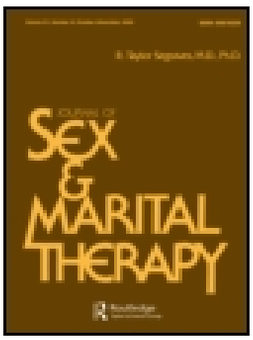

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Sexual Dysfunction Among Patients With Schizophrenia in Southwest Nigeria

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ABSTRACT

Sexual functioning has received little attention as an important aspect of patient care for those suffering from schizophrenia. In Nigeria, cultural and religious factors often prevent patients from talking with their clinician about their sexual life. The aim of our study was to assess the frequency and nature of sexual dysfunction in patients with schizophrenia and assess the determinants of sexual dysfunction in such patients. Sexual dysfunction was assessed with the Arizona Sexual Experience Scale in 90 patients with schizophrenia. Demographic and clinical characteristics including quality of life, the severity of schizophrenia, and perceived stigma were recorded using a standardized protocol and data collection. The prevalence of sexual dysfunction was 36.7%. Higher scores on the negative subscale of the Positive and Negative Syndrome Scale (PANSS), the general subscale of the PANSS, the total scores on the PANSS, and a family history of mental illness were significantly associated with sexual dysfunction. The only significant predictor of sexual dysfunction was the severity of the negative subscale of the PANSS. This study highlights the high prevalence of sexual dysfunction among patients with schizophrenia. Efforts should be made to identify and address this problem.

Introduction

Sexual functioning has received little attention as an important aspect of patient care for those suffering from schizophrenia. Cultural and religious factors often prevent patients from talking with their clinicians about their sexual life (Nazareth, Boynton, & King, 2003). This is often compounded by the fact that clinicians largely overlook the sex behaviors of patients suffering from schizophrenia. Most clinicians avoid discussing the issue of sexuality with patients with severe mental disorders (Huguelet et al., 2015). According to the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association, 2013), "Sexual dysfunctions are a heterogeneous group of disorders that are typically characterized by a clinically significant disturbance in a person's ability to respond sexually or to experience sexual pleasure" (p. 423). In the general population, between 40% and 68% of adult women and 8% and 30% of adult men have at least one manifest sexual dysfunction (Hocaoglu, Celik, Kandemir, Guveli, & Bahceci, 2014; Lewis et al., 2004). The prevalence of sexual dysfunction among people with schizophrenia is even much higher than what obtains in the general population, with prevalence estimates between 31.1% and 97.1% (Ahmadzadeh & Shahin, 2015; Hocaoglu et al., 2014; Kheng Yee, Muhd Ramli, & Che Ismail, 2014). In the general population, the prevalence of sexual dysfunction is higher in females compared to males (Heiman, 2002; Hocaoglu et al., 2014). Among patients with schizophrenia, several studies report a higher prevalence of sexual dysfunction in females

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(Harley, Boardman, & Craig, 2010; Hocaoglu et al., 2014; Hou et al., 2016; Macdonald et al., 2003; Olisah, Sheikh, Abah, & Mahmud-Ajeigbe, 2016), some found a higher prevalence in males, while others found similar rates between males and females (Fujii et al., 2010).

Patients with sexual dysfunction face many burdens, including unmet needs, poor quality of life, and stigma (Grinshpoon & Ponizovsky, 2008; Huguelet et al., 2015; Idung, Abasiubong, Udoh, & Akinbami, 2012). It has been shown that despite normal sexual desire, up to 50% of women with schizophrenia avoid any form of sexual practice because of psychological issues such as sexual self-esteem and stigma (Huguelet et al., 2015). Patients with sexual dysfunction have a poorer quality of life than those without such dysfunction (Idung et al., 2012). Among patients with severe mental illness such as schizophrenia, the basic needs of food and accommodation are often met to a greater extent than social needs such as sexual expression and intimate relationships (Grinshpoon & Ponizovsky, 2008). There is evidence to suggest an association between sexual dysfunction and severity of psychopathology. Higher scores on the general psychopathology subscale, the positive subscale score, and the negative subscale score of the PANSS are associated with sexual dysfunction (Bo et al., 2016; Ciocca et al., 2015; Kheng Yee et al., 2014; Simiyon, Chandra, & Desai, 2016). Other commonly reported clinical correlates of sexual dysfunction include age, use of psychotropics (especially antipsychotics), duration of illness, gender, marital status, sense of well-being, and stability of relationships (Lee et al., 2015; Shetageri, Bhogale, Patil, Nayak, & Chate, 2016).

