emotional</i>	.02	.13	.05
Emotion	-.03	.04	.03
Concern	.05	.18	.05
<i>Comprehension</i>	-.26*	-.17	-.34**

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

Significant results in bold.

¹ Item score was reversed to add total dimension score; values in table for individual items are from unreversed scores.

Table 3
Association of insight and illness perception with clinical status (N = 61).

Clinical Status	Unawareness (SUMD)			Illness Perception (Brief-IPQ)		
	Mental disorder	Effects of medication	Social consequences	Cognitive	Emotional	Comprehension
PANSS positive	.43***	.43***	.44***	.23	.34**	-.09
PANSS negative	.10	.23	.31*	.29*	.23	-.11
PANSS general ¹	.16/.31*	.24/.37**	.23/.35**	.44***/.39**	.35**/.34**	-.21/-.24
Depression (CDS)	.21	.03	.19	.27*	.35**	-.04
Anxiety (BAI)	.24	.23	.16	.49***	.42***	-.23

SUMD: Scale of Unawareness of Mental Disorder; Brief-IPQ: Brief Illness Perception Questionnaire; PANSS: Positive and Negative Syndrome Scale; CDS: Calgary Depression Scale; BAI: Beck Anxiety Inventory.

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

Significant results in bold.

¹ Excluding/Including item 12: Insight.

and general psychopathology, although mild, were significantly associated with all three dimensions of insight, replicating the link between insight and psychopathology (McEvoy et al., 2006; Mintz et al., 2003, 2004; Mutsatsa et al., 2006), which is not always supported by research (Hasson-Ohayon et al., 2006; Lincoln et al., 2007; McEvoy et al., 1989). Results might also concur with the view of lack of insight as a coping process against distress (Buckley et al., 2007; Cooke et al., 2005; Osatuke et al., 2008). Insight improves patient's prognosis but at the same time it increases psychological distress. The acceptance of having an illness, particularly influenced by the stigmatizing beliefs, might explain this paradox (Lysaker et al., 2007). The association of insight and demoralization seems stronger as self-stigma increases (Cavelti et al., 2012b; Lysaker et al., 2013a) and patients with good insight accompanied by stigmatizing beliefs have the highest risk of experiencing low quality of life, negative self-esteem, and depressed mood (Staring et al., 2009). As all participants had partial or total symptom remission, that is, illness was under control, patients might have been more willing to acknowledge a mental disorder and the benefits of treatment. Yet, insight was high and depression was low, but they were not significantly related. Lack of insight could have etiological bases other than denial or coping, yet they still serve to psychologically protect the individual from depression (Osatuke et al., 2008); this hypothesis requires adequate evaluation, unfortunately, data was not sufficient for testing.

Regarding illness perception, in accordance to previous findings (Lobban et al., 2005; Theodore et al., 2012), most patients reported favorable cognitive and comprehension illness perceptions, yet emotions were unfavorable. Patients feel they understand their illness and recognize the consequences of the disorder and of treatment, and still they feel emotionally overwhelmed. In professional mental health settings, patients with psychosis are usually assessed and instructed about mental illness, its symptoms, treatment and prognosis; unfortunately, patients' emotional reactions towards illness are less often explored. Discussing with patients any possible distress they might be under due to illness would provide them with a sense of recognition and would identify possible ideas interfering with treatment. Giving patients the opportunity to express their beliefs might well favor their involvement, promoting adherence, self-efficacy, and thus, a comprehensive outcome.

Results showed that the cognitive and the emotional dimensions were not related to any of the three dimensions of insight. Patients reporting comprehension of their illness showed better insight of mental disorder and its social effects, although not of the effects of medication. Watson et al. (2006) analyzing insight and illness perception (only the cognitive dimension was assessed) as predictors of treatment adherence and emotional dysfunction, found these two factors were not related, except for global insight and perception of illness as amenable to cure or control. Cavelti et al. (2012a, 2012b) found that only the cognitive dimension of illness perception (particularly, the identity subscale) was related to insight. All these findings suggest that, although insight and illness perception (particularly its cognitive and comprehension dimensions) might overlap, they are two distinct constructs,

and thus, they must be assessed in parallel. Moreover, the emotional illness perception seems rather divergent from insight, but still plays an important role in clinical outcome.

