Research article
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Understanding of Faux Pas in patients with schizophrenia

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Theory of Mind (ToM) refers to our ability to attribute mental states such as beliefs, intentions and desires to other, allowing us to explain, manipulate and predict others' behavior. ToM abilities of patients with schizophrenia were repeatedly found to be deficient. Our purpose in undertaking the present study was to explore ToM deficits in patients with schizophrenia, using a task of an affective aspect of ToM abilities, namely, "Faux Pas" Test (FPT). The FPT requires a "cognitive" ToM ability (i.e., knowing that the person who insults the other has not realized that she/he should not do that) and a more "affective" component (i.e., empathizing for the person who received the insulting utterance). We assessed 40 inpatients with schizophrenia (32 men) and 30 healthy participants (24 men), matching on age, level of education and sex ratio. All patients met DSM-IV criteria for schizophrenia. Four written scenarios containing a faux pas (unintentionally insulting or hurtful statements given a particular context) were presented to each examinee. The participants read each scenario and responded to a series of 4 questions: "Did anyone say something she/he should not have said?" (faux pas detection); "Why shouldn't she/he have said it?" (appreciation of potential negative impact on others); "Why do you think she/he said it?" (appreciation of speaker's lack of consideration); "How do you think the other person might have felt?" (awareness of other's emotional reaction). Patients with schizophrenia performed more poorly than healthy participants across all conditions: detection of FP [U=366.5, p=0.001], reasons should not have made FP [U=215.5, p<0.001], reasons for making FP [t(65)=4.294, p<0.001], and empathy [U=372, p=0.001]. Only the third condition (reasons for making FP) was significantly correlated with the age at first diagnosis (r=0.462, =0.004) and with ratings of positive symptoms (r=-0.391, p=0.017) and with symptoms of general psychopathology (r=-0.339, p=0.040). The present study further supports previous findings of patients with schizophrenia difficulties in theory of mind, as it was measured through a faux pas which also assess, apart from the understanding of a person' s mental state, the understanding of a person's emotional state, after having received an unintentional insult. The inability of patients with schizophrenia to empathize and therefore detect a faux pas may cause serious problems in their everyday communication with others. Appropriate cognitive interventions may help patients to avoid unintentionally hurting other people's emotions, thus improving their interpersonal relationships.

Key words: Faux pas, theory of mind, empathy, schizophrenia.

Introduction

After almost three decades of studies, there is a general consensus that people with schizophrenia are facing different problems when they are asked to infer others' mental states.[1,2] In the majority of the studies, ToM abilities were found to be deficient while assessed through verbal tasks of false beliefs,[3] cartoon tasks of inference of intentions,[4] and verbal tasks of hinting[5] or irony comprehension.[6]

Our purpose in undertaking the present study was to explore ToM deficits in patients with schizophrenia, using a task of an affective aspect of ToM abilities, namely, "Faux Pas" Test (FPT). Specifically, this test was first developed by Baron-Cohen et al;[7] the FPT examines participant's ability to understand if, during a two-person social interaction, something awkward or insulting has been said unintentionaly. In addition, the participant is also asked to reason why a person of a story has said something, why she/he should not have said something and how the other person might feel. Apparently, the FPT requires a "cognitive" ToM ability (i.e., knowing that the person who insults the other has not realized that she/he should not do that) and a more "affective" component (i.e., empathizing for the person who received the insulting utterance). The difference of this task with the most used false belief tests is that in the FPT the participant must also infer about the emotional situation of the "insulted person", apart from judging the intentionality of an utterance. On the other hand, the FPT differs from classic emotion recognition tests since the FPT is a verbal story where the participant must infer a person's emotion based on the story comprehension and the mental state of the protagonist, rather than on her/his emotional face expressions.