The majority of reports on sexual dysfunction come from outside Africa. Findings from such studies have religious, social, and cultural variations and may not be generalizable to patients from Africa (Peitl, Peitl, & Pavlovic, 2009; Simiyon et al., 2016). For example, in a study conducted among outpatients with schizophrenia in Turkey, contrary to existing studies, the prevalence of female sexual dysfunction was found to be the same when compared with healthy controls. This the authors attributed to sexual conservatism in Turkey. Sexual conservatism reportedly results in very high levels of self-reported sexual dysfunction among females (Hocaoglu et al., 2014). Similarly, in a study conducted among patients with schizophrenia in India, education, duration of marriage, and age of the spouse were not found to be associated with sexual dysfunction, contrary to existing studies, but sexual dysfunction correlated strongly with marital quality. The authors also attributed the results of the study in part to cultural issues (Simiyon et al., 2016). Furthermore, sexual dysfunction has been conspicuously underresearched, especially in Africa (Olisah et al., 2016), particularly from the perspective of the association to an individual's severity of psychopathology, quality of life, and perceived stigma.

The main aims of our study were to assess the frequency, gender difference, and nature of sexual dysfunction in patients on treatment for schizophrenia, assess their quality of life, their experience of stigma, and the determinants of sexual dysfunction in such patients.

Method

The study was carried out at two outpatient clinics in Nigeria—one at the University College Hospital in Ibadan, and the second at General Hospital, Adeoyo, Ibadan—between October 15, 2014 and October 23, 2015. All consecutive stable patients during recruitment that met the *DSM-IV* (4th ed., text rev.; DSM-IV-TR; American Psychiatric Association, 2000) criteria for schizophrenia and consented to participate in the study were recruited into the study. Participants' inclusion criteria were (1) age 18 to 64 years; and (2) *DSM-IV-TR* criteria for schizophrenia.

Measures

Sociodemographic and clinical data were collected from the participants using a case record form. The case record form included questions on age, age at first episode, gender, marital status at presentation, work status, and family history of mental illness, as well as other psychosocial measures. Two research assistants extracted sociodemographic data and some clinical data. Three psychiatrists administered the Structured Clinical Interview for *DSM-IV-TR* disorders–Patient Version (SCID-I/P).

The severity of schizophrenic symptoms was assessed with the Positive and Negative Syndrome Scale (PANSS; Kay, Fiszbein, & Opler, 1987), quality of life (QoL) was measured with the WHO Quality of Life-BREF (WHOQOL-BREF; WHOQOL Group, 1998), stigma was assessed with the Discrimination and Stigma Scale (DISC-12; Brohan et al., 2013).

Remission was assessed using the Remission in Schizophrenia Working Group criteria for patients (Andreasen et al., 2005). Due to the cross-sectional nature of the study, clinical remission was assessed taking into account only the severity criterion (the six-month duration criterion was not taken into consideration).

Sexual dysfunction

Sexual function was measured with the Arizona Sexual Experience Scale (ASEX; McGahuey et al., 2000). The instrument was translated into Yoruba and back-translated into English by a different set of translators. ASEX is a five-item questionnaire. It measures different aspects of sexual functioning over the past week. These are the sexual drive, sexual arousal, penile erection/vaginal lubrication, capacity to reach orgasm, and satisfaction with orgasm. The items are rated on a 6-point Likert scale from 1 (*hyperfunction*) to 6 (*hypofunction*). Total scores range from 5 (low) to 30 (high). A total score of ≥19, a score of ≥5 on any single item, or scores of ≥4 on any three of the five items are highly correlated with the presence of clinician-diagnosed sexual dysfunction.

Data analysis

Continuous and normally distributed variables were presented as means and standard deviations, while categorical variables were presented as percentages. To compare variables between two groups, the independent *t* test was used for variables that were continuous and normally distributed, while the Mann–Whitney's *U* test was used for nonnormally distributed continuous variables. The demographic and clinical characteristics were analysed with independent *t* tests, chi-square tests, or Fisher's exact tests, as appropriate. In multivariate analysis, the effect of demographic and clinical variables on sexual dysfunction was examined using binary logistic regression models. We included the variables that were significant at the bivariate level (<0.05) and variables that showed the trend of a significant difference ($p < 0.1$). All statistical analyses were conducted using IBM SPSS version 22 Statistics for Windows (IBM Corp., 2013). A p value of less than 0.05 was considered to show statistical significance.