Literature review provided only two previous studies in patients with psychosis (Cavelti et al., 2012a; Watson et al., 2006) considering both illness perception and insight as variables, and only the earliest reported on the association of both factors with psychopathology. Watson et al. (2006) found cognitive illness perception and insight to be significantly associated with positive symptoms but not to depression or to anxiety; negative and general psychopathology was not measured, and the illness perception instrument used included only the cognitive dimension, though. As for the present study, the cognitive and the emotional illness perceptions were the dimensions most related to clinical status, followed by insight into social consequences, whereas comprehension was not related to any parameter of clinical status.

Exploring possible variables associated with clinical outcome in psychosis is a mandatory task for research. Literature supports insight as a key factor affecting outcome (Chakraborty and Basu, 2010; Drake, 2008), yet criticized for increasing the risk of emotional distress and for its implicit paternalistic attitude rather reflecting the extent to which individuals agree to biomedical illness models (Cavelti et al., 2014; Crumlish et al., 2005; Dantas and Banzato, 2007; Lincoln et al., 2007; Lysaker et al., 2013b; Schwartz and Smith, 2004). Insight, as measured and promoted by the clinicians' viewpoint, may not be sufficient to accomplish clinical targets (e.g., treatment adherence) and, thus, assessment strategies more sensitive to the patient's perspective, such as illness perceptions, are needed (Cavelti et al., 2012a). The present study expands on previous research by analyzing the association of insight and illness perception simultaneously with clinical outcome, and by providing more specific data regarding their dimensions. However, some limitations must be observed. Illness perception assessment requires patients to self-report; therefore, patients whose cognition was severely affected could not take part in the study, which restricts the possibility of generalizing results to all patients with psychosis. Insight was scored by the interviewer, but it has been observed that the pattern of its association with clinical outcome is not the same if assessed according to a patient's self-rating (Cavelti et al., 2012a). Information regarding treatment provision and adherence from onset could not be recorded; thus, interpretations on factors underlying clinical outcome cannot be accurately elaborated. Data is insufficient to propose interpretations of the underlying mechanisms linking insight and illness perception with outcome, an issue worth exploring for further implementation or emphasis in support programs and interventions. The origin of the sample may be of concern when discussing the implications of results; however, research in populations less often studied might serve to reach a better understanding of patients with psychosis, should previous findings be replicated or refuted. Future research must not overlook these limitations and consider objective and subjective, quantitative and qualitative (e.g., narratives) measures in order to have a better understanding of the dynamics. Also, the inclusion of patients with other less stigmatizing mental and/or organic illnesses would be of great

interest, either results are replicated or refuted. Notwithstanding its limitations, this study not only replicates the significant association on insight and illness perception with clinical outcome, but it shows how their patterns of interaction are different, reinforcing the idea that they are two distinct factors that must be acknowledged habitually in research and clinical practice.

Funding sources

Author was supported by the Consejo Nacional de Ciencia y Tecnología (CONACYT) with Funding no. 187498 for postgraduate studies.

Contributors

Contributions Dr. Gómez-de-Regil as the solo author was responsible for protocol and study design, collection and analyses of data, and the present manuscript as it is.

Conflict of interest

Author has no conflicts of interest to report.

Acknowledgements

Author thanks the Hospital Psiquiátrico Yucatán (Mexico) for its support and all those who kindly took part as participants.

