Social anxiety in schizophrenia: a clinical quantitative and qualitative analysis

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Introduction
Social anxiety is a frequent but often unrecognized feature in schizophrenia and is associated with a severe level of disability. This study aimed at carrying out a clinical quantitative and qualitative analysis of social anxiety in patients with schizophrenia.

Methods
Three hundred and eighty-five patients with schizophrenia were recruited from both the Institute of Psychiatry Ain Shams University hospital and the long-term wards of Al Abassia hospital in the period between January and December 2009. All the recruited patients, after providing written informed consent, were interviewed with a Structured Clinical Interview for diagnosis, sociodemographic sheet, medical history sheet, the Liebowitz Social Anxiety Scale (LSAS), and the Scale for the Assessment of Positive and Negative Symptoms (PANSS).

Results
Three categories of patients with schizophrenia were identified according to the severity of social anxiety as measured by LSAS: (i) patients with schizophrenia without social anxiety (NSA: $n = 76$, 19.7%), (ii) patients with social anxiety symptoms (SAS: $n = 222$, 57.7%), and (iii) patients with schizophrenia with social anxiety disorder (SAD: $n = 87$, 22.6%). On comparing the three groups, only the SAD group characterized by being significantly more likely to be female patients, younger in age, highly educated, being outpatients, not exposed to electroconvulsive therapy, and presented with delusions and mood changes as per relative's complaints, which tend to be severe in degree. All the subscales of LSAS were positively correlated with all PANSS scores especially the negative symptom subscale in social anxiety as a whole (both SAD and SAS). In the group of SAD, all the subscales of LSAS were correlated with only the general psychopathology subscale of PANSS; in the group of SAS, only the fear subscale score of LSAS was correlated with all scores of PANSS. Three independent risk factors for social anxiety (whether SAD or SAS) were identified: sex (female), being an outpatient, and no history of electroconvulsive therapy. Social anxiety was increased with undifferentiated and paranoid type of schizophrenia and negative psychotic symptoms, decreased with antidepressant intake and complete remission, and not affected by the duration of schizophrenic illness and type of the patient's complaint. On PANSS, general psychopathology symptoms (especially disturbance of volition) were the most powerful symptoms in differentiating SAD from SAS and the grade of severity of SAD (mild, moderate, and severe).

Conclusion
Social anxiety is highly prevalent and needs defined operational guidelines to be treated and incorporated as a separate symptom dimension in patients with schizophrenia. Adding routine screening for social anxiety to the protocol of schizophrenia management is an essential step.

Introduction
Diagnostic and Statistical Manual of Mental Disorders (DSM), 4th edition fifth revision and International Classification of Diseases-11 are moving from the categorical concept toward the dimensional concept in diagnosing psychiatric disorders. By adding the dimensional component to diagnosis [1], future research will highlight the symptomatic heterogeneity of different psychiatric disorders and investigate its clinical correlates.

Schizophrenia is a heterogeneous disorder with a variety of phenotypic expressions. Delineation of clinically distinct subtypes of the disorder, based on the severity of the concurrent symptom(s), is a valuable step in the new era of classification.

Anxiety is commonly observed in schizophrenia as one of either symptoms or disorders. Comorbid anxiety disorders are reported in more than 50% of patients with schizophrenia [2]; 17% of the patients with schizophrenia had social anxiety disorders (SADs), 13% had obsessive–compulsive disorder, 12% had generalized anxiety disorder [3], and 24% had panic disorder [4]. However, research has neglected the study of the anxiety symptoms 'sub syndrome' in schizophrenia with a few studies reporting that approximately 47.5% had a lifetime history of panic attacks [5].

Social anxiety is a frequent but often unrecognized feature in schizophrenia and is associated with a severe level of disability [6,7]. It ranged from 6.9 to 42.8%, with most studies finding 10–20% [8,9], and in epidemiological studies, the rate of SAD ranges from 13 to 39% [3,10–12].

Currently, a research effort is undertaken to define operational guidelines for specific treatment for patients with schizophrenia with social anxiety; however, no data confirmed the difference among patients with schizophrenia with no social anxiety (NSA), with social anxiety symptoms (SAS), and those with SAD. It is a very important step to define who will be treated and why?

