Paranoia, depression and lack of insight in schizophrenia: a suggestion for a mediation effect

Paranoia, depressione e mancanza di insight nella schizofrenia: suggerimenti per una mediazione

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SUMMARY. Introduction. Delusional symptoms are heterogeneous and differentially related to insight, depression and another psychological construct, such as deservedness. In this study we explore models of relationships among these constructs, by hypothesizing that lack of insight could predict depression or paranoia, representing these variables outcome or mediator variables alternatively. **Materials.** We evaluated positive psychotic symptoms, depression, persecution, deservedness and insight in a clinical sample of 81 people with schizophrenia or other psychotic spectrum disorders. Using multiple regression analyses we found 2 significant models. In the first one the lack of insight is negatively associated with depression and negatively related to persecution that, as mediator, is positively associated with depression. In the second model, lack of insight is negatively associated with persecution and negatively related to depression that, as mediator, is positively associated with persecution. **Conclusions.** Persecution and depression could be not only predicted by insight but this prediction could also be mediated by the same variables. In both clinical models found in this study, insight does have a relevant role because the awareness about symptom/illness is crucial to the symptoms change. However, having good insight into schizophrenia can also be paradoxically associated with negative subjective states related to depression (the so-called "insight paradox").

KEY WORDS: schizophrenia, insight, paranoia, deservedness, PaDS, mediation analysis.

RIASSUNTO. Introduzione. I sintomi deliranti sono eterogenei e differentemente correlati all'insight, alla depressione e a un altro importante costrutto psicologico quale è la "deservedness". In questo studio esploriamo i modelli relazionali tra questi costrutti, ipotizzando che la mancanza di insight possa prevedere la depressione o la paranoia, rappresentando queste variabili alternativamente come outcome o come mediatore. **Materiali.** Abbiamo valutato i sintomi psicotici positivi, la depressione, la persecuzione, la deservedness e l'insight in un campione clinico di 81 persone con schizofrenia o altri disturbi dello spettro psicotico. Utilizzando un'analisi di regressione multipla abbiamo trovato due modelli significativi. Nel primo la mancanza di insight è negativamente associata alla depressione e negativamente correlata alla persecuzione che, come mediatore, è positivamente associato alla depressione. Nel secondo modello, la mancanza di insight è negativamente associata alla persecuzione e negativamente correlata alla depressione che, come mediatore, è positivamente associata alla persecuzione. **Conclusioni.** La persecuzione e la depressione potrebbero non essere predette dalla sola presenza di insight ma anche dalla reciproca presenza delle due stesse variabili. In entrambi i modelli clinici trovati, l'insight ha un ruolo rilevante perché la consapevolezza circa i sintomi e la malattia è cruciale per il cambiamento dei sintomi stessi. Tuttavia, avere un buon insight nella schizofrenia può anche essere associato paradossalmente a vissuti negativi, legati alla depressione (il cosiddetto "paradosso dell'insight").

PAROLE CHIAVE: schizofrenia, insight, paranoia, persecuzione, PaDS, mediazione.

INTRODUCTION

More than one century of psychopathological analysis does not sharply delineate clear boundaries between paranoid schizophrenia and other delusional disorders and even within schizophrenia. Delusional symptoms are heterogeneous in nature, development and outcomes as widely investigated from historical, psychometric, psychological psychopathological and philosophical perspectives[1-5].

A complex relationship with affective and mood symptoms is also reported. In particular, several ambiguities emerge from the distinction between 'mood congruent' versus 'mood incongruent' delusions[6] with low self-esteem and negative expectation[7,8] associated with delusions.

Since delusions have dimensional[9] and multidimensional attributions[10], it could be difficult to separate delusions within diagnostic categories but even between mental disorders and reasoning biases in non-clinical sample[1].

A number of models of delusion formation have been elaborated[11] including probabilistic reasoning, attributional style, metacognition, self-concepts attribution[7,12,13] but not clear-cut points of separation between psychiatric diagnoses are feasible[14,15].

In the last two decades, it has been theorized how an individual's self-concept, including both self-esteem and self-schemas, low mood and negative schematic beliefs may relate to the formation and maintenance of persecutory delusions[16-21].

According to some authors by studying self-esteem is even possible to intercept different types of paranoia[22] or its dynamic and fluctuating aspects[23,24].