Only few studies included FP while assessing ToM in schizophrenia, reporting patients' difficulties in this test.[8–10] There are two studies addressing FP performance in patients with schizophrenia conducting in Greece. Patients with schizophrenia had significant worse scores in FP recognition component[11,12] as well as FP empathy component.[11] The present study seeks to examine "faux pas" with new scenarios that were developed in order to simulate everyday situations among adults. Finally, the associations between patients' performance in the FPT and their clinical characteristics (years of disease, positive and negative symptoms) will be inquired, since previous studies have provided controversial findings in this area.

Material and method

Participants

We assessed 40 inpatients with schizophrenia (32 men) and 30 healthy participants (24 men), matching on age [$t(68)=0.151$, $p=0.881$], level of education [$t(68)=0.392$, $p=0.696$] and sex ratio [$x^2(1)=0.000$, $p=1.00$]. Patients with schizophrenia were assessed shortly before discharge. Healthy controls were recruited from the community and were screened with a semi-structured interview by one of the experimenters (MG) before entering the study under the close supervision of the first and second author (VPB, MHK). All participants gave their informed consent to participate in the study and were treated in accordance with the Helsinki Declaration as well as the Code of Ethics in the Conduct of Research of the Aristotle University of Thessaloniki.

All patients met DSM-IV criteria.[13] Diagnosis was confirmed with the Greek version (translation-adaptation to the Greek language by S. Beratis) of the Mini-International Neuropsychiatric Interview (4.4) (MINI).[14] Patients were being treated with antipsychotic medication at the time of the study.

Exclusion criteria for the patient group were the following: non-native speakers of the Greek language, a history of neurological or developmental disorders, recent substance abuse (in the last six months), as well as a co-morbid psychiatric disorder, or a medical disorder which might compromise cognitive performance. For the healthy control group, an additional exclusion criterion was a history of a psychiatric or neurological disorder.

We assessed symptom severity (positive symptoms, negative symptoms and symptoms of general psychopathology) of the patients with schizophrenia with the Greek version[15] of the Positive and Negative Syndrome Scale (PANSS).[16] Rating of the PANSS was based on the Greek version of the

Structured Clinical Interview for PANSS (SCI-PANSS) and while blind to neuropsychological performance. Demographic characteristics of the two groups and patients' clinical data are presented in table 1.

Comprehension of Faux Pas

We presented four written scenarios containing a faux pas (unintentionally insulting or hurtful statements given a particular context). The participants read each scenario and responded to a series of questions. They were permitted to refer to scenarios as needed, thereby reducing memory demands. The questions were:

1. "Did anyone say something she/he should not have said?" (faux pas detection question – Q1). If the participants answered "yes", they were asked questions Q2, Q3, and Q4.
2. "Why shouldn't she/he have said it?" (Appreciation of potential negative impact on others/faux pas – Q2).
3. "Why do you think she/he said it?" (Appreciation of speaker's lack of consideration – Q3).
4. "How do you think the other person might have felt?" (Awareness of other's emotional reaction – Q4) (see Appendix A for an example).

Each question was scored with "0", "1" or "2", depending on how detailed or comprehensive the justification was. If a participant answered the first question incorrectly, we skipped the remaining three questions. The total score for every participant was converted to percentage of correct responses; for the total score, we included only those scenarios for which a participant answered the first question correctly. For the statistical analyses of the remaining three questions, three patients were excluded because they answered at the first question incorrectly on all four scenarios. The internal reliability of the items of this task, as measured in the whole sample, was moderately high (Cronbach's alpha=0.76).

Statistical analysis

Statistical analyses were performed by SPSS statistical package version 20.0. Sociodemographic and clinical characteristics were processed by Pearson's chi-square test and student's t-test. Normal distribution of FP variables was assessed with the Kolmogorov-Smirnov test. Group differences were estimated with Mann-Whitney tests for non-normal distribution variables ("detection of FP-Q1", "reasons should not have made-Q2" and "empathy condition-Q4") and with student's t-test for normal

Table 1. Demographic and clinical characteristics of the two groups.