Aim of the work

This study aimed at determination of the prevalence, types (fear and avoidance), and severity of social anxiety (syndrome and sub syndrome) among patients with schizophrenia, to compare among patients with schizophrenia with NSA, with SAS, and those with SAD to identify the different determinants of social anxiety in terms of sociodemographic, clinical data, and the Scale for the Assessment of Positive and Negative Symptoms (PANSS) (negative, positive, and general psychopathology) symptom scores, and to describe the quantitative and qualitative relationship between anxiety symptoms and psychotic symptoms.

Patients and methods

Between January and December 2009, all new patients with schizophrenia presenting to the Institute of Psychiatry Ain Shams University hospital were invited to participate in the study after obtaining a written informed consent. Two hundred and forty-one patients diagnosed with schizophrenia according to the DSM 4th edition criteria and the Structured Clinical Interview for Diagnosis, either outpatients or inpatients, met the study inclusion criteria and agreed to participate. During the recruitment period, 73 patients with schizophrenia refused to participate.

To include all the types and different course patterns of schizophrenia and not depending only on clinical samples from academic centers, we invited all inpatients with schizophrenia in the long-term wards of Al Abassia hospital (including patients admitted for long time periods up to 30–40 years) during the recruiting period

to join the study. Only one hundred and forty-four inpatients fitted the inclusion criteria of the study and agreed to participate.

The study exclusion criteria were as follows: uncooperative patient, patient unable to understand the questions, mentally subnormal patient as clinically judged, a history of acute fulminating physical disorder, and a history of significant head trauma or convulsions. Other exclusion criteria that were added regarding the patients from AL Abassia hospital were patients with no enough information, with severe formal thought disorder interfered with proper clinical assessment, and patients more than 85 years to avoid comorbid organic factors.

All the recruited patients were asked to complete the Structured Clinical Interview for diagnosis [13], sociodemographic sheet, medical history sheet, the Social Anxiety Scale [14], and the PANSS [15].

The sociodemographic sheet included age, sex, social class scale [16], years of education, marital status, original/current residence, order of birth, occupation, religion, and parental consanguinity.

The medical history sheet included the site of recruitment whether outpatient or inpatient, past and current history of medical/psychiatric illness, history of admission, family history of psychiatric illness, types of patient's and relative's complaints, subtype, duration and course of schizophrenia, duration of current hospitalization, current treatment, and past/current history of electroconvulsive therapy (ECT).

PANSS is a 30-item 7-point (1–7) rating scale. It is consistent in scoring individual patients over time and the course of the illness. It is divided into positive, negative, and general psychopathology subscales. Subscale scores were shown to be normally distributed and independent of each other. It includes four readings: one for the positive symptoms, one for the negative symptoms, one for the general psychopathology symptoms, and one for the total score [17–19].

The Liebowitz Social Anxiety Scale (LSAS) [20] is a Likert-type self-evaluation test composed of 24 questions. It is composed of 2 subscales; the first measures the level of anxiety/fear that arises in social settings and the second measures the severity of avoidance/withdrawal behavior. The subscale total score ranges from 0 to 72 and the total scale score ranges between 0 and 144. Higher scores indicate greater severity of social anxiety and avoidance/withdrawal. The recommended cutoff point for diagnosing SAD in each subscale is a score of 25 and in the total scale is a score of 50 points [21]. For the noneducated patients, the scale was explained and then marked according to their response. LSAS seemed adequate and reliable in assessing SAD in patients with schizophrenia [7,22].

The patients with schizophrenia in the studied sample were classified according to the severity of social anxiety as measured by LSAS into three groups: (i) patients with schizophrenia NSA if the total scale scored zero,

(ii) patients with SAS if the total scale scored less than 50, and (iii) patients with schizophrenia with SAD if total scale scored more than or equal to 50. The severity of SAD was classified as follows: mild (if the total scale scored less than 55), moderate (if the total scale scored 55 to 64), marked (if the total scale scored 65 to 80), severe (if the total scale scored 81 to 95), and very severe (if the total scale scored less than 95) [14]. For statistical purposes, the latest three groups were gathered into one category named severe (if the total scale scored ≥ 65).

Statistical analysis

Statistical analysis was carried out by using the PASW statistical software package (v. 18.0). The χ^2 test was used to study the comparison between two independent groups as regard the categorized data. The probability of error at 0.05 was considered to be significant, whereas at 0.01 and 0.001 were considered to be highly significant. Logistic stepwise multiregression analysis was used to search for a panel (independent parameters) that can predict the target parameter (dependant variable). By using logistic stepwise multiregression analysis, we can get the most sensitive ones that predict the dependant variable. They can be sorted according to their sensitivity to discriminate according to their P values.