A recent systematic review[7] investigated the degree to which the persecution was thought to be deserved and reported that low self-esteem is associated with higher perceived deservedness of the persecution. Some studies on people with persecutory delusions[25,26] found negative correlations between perceived deservedness and self-esteem but comparable degrees of non-deserved paranoia patients' self-esteem to those of the healthy sample[27].

Interestingly, one study found a similar relation also in non-clinical sample[28] and another one found three subtypes of paranoia in healthy delusion-prone people, in line with the severity of depression, self-esteem and social anxiety[29].

Chadwik and Trower reported two types of paranoia, 'Bad-Me' (BM) or punishment paranoia and 'Poor-Me' (PM) or persecution paranoia[25]. According to these authors, people with PM paranoia 'tend to blame others, to see others as bad, and to see themselves as victims'[22], as they believe others are plotting to harm them without any justification. People with BM /punishment paranoia, on the other hand, are individuals who 'tend to blame themselves and see themselves as bad, and view others as justifiably punishing them'[22]. They are more anxious, depressed and have lower self-esteem.

Furthermore, Melo et al.[30] evidenced that there is a lack of measures able to intercept the presence of both paranoia and deservedness, administrable to both clinical and not clinical samples; to this purpose they developed the Persecution and Deservedness Scale (PaDS) getting a valid measure of paranoia and deservedness.

We hypothesized that these clinical features could be due to different level of insight that in turn could affect the relationship between depression and persecution[31-33] .

For a better understanding of these relationships we explore models in which lack of insight could predict depression or paranoia with these variables, representing outcome or mediator variables, alternatively.

METHODS

Participants and procedure

The sample of participants in the study included 81individuals (65,4% males, n. 53; age: 42.40±14.44 years; educational level: 11.49±3.35 years; age at onset: 28.64±13.63 years), who provided complete data on the variables of interest. The sample was drawn from 100 consecutively admitted patients with 19 patients unable to participate for severity or refusal. Inclusion criteria were diagnosis of schizophrenia or other psychotic spectrum disorders, age between 18 and 65, lack of any intellectual disabilities or drugs abuse. All the subjects provided written informed consent after a complete description of the study, were evaluated by two senior psychiatrists and were diagnosed in according with ICD-9 (schizophrenia n. 34; schizoaffective disorder n. 28; unspecified schizophrenia n. 11; delusional disorder n. 7; schizophreniform disorder n.1). The evaluations were performed before discharge from a hospital admission in a relatively stable clinical condition that allowed the patients to understand and collaborate to the research project.

Measures

Positive and Negative Symptoms Scale (PANSS)[34] is a 30-item scale used to evaluate the presence, absence and severity of Positive (P), Negative (N) and General Psychopathology (G) symptoms of schizophrenia. It has seven positive symptom subscale items, seven negative symptom subscale items, and sixteen general psychopathology symptom items. All items are rated on a 7-point scale (1=absent; 7=extreme). Item G12 was used to evaluate lack of insight.

The Persecution and Deservedness Scale (PaDS)[30] is a brief measure for assessing both the severity of paranoid thinking and the degree of perceived deservedness of persecution. Two subscales compose it: one measuring persecution and the other the deservedness, where deservedness ratings are orthogonal to persecution ratings. If so, deservedness cannot be scored if the person does not feel to be persecuted.

The persecution subscale (P) has ten statements of persecutory content, some derived from Fenigstein and Vanable's scale[35] the others from Melo et al.[30] experience of clinical practice with paranoid patients, each of which could be scored from 0 to 4 (anchors: 0, 'certainly false'; 1,'possibly false'; 2, 'unsure'; 3, 'possibly true'; and 4, 'certainly true').

A deservedness item follows each persecution one and should be completed only if the person scores greater than 1 on the related persecution item; as for P, it is scored 0-4. We used the Italian version of the PaDS[36].

The Beck Depression Inventory-FS (formerly known as the BDI-PC)[37], contains seven cognitive and affective items from the BDI-II to assess depression. Each item rates on a 4-point scale (0-3). It is scored by summing ratings for each item (range 0-21). Items investigate symptoms of sadness, pessimism, past failure, loss of pleasure, self-dislike, self-critical and suicidal thoughts and wishes during the "past 2 weeks including today".