References

- Addington, D., Addington, J., Schissel, B., 1990. A depression rating scale for schizophrenics. *Schizophr. Res.* 3, 247–251.
- Addington, D., Addington, J., Maticka-Tyndale, E., Joyce, J., 1992. Reliability and validity of a depression rating scale for schizophrenics. *Schizophr. Res.* 6, 201–208.
- Amador, X., Strauss, D., 1990. The scale of unawareness of mental disorder. Columbia University and New York State Psychiatric Institute, New York.
- Amador, X., Strauss, D., Yale, S., Flaum, M., Endicott, J., Gorman, J., 1993. Assessment of insight in psychosis. *Am. J. Psychiatry* 150, 873–879.
- American Psychiatric Association, 2000. *Diagnostic and Statistical Manual of Mental Disorders*. 4th ed. Author, Washington, DC (Text Revision).
- Beck, A.T., Epstein, N., Brown, G., Steer, R.A., 1988. An inventory for measuring clinical anxiety: psychometric properties. *J. Consult. Clin. Psychol.* 56, 893–897.
- Broadbent, E., Petrie, K.J., Main, J., Weinman, J., 2006. The Brief Illness Perception Questionnaire. *J. Psychosom. Res.* 60, 631–637.
- Buckley, P.F., Wirshing, D.A., Bhushan, P., Pierre, J.M., Resnick, S.A., Wirshing, W.C., 2007. Lack of insight in schizophrenia: Impact on treatment adherence. *CNS Drugs* 21, 129–141.
- Cavelti, M., Contin, G., Beck, E.-M., Kvrjic, S., Kossowsky, J., Stieglitz, R.-D., et al., 2012a. Validation of the Illness Perception Questionnaire for Schizophrenia in a German-speaking sample of outpatients with chronic schizophrenia. *Schizophrenia* 45, 259–269.
- Cavelti, M., Kvrjic, S., Beck, E.-M., Rüschi, N., Vauth, R., 2012b. Self-stigma and its relationship with insight, demoralization, and clinical outcome among people with schizophrenia spectrum disorders. *Compr. Psychiatry* 53, 468–479.
- Cavelti, M., Rüschi, N., Vauth, R., 2014. Is living with psychosis demoralizing? Insight, self-stigma, and clinical outcome among people with schizophrenia across 1 year. *J. Nerv. Ment. Dis.* 202, 521–529.
- Chakraborty, K., Basu, D., 2010. Insight in Schizophrenia – A comprehensive update. *Ger. J. Psychiatry* 13, 17–30.
- Cooke, M.A., Peters, E.R., Kuipers, E., Kumari, V., 2005. Disease, deficit or denial? Models of poor insight in psychosis. *Acta Psychiatr. Scand.* 112, 4–17.
- Crumlish, N., Whitty, P., Kamali, M., Clarke, M., Browne, S., McTigue, O., et al., 2005. Early insight predicts depression and attempted suicide after 4 years in first-episode schizophrenia and schizophreniform disorder. *Acta Psychiatr. Scand.* 112, 449–455.
- Dantas, C.R., Banzato, C.E.M., 2007. Predictors of insight in psychotic inpatients. *Schizophr. Res.* 91, 263–265.
- Drake, R.J., 2008. Insight into illness: impact on diagnosis and outcome of nonaffective psychosis. *Curr. Psychiatry Rep.* 10, 210–216.
- First, M.B., Spitzer, R.L., Gibbon, M., Williams, J.B.W., 1995. *Structured Clinical Interview for the DSM-IV Axis I Disorders (SCID)*. New York State Psychiatric Institute, Biometrics Research, New York.
- Freeman, D., Dunn, G., Garety, P., Weinman, J., Kuipers, E., Fowler, D., et al., 2013. Patients' beliefs about the causes, persistence and control of psychotic experiences predict take-up of effective cognitive behaviour therapy for psychosis. *Psychol. Med.* 43, 269–277.
- Güner, P., 2014. Illness perception in Turkish schizophrenia patients: A qualitative explorative study. *Arch. Psychiatr. Nurs.* <http://dx.doi.org/10.1016/j.apnu.2014.08.016>.
- Hasson-Ohayon, I., Kravetz, S., Roe, D., David, A.S., Weiser, M., 2006. Insight into psychosis and quality of life. *Compr. Psychiatry* 47, 265–269.
- Jablensky, A., Sartorius, N., Ernberg, G., Anker, M., 1992. Schizophrenia: Manifestations, incidence and course in different cultures: A World Health Organization ten-country study. *Psychol. Med.* 20, 1–97.
- Karatzias, T., Gumley, A., Power, K., O'Grady, M., 2007. Illness appraisals and self-esteem as correlates of anxiety and affective comorbid disorders in schizophrenia. *Compr. Psychiatry* 48, 371–375.
- Kay, S.R., Fiszbein, A., Opler, L.A., 1987. The positive and negative syndrome scale (PANSS) for schizophrenia. *Schizophr. Bull.* 13, 261–276.
- Lau, R.R., Bernard, T.M., Hartman, K.A., 1989. Further explorations of common-sense representations of common illnesses. *Health Psychol.* 8, 195–219.
- Leventhal, H., Nerenz, D.R., Steele, D.J., 1984. Illness representations and coping with health threats. In: Baum, A., Taylor, S.E., Singer, J.E. (Eds.), *Handbook of psychology and health. Social Psychological Aspects of Health* vol. IV. Erlbaum, Hillsdale, NJ, pp. 219–252.
- Lincoln, T.M., Lüllmann, E., Rief, W., 2007. Correlates and long-term consequences of poor insight in patients with schizophrenia. A systematic review. *Schizophr. Bull.* 33, 1324–1342.
- Lobban, F., Barrowclough, C., Jones, S., 2004. The impact of beliefs about mental health problems and coping on outcome in schizophrenia. *Psychol. Med.* 34, 1165–1176.
- Lobban, F., Barrowclough, C., Jones, S., 2005. Assessing cognitive representations of mental health problems. I. The Illness Perception Questionnaire for Schizophrenia. *Br. J. Clin. Psychol.* 44, 147–162.