Ethics statement

The survey was approved by Oyo State Research Ethical Review Committee (ref. AD 13/479/688). Detailed descriptions of the study methods have been published elsewhere (Esan et al., 2017).

Results

Ninety (90) participants (45 men and 45 women) completed the ASEX and were included in the current analysis.

Demographic data

The mean age of the participants was 36.4 years ($SD = 9.9$). The mean age at onset of illness was 26.6 years ($SD = 8.0$). The majority (53. 3%) were in paid employment. Most of the respondents (93.4%) had at least secondary school education (Table 1).

Of the total number of participants, 66.4% met the remission criteria as defined by the Remission in Schizophrenia Working Group. There was no significant difference in prevalence of sexual dysfunction between those in clinical remission and those who were not ($p = 0.067$).

Table 1. Demographic and clinical characteristics of participants ($N = 90$).

Variable	Mean (*SD*)
Age of patient	36.42 (9.9)
Age at first episode	26.63 (8.0)
Number of years of education	13.12 (4.0)
GAF score	63.32 (17.4)
Psychopathology	
PANSS Positive subscale	10.94 (3.7)
PANSS Negative subscale	11.10 (3.8)
PANSS General subscale	21.18 (5.7)
PANSS total score	43.22 (10.8)
	Frequency (%)
Age group (years)	*n* (%)
18–24	5 (5.6)
25–34	41 (45.6)
35–44	25 (27.8)
45–54	14 (15.6)
≥ 55	5 (5.6)
Age at onset of illness[a]	
10–19	14 (15.6)
20–29	44 (48.9)
30–39	24 (26.7)
≥ 40	6 (6.7)
Work status	
Paid employment	48 (53.3)
Nonpaid employment/student	15 (16.7)
Retired	2 (2.2)
Unemployed	25 (27.8)
Marital status	
Single/never married	58 (64.4)
Married/cohabiting	24 (26.7)
Divorced/separated/widowed	8 (8.9)
Educational status	
No formal education	3 (3.3)
Primary school	3 (3.3)
Secondary school	42 (46.7)
Postsecondary/university education	42 (46.7)
Family history of mental illness	
Yes	15 (16.7)
No	75 (83.3)
Religion	
Christianity	56 (62.2)
Islam	34 (37.8)
Proportion of participants with significant[b] **problems in each domain of ASEX ($N = 90$)**	
Strength of sex drive	20 (22.2)
Sexual arousal	20 (22.2)
Vaginal lubrication/penile erection	20 (22.2)
Ability to reach orgasm	24 (26.7)
Satisfaction with orgasm[c]	22 (24.4)
Penile erection (males only, $N = 45$)	8 (17.8)
Vaginal lubrication (females only, $N = 45$)	12 (26.7)

Note. GAF = Global Assessment of Functioning; PANSS = Positive and Negative Syndrome Scale; ASEX = Arizona Sexual Experiences Scale.
[a]missing = 2.
[b]A score of ≥5 on any single item.
[c]missing = 1.

Sexual dysfunction

Sexual dysfunction, defined by an ASEX total score of greater than or equal to 19 was found in 33 out of 90 of the participants (36.7%). The prevalence of sexual dysfunction by gender was 42.2% for females and 31.1% for males.

Table 2. Frequency of sexual dysfunction in patients with schizophrenia.

	Total $N = 90$		Male $n = 45$		Female $n = 45$		Statistics		
ASEX Items	*N*	%	*N*	%	*N*	%	Chi Square	*df*	*p* value
Strength of sex drive	20	22.2	8	17.8	12	26.7	1.029	1	0.310
Sexual arousal	20	22.2	7	15.6	13	28.9	2.314	1	0.128
Vaginal lubrication/penile erection	20	22.2	6	13.3	14	31.1	4.114	1	0.043*
Ability to reach orgasm	24	26.7	9	20.0	15	33.3	2.045	1	0.153
Satisfaction with orgasm	22	24.7	8	18.2	14	31.1	1.999	1	0.157

Note. ASEX = Arizona Sexual Experience Scale.
*$p < 0.05$.