Variable	Schizophrenia group (n=40)		Healthy group (n=30)	
	Mean (SD)	Range	Mean (SD)	Range
Age	37.10 (8.18)	23–52	37.40 (8.32)	23–56
Level of education (years)	12.10 (2.59)	6–18	12.33 (2.28)	6–18
Age at first diagnosis	26.53 (7.46)	16–49		
Duration of illness (years)	10.55 (7.05)	2–29		
PANSS*				
Positive symptoms				
15.15 (6.33)				
7-33				
Negative symptom	16.08 (5.90)	7–30		
General Psychopathology	31.70 (8.94)	17–50		

*PANSS: Positive and Negative Syndrome Scale

distributed variables ("reasons for making FP-Q3"). For patient group, correlations of "detection of FP-Q1" and "empathy condition – Q4" scores with clinical characteristics and psychosis severity indices (Positive symptoms, Negative symptoms, and General Psychopathology) were investigated by means of Spearman's r while correlations of "reasons should not have made-Q2" and "reasons for making FP-Q3" scores with clinical characteristics and psychosis severity indices were investigated by means Pearson's r.

Results

Group comparison

Patients with schizophrenia performed more poorly than healthy participants across all conditions of the FPT: Q1, detection of FP: U=366.5, p=0.001; Q2, reasons should not have made FP: U=215.5, p<0.001; Q3, reasons for making FP: t(65)=4.294, p<0.001; Q4, empathy condition: U=372, p=0.001]. Table 2 lists mean performance by group.

Correlations

Only the third condition (understanding the reasons why the protagonist might have made the statement/faux pas – Q3) was correlated positively with the age at first diagnosis (r=0.462, p=0.04) and negatively with ratings of positive symptoms (r=–0.391, p=0.017) and with symptoms of general psychopathology (r=–0.339, p=0.040). No other significant correlation was found (table 3).

Discussion

Present findings reveal patients with schizophrenia inability to perceive a faux pas, meaning a social

Table 2. Mean (SD) Faux Pas Test performance of patients and healthy controls (percent correct).

	Schizophrenia group (n=40)	Healthy group (n=30)
	Mean (SD)	Mean (SD)
Detection of FP*	77.50 (31.42)	97.50 (10.06)
Reason should not have made FP**	67.00 (25.86)[i]	93.75 (11.72)
Reason for making FP**	45.38 (4.02)[i]	75.69 (23.59)
Empathy condition*	84.01 (25.41)[i]	99.58 (2.28)

*p=0.001, **p<0.001, i. patients with schizophrenia: n=37

Table 3. Correlations of Faux Pas (FP) variables with clinical characteristics and symptoms severity.

	Detection of FP-Q1	Reason should not have made FP-Q2	Reason for making FP-Q3	Empathy condition-Q4
Age at 1st diagnosis	r=0.224* p=0.165	r=0.063** p=0.712	r=0.462** p=0.004	r=0.216* p=0.200
Duration of illness	r=0.118* p=0.468	r=–0.288** p=0.0.84	r=–0.075** p=0.659	r=0.180* p=0.286
PANSS-Positive symptoms	r=–0.194* p=0.230	r=–0.174** p=0.302	r=–0.391** p=0.017	r=–0.126* p=0.456
PANSS-Negative symptoms	r=–0.130* p=0.424	r=0.167** p=0.324	r=–0.258** p=0.123	r=0.129* p=0.445
PANSS-General Psychopathology	r=–0.106* p=0.517	r=–0.084** p=0.619	r=–0.339** p=0.040	r=–0.100* p=0.557

situation where somebody unintentionally insult or heart somebody else. In addition, performance on FPT was partially correlated with patients' clinical characteristics.

In particular, patients with schizophrenia had a poorer performance than healthy controls not only when detecting a faux pas but also when they had to reason about the mental state of the person who drops an insulting utterance and the emotional state of the other person who received the insult. Even if a patient recognized the faux pas, she/he gave yet an incorrect answer for the reason the faux pas was said; for example, common answers to questions Q2 and Q3 of the scenario in the Appendix A were: Q2: "it is not appropriate/ polite to gossip", "it is not right to speak about the sex life", "you should not betray your colleagues". Q3: "he said it on purpose to hurt her", "he said it on purpose because he envies John Smith and wanted to destroy his family", "he said it in order to seem well informed to his coworker", "he just told the truth". Concerning the empathy question about the feeling of the insulted person some answers were: "she felt nothing, bad things happen", "she felt happy because she learned the truth", "why she should feel something? She did not do anything bad, her husband did, so he should feel bad".

