A Comparative Study of Sexual Function in Paranoid Versus Non-Paranoid Schizophrenic Patients And Its Relation To Serum Prolactin Level

Hashem A.H., Abd El-Gawad T., Ezzat M., Assal A., Goueily T. and El Rakhawy M.

Abstract:

This study was undertaken to evaluate sexuality in male patients with schizophrenia. The sample was composed of 60 male in-patients with schizophrenia divided in two groups paranoid and non-paranoid. Two study groups were subjected to full psychiatric history and full sexual assessment. Positive and negative syndrome scale was applied and Serum prolactin level was done. Sexual dysfunctions were common in male patients with schizophrenia; patients with paranoid schizophrenia and patients with non-paranoid schizophrenia had a different pattern of sexual dysfunction and were affected differently with each factor.

Introduction

Sexual activity of the patient with schizophrenia used to be so limited compared to that of normal people as to induce even psychiatrists of such high quality as Sandor Rado to believe that the patient with schizophrenia was not interested in sexual pleasure or in any pleasure at all; he was suffering from anhedonia. Other psychiatrists interpreted this lack of sexual activity to be part of the schizophrenic withdrawal, and in prepsychotic states, to be part of the schizoid personality, which seriously limited interpersonal contacts of any kind. The beginning of a schizophrenic episode was often characterized by increased sexual behavior (Arieti, 1975).

There have been few studies of sexual function and satisfaction in people with schizophrenia, and comparisons of untreated and treated patients were rare (Baldwin and Birtwistle, 1997).

That sexual dysfunction occurred in schizophrenia was not in doubt. Persistent psychosis was associated with reductions in sexual interest, activity and satisfaction (Lyketsos *et al.*, 1983). The manifest sexual relationship problems were due to lack of social skills and degeneration of social functioning, rather than to primary, structural impairment specific to schizophrenia (Verhulst and Schneidman, 1981), (Michael et al., 2006).

On other hand, equivocal results were obtained for sexual side effects of antipsychotic drugs. Antipsychotic drugs were thought to interfere with sexual functioning but the underlying mechanisms were poorly understood (Smith *et al.*, 2002), (Rajesh et al., 2006). Dopamine antagonists, such as most antipsychotics, could reduce sexual performance both directly and indirectly through inducing hyperprolactinaemia (Segraves, 1989). Sexual dysfunction was worse in patients with schizophrenia taking antipsychotic medication compared with unmedicated patients (Kockott and Pfeiffer, 1996). The prevalence of sexual dysfunction in groups treated with neuroleptics was thought to be 60% in men, with thioridazine being one of the worst culprits (Teusch *et al.*, 1995). Moreover sexual dysfunction was an important problem even with novel

antipsychotic (Atmaca *et al.*, 2004). However, anti-psychotic medication had a positive effect on psychological functioning and thus allowed patients with schizophrenia to have normal sexual interest. Moreover treated and untreated male patients reported decreased sexual desire and behavior and increased rates of premature ejaculation than did controls. In a comparison with untreated male patients, depot antipsychotic treatment increased sexual thoughts and desire but also resulted in sexual dysfunction (Aizenberg *et al.*, 1995), (Diederik et al., 2006).

Aim of the work

The aim of this work is to study the sexual dysfunction in a sample of arabic male patients with schizophrenia. It intends to clarify the frequency of sexual dysfunction among male patients with schizophrenia, differentiate between different subtypes of schizophrenia (paranoid/non-paranoid schizophrenia) regarding sexual function and to determine the underlying factors that control sexual dysfunction in male patients with schizophrenia (including socio-demographic, medication and clinical factors).

Subjects and Methods

A. Subjects:

30 male patients with paranoid schizophrenia and 30 male patients with non-paranoid schizophrenia were chosen from in-patient department of private psychiatric hospital in Cairo (Dar El Mokattam for mental health).

They were chosen in consecutive manner from all admitted patients from April 2003 to December 2003 (

According to the following criteria:

1- Inclusion Criteria:

- The patients were only male patients

- Age ranged from 18-60 years

- Confirming DSM-IV criteria for schizophrenia (American Psychiatric Association, 1994), by two senior psychiatrists MD qualified.

- Good abilities of reading and writing

- Oral consents was taken

2- Exclusion Criteria

- History of physical disorder that may share in sexual dysfunction: Hypertension, cardiovascular disease, gonadal injury and endocrinal disorder/medications

- Recent history of substance abuse

- Refusal or inability to continue.

B. Methods:

The study conducted in in-patient department of a private psychiatric hospital in Cairo (Dar El Mokattam for mental health) using the following tools:

A detailed psychiatric sheet was done to every patient stressing in the following points:

Demographic information, sexual history, illness history, medication history, physical history and physical examination:

The patients were diagnosed according to DSM-IV criteria by the hospital staff and the diagnosis was confirmed by two senior psychiatrists, MD qualified. The Structured Clinical Interview for DSM-IV axis I disorders (SCID-I) was used in its original English form to confirm the diagnosis of schizophrenia and its subtypes and to exclude comorbidity, The sources of information were patients, family, friends, associates, health professional and medical records (First *et al.*, 1997), in addition to

Positive and Negative Syndrome Scale (PANSS) which was used in its original English form to assess schizophrenia. This is a well-validated scale for the assessment of psychotic and allied symptoms (PANSS) (Kay *et al.*, 1987).

Sexual Function was assessed using the Sexual Behavior Questionnaire (SBQ) by Macdonold el. al., (2003) serum Prolactin level expressed in ng/ml was measured for each patient using Elecsys apparatus, model 1010(simultaneously with application of SBQ), and all samples were collected at morning. The normal range for male: 1.8 – 13.7 ng/ml.