The proportion of participants with significant impairment in each domain of the ASEX is reported in Table 2. The most common problems were orgasmic (i.e., inability to reach orgasm) (26.7%) and a lack of satisfaction with orgasm (24.4%).

Correlates and predictors of sexual dysfunction

Table 3 shows the results of an independent sample *t* test and Mann–Whitney *U* test comparing patients with and without sexual dysfunction. Higher scores on the negative subscale of the PANSS, the general subscale of the PANSS, the total scores on the PANSS, and a family history of mental illness were significantly associated with sexual dysfunction.

In the multivariate analysis, after including the variables that were significant at the bivariate level (<0.05) and variables that showed the trend of a significant difference ($p < 0.1$), the only variable independently associated with sexual dysfunction was the severity of the negative subscale of the PANSS (Table 4).

Discussion

Our findings show that the prevalence of sexual dysfunction was 36.7%. A total of 31.1% of men and 42.2% of women reported significant sexual dysfunction as defined by an ASEX total score of greater than or equal to 19. Inability to reach orgasm and a lack of satisfaction with orgasm were identified as the most common forms of sexual dysfunction encountered. Sexual dysfunction was significantly associated with a family history of mental illness, the psychopathology scores on the negative subscale of the PANSS, the general subscale, and the total scores of the PANSS. The severity of negative symptoms predicted sexual dysfunction.

The prevalence of sexual dysfunction

The prevalence estimates of sexual dysfunction among males and females with schizophrenia found in the current study are comparable to those reported in other studies from Nigeria (Adegunloye & Ezeoke, 2011; Olisah et al., 2016; Oyekanmi, Adelufosi, Abayomi, & Adebowale, 2012) but considerably lower than the figures from Europe (74%–96%; Harley et al., 2010; Hou et al., 2016; Macdonald et al., 2003), India (68%–70%; Shetageri et al., 2016; Simiyon et al., 2016), and China (60.7%–80.6%; Hou et al., 2016). The factors that may have accounted for the differences in prevalence estimates include methodological differences in sampling, case ascertainment, differences in the illness course of schizophrenia, and varying definitions of sexual dysfunction. For example, using the ASEX, the prevalence estimate of 36.7% found in our study is comparable to the prevalence of 37.8% reported in Iran by Ahmadzadeh

Table 3. Comparison of clinical and demographic characteristics between patients with and without sexual dysfunction.

		***t* test**				
	FSD present	*N*	Mean	*SD*	*t*	*p* value
Psychopathology						
PANSS Positive subscale	No	44	10.86	3.78	− 0.228	0.898
	Yes	28	11.07	3.74		
PANSS Negative subscale	No	44	9.91	3.03	− 3.529	0.001*
	Yes	28	12.96	4.18		
PANSS General subscale	No	44	20.05	4.81	− 2.025	0.049*
	Yes	28	22.96	6.59		
PANSS total score	No	44	40.82	9.48	− 2.443	0.017*
	Yes	28	47.00	11.87		
Quality of life						
Physical domain	No	55	25.14	22.38	0.099	0.921
	Yes	31	24.65	21.70		
Psychological domain	No	55	41.08	29.53	1.425	0.158
	Yes	31	31.69	28.98		
Social relationships	No	55	34.27	30.32	1.262	0.210
	Yes	31	26.41	22.29		
Environment	No	55	48.01	25.99	0.254	0.800
	Yes	31	46.52	26.55		
GAF score	No	57	62.68	17.52	− 0.455	0.650
	Yes	33	64.42	17.43		
Age of patient	No	57	35.09	9.39	− 1.693	0.094
	Yes	33	38.73	10.55		

		Mann–Whitney U test					
Stigma	FSD Present	*N*	Median	Range	*U*	*p* value	*r*
Unfair treatment	No	35	0.15	0.00–1.44	247	0.191	− 0.180
	Yes	18	0.10	0.00–0.50			
Stopping self	No	53	0.00	0.00–0.30	710	0.868	− 0.018
	Yes	50	0.00	0.00–2.00			
Overcoming stigma	No	29	0.00	0.00–3.00	705	0.923	− 0.011
	Yes	79	0.00	0.00–2.00			
Positive treatment	No	51	0.00	0.00–3.00	374	0.132	− 0.187
	Yes	28	0.00	0.00–2.25			