Similar findings for performance on the FPT are reported by Konstantakopoulos et al[11,12] regarding Greek patients with schizophrenia, by Martino et al[8] regarding Argentinean patients with schizophrenia, by Shur et al[9] regarding Israel patients with schizophrenia and by Zhu et al[10] regarding Chinese patients with schizophrenia. Furthermore, Savina and Beninger[17] found that patients treated with risperidone performed more poorly than healthy volunteers as well as patients treated with olanzapine on a faux pas test, while two recent studies highlight patients' worse performance compared to their non-affected relatives.[18,19]

Regarding the correlational analyses between performance on FPT and clinical characteristics, only the Q3 question ("Why do you think she/he said it?") was found to be correlated positively with the age of the first diagnosis and negatively with patients' positive symptoms and symptoms of general psychopathology. Shur et al, also, reported a relationship between understanding a faux pas and clinical symptoms (though both positive and negative symptoms).[9] In contrast, only relationships between patients' performance on faux pas test and negative symptoms of schizophrenia were reported by Martino et al.[8] Consequently, further research is needed in order to understand how the specific clinical features of schizophrenia course interrupt patients' ability not only to detect a faux pas, but also to infer the reasons for making a faux pas, as well as to empathize the emotional state of the person who is affected by the faux pas.

To conclude, the present study further supports previous findings of patients with schizophrenia difficulties in theory of mind, as it was measured through a faux pas which also assess, apart from the understanding of a person's mental state, the understanding of a person's emotional state, after having received an unintentional insult. The inability of patients with schizophrenia to empathize and therefore detect a faux pas may cause serious problems in their everyday communication. Appropriate cognitive interventions may help patients to avoid unintentionally hurting other people's emotions, thus improving their interpersonal relationships.

Appendix A

Faux pas scenario:

Mary Smith dropped on her husband's workplace (John Smith) in order to give him a paper he forgot. His office is on the 5th floor so she takes the elevator. When the elevator stops on the 1st floor, two employees enter. One says to the other: "Did you hear today's gossips? The manager caught Mr Smith fooling around with his secretary!".

Q1. "Did the employee say something he should not have said?"

Q2. "Why shouldn't he have said it?"

Q3. "Why do you think he said it?"

Q4. "How do you think Mary Smith felt?"