Results

Three hundred and eighty-five Egyptian patients with schizophrenia were included in this study with a mean age of 42.3 years ranging between 17 and 84 years. They were classified into three groups of patients: patients with NSA ($n = 76$, 19.7%), patients with SAS ($n = 222$, 57.7%), and patients with comorbid SAD ($n = 87$, 22.6%). The SAD group was divided according to the severity of SAD into mild SAD manifested in 19.5% ($n = 17$), moderate SAD in 29.9% ($n = 26$), marked SAD in 24.1% ($n = 21$), severe SAD in 14.9% ($n = 13$), and very severe SAD in 11.6% ($n = 10$).

The SAD group was relatively younger [mean $38.4 \pm$ standard deviation (SD) 12.8] than the SAS group (mean $43.9 \pm$ SD 14.3) and the difference was statistically significant ($P < 0.05$). Thirty-seven (27.7%) female patients developed SAD compared with 48 (19.7%) among male patients ($P < 0.05$). Education years were found to be significantly longer (mean $11.6 \pm$ SD 4.3) in the SAD group compared with SAS (mean $10.2 \pm$ SD 4.6). Other sociodemographic and economic factors showed no significant differences among the three groups; NSA, SAS, and SAD, namely residence (including origin of birth whether rural or urban), socioeconomic class, marital status, order of birth, occupation, religion, or consanguinity.

More patients with SAD (27.5%) were recruited from the outpatients than inpatients (19.4%). SAS and/or SAD were less reported among the group of patients with schizophrenia with a history of psychiatric illness (17.5%) than those without a history of psychiatric illness (81.2%). Patients subjected to ECT, either in the past or present, developed SAD in a less frequent rate than

Table 1 Medical history of patients with schizophrenia at different categories of social anxiety

Item	SAD	SAS	NSA	P value
Place of patient				
Inpatient	45 (19.4)	131 (56.5)	56 (24.1)	0.014
Outpatient	42 (27.5)	91 (59.5)	20 (13.1)	
History of admission				
Present	50 (24.6)	118 (58.1)	35 (17.2)	0.340
Absent	37 (20.3)	104 (57.1)	41 (22.5)	
History of medical illness				
Present	0 (0.0)	5 (50.0)	5 (50.0)	0.028
Absent	87 (23.2)	217 (57.9)	71 (18.9)	
History of psychiatric illness				
Present	2 (25.0)	1 (12.5)	5 (62.5)	0.005
Absent	85 (22.5)	221 (58.6)	71 (18.8)	
Current comorbidity				
Present	14 (27.5)	23 (45.1)	14 (27.5)	0.136
Absent	73 (21.9)	199 (59.6)	62 (18.6)	
History of ECT				
Present	20 (16.0)	72 (57.6)	33 (26.4)	0.021
Absent	67 (25.8)	150 (57.7)	43 (16.5)	
Current ECT				
Present	10 (18.2)	24 (43.6)	21 (38.2)	0.001
Absent	77 (23.3)	198 (60.0)	55 (16.7)	
Current psychiatric illness				
Present	6 (18.8)	21 (65.6)	5 (15.6)	0.634
Absent	81 (22.9)	201 (56.9)	71 (20.1)	
Family history of psychiatric illness				
None	73 (23.9)	181 (59.2)	52 (17.0)	0.062
Similar condition	12 (18.2)	32 (48.5)	22 (33.3)	
Addiction	1 (10.0)	8 (80.0)	1 (10.0)	
Depression	1 (33.3)	1 (33.3)	1 (33.3)	

ECT, electroconvulsive therapy; NSA, no social anxiety; SAD, social anxiety disorder; SAS, social anxiety symptoms.
P value is significant if < 0.05.

those who were not subjected to ECT. Current copsychiatric illness and a family history of psychiatric illness have no effect on SA (Table 1). With regard to the current treatment, only antidepressant intake ($n = 15$; 19.7%) was significantly associated with a lower risk of SA development whether SAD ($n = 20$; 9.0%) or SAS ($n = 9$; 10.3%) ($P = 0.037$).