Results

The study included 60 male patients with schizophrenia, 30 patients with paranoid schizophrenia (50%) and 30 patients with non-paranoid schizophrenia (50%) (18 patients (60%) schizophrenia undifferentiated type, 10 patients (33.3%) schizophrenia disorganized type and two patients (6.67%) schizophrenia residual type). The age of the sample ranged from 19 to 60 years (mean = 40.2 SD = ±10.39), the age at onset (which defined as the age at which patients acquired the diagnosis of schizophrenia) ranged from 15 to 42 years (mean = 24.27 SD = ±7.22) and duration of the illness ranged from 1 to 35 years (mean = 15.97 SD = ±9.95).

Table (1) shows that, by using t test the percentages of patients with orgasm dysfunction and patients with less frequency of masturbations among patients with paranoid schizophrenia significantly less than that among group with non-paranoid schizophrenia.

Table (2) shows that, the age of patients with paranoid schizophrenia with dysfunction in sexual excitement, achieve erection, orgasm and has less frequency of masturbation is significantly more than who are sexually functioning in the same areas of sexual function.

Table (3) shows that, sexually functioning group (in all areas) of non- paranoid schizophrenia has no significant differences from sexually dysfunctioning group (in all areas) as regard current age of patients.

Table (4) shows that, age at onset in patients with paranoid schizophrenia with more frequency of sexual intercourses is significantly more than the group of less frequency of intercourses, while age of the onset in group with paranoid schizophrenia with more frequency of masturbation is significantly less than the group of less frequency of masturbation.

Table (5) shows that, age at onset of patients with non-paranoid schizophrenia with functioning sexual satisfaction is significantly more than who have dysfunctioning sexual satisfaction.

Table (6) shows that, duration of the illness in desire, excitement, achieve erection and orgasm functioning groups and in the group of more frequency of intercourses among patients with paranoid schizophrenia is significantly less than that of dysfunctioning groups in the corresponding areas.

Table (7) shows non significant differences in duration of the illness between sexually functioning group and sexually dysfunctioning group among patients with non-paranoid schizophrenia.

Table (8) shows that, the duration of the hospitalization significantly longer in sexually excitement dysfunctioning group than functioning group and among who had delayed ejaculation than who has not.

Table (9) shows that, by using contingency coefficient, significantly more patients with hyperprolactinaemia have low frequency of sexual intercourses and sexual satisfaction dysfunction in patients with paranoid schizophrenia than patients with normal serum prolactin.

Table (10) shows that, by using contingency coefficient, significantly more patients with hyperprolactinaemia have sexual desire dysfunction, sexual enjoyment dysfunction and orgasm dysfunction in patients with non-paranoid schizophrenia than patients with normal serum prolactin.

There is no significant difference in duration of hospitalization between sexually functioning and sexually dysfunctioning patients among group with non-paranoid schizophrenia.

There is no significant difference between patients on typical antipsychotics and drug free patients in patients with paranoid schizophrenia as regard all areas of sexual function.

There is no significant difference between patients on typical antipsychotics and drug free patients in patients with non-paranoid schizophrenia as regard all areas of sexual function.

Sexual Function in the Sample:

Table (1): Number of Patients with Sexual Dysfunction

Questions	Paranoids		Non-paranoid		*p*
	Number	%	Number	%	
Q1 Desire	11 (total=30)	36.667%	14 (total =30)	46.667%	0.44
Q2 Frequency of intercourses/week	18 (total =30)	60%	24 (total =30)	80%	0.10
Q3 Frequency of masturbation/week	10 (total =22)	45.45%	15 (total =26)	57.69%	0.04
Q4 Excitement	9 (total =30)	42.86%	12 (total =29)	44.83%	0.88
Q5 Enjoyment	8 (total =30)	26.67%	8 (total =28)	28.57%	0.89
Q6 Satisfaction	12 (total =30)	40%	15 (total =28)	53.57%	0.29
Q7 Achieve erection	6 (total =30)	20%	10 (total =28)	35.71%	0.18
Q8 Maintain erection	11 (total =30)	36.67%	9 (total =28)	32.14%	0.696
Q9 Delayed ejaculation	4 (total =30)	13.33%	7 (total =28)	25%	0.26
Q10 Premature ejaculation	13 (total =30)	43.33%	8 (total =28)	28.57%	0.27
Q11 Orgasm	6 (total =30)	20%	13 (total =28)	46.43%	0.04
Overall (Q1, 4-11)	24 (total =30)	80%	26 (total =30)	86.7%	0.527

Table (2): Age (In Years) of Sexually Functioning Patients and sexually Dysfunctioning Patients in Group with Paranoid Schizophrenia

		Age			
		Mean	**SD**	**t**	***p***
Q1 Desire	F (n=19)	35.89	±8.99		
	D (n=11)	41.45	±11.12	1.497	0.146
Q2 Frequency of intercourses/ week	F (n=12)	37.17	±8.02		
	D (n=18)	38.44	±11.34	0.337	0.738
Q3 Frequency of masturbation/ week	F (n=12)	33.58	±7.97		
	D (n=10)	41.90	±10.06	2.165	0.043
Q4 Excitement	F (n=21)	35.05	±8.29		
	D (n=9)	44.67	±10.90	2.651	0.0.013
Q5 Enjoyment	F (n=22)	35.91	±8.15		
	D (n=8)	43.50	±12.94	1.920	0.065
Q6 Satisfaction	F (n=18)	36.11	±8.00		
	D (n=12)	40.67	±12.31	1.132	0.273
Q7 Achieve erection	F (n=24)	35.58	±8.75	2.876	0.008
	D (n=6)	47.33	±9.81		
Q8 Maintain erection	F (n=19)	36.32	±7.65		0.252
	D (n=11)	40.73	±13.11	1.171	
Q9 Delayed ejaculation	F (n=26)	38.00	±10.44		0.439
	D (n=4)	34.25	±6.24	0.785	
Q10 Premature ejaculation	F (n=17)	40.53	±9.09		0.105
	D (n=13)	34.54	±10.49	1.674	
Q11 Orgasm	F (n=24)	36.00	±9.39		0.032
	D (n=6)	45.67	±9.27	2.261	
overall	F (n=6)	38.00	±8.74		0.986
	D (n=24)	37.90	±10.48	0.018	