	No sexual dysfunction		**Sexual dysfunction**		
	N	%	*N*	%	*p* value
Gender					
Male	31	68.9	14	31.1	0.274
Female	26	57.8	19	42.2	
Religion					
Christianity	37	66.1	19	33.9	0.489
Islam	20	58.8	14	42.1	
Highest level of education					
No formal education	1	33.3	2	66.7	0.753 (Fisher's test)
Primary school	2	66.7	1	33.3	
Secondary school	26	61.9	16	38.1	
Tertiary	28	66.7	14	33.3	
Marital Status					
Single/never married	37	63.8	21	36.2	0.693
Married/cohabiting	16	66.7	8	33.3	
Divorced/separated/widowed	4	50	4	50	
Employment status					
Paid employment	31	64.6	17	35.4	0.958 (Fisher's test)
Nonpaid employment/student	10	66.7	5	33.3	
Retired	1	50	1	50	
Unemployed	15	15	10	10	
Family history of mental illness					
Yes	13	86.7	2	13.3	0.040*
No	44	58.7	31	41.3	

Note. FSD = female Sexual Dysfunction; PANSS = Positive and Negative Syndrome Scale; GAF = Global Assessment Functioning.
*$p < 0.05$.

Table 4. Predictors of sexual dysfunction.

Variables	B (Regression Coefficient)	Sig.	Odds Ratio	95% CI of OR	
PANSS Negative Subscale	0.345	0.018*	1.412	1.06	1.88
PANSS General Subscale	0.207	0.183	1.23	0.907	1.668
PANSS Total score	− 0.117	0.246	0.89	0.73	1.084
Age of patient	0.009	0.741	1.009	0.956	1.066
Family history of mental illness	− 1.586	0.086	0.205	0.033	1.253

Note. Sig. = significance level; CI = Confidence Interval; OR = Odds Ratio; PANSS = Positive and Negative Syndrome Scale.
*$p < 0.05$.

and Shahin (2015) in which ASEX was used to assess sexual dysfunction. Our reported estimate is, however, lower than reports by Olisah et al. (Olisah et al., 2016) (58.8%), Simiyon et al. (Simiyon et al., 2016) (70%), and Hocaoglu et al. (Hocaoglu et al., 2014) (68%), which all used different instruments to assess sexual dysfunction.

In keeping with existing studies among patients with schizophrenia, we found a higher prevalence of sexual dysfunction among females (Harley et al., 2010; Hocaoglu et al., 2014; Hou et al., 2016; Macdonald et al., 2003; Olisah et al., 2016). Several studies have attributed the higher prevalence of sexual dysfunction among female patients with schizophrenia to the greater effect of antipsychotic medication on the prolactin levels of females (Ahmadzadeh & Shahin, 2015; Bushong, Nakonezny, & Byerly, 2013; Zhang et al., 2011). However, a study that compared sexual dysfunction between clinically stable female patients with schizophrenia taking antipsychotic medication to that of healthy female controls found equal prevalence estimates between the two groups. The result suggests that sexual dysfunction in female patients may not be entirely attributed to their illness or to the medications they are taking (Hocaoglu et al., 2014).

Difficulty with reaching orgasm and a lack of satisfaction with orgasm were the most common types of sexual dysfunction in our study. This is in keeping with existing studies from Nigeria (Adegunloye & Ezeoke, 2011; Olisah et al., 2016). Our findings, however, contrast with similar studies from Malaysia and India (Kheng Yee et al., 2014; Simiyon et al., 2016). In the Malaysian study, orgasmic function was the least impaired, while in the study from India impaired desire was reported by all the women (100%) in the study. Orgasmic problems ranked third only after problems with desire and arousal.

We found sexual dysfunction to be associated with a family history of mental illness, higher scores on the negative subscale of the PANSS, higher scores on the general psychopathology score, and total scores of PANSS. The general psychopathology scale of the PANSS contains items such as anxiety, depression, somatic concern, unusual thought content, and guilt feelings. Many of these items have been shown to impair sexual function (Baldwin, 2001; Williams & Reynolds, 2006). Consequently, higher scores on anxiety, depression, unusual thought content, and guilty feelings are expected to be associated with a higher prevalence of sexual dysfunction. Furthermore, anxiety and depressive disorders have been shown to predate the onset of sexual dysfunction in the majority of patients with sexual dysfunction (Rajkumar & Kumaran, 2015). Anxiety also plays a key role in the development and maintenance of erectile dysfunction, especially male erectile dysfunction (Hedon, 2003).