Undifferentiated and paranoid schizophrenia reported the highest rates of SAD compared with the other types

Table 2 Type and course of schizophrenia in patients at different categories of social anxiety

Item	SAD	SAS	NSA	P value
Schizophrenia subtype				
Paranoid	35 (23.6)	91 (61.5)	22 (14.9)	0.237
Hebephrenic	7 (16.3)	23 (53.5)	13 (30.2)	
Catatonic	–	3 (100.0)	–	
Undifferentiated	27 (27.6)	49 (50.0)	22 (22.4)	
Residual	17 (18.7)	55 (60.4)	19 (20.9)	
Simple	1 (50.0)	1 (50.0)	–	
Duration of schizophrenia				
Median (IQR)	10 (5–20)	12 (5–25)	11 (5–20)	0.190
Schizophrenia course				
Continuous	36 (23.7)	97 (63.8)	19 (12.5)	0.002
Episodic progressive deficit	20 (23.5)	48 (56.5)	17 (20.0)	
Episodic with stable deficit	17 (25.8)	33 (50.0)	16 (24.2)	
Episodic remittent	5 (23.8)	15 (71.4)	1 (4.8)	
Incomplete remission	7 (25.0)	13 (46.4)	8 (28.6)	
Complete remission	2 (6.1)	16 (48.5)	15 (45.5)	

IQR, interquartile range; NSA, no social anxiety; SAD, social anxiety disorder; SAS, social anxiety symptoms.
P value is significant if < 0.05.

Table 3 Average Liebowitz Social Anxiety Scale among patients with schizophrenia with social anxiety disorder and social anxiety symptoms

Item	SAD	SAS	P value
Fear subscale of LSAS	31.0 (21.0–42.0)	3.5 (0.0–3.0)	<0.001
Avoidance subscale of LSAS	40.0 (32.0–50.0)	18.0 (9.0–27.0)	<0.001
Total score of LSAS	66.0 (56.0–82.0)	27.0 (14.0–40.0)	<0.001

LSAS, Liebowitz Social Anxiety Scale; SAD, social anxiety disorder; SAS, social anxiety symptoms.
P value is significant if <0.05.

of schizophrenia, but the difference was not statistically significant. The duration of illness was not related to the incidence of SA (either symptoms or disorder) among the studied group of patients with schizophrenia. As regards the course of the disease, patients with complete remission reported the lowest rate of SA compared with the other courses of the disease (Table 2).

Both fear and avoidance subscale score of LSAS were significantly higher among patients with schizophrenia with SAD compared with those with SAS ($P < 0.05$) (Table 3).

Positive and Negative subscales of PANSS and the general subscale showed a significant decrease trend from SAD to SAS to NSA groups. The total score of PANSS showed the same trend that was statistically significant (Table 4).

The negative subscale of PANSS was more correlated with the total score of LSAS ($r = 0.397$) than the positive subscale ($r = 0.217$) in the whole group of patients with schizophrenia with TSA (both symptoms and disorder), although both are significant. Negative and Positive PANSS subscale scores were not significantly correlated with either the total LSAS score or any of its subscale score among the group of patients with SAD. The general subscale of PANSS was significantly positively correlated with fear and the total score of LSAS, although the Spearman's correlation coefficient was less than 0.4. In the SAS group of patients, a significant positive correlation was evident with the fear subscale score of LSAS and general, positive, and negative subscales of PANSS, although the spearman coefficient was less than 0.4 (Table 5).

Somatic concern, mannerisms/posturing, unusual thought content, disorientation, poor attention, and poor impulse control are general psychopathological symptoms that did not differentiate significantly between the SAD and SAS groups. Although other general psychopathological symptoms differentiate significantly ($P < 0.05$), they include anxiety, guilt, tension, depression, motor retarda-

Table 5 Spearman's correlation of schizophrenia Scale for the Assessment of Positive and Negative Symptoms with Liebowitz Social Anxiety Scale in different categories of social anxiety

	General subscale of PANSS	Positive subscale of PANSS	Negative subscale of PANSS
Schizophrenic with TSA			
Fear subscale of LSAS	0.421*	0.217*	0.408*
Avoidance subscale of LSAS	0.299*	0.117*	0.324*
Total score of LSAS	0.382*	0.171*	0.397*
Schizophrenic with SAS			
Fear subscale of LSAS	0.322*	0.194*	0.259*
Avoidance subscale of LSAS	− 0.042	− 0.080	− 0.032
Total score of LSAS	0.153*	0.045	0.129
Schizophrenic with SAD			
Fear subscale of LSAS	0.220*	0.199	0.112
Avoidance subscale of LSAS	0.139	− 0.003	0.161
Total score of LSAS	0.248*	0.152	0.176