Η κατανόηση «Αυτού που δεν έπρεπε να ειπωθεί» σε ασθενείς με σχιζοφρένεια

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Η Θεωρία του Νου (ΘτΝ) αναφέρεται στην ικανότητά μας να αποδίδουμε στους άλλους νοητικές καταστάσεις, όπως πεποιθήσεις, προθέσεις και επιθυμίες, επιτρέποντάς μας έτσι να εξηγήσουμε, να χειριστούμε και να προβλέψουμε τη συμπεριφορά των άλλων. Έχει βρεθεί επανειλημμένα ότι οι ασθενείς με σχιζοφρένεια παρουσιάζουν ελλείμματα στη ΘτΝ. Ο σκοπός της παρούσας εργασίας ήταν να διερευνηθούν τα ελλείμματα στη ΘτΝ σε ασθενείς με σχιζοφρένεια, χρησιμοποιώντας μια δοκιμασία που εξετάζει μια συναισθηματική πλευρά της ΘτΝ, συγκεκριμένα το τεστ «αυτού που δεν έπρεπε να ειπωθεί». Για το συγκεκριμένο τεστ απαιτούνται ικανότητες που αφορούν τη «γνωστική» πλευρά της ΘτΝ (δηλαδή τη γνώση ότι το άτομο που προσβάλλει τον άλλον δεν έχει αντιληφθεί ότι δεν έπρεπε να κάνει κάτι τέτοιο), καθώς και ικανότητες που σχετίζονται με μια πιο «συναισθηματική» πλευρά της ΘτΝ (δηλαδή την ενσυναίσθηση για το πρόσωπο που έγινε αποδέκτης της προσβολής). Εκτιμήθηκαν 40 νοσηλευόμενοι ασθενείς με σχιζοφρένεια (32 άνδρες) και 30 υγιείς (24 άνδρες) με ανάλογη ηλικία, επίπεδο εκπαίδευσης και αναλογία ανδρών/γυναικών. Όλοι οι ασθενείς πληρούσαν τα κριτήρια κατά DSM-IV για σχιζοφρένεια. Τέσσερα γραπτά σενάρια που περιλάμβαναν «Αυτό που δεν έπρεπε να ειπωθεί» (όπου κάποιος λέει εν αγνοία του κάτι προσβλητικό ή άσχημο μπροστά στον ίδιο τον ενδιαφερόμενο) παρουσιάζονταν σε κάθε εξεταζόμενο. Οι συμμετέχοντες διάβαζαν κάθε σενάριο και απαντούσαν σε μια σειρά 4 ερωτήσεων: «μήπως κάποιος είπε κάτι που δεν έπρεπε να ειπωθεί;» (εντοπισμός αυτού που δεν έπρεπε να ειπωθεί)· «γιατί δεν έπρεπε να το πει;» (εκτίμηση των πιθανών αρνητικών συνεπειών στους άλλους)· «γιατί το είπε;» (εκτίμηση της άγνοιας του ομιλητή)· «πώς πιστεύεται ότι ένιωσε το άλλο άτομο;» (επίγνωση για τη συναισθηματική αντίδραση των άλλων). Οι ασθενείς με σχιζοφρένεια είχαν σημαντικά χαμηλότερες επιδόσεις σε σύγκριση με τους υγιείς σε όλες τις συνθήκες που εξετάστηκαν: εντοπισμός αυτού που δεν έπρεπε να ειπωθεί [U=366,5, p=0,001], γιατί δεν έπρεπε να ειπωθεί [U=215,5, p<0,001], γιατί ειπώθηκε [t(65)=4,294, p<0,001], και ενσυναίσθησης [U=372, p=0,001]. Μόνο η 3η συνθήκη (γιατί δεν έπρεπε να ειπωθεί) συσχετιζόταν σημαντικά με την ηλικία πρώτης διάγνωσης (r=0,462, p=0,004), καθώς και με τα θετικά συμπτώματα (r=−0,391, p=0,017) και τη γενική ψυχοπαθολογία (r=−0,339, p=0,040). Η παρούσα εργασία υποστηρίζει έτι περισσότερο προηγούμενα ευρήματα για δυσκολίες στη ΘτΝ σε ασθενείς με σχιζοφρένεια, όπως αυτή μετρήθηκε μέσω «αυτού που δεν έπρεπε να ειπωθεί». Το τελευταίο πέρα από την κατανόηση της νοητικής κατάστασης περιλαμβάνει και την κατανόηση της συναισθηματικής κατάστασης ενός ανθρώπου που δέχτηκε μια μη σκόπιμη προσβολή. Η έλλειψη ενσυναίσθησης των ασθενών με σχιζοφρένεια και συνεπώς η αδυναμία τους να αντιληφθούν «αυτό που δεν έπρεπε να ειπωθεί» μπορεί να προκαλεί σοβαρά προβλήματα στην καθημερινή τους επικοινωνία με τους άλλους. Κατάλληλες γνωστικές παρεμβάσεις μπορεί να βοηθήσουν τους ασθενείς αυτούς να αποφύγουν να πληγώνουν τα συναισθήματα των άλλων ανθρώπων και έτσι να βελτιώσουν τις διαπροσωπικές τους σχέσεις.

Λέξεις ευρετηρίου: «Αυτό που δεν έπρεπε να ειπωθεί», θεωρία του νου, ενσυναίσθηση, σχιζοφρένεια.

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