F = Functioning D = Dysfunctioning

Table (3): Age (In Years) of Sexually Functioning Patients and Sexually Dysfunctioning Patients in Group with Non-Paranoid Schizophrenia

		Age			
		Mean	SD	t	*p*
Q1 Desire	F (n=16)	41.5	±9.67	0.517	0.609
	D (n=14)	43.5	±11.51		
Q2 Frequency of intercourses/week	F (n=6)	42.33	±9.65		
	D (n=24)	42.46	±10.82	0.026	0.532
Q3 Frequency of masturbation/week	F (n=11)	41.72	±11.75	0.357	0.724
	D (n=15)	42.87	±10.89		
Q4 Excitement	F (n=16)	40.75	±9.96	1.078	0.291
	D (n=12)	45.17	±11.69		
Q5 Enjoyment	F (n=20)	43.65	±8.79		
	D (n=8)	40.13	±15.07	0.777	0.444
Q6 Satisfaction	F (n=13)	45.69	±7.58		
	D (n=15)	40.00	±12.57	1.422	0.167
Q7 Achieve erection	F (n=18)	42.39	±904		
	D (n=10)	43.10	±13.88	0.165	0.871
Q8 Maintain erection	F (n=19)	41.79	±10.70		
	D (n=9)	44.44	±11.31	0.602	0.552
Q9 Delayed ejaculation	F (n=21)	41.81	±10.63		
	D (n=7)	45.14	±11.60	0.703	0.488
Q10 Premature ejaculation	F (n=20)	44.20	±10.53		
	D (n=8)	38.75	±11.03	1.222	0.233
Q11 Orgasm	F (n=15)	41.93	±8.46		
	D (n=13)	43.46	±13.26	0.369	0.715
overall	F (n=4)	41.25	±0.96		
	D (n=26)	42.62	±11.22	0.240	0.812

Table (4): Age at Onset (In Years) of Sexually Functioning Patients and Dysfunctioning Group with Paranoid Schizophrenia

		Age			
		Mean	SD	t	*p*
Q1 Desire	F (n=19)	25.68	±7.50		
	D (n=11)	24.27	±8.21	0.480	0.635
Q2 Frequency of intercourses/week	F (n=12)	28.58	±5.43		
	D (n=18)	22.89	±8.20	2.288	0.030
Q3 Frequency of masturbation/week	F (n=12)	19.67	±4.14		
	D (n=10)	28.80	±7.79	3.520	0.002
Q4 Excitement	F (n=21)	24.86	±7.30		
	D (n=9)	25.89	±8.85	0.333	0.742
Q5 Enjoyment	F (n=22)	24.05	±6.86		
	D (n=8)	28.25	±9.33	1.349	0.188
Q6 Satisfaction	F (n=18)	24.89	±7.13		
	D (n=12)	25.58	±8.70	0.239	0.813
Q7 Achieve erection	F (n=24)	24.33	±7.44		
	D (n=6)	28.50	±8.29	1.201	0.240
Q8 Maintain erection	F (n=19)	24.47	±6.48		
	D (n=11)	26.36	±9.58	0.645	0.524
Q9 Delayed ejaculation	F (n=26)	25.96	±7.44		
	D (n=4)	20.00	±8.04	1.479	0.150
Q10 Premature ejaculation	F (n=17)	26.47	±7.39		
	D (n=13)	23.46	±7.95	1.069	0.294
Q11 Orgasm	F (n=24)	24.70	±8.32		
	D (n=6)	27.00	±4.10	0.961	0.350
Overall	F (n=6)	28.17	±6.05		
	D (n=24)	24.42	±7.94	1.076	0.291

Table (5): Age at Onset (In Years) of Sexually Functioning Patients and Dysfunctioning Group with Non-Paranoid Schizophrenia

		Age			
		Mean	SD	t	*p*
Q1 Desire	F (n=16)	24.25	±8.01		
	D (n=14)	22.36	±5.12	0.758	0.455
Q2 Frequency of intercourses/week	F (n=6)	27.00	±8.00		
	D (n=24)	22.46	±6.30	1.500	0.145
Q3 Frequency of masturbation/week	F (n=11)	22.36	±4.88		
	D (n=15)	22.7	±5.47	0.143	0.888
Q4 Excitement	F (n=16)	24.69	±8.15		
	D (n=12)	21.83	±5.00	1.069	0.295
Q5 Enjoyment	F (n=20)	25.00	±7.50		
	D (n=8)	19.63	±3.66	1.922	0.066
Q6 Satisfaction	F (n=13)	26.30	±6.84		
	D (n=15)	21.00	±6.38	2.124	0.043
Q7 Achieve erection	F (n=18)	24.61	±7.76		
	D (n=10)	21.40	±5.13	1.169	0.253
Q8 Maintain erection	F (n=19)	24.26	±6.67		
	D (n=9)	21.78	±7.82	0.872	0.391
Q9 Delayed ejaculation	F (n=21)	23.80	±7.60		
	D (n=7)	22.42	±5.16	0.445	0.660
Q10 Premature ejaculation	F (n=20)	23.05	±6.05		
	D (n=8)	24.50	±9.41	0.487	0.630
Q11 Orgasm	F (n=15)	23.13	±5.93		
	D (n=13)	23.85	±8.33	0.264	0.794
Overall	F (n=4)	27.00	±9.02		
	D (n=26)	22.81	±6.41	1.159	0.256

Table (6): Duration of Illness (In Years) of Sexually Functioning Patients and Sexually Dysfunctioning Patients with Paranoid Schizophrenia