TSA means both SAD and SAS.
LSAS, Liebowitz Social Anxiety Scale; PANSS, Scale for the Assessment of Positive and Negative Symptoms; SAD, Social Anxiety Disorder; SAS, Social Anxiety Symptoms.
*P value is significant (<0.05).

tion, uncooperativeness, lack of judgment and insight, disorientation of volition, and preoccupation. Only delusions ($P < 0.05$) among the positive psychotic symptoms could differentiate significantly between SAD and SAS. Negative psychotic symptoms differentiate significantly between SAD and SAS ($P < 0.05$), except for stereotyped thinking.

On comparing among mild, moderate, and severe SAD (all patients scored on LSAS ≥ 65), only the general psychopathological symptom subscale score could differentiate significantly among the three groups (mean 42.8, 35.8, and 47.1, respectively), and the disturbance of volition was the only symptom that showed a significant trend through the three groups of SAD (mild, moderate, and severe) being positive in 23.5% of the mild group, 44.0% in the moderate group, and 60.0% in the severe group ($P = 0.033$).

The type of patient complaint showed no relation with the severity of SA in terms of sleep disturbance, denial, noncompliance, delusions, violence/aggression, somatic symptoms, negative symptoms, mood symptoms, catatonic

Table 4 PANSS of patients with schizophrenic at different categories of social anxiety

Item	SAD	SAS	NSA	P value
Positive subscale	20.0 (13.0–27.0)	18.0 (10.0–24.0)	12.5 (7.0–20.5)	0.068
Negative subscale	22.0 (15.0–29.0)	14.0 (9.0–21.2)	7.0 (7.0–12.7)	<0.001
General subscale	43.0 (31.0–52.0)	33.0 (22.0–43.2)	19.5 (16.0–27.0	<0.001
Total scale	84.0 (63.0–103.0)	66.0 (45.0–84.0)	41.0 (30.0–70.0)	<0.001

NSA, no social anxiety; PANSS, Scale for the Assessment of Positive and Negative Symptoms; SAD, social anxiety disorder; SAS, social anxiety symptoms.
P value is significant if <0.05.

Table 6 Univariate Analysis showing the statistically significant variables associated with social anxiety

	TSA	NSA	P value
Sex			
Male	186 (76.2)	58 (23.8)	0.009*
Female	123 (87.2)	18 (12.8)	
Place of patient			
Outpatient	176 (75.9)	56 (24.1)	0.008*
Inpatient	133 (86.9)	20 (13.1)	
History of ECT			
Present	92 (73.6)	33 (26.4)	0.023*
Absent	217 (83.5)	43 (16.5)	
Current ECT			
Present	34 (61.8)	21 (38.2)	<0.001*
Absent	275 (83.3)	55 (16.7)	
Schizophrenia course			
Continuous	133 (87.5)	19 (12.5)	<0.001*
Episodic progressive deficit	68 (80.0)	17 (20.0)	
Episodic with stable deficit	50 (75.8)	16 (24.2)	
Episodic remittent	20 (95.2)	1 (4.8)	
Incomplete remission	20 (71.4)	8 (28.6)	
Complete remission	18 (54.5)	15 (45.5)	

TSA means both SAD and SAS.
ECT, electroconvulsive therapy; NSA, no social anxiety.
*P value is significant (<0.05).

symptoms, hallucination symptoms, bizarre behavior, obsessive–compulsive symptoms, anxiety, or cognitive symptoms. As regards relative's complaints, delusions and mood changes were significantly associated with SAD ($P < 0.05$).

Logistic regression analysis for the identification of independent risk determinants of TSA showed sex (female), being an outpatient, and a negative history of ECT as independent risk factors for social anxiety in schizophrenia (Tables 6, 7).