- Lysaker, P.H., Clements, C.A., Plascak-Hallberg, C.D., Knipscheer, S.J., Wright, D.E., 2002. Insight and personal narratives of illness in schizophrenia. *Psychiatry* 65, 197–206.
- Lysaker, P.H., Roe, D., Yanos, P.T., 2007. Toward understanding the insight paradox: internalized stigma moderates the association between insight and social functioning, hope, and self-esteem among people with schizophrenia spectrum disorders. *Schizophr. Bull.* 33, 192–199.
- Lysaker, P.H., Buck, K.D., Salvatore, G., Popolo, R., Dimaggio, G., 2009. Lack of awareness of illness in schizophrenia: conceptualizations, correlates and treatment approaches. *Expert. Rev. Neurother.* 9, 1035–1043.
- Lysaker, P.H., Vohs, J., Hasson-Ohayon, I., Kukla, M., Wierwille, J., Dimaggio, G., 2013a. Depression and insight in schizophrenia: comparisons of levels of deficits in social cognition and metacognition and internalized stigma across three profiles. *Schizophr. Res.* 148, 18–23.
- Lysaker, P.H., Vohs, J., Hillis, J.D., Kukla, M., Popolo, R., Salvatore, G., et al., 2013b. Poor insight into schizophrenia: contributing factors, consequences and emerging treatment approaches. *Expert. Rev. Neurother.* 13, 785–793.
- McEvoy, J.P., Apperson, L.J., Appelbaum, P.S., Ortlip, P., Brecosky, J., Hammill, K., et al., 1989. Insight in schizophrenia: Its relationship to acute psychopathology. *J. Nerv. Ment. Dis.* 177, 43–47.
- McEvoy, J.P., Johnson, J., Perkins, D., Lieberman, J.A., Hamer, R.M., Keefe, R.S.E., et al., 2006. Insight in first-episode psychosis. *Psychol. Med.* 36, 1385–1393.
- Mintz, A.R., Dobson, K.S., Romney, D.M., 2003. Insight in schizophrenia: A meta-analysis. *Schizophr. Res.* 61, 75–88.
- Mintz, A.R., Addington, J., Addington, D., 2004. Insight in early psychosis: A 1-year follow-up. *Schizophr. Res.* 67, 213–217.
- Misdráhi, D., Denard, S., Swendsen, J., Jaussent, I., Courtet, P., 2014. Depression in schizophrenia: the influence of the different dimensions of insight. *Psychiatry Res.* 216, 12–16.
- Mutsatsa, S.H., Joyce, E.M., Hutton, S.B., Barnes, T.R.E., 2006. Relationship between insight, cognitive function, social function and symptomatology in schizophrenia: the West London first episode study. *Eur. Arch. Psychiatry Clin. Neurosci.* 256, 356–363.
- Ortega-Soto, H.A., Gracia-Perales, S., Imaz, B., Pacheco-Patzi, J., Brunner, E., Apiquián, R., et al., 1994. Validez y reproducibilidad de una escala para evaluar la depresión en pacientes esquizofrénicos. *Salud Ment.* 17, 7–14.
- Osatuke, K., Ciesla, J., Kasckow, J.W., Zisook, S., Mohamed, S., 2008. Insight in schizophrenia: A review of etiological models and supporting research. *Compr. Psychiatry* 49, 70–77.
- Pacheco-Huergo, V., Viladrich, C., Pujol-Ribera, E., Cabezas-Peña, C., Núñez, M., Roura-Olmeda, P., et al., 2012. Perception in chronic illnesses: linguistic validation of the Revised Illness Perception Questionnaire and the Brief Illness Perception Questionnaire for a Spanish population. *Aten. Primaria* 44, 280–287.
- Peralta, V., Cuesta, M.J., 1994. Validación de la escala de los Síndromes Positivo y Negativo (PANSS) en una muestra de esquizofrénicos Españoles. *Actas Luso Esp. Neurol. Psiquiatr.* 22, 171–177.
- Raffard, S., Bayard, S., Capdevielle, D., Garcia, F., Boulenger, J.-P., Gely-Nargeot, M.-C., 2008. Lack of insight in schizophrenia: a review. *Encéphale* 34, 511–516.
- Robles, R., Varela, R., Jurado, S., Páez, F., 2001. Versión Mexicana del Inventario de Ansiedad de Beck: propiedades psicométricas. *Rev. Mex. Psicol.* 18, 211–218.
- Roe, D., Hasson-Ohayon, I., Kravetz, S., Yanos, P.T., Lysaker, P.H., 2008. Call it a monster for lack of anything else: narrative insight in psychosis. *J. Nerv. Ment. Dis.* 196, 859–865.
- Ruiz, A.I., Pousa, E., Duño, R., Crosas, J.M., Cuppa, S., García-Ribera, C., 2008. Adaptación al Español de la Escala de Valoración de la No Conciencia de Trastorno Mental (SUMD). *Actas Esp. Psiquiatr.* 36, 111–119.
- Sanders, D., Kydd, R., Morunga, E., Broadbent, E., 2011. Differences in patients' perceptions of schizophrenia between Māori and New Zealand Europeans. *Aust. N. Z. J. Psychiatry* 45, 483–488.
- Sarró, S., Dueñas, R.M., Ramírez, N., Arranz, B., Martínez, R., Sánchez, J.M., et al., 2004. Cross-cultural adaptation and validation of the Spanish version of the Calgary Depression Scale for Schizophrenia. *Schizophr. Res.* 68, 349–356.
- Schrank, B., Amering, M., Hay, A.G., Weber, M., Sibitz, I., 2014. Insight, positive and negative symptoms, hope, depression and self-stigma: a comprehensive model of mutual influences in schizophrenia spectrum disorders. *Epidemiol. Psychiatr. Sci.* 23, 271–279.
- Schwartz, R.C., Smith, S.D., 2004. Suicidality and psychosis: the predictive potential of symptomatology and insight into illness. *J. Psychiatry Res.* 38, 185–191.
- Segarra-Echebarria, R., Ojeda-del Pozo, N., Zabala-Rabadán, A., Garcá-Ormaza, J., Peña-Lasa, J., Eguíluz-Uruchurtu, I., et al., 2010. Insight in first episode psychosis: Conceptual and clinical considerations. *Eur. J. Psychiatry* 24, 78–86.