		Duration of the Illness		t	*p*
		Mean	**SD**		
Q1 Desire	F (n=19)	10.05	±8.54	2.414	0.023
	D (n=11)	17.64	±8.38		
Q2 Frequency of intercourses/week	F (n=12)	8.33	±7.19	2.430	0.022
	D (n=18)	15.83	±8.92		
Q3 Frequency of masturbation/week	F (n=12)	13.92	±7.95	0.078	0.939
	D (n=10)	13.60	±11.13		
Q4 Excitement	F (n=21)	10.05	±7.83	2.921	0.007
	D (n=9)	19.33	±8.35		
Q5 Enjoyment	F (n=22)	11.73	±7.96	1.127	0.269
	D (n=8)	15.88	±11.31		
Q6 Satisfaction	F (n=18)	11.06	±7.94	1.350	0.188
	D (n=12)	15.50	±10.05		
Q7 Achieve erection	F (n=24)	11.13	±7.89	2.228	0.034
	D (n=6)	19.67	±10.44		
Q8 Maintain erection	F (n=19)	11.68	±7.90	0.921	0.365
	D (n=11)	14.82	±10.65		
Q9 Delayed ejaculation	F (n=26)	12.62	±8.88	0.335	0.740
	D (n=4)	14.25	±10.75		
Q10 Premature ejaculation	F (n=17)	14.18	±10.13	0.937	0.357
	D (n=13)	11.08	±7.16		
Q11 Orgasm	F (n=24)	11.17	±8.35	2.164	0.039
	D (n=6)	19.50	±8.80		
Overall	F (n=6)	9.33	±10.05	1.073	0.292
	D (n=24)	13.71	±8.67		

Table (7): Duration of the Illness (In Years) of Sexually Functioning Patients and Dysfunctioning Group with Non-Paranoid Schizophrenia

		Duration of Illness			
		Mean	SD	t	*p*
Q1 Desire	F (n=16)	17.19	±8.55		
	D (n=14)	21.29	±11.45	1.120	0.272
Q2 Frequency of intercourses/week	F (n=6)	15.33	±9.93		
	D (n=24)	20.04	±10.06	1.028	0.313
Q3 Frequency of masturbation/week	F (n=11)	18.82	±9.90		
	D (n=15)	20.93	±10.42	0.522	0.606
Q4 Excitement	F (n=16)	16.13	±10.07		
	D (n=12)	23.33	±9.69	1.905	0.068
Q5 Enjoyment	F (n=20)	18.70	±9.14		
	D (n=8)	20.50	±13.65	0.408	0.687
Q6 Satisfaction	F (n=13)	19.62	±9.54		
	D (n=15)	18.87	±11.38	0.187	0.853
Q7 Achieve erection	F (n=18)	17.78	±9.31		
	D (n=10)	21.80	±12.16	0.982	0.335
Q8 Maintain erection	F (n=19)	17.63	±9.84		
	D (n=9)	22.56	±11.28	1.181	0.248
Q9 Delayed ejaculation	F (n=21)	18.10	±10.52		
	D (n=7)	22.57	±9.91	0.988	0.332
Q10 Premature ejaculation	F (n=20)	21.10	±10.13		
	D (n=8)	14.50	±10.09	1.560	0.131
Q11 Orgasm	F (n=15)	18.67	±8.88		
	D (n=13)	19.85	±12.23	0.295	0.771
overall	F (n=4)	14.25	±8.50		
	D (n=26)	19.85	±10.20	1.039	0.308

Table (8): Duration of Hospitalization (In Weeks) of Sexually Functioning Patients and Dysfunctioning Group with Paranoid Schizophrenia

		Duration of Hospitalization		t	*p*
		Mean	**SD**		
Q1 Desire	F (n=19)	58.05	± 120.4	0.975	0.338
	D (n=11)	107.73	± 156.7		
Q2 Frequency of intercourses/week	F (n=12)	29.08	± 85.97	1.613	0.118
	D (n=18)	107.2	± 152.98		
Q3 Frequency of masturbation/week	F (n=12)	109.92	± 171.49	0.249	0.771
	D (n=10)	90.6	± 127.44		
Q4 Excitement	F (n=21)	43.67	± 107.61	2.153	0.04
	D (n=9)	152.33	± 164.96		
Q5 Enjoyment	F (n=22)	75.41	± 143.89	0.057	0.955
	D (n=8)	78.61	± 112.66		
Q6 Satisfaction	F (n=18)	79.56	± 138.75	0.161	0.873
	D (n=12)	71.33	± 133.46		
Q7 Achieve erection	F (n=24)	69.5	± 138.95	0.545	0.590
	D (n=6)	103.33	± 121.79		
Q8 Maintain erection	F (n=19)	63.63	± 126	0.670	0.508
	D (n=11)	98.09	± 151.53		
Q9 Delayed ejaculation	F (n=26)	56.38	± 106.9	2.198	0.036
	D (n=4)	205.5	± 231.56		
Q10 Premature ejaculation	F (n=17)	94.65	± 159.42	0.853	0.401
	D (n=13)	52.23	± 93		
Q11 Orgasm	F (n=24)	90.83	± 146	1.196	0.242
	D (n=6)	18	± 16.54		
Overall	F (n=6)	64.83	± 148.53	0.229	0.820
	D (n=24)	79.13	± 133.91		

Table (9): Identification of the relation between serum prolactin level and sexual function in patients with paranoid schizophrenia