Discussion

Quantitative analysis of our results will give clues for several issues. (i) The extent of prevalence of social anxiety in schizophrenia. (ii) The types of social anxiety in schizophrenia and the percentage of each. In contrast, qualitative analysis also gave information about (i) the differences in the characteristics of patients with NSA and those with social anxiety. (ii) Criteria differentiating patients with NSA from patients with SAS and patients with SAD. (iii) The correlation between psychotic symptoms and anxiety symptoms. (iv) The detrimental factors of social anxiety developed in schizophrenia.

In our sample, 80.3% of patients with schizophrenia had social anxiety (TSA, both symptoms and disorder)

Table 7 Independent determinants of TSA by logistic regression analysis

	Regression coefficient	SE	P value	OR (95% CI)
Female	0.897	0.3	0.003	2.45 (1.3–4.4)
Outpatient	0.855	0.29	0.004	2.35 (1.3–4.2)
No history of ECT	0.458	0.27	0.092	1.58 (0.9–2.7)
Constant	− 1.676			

TSA means both SAD and SAS.
CI, confidence interval; ECT, electroconvulsive therapy; OR, odds ratio; SE, standard error.

and only 19.7% did not develop social anxiety (NSA). Three categories were identified and arranged in the order of prevalence as follows: the first category is SAS in 57.7%, the second category is SAD in 22.6%, and the third category is NSA in 19.7%. This means that social anxiety is a common symptom in schizophrenia [23], which could mountain to the threshold of comorbid disorder (SAD) in approximately one fifth of patients (22.6%). As such, it is very important that we must get a true picture of its relationship with psychosis [24].

On comparing our results, we must consider the multiple factors interfering with proper assessment and appreciation of anxiety disorders, particularly social anxiety, in patients with schizophrenia [7], because of heterogeneity among definitions of symptoms, rating instruments used for diagnosis [25], impact of sociocultural factors on appreciation of social anxiety, differences in subject recruitment [26], and different pathogenesis of the SAS that could be either spontaneous, intermittent, in direct response to psychotic symptoms, and/or as a side effect of antipsychotic medications, besides the cutoff point defined for discriminating symptoms from disorder. Despite all these considerations, most of the studies carried out in this domain confirmed the high prevalence of social anxiety in patients with schizophrenia, such as those by Halperin et al. [27], Pini et al. [28], Muller et al. [29], and Birchwood et al. [24]. Even in the first episode psychosis, Michail and Birchwood [30] reported that 25% of their patients with schizophrenia were diagnosed with the International Classification of Diseases–10 criteria as having SAD, and a further 11.6% reported severe difficulties in social encounters.

In this study, three independent risk factors for social anxiety in schizophrenia were identified: sex (female), being an outpatient, and no history of ECT. This raised the concept of closeness between SAS in both schizophrenia and SAD. This concept was confirmed before in the study carried out by Pallanti et al. [7].

Social anxiety in our sample of patients with schizophrenia increased with undifferentiated and paranoid types of schizophrenia and negative psychotic symptoms, decreased with antidepressant intake and complete remission, and not affected by the duration of schizophrenic illness and the type of the patient's complaint. In contrast, other researchers, such as Lysaker and Salyer [31] found that, social anxiety increased with greater hallucinations, social withdrawal, depression, hopelessness, better insight, poorer function, higher rate of suicide attempts, and a history of substance abuse. This diversity of risk factors reported in the different studies may be an indication that, social anxiety in schizophrenia is not simply an epiphenomenon of psychotic symptoms, and it has more than one causal pathway.

Some researchers have already started to suspect a possible overlap between social anxiety and paranoia, especially delusions, [32] and the construction of ideas of reference (IOR). However, it was unclear whether

it is a byproduct of persecutory thinking or not [30]. Social anxiety and IOR are close to each other conceptually and in their presentations. Both are prodromal signs and schizotypal features [33,34], and may manifest as increased selfconsciousness, fear, and avoidance in certain social situations, with the patients being aware of the excessive nature of such feelings. More subtle differences between the two may be noticed with more careful questioning (e.g. IOR seldom involves anticipation anxiety). It is doubted whether existing scales or diagnostic instruments have enough sensitivity to tell that they are apart. It is only after the potential contamination is safely ruled out by IOR, can we start to confidently investigate comorbid social anxiety and its relationship with psychosis [35].