Analysis

Means and standard deviations were reported for descriptive statistics. Pearson r correlation was used where appropriate. Linear regression analyses were conducted to assess each component of the proposed mediation model.

Mediation analyses have been carried out using a SPSS Macro (i.e., PROCESS)[38] for observing how an independent variable (in our case the insight, using PANSS G12) affects a second variable (the dependent one such as depression for the first model or the persecution for the second model (Figure 1) via the inclusion of a third variable (the mediator: persecution in the first model – Figure 1a – and depression in the second – Figure 1b). The bootstrapping method with bias-corrected confidence estimates was used[39,40]. The 95% confidence interval of the indirect effects was obtained with 5000 bootstrap resamples[41,42].

RESULTS

Table 1 reports the clinical features of the sample. Table 2 shows the correlations between the clinical variables.

In the first model (Figure 1a), it was found that lack of insight was negatively associated with depression (B=-1.67, t

Table 1. Clinical features of the sample (n=81).

	Mean	Standard Deviation
PANSS G12 Lack of insight	3.61	1.52
PANSS Positive score	17.58	6.52
PANSS Negative score	17.74	6.54
PANSS General score(excluding item G12)	34.46	9.22
PANSS Total score	73.40	16.55
BDI-FS Total score	7.28	5.89
PaDS Persecution	23.08	9.08
PaDS Deservedness	7.74	7.60

PANSS: Positive and Negative Symptoms Scale; BDI-FS: Beck Depression Inventory-Fast Screen; PaDS: Persecution and Deservedness Scale

Table 2. Pearson' r correlations among the clinical variables (n=81).

	BDI total score	Persecution total score	Deservedness total score
Persecution tot	.62**		
Deservedness tot	.30*	.38**	
PANSS Pos	-.29*		-.17
PANSS G12	-.43**	-.44**	-.13

PANSS: Positive and Negative Symptoms Scale
* p<.01; ** p<.0005;
Only r values >.25 are reported (except for not significant values of deservedness).

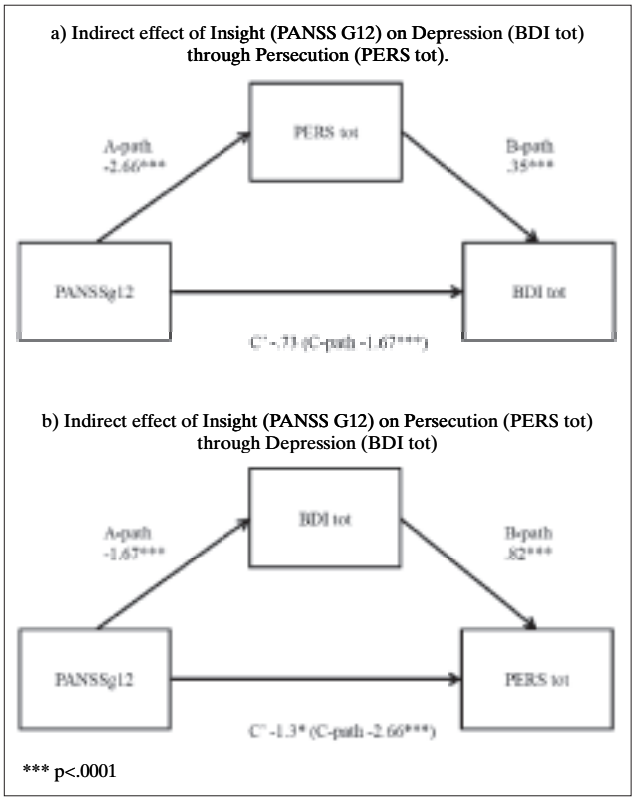

Figura 1. Mediation analysis results.

(79)=-4.24, p<.0001). It was also found that lack of insight was negatively related to persecution (B=-2.66, t (79)=-4.43, p<.0001). Lastly, results indicated that the mediator, persecution, was positively associated with depression (B=.35, t (79)=5.61, p<.0001). Because both the a-path and b-path were significant, mediation analyses were tested.