		Normopro-lactinaemic	Hyperpro-lactinaemic	*C*	*p*
Q1 Desire	**functioning**	17	2	0.212	0.236
	dysfunctioning	8	3		
Q2 Frequency of intercourses/week	**functioning**	12	-	0.343	0.046
	dysfunctioning	13	5		
Q3 Frequency of masturbation/week	**functioning**	9	3	0.059	0.781
	dysfunctioning	8	2		
Q4 Excitement	**functioning**	17	4	0.097	0.593
	dysfunctioning	8	1		
Q5 Enjoyment	**functioning**	19	3	0.134	0.460
	dysfunctioning	6	2		
Q6 Satisfaction	**functioning**	17	1	0.343	0.046
	dysfunctioning	8	4		
Q7 Achieve erection	**functioning**	21	3	0.218	0.221
	dysfunctioning	4	2		
Q8 Maintain erection	**functioning**	16	3	0.031	0.865
	dysfunctioning	9	2		
Q9 Delayed ejaculation	**functioning**	21	5	0.173	0.337
	dysfunctioning	4	-		
Q10 Premature ejaculation	**functioning**	14	3	0.030	0.869
	dysfunctioning	11	2		
Q11 Orgasm	**functioning**	20	4	0.000	1
	dysfunctioning	5	1		
Overall	**functioning**	6	-	0.218	0.221
	dysfunctioning	19	5		

Table (10): Identification of the relation between serum prolactin level and sexual function in patients with non-paranoid schizophrenia

		Normopro-lactinaemic	Hyperpro-lactinaemic	*C*	*p*
Q1 Desire	**functioning**	15	1	0.345	0.044
	dysfunctioning	9	5		
Q2 Frequency of intercourses/week	**functioning**	5	1	0.042	0.819
	dysfunctioning	19	5		
Q3 Frequency of masturbation/week	**functioning**	9	2	0.099	0.612
	dysfunctioning	11	4		
Q4 Excitement	**functioning**	12	4	0.100	0.595
	dysfunctioning	10	2		
Q5 Enjoyment	**functioning**	18	2	0.403	0.02
	dysfunctioning	4	4		
Q6 Satisfaction	**functioning**	12	1	0.298	0.099
	dysfunctioning	10	5		
Q7 Achieve erection	**functioning**	15	3	0.154	0.410
	dysfunctioning	7	3		
Q8 Maintain erection	**functioning**	15	4	0.013	0.944
	dysfunctioning	7	2		
Q9 Delayed ejaculation	**functioning**	16	5	0.100	0.595
	dysfunctioning	6	1		
Q10 Premature ejaculation	**functioning**	16	4	0.055	0.771
	dysfunctioning	6	2		
Q11 Orgasm	**functioning**	14	1	0.360	0.041
	dysfunctioning	8	5		
Overall	**functioning**	4	-	0.192	0.283
	dysfunctioning	20	6		

Discussion

Sexuality in chronic and/or severe mental illness is not a widely researched or widely discussed topic, although there are many issues involved that are important for the clinician (Silva, 2000).

Sexual dysfunction occurs in schizophrenia is not in doubt. Both the illness (Aizenberg *et al.*, 1995) and antipsychotic medication (Kotin *et al.*, 1976) have been implicated.

This study was designed to evaluate sexual function in schizophrenic patients and to

determine the possible underlying mechanisms. The main aim of this study is to assess the frequency and factors of sexual dysfunction in schizophrenic patients, comparing between paranoid and non-paranoid schizophrenic patients, the relation between psychopathology and sexual function and finally to determine the role of neuroleptic in sexual dysfunction in schizophrenic patients.

The hypothesis of this study is that people with schizophrenia report much higher rates of sexual dysfunction, and this phenomenon has multifactor aspects; such as age, age of onset, duration of illness, psychopathology, hospitalization, medication and consequent elevated serum prolactin level. This is yet another aspect of the poor quality of life led by many people with schizophrenia that should be addressed and clinicians should routinely enquire about sexual performance.

In this study, group one consisted of 30 in-patients with schizophrenia, paranoid type, and group two consisted of 30 in-patients with schizophrenia, non-paranoid types (18 patients were diagnosed as schizophrenic undifferentiated type, 10 patients were diagnosed as schizophrenic disorganized type and two patients were diagnosed as schizophrenic residual type), were diagnosed according to the DSM-IV diagnostic criteria. Patients, on medications or drug free (on admission), were included. There was no statistical significant difference among the two groups regarding the occupational level, socioeconomic status and marital status, which ensure that the two groups were matched.

The two groups underwent structured clinical interview for DSM-IV axis I disorders (SCID-I) to confirm the diagnosis of schizophrenia, positive and negative syndrome scale (PANSS) for schizophrenia to assess the psychopathology dimensions and sexual behavior questionnaire (SBQ). In addition, serum Prolactin level was measured for the two groups.

Demographic characteristics:

1. Age

There was no significant difference between the two groups as regard the current age.

In paranoid schizophrenic group:

Aging affects both performance and frequency of sexual activities; as the sexual excitement impaired and this finding is consistent with Masters and Johnson (1966) findings that, aging men require both a longer and more direct genital stimulation to achieve erection. Aging also affects erectile function as the achievement of erection was impaired and this finding is supported by findings of Smith *et al.* (2002) who found that, age was significantly correlated with erectile dysfunction ($r=0.46$, $P < 0.001$). Sense of intensity of orgasm impaired by aging, while the sexual interest does not diminish with age. As regard sexual activities, the frequency of masturbation diminished, which is consistent with Bortz *et al.* (1999) that, age correlated consistently with increased erectile dysfunction and decreased sexual activity and not consistent with Weizman and Hart (1987) that, ageing was associated with a decline in the frequency of sexual intercourse and an increase in the frequency of masturbation.

In non-paranoid schizophrenia:

All areas of sexual function and frequency of sexual activities are not affected by aging which is not consistent with previous studies, which is could be due to that, the effect of age on sexual function in non-paranoid schizophrenia is masked by other factors, specially the effect of psychopathology.

2. Marital Status:

No significant difference between both groups as regard having partner, which ensure that the two groups were matched. No significant differences between patients who had partner and patients who had not in all areas of sexual function regarding sexual performance among both groups (paranoid and non-paranoid, these result is consistent with those found by Macdonald *et al.* (2003), while patients who had partner reported significant higher frequencies of sexual intercourses than who had not among both groups (paranoid and non-paranoid), which is consistent with our culture.