The effect of current treatment of schizophrenia on social anxiety was discussed, in which the prevalence of social anxiety was affected by the use of psychotropic drugs. The study carried out by Pallanti et al. [36] reported the emergence of SAD in schizophrenia after 14.83 ± 3.07 weeks of clozapine treatment (range, 9–20 weeks). None of the patients had a history of SAS. All the patients were treated with fluoxetine and 8/12 responded, defined as a greater than or equal to 35% reduction in the LSAS score. This is in agreement with our results, in which social anxiety decreased with antidepressant use. In this study, we did not identify the name of the drug; only the psychotropic group was identified. There was no significant difference between the TSA group and NSA group regarding the group of antipsychotics.

Comorbidity is an important area of work in psychosis. Apart from the clinical implications, it provides clues to the pathological mechanisms underpinning psychosis. This may particularly be the case for social anxiety, which has been noted as a candidate end phenotype for psychosis [37]. In our study, we compared among the three identified categories: SAS, SAD, and NSA. Patients with schizophrenia with SAD (22.6%) are significantly more likely to be female patients, younger in age, highly educated, being outpatients, not exposed to ECT, and presented with delusions and mood changes as per relatives' complaints. SAD comorbid with schizophrenia tends to be severe in degree [23]; severe SAD (50.0%) was more common than moderate (29.9%) and mild disorders (19.5%).

Other data on comorbid SAD and schizophrenia have shown that patients with SAD are significantly less likely to be married and more likely to live alone, have higher negative symptoms, more often have a flat affect, and seem to have an earlier onset of psychosis. In addition, it was reported that, patients with schizophrenia with SAD had a higher lifetime rate of suicide attempts, greater lethality of suicide attempts, more past substance/alcohol abuse disorder, lower social adjustment, and lower overall quality of life [7,38].

Results to date have also been confusing about the relationship between social anxiety and schizophrenic symptoms, with studies pointing to all kinds of directions as to the association with positive symptoms, negative symptoms, or both, or neither [35]. It was found that positive symptoms correlated with increased self reports of social anxiety, and that negative symptoms correlated with specific behaviors related to social anxiety during an unstructured role-play. The social anxiety was associated with increased isolation and was thought to be related to social skill deficits [22]. There was a significant correlation between the score of the LSAS 'fear' and PANSS positive subscales. Avoidance scores were higher among patients with negative signs [39]. In contrast, social anxiety in psychosis was not related to the positive symptoms of PANSS, including suspiciousness/persecution [30]. In addition, Sherman [25] found that scores on the LSAS remained stable over a period of several months, and were not correlated with positive, negative, or total psychotic symptoms.

The same confusion applies to the relationship between social anxiety and the severity of schizophrenia. Some researchers reported a tendency for patients with comorbid social phobia to have a higher severity PANSS total score [39], with strong negative association between scores on the social anxiety scale and functional status, emotional well being, measures of quality of life, and lower self esteem [40]. Other researchers found no differences in negative and positive symptom rates between patients with schizophrenia with and without SAD [7,41].

In our sample, the relationship between social anxiety and positive and negative symptoms in schizophrenia was investigated, and it was different among the different categories of social anxiety as follows: in the group of social anxiety as a whole (TSA = SAD + SAS), all the subscales of LSAS was positively correlated with all PANSS scores especially the negative symptoms subscale; in the group of SAD, all the subscales of LSAS is correlated with only the general psychopathology subscale of PANSS; and in the group of SAS, only the fear subscale score of LSAS was correlated with all scores of PANSS. However, some observations may contradict the positive relationship between social anxiety and the severity of the schizophrenic illness. These observations were: (i) patients with NSA were characterized by having a higher rate of history of psychiatric illness than those with TSA; (ii) duration of schizophrenia, parental consanguinity, and family history of psychiatric illness had no effect on social anxiety; and (iii) social anxiety was more frequent in outpatients with no history of ECT and in patients with complete remission.

On PANSS, general psychopathology symptoms were the most powerful in differentiating SAD from SAS, followed by negative symptoms (except for stereotyped thinking) and then, delusions. All the differentiating symptoms on the general subscale (anxiety, guilt feelings, tension, depression, motor retardation, uncooperativeness, lack of judgment and insight, disturbance of volition, and preoccupation) are characterized by having mood rather than psychotic nature. In addition, the general psychopathology symptoms, especially disturbance of volition, were the only PANSS symptom subscale differentiating the grade of severity of SAD (mild, moderate, and severe).