Results of the mediation analysis confirmed the mediating role of persecution in the relation between lack of insight and depression (B=-.94; CI=-1.48 to -.51). In addition, results indicated that the direct effect of lack of insight on depression became non-significant (B=-.73, t (79)=-1.97, NS) when controlling for persecution, thus suggesting full mediation. The completely standardized indirect effect size (ab_{cs}) of this model was -.24.

In the second model (Figure 1b), lack of insight was negatively associated with persecution (B=-2.66, t (79)=-4.43, p<.0001). Moreover, lack of insight was negatively related to depression (B=-1.67, t (79)=-4.24, p<.0001). Lastly, results indicated that the mediator, depression, was positively associated with persecution (B=.82, t (79)=5.61, p<.0001). Also in this case, both the a-path and b-path were significant. Results of the mediation analysis confirmed a mediating role of depression in the relation between lack of insight and persecution (B=-1.39; CI=-2.44 to -.67). In addition, results indicated that the direct effect of the lack of insight on persecution changed (B=-1.29, t (79)=-2.29, p<.05) when controlling for depression, thus suggesting a high mediation. The completely standardized indirect effect size (ab_{cs}) of this model was -.23.

DISCUSSION

To our knowledge, this is the first study to explore the relationship between paranoia/deservedness construct, lack of insight and depressive symptoms in schizophrenia or other psychotic spectrum disorders exploring these variables as possible mediator in competing models.

As various type and strength of relationships between depression, insight and paranoia have been reported, it is difficult to believe that these relationships would not interact; besides lack of insight partially mediates the relationship between psychotic factors and global functioning[43].

We hypothesized a sort of interaction and found that persecution and depression could be not only predicted by insight but this prediction could also be mediated by the same variables.

Differences between the two models reflect clinical complexity. In other words, people reported higher depression because they feel persecuted or feel persecuted because they are depressed? A first comment is that in both cases insight does have a crucial role because the awareness about symptom/illness is crucial to the following symptoms change.

This result could in part support the notion of BM' and PM paranoia theorized by Trower and Chadwick[22] and by

Chadwick et al.[25]. In particular, the one side of the prediction (i.e. BM paranoia) seems to be supported, as we find a correlation between persecution and depression but not between persecution and PANSS positive as expected.

This finding underline the need to further explore the role of insight as a possible 'psychological cause of deservedness' while depression could be a 'psychological consequence'[32,44].

Having good insight into schizophrenia can also be paradoxically associated with negative subjective states related to depression, including demoralization, decreased self-esteem, hopelessness and suicidal ideation[31,45-48]. This so-called 'insight paradox' could contribute to the deservedness of persecution.

This finding is in agreement with a recent cluster analytical study where a cluster of patients with most positive insight (i.e. lower PANSS General Psychopathology Item G12 score), shows a more complex pattern, a somewhat 'paradoxical' mixture of positive and negative self-reported personal resources (e.g. low self-esteem, low personal strength, higher level of stigma and emotional coping) and clinical features (e.g. high depressive symptoms). Insight into illness may complicate the relationship between self-reported personal and clinical elements of recovery[45,49-51]. This cluster may identify persons with greater vulnerability to depression but not to psychotic symptoms, probably due to low self-esteem. From this analysis we can establish that 'deservedness' could be the other face of insight and depression in schizophrenia. This conceptualization could open new views in cognitive treatment of delusions[9].

The relationship between paranoia/deservedness, depression and insight should be further explored to identify 'target' of tailored psychosocial or pharmacological treatment able to address patient needs and outcome. As depression has been reported to be associated with persecutory delusion, especially if people felt less powerful than their persecutors[17], global insight evaluation could further address psychosocial treatments.

The lack of correlation between PANSS positive score and PaDS deserves further comments. We rely upon the original PANSS scoring reported by Kay et al.[34] and the PANSS 'positive factor' could unable to catch the complexity of the delusional world[52]. Alternatively, with the term of 'positive symptoms' or delusion/paranoia we include different psychopathological constructs[9], likely heterogeneous clinical phenomena as delusion formation arise from a complex interaction of emotional process, anomalous experience and cognitive bias that could be difficult to separate from not-delusional features[2]. These symptoms could have different relations to insight so that this evaluation is crucial to establish better description and an adequate assessment and treatment within heterogeneity of delusions[53].

Conflict of interests: the authors have no conflict of interests to declare.

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