Sexual dysfunction:

Clinical Characteristics:

Our results showed that, 80% of paranoid schizophrenic patients had at least one sexual dysfunction; the most common sexual dysfunction among this group was premature ejaculation (43.33%), followed by impaired sexual excitement (42.86%), sexual satisfaction (40%), sexual desire (36.7%), maintain erection (36.7%), sexual enjoyment (26.67%), achieve erection (20%) and intensity of orgasm (20%), the least sexual dysfunction in this group was delayed ejaculation (13.33%).

86.7% of non-paranoid schizophrenic patients had at least one sexual dysfunction; the most common sexual dysfunction among this group was sexual satisfaction (53.57%), followed by sexual desire (46.667%), intensity of orgasm (46.43%), sexual excitement (44.83%), achieve erection (35.71%), maintain erection (32.14%), premature ejaculation (28.57%) and sexual enjoyment (28.57%), the least sexual dysfunction in this group, as in paranoid schizophrenic group, was delayed ejaculation (25%).

These findings are supported with the findings of Macdonald *et al.* (2003) that, at least one sexual dysfunction was reported by 82% of male schizophrenic patients; had less desire for sexual intercourse (52%), were less likely to achieve an erection (52%), were less likely to maintain an erection (36%), were more likely to ejaculate too quickly (35%), and were less satisfied with the intensity of their orgasms (33%).

Patients with paranoid schizophrenia satisfied with their intensity of orgasm (all other factors were equivalents) more than non-paranoid schizophrenic patients, this difference may be, in part, due to that, Normal orgasm results from complex neural interactions and may require a degree of central processing (Dunsmuir and Emberton, 1997), which is impaired in non-paranoid schizophrenic patients more than in paranoid schizophrenic patients (Horvath and Meares, 1979)

1. Age of the onset:

There was no significant difference between the two groups as regard the age of the onset (which defined as the age at which patients acquired the diagnosis of schizophrenia). The age of the onset of the whole sample ranged from 15 to 42 years (mean = 24.27 SD = 7.22) which is

consistent with the conventional thinking that schizophrenia is a disorder of adolescents and young adulthood; dementia praecox (Sable and Jeste, 2002). Moreover, it is consistent with Owida *et al.* (1999) who found that, the mean age of schizophrenia was 24.02± 10.57 years and with Abdel Gawad *et al.* (2000) who found that, the age at onset for male schizophrenic was 22.8 (±7.2).

In paranoid schizophrenic group:

There was no significant effect of age of the onset regarding sexual performance while the age of the onset affected frequency of sexual activity; early onset of schizophrenia related to lower frequency of sexual intercourses and higher frequency of masturbations, which may be, in part, due to that, premorbid social impairment (including low sexual activity) was more common in early-onset schizophrenia and there appears to be developmental continuity from premorbid impairment to negative symptoms (Hollis, 2003).

In non-paranoid schizophrenic group:

Age of the onset of schizophrenia affected sexual satisfaction; early onset of the illness related to dysfunction of sexual satisfaction, while there was no effect on frequency of sexual activity was reported.

2. Duration of the illness:

The duration of the illness was significantly higher in patients with non-paranoid schizophrenia than patients with paranoid schizophrenia which was supported by Beratis *et al.* (1994) who found that, the disorganized and undifferentiated subtypes were predominantly of adolescent-onset, whereas the paranoid subtype was most frequently first diagnosed in adult life and the correlation between long duration of the illness and reduction of positive symptoms (delusion and suspiciousness).

In non paranoid schizophrenic group:

Both sexual performance and frequency of sexual activity were affected by the duration of the illness; the sexual desire, sexual excitement, erectile function (in the form of achievement of erection) and orgasm impaired as the duration of schizophrenia increased. Moreover, frequency of sexual intercourses significantly decreased as the duration of the illness increased, which might be explained by tendency of patients with schizophrenia to be more isolated and withdrawn from social and emotional activities, during the deterioration course of the illness (Slater and Roth, 2001), and was supported by the correlation between longer duration of illness and negative symptoms(conceptual disorganization, blunted affect, poor rapport, lack of spontaneity of speech and stereotyped thinking).

In non-paranoid schizophrenic group:

No effect of the duration of the illness on any areas of sexual function, sexual performance and frequency of sexual activity, which could be due to that, the role of duration of the illness in this group regarding sexual function is masked by other factors, specially psychopathology.

3. Medications:

No significant difference between both groups regarding the medication received by both groups.

Most antipsychotic drugs have adverse sexual effects but it is difficult accurately to identify the incidence of treatment-

emergent dysfunction, as disturbances can be reliably detected only from systematic enquiries made at baseline and during treatment **(**Baldwin and Mayers, 2003**),** **(**Gothelf et al., 2004) this may explain that, there were no differences founded between who received typical antipsychotic and who were drug free, which could be due to that, the effect of the illness itself superimposed on sexual side effects of medication.

4. Serum Prolactin Level:

16.7% of paranoid schizophrenic group were hyperprolactinaemic versus 20% of non-paranoid schizophrenic group, and there was no significant difference between the two groups regarding serum prolactin level.

In paranoid schizophrenic group:

Hyperprolactinaemic patients reported significant degree of sexual satisfaction dysfunction and low frequency of sexual intercourses.

In non-paranoid schizophrenic group:
Hyperprolactinaemic patients reported significant degree of sexual desire dysfunction and orgasm dysfunction which is supported with that hyperprolactinemia caused hypogonadism with suppressed LH and FSH levels and low testosterone levels. Hypogonadism caused diminished libido. Diminished libido might also reflect suppression of GnRH, as testosterone replacement was not as effective as suppression of hyperprolactinemia (Bennett and Plum, 1994), (Anna and Veronica, 2003).