Unusual and/or negative thought content contributes to sexual dysfunction. Studies have shown the impact of cognitive and emotional factors, negative automatic thoughts, pessimism, hopelessness, sexual dysfunctional beliefs, negative cognitive schemas, and depressed affect on the predisposition to development and maintenance of sexual dysfunction (Nobre, 2010). All these effects may partially explain the association that we found between sexual dysfunction and the general psychopathology scale of the PANSS.

Our finding of an association between the severity of total psychopathology scores on PANSS and sexual dysfunction supports the findings of an existing study (Malik et al., 2011), which showed similar results. More significantly, the current study contributes to the limited evidence on the correlates and likely causes of sexual dysfunction among patients with schizophrenia in sub-Saharan Africa.

The only factor that was predictive of sexual dysfunction after logistic regression was the severity of negative symptoms. The negative symptom scale contains items such as blunted affect, emotional withdrawal, poor rapport, passive/apathetic social withdrawal, difficulty in abstract thinking, lack of

spontaneity and flow of conversation, and stereotyped thinking, any of which can impair sexual functioning. For example, anhedonia can adversely interfere with interpersonal and sexual relationships (Waldinger, 2015). Existing studies have identified negative symptoms as strong predictors for decreased libido.

Contrary to reports from existing studies, we did not find sexual dysfunction to be associated with quality of life, stigma, or positive symptoms of the PANSS. Sexual dysfunction in patients with schizophrenia has been reported to be associated with decreased subjective quality of life (Baggaley, 2008; Bushong et al., 2013). Regarding positive symptoms, while some studies report that higher scores on the positive subscale of the PANSS are protective against sexual dysfunction (Kheng Yee et al., 2014), others suggest that the association between sexual dysfunctions and psychopathology occurs only in women (Ciocca et al., 2015). This area needs to be further explored.

Strengths and limitations

The strengths of the study include the wide range of clinical assessments performed by qualified and trained research assistants and the fact that our sample was devoid of gender bias. Some existing studies on sexual dysfunction were lopsided with regard to sampling, resulting in more men in such studies. Nonetheless, the results of this study should be interpreted with caution due to certain limitations. First, the sample size was small; this increased the likelihood of a type II error, thereby decreasing the power of the study and the ability to detect an effect when there was one.

Second, antipsychotics as well as female genital mutilation (FGM) have a role in mediating sexual dysfunction. FGM is common in Nigeria (Okeke, Anyaehie, & Ezenyeaku, 2012). Unfortunately, details of pharmacotherapy and FGM were not included in this study. Third, we used patients who could attend to the interviewers; as such, some of the results may not be applicable to acutely ill patients.

In conclusion, this study highlights the high prevalence of sexual dysfunction among patients with schizophrenia. Sexual dysfunction is a significant comorbidity in patients with schizophrenia. Given the adverse consequences of sexual dysfunction including poor adherence to treatment, efforts should be made to identify and address the problem. Several hindrances to addressing the problem, however, abound. One, many clinicians are oblivious to the topic of sexual dysfunction (Akhtar & Thomson, 1980); two, most clinicians underestimate the prevalence of the disorder (Dossenbach et al., 2005); and three, some clinicians are too timid to ask about the problem. Fortunately, the majority of patients with schizophrenia, when asked, are willing and pleased to discuss their sexual problems (Akhtar & Thomson, 1980; Pinderhughes, Grace, & Reyna, 1972). Therefore, mental health professionals need to increase their awareness of the problem (Ucok, Incesu, Aker, & Erkoc, 2008) and adopt tactful and sensitive ways of asking patients about this issue. In addition, inquiries about sexual function should be a regular part of the management plan for treatment of schizophrenia.

Future studies

Most studies on sexual dysfunction, including the index study, are largely cross-sectional in nature. Future studies using antipsychotic naive patients or patients with the first episode of psychosis, while adopting a prospective approach, are warranted. We also suggest the need to carry out such studies with a larger number of patients.

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