Conclusion

Social anxiety is highly prevalent in schizophrenia despite the multiple factors interfering with proper assessment. Subthreshold SAS are more common than SAD, which tends to be severe in patients with schizophrenia. The independent risk factors for social anxiety in schizophrenia are sex (female), being an outpatient, and a negative history of ECT. The prevalence of social anxiety in schizophrenia is affected by the type of schizophrenia, type of psychotic symptoms, type of psychotropic drug used, and the course of schizophrenia. It is not affected either by the duration of schizophrenia or the type of the patient's complaint. However, this affection depends on the severity of social anxiety, either symptoms or disorder.

These conclusions confirmed that social anxiety in schizophrenia is not simply an epiphenomenon of psychotic symptoms, and it has more than one causal pathway. Its need for specific operational guidelines to be treated and incorporated as a separate symptom dimension in patients with schizophrenia should be highlighted. Besides, it raises the need for adding routine screening for social anxiety to the protocol of schizophrenia management as an essential step.

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الملخص العربى
القلق الاجتماعى فى مرض الفصام: تحليل أكلينيكى – كما و كيفا

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يتواتر وجود القلق الاجتماعى مع مرض الفصام و لكنه غالبا ما لا ينتبه اليه، و يكون وجوده مصحوبا بدرجة شديدة من الإعاقة. ويهدف هذا البحث إلى التحليل الإكلينيكى للقلق الاجتماعى فى مرض الفصام كما و كيفا. و قد تضمن هذا البحث دراسة 385 مريضا بالفصام من المترددين الجدد على مركز الطب النفسى بمستشفيات جامعة عين شمس سواء بالعيادة الخارجية أم بالقسم الداخلى، و كذلك نزلاء القسم الداخلى طويل الحجز بمستشفى العباسية، فى الفترة من يناير و حتى ديسمبر 2009 ، من بعد الحصول على موافقة كتابية منهم للاشتراك فى البحث. جميع المرضى المشتركين فى البحث تم إخضاعهم لعدة فحوص و هى: المقابلة السريرية المصممة للتشخيص، و تقرير اجتماعى و ديموجرافى، و مقياس ليبوفينز للقلق الاجتماعى، و تقرير عن التاريخ الطبى، و مقياس الأعراض الايجابية و السلبية للفصام. و قد تم تقسيم المرضى الى ثلاث مجموعات تبعا لشدة القلق الاجتماعى كما أظهرت نتائج الفحوص: 1) مرضى الفصام بدون قلق اجتماعى و عددهم 76 مريضا (7،19% من مجموع المرضى)، 2) مرضى الفصام مع وجود أعراض للقلق الاجتماعى و عددهم 222 (7،57% من مجموع المرضى)، 3) مرضى الفصام مع وجود اضطراب القلق الاجتماعى و عددهم 87 (6،22% من مجموع المرضى). و قد أظهرت مقارنة نتائج المجموعات الثلاث أن مجموعة مرضى الفصام المصاحبة باضطراب القلق الاجتماعى هى الوحيدة التى أظهرت ارتباطا ذا دلالة مع كل من: جنس الإناث، و العمر الأصغر، و درجة التعليم الأعلى، و مرضى العيادة الخارجية، و عدم تعاطى جلسات العلاج الكهربائى، و شكوى الأقرباء من التوهمات المرضية، و التقلبات المزاجية. كما لوحظ أن اضطراب القلق الاجتماعى المصاحبة لمرضى الفصام يميل لأن يكون شديد الحدة. و قد أظهرت نتائج المقارنات الارتباطية وجود بعض النتائج الإيجابية بين المقاييس التحتية المكونة لكل من مقياس ليبوفينز للقلق الاجتماعى، و مقياس الأعراض الإيجابية و السلبية لمرض الفصام. كما أظهر البحث وجود ثلاثة عوامل خطورة مستقلة لوجود القلق الاجتماعى مع مرض الفصام و هى: جنس الاناث، و مرضى العيادة الخارجية، و عدم التعرض لجلسات العلاج الكهربائى. و قد خلص البحث الى أن وجود القلق الاجتماعى متواتر فى مرضى الفصام، و لكنه يحتاج الى وضع تعريفات، و خطوط ارشادية لتشخيصه و علاجه، كما يوصى البحث بأن يكون فحص القلق الاجتماعى روتينيا كخطوة هامة فى بروتوكولات علاج مرضى الفصام.