Moreover, hyperprolactinaemic patients reported significant degree of sexual enjoyment dysfunction, which was another topic of sexual dysfunction due to hyperprolactinaemia, which may be explained by that, hyperprolactinaemia, was the outcome of impairing dopamine secretion or action (Bennett and Plum, 1994), (Bruno, 2006) which is a neurochemical mediator of "life's pleasures" (Wise, 1982).

5. Duration of Hospitalization:
There was no significant difference between both groups regarding how long they were hospitalized.

In paranoid schizophrenic group:

The effects of an increase in the length of stay in hospital, we found a parallel impairment in the sexual excitement as well as increase incidence of delayed ejaculation, which could be due to understimulating social environments in hospitals and the significant correlation between hospitalization and negative symptoms (Oshima *et al.*, 2003).

In non-paranoid schizophrenic group:

No significant effect of duration of hospitalization on sexual performance or frequency of sexual activity of this group, the effect of hospitalization could be masked by other factors.

References

Abdel Gawad M.S., Ghozi E.H., Askar M., Elbatrawi M., Mona El Rakhawy (2000): Gender and schizophrenia: Some clinical and socio-demographic considerations**,** *the Egyptian journal of psychiatry***,** 23: 223-230.

Aizenberg D., Zemishlany Z., Dorfman-Etrog P., Weizman A. (1995): Sexual dysfunction in male schizophrenic patients. *Journal of Clinical Psychiatry,* 56:4:137-141.

Anna M.M. and Veronica O.K., (2003). Reduced Bone Mineral Density in Patients with Schizophrenia Receiving Prolactin Raising Anti-Psychotic Medication. Journal of Psychopharmacology, Vol. 17, No. 4, 455-458.

Arieti S. (1975): Sexual Problems of the Schizophrenic and Preschizophrenic. In N. Sandler and G. L. Gessa (eds.), *Sexual Behavior: Pharmacology and Biochemistry.* New York: Raven Press, Pp. 277-282.

Atmaca M., Kuloglu M., Tezcan E.A. (2004): new atypical antipsychotic: quetiapine-induced sexual dysfunctions**.** *International Journal of Impotence Research*.

Baldwin D., and Mayers A. (2003): Sexual side-effects of antidepressant and antipsychotic drugs. *Advances in Psychiatric Treatment*, 9:202-210.

Baldwin, and Birtwistle J. (1997): Schizophrenia, antipsychotic drugs and sexual function. *Primary Care Psychiatry*, **3**, 115–123.

Bennett J.C., and Plum f. (1994): *Cecil Textbook of Medicine, 20th Edition,* W.B. Saunders Company, Philadelphia, PA, CD-ROM**.**

Beratis S., Gabriel J., Hoidas S. (1994): Age at onset in subtypes of schizophrenic disorders. *Schizophrenia Bulletin*, 20, 287–296.

Bortz W.M. 2nd, Wallace D.H., Wiley D. (1999): Sexual Function in 1,202 Aging Males: Differentiating Aspects. *Journal of Gerontology, Series A, Biological Sciences and Medical Sciences*, 54(5) p M237-41.

Bruno R., (2006). Relationships between the Symptomatology and Neuropsychology of Schizophrenia: Three, Five, Eleven, or a Greater Number of Valid Syndromes?. Family Relations; Volume 55 Issue 1 Page 146 – January.

Diederik E.T., Peter N. H., Cees J.S., et al., (2006). Tardive Dyskinesia in Schizophrenia is Associated with Prolactin-Related Sexual Disturbances. Neuropsychopharmacology 31, 1832–1837; 15 February.

Dunsmuir W.D., and Emberton M. (1997): 314:319 Editorials, Surgery, drugs, and the male orgasm, Informed consent can't be assumed unless effects on orgasm have been discussed, *British medical journal,* 314:319.

First M.B., Spitzer R.L., Gibbon M., Williams J.B.W. (1996): *Structured clinical interview for DSM-IV Axis I disorders: clinical version (SCID-I/C, version 2.0)*. New York.

Gothelf D., Apter A., Reidman J., et al., (2004). Olanzapine, risperidone and haloperidol in the treatment of adolescent patients with schizophrenia. Olanzapine, risperidone and haloperidol in the treatment of adolescent patients with schizophrenia. Journal of Neural Transmission Volume 110, Number 5 / May.

Hollis C. (2003): Developmental precursors of child- and adolescent-onset schizophrenia and affective psychoses: diagnostic specificity and continuity with symptom dimensions**,** *The British Journal of Psychiatry* 182: 37-44**.**

Horvath T., and Meares R. (1979): the sensory filter in schizophrenia: a study of habituation, arousal, and the dopamine hypothesis, *The British Journal of Psychiatry,* 134: 39-45.

Kay S., Fishbein A., Opier L. (1987): The positive and negative syndrome scale (PANSS) for schizophrenia. *Schizophrenia Bulletin*, 13, 261-275.

Kockott G., and Pfeiffer W. (1996): Sexual disorders in nonacute psychiatric outpatients. *Comprehensive Psychiatry*, 37, 56 -61.

Kotin J., Wilbert D.E., Verburg D., et al. (1976): Thioridazine and **sexual** dysfunction. *American Journal of Psychiatry*, 133, 82-85.

Lyketsos G.C., Sakka P. Mailis A. (1983): The sexual adjustment of chronic schizophrenics: a preliminary study. *The British Journal of Psychiatry*. 143: 376-382.

Macdonald S., Halliday J., Macewan T., Sharkey V., Farrington S., Wall S., Mccreadie R.G. (2003): Nithsdale Schizophrenia Surveys 24: sexual dysfunction, Case—control study. *The British Journal of Psychiatry*, 182: 50-56.