- Shah, P., Hull, T., Riley, G.A., 2009. Associations between the Illness Perception Questionnaire for Schizophrenia and engagement in treatment in a secure setting. *Clin. Psychol.* 13, 69–74.
- Staring, A.B.P., Van der Gaag, M., Van den Berge, M., Duivenvoorden, H.J., Mulder, C.L., 2009. Stigma moderates the associations of insight with depressed mood, low self-esteem, and low quality of life in patients with schizophrenia spectrum disorders. *Schizophr. Res.* 115, 363–369.
- Theodore, K., Johnson, S., Chalmers-Brown, A., Doherty, R., Harrop, C., Ellett, L., 2012. Quality of life and illness beliefs in individuals with early psychosis. *Soc. Psychiatry Psychiatr. Epidemiol.* 47, 545–551.
- Tranulis, C., Corin, E., Kirmayer, L.J., 2008. Insight and psychosis: comparing the perspectives of patient, entourage and clinician. *Int. J. Soc. Psychiatry* 54, 225–241.
- Tranulis, C.S., Freudenreich, O., Park, L., 2009. Narrative insight: rethinking insight in psychosis. *Int. J. Cult. Ment. Health* 2, 16–28.
- Watson, P.W.B., Garety, P.A., Weinman, J., Dunn, G., Bebbington, P.E., Fowler, D., et al., 2006. Emotional dysfunction in schizophrenia spectrum psychosis: The role of illness perceptions. *Psychol. Med.* 36, 761–770.
- Williams, K., Steer, H., 2011. Illness perceptions: Are beliefs about mental health problems associated with self-perceptions of engagement in people with psychosis? *Behav. Cogn. Psychother.* 39, 151–163.