Masters W.H., Johnson V.E. (1966): *Human Sexual Response*. Boston, Mass: Little Brown & Co Inc.

Michael K., Jeanne C. and Alison A., (2006). Psychiatric Illness Presenting with a Sexual Complaint and Management by Psychotropic Medications: A Case Report. The Journal of Sexual Medicine; doi:10.1111/j.1743-6109.

Oshima I., Mino Y., Inomata Y. (2003): Institutionalization and schizophrenia in Japan: social environments and negative symptoms**,** nationwide survey of in-patients, *The British Journal of Psychiatry* 183: 50-56.

Owida M.A., Wilson A.K., Mona Tawfik, Abdel-Aal I., Youssef I.M., Fatah Ahmed M.A. (1999):Clinical Assessment Of Positive Negative Symptoms Age Of Onset And Gender In A Sample Of Egyptian Patients Having Schizophrenia For More Than Two Years, *The Egyptian Journal of Psychiatry*, 22:267-276.

Rajesh G., Jacob K.S., Anju K.,et al., (2006). Sildenafil in the Treatment of Antipsychotic-Induced Erectile Dysfunction: A Randomized, Double-Blind, Placebo-Controlled, Flexible-Dose, Two-Way Crossover Trial. Am J Psychiatry 163:494-499, March.

Sable J.A., and Jested D.V. (2002): Antipsychotic treatment for late onset schizophrenia, *Current psychiatry reports* 4:299-306.

Segraves R.T. (1989): Effects of psychotropic drugs on human erection and ejaculation. *Archives General Psychiatry* 46:275–284.

Silva P. (2000): Book reviews, Sexuality and Serious Mental Illness, *The British Journal of Psychiatry* 177: 476.

Slater E., and Roth M. (2001): Clinical psychiatry, 3rd edition, London, Bailliere Tindall.

Smith S., O'Keane V., Murray R. (2002): Sexual dysfunction in patients taking conventional antipsychotic medication *The British Journal of Psychiatry*, 181: 49-55.

Teusch L., Scherbaum N., Böhme H., et al. (1995): Different patterns of sexual dysfunctions associated with psychiatric disorders and psychopharmacological treatment. *Pharmacopsychiatry*, 28, 84 - 92.

Verhulst J., and Schneidman B. (1981): Schizophrenia and sexual functioning. *Hosp. community psychiatry*, 32 (4): 259-62.

Weizman R., and Hart J. (1987): Sexual behaviour in healthy married elderly men. *Archives of Sexual Behavior*, 16, 39–44.

Wise R.A. (1982): Neuroleptics and operant behavior: the anhedonia hypothesis. *Behavior Brain Science*, 5:39-87.

Authors:

Hashem A.
Abd El-Gawad T.
Professor of psychiatry
Faculty of Medicine
Cairo University

Assal A.
Assistant Prof. of Psychiatry
Faculty of Medicine
Cairo University

Ezzat M.
Goueily T. and
El Rakhawy M.
Lecturer of psychiatry
Faculty of Medicine
Cairo University

Address of Correspondence:
Ezzat M.
Lecturer of psychiatry
Faculty of Medicine
Cairo University

دراسة مقارنة لأداء الجنسى لمرضى الفصام البارانوى

مقابلة مرضى الفصام الغير بارانوى وعلاقتها بنسبة البرولاكتين فى الدم

من خلال الدراسات الإحصائية والسريرية وجد أن مرض الفصام مصاحب بخلل في الوظيفة الجنسية والرضا الجنسي، حتى بين المرضى الذين لم يعالجوا. وهذه الدراسة تهدف إلي تقييم درجة انتشار الاضطرابات الجنسية بين مرضى الفصام الذكور، البحث في العوامل المختلفة التي تبدو مثيرة أو مصاحبة للاضطرابات الجنسية المختلفة في مرضى الفصام الذكور والتي تشمل عوامل اجتماعية- اقتصادية وعوامل إكلينيكية. وقد أجريت الدراسة على ثلاثين مريضا من الذكور الذين يعانون من الفصام من النوع البارانوي ، و ثلاثين مريضا من الذكور الذين يعانون من الفصام من النوع غير البارانوى. وقد تم تطبيق القياسات التالية على جميع المرضى المقابلة الإكلينيكية المنظمة لدليل التشخيص الأمريكي الرابع للأمراض النفسية، إستخبار السلوك الجنسي لماكدونالد وآخرين(١٩٧٣)، مقياس الأعراض الموجبة والسلبية لكاي وآخرين(١٩٨٧)، كما تم قياس نسبة البرولاكتين في الدم.أظهرت الدراسة انتشار الاضطرابات الجنسية بين المرضى من المجموعتين، فبالنسبة لمرضى الفصام البارانوي وجد أن ٨٠% من المرضى يعانون من اضطراب واحد في وظائفهم الجنسية بينما كان ٦,٧% من مرضى الفصام غير البارانوى يعانون أيضا من اضطراب واحد على الأقل في وظائفهم الجنسية. تأثرت الوظائف الجنسية لمرضى الفصام البارانوي بشكل دال إحصائيا بالسن، ومدة معاناة المريض من الفصام، وبزيادة فترة المرض بينما انخفض معدل ممارسة الجنس بزيادة فترة المرض، وطول الفترات التي قضاها المريض في المصحات النفسية، وارتفاع نسبة البرولاكتين فى الدم.بينما كان تأثر الوظائف الجنسية لمرضى الفصام غير البارانوي بالسن وقت بداية المرض، وارتفاع نسبة البرولاكتين فى الدم، وقد كان رضا مرضى الفصام البارانوي عن شدة اللذة الجنسية أكثر، بشكل دال إحصائيا، عن رضا مرضى الفصام غير البارانوي . لذلك من الضرورى أن نضع في الاعتبار أن الأغلبية من مرضى الفصام يعانون من اضطراب واحد على الأقل في وظائفهم الجنسية.