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ORIGINAL PAPER

Evaluation of Perceived Sexual Functioning in Women with Serious Mental Illnesses

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Abstract (A) To examine the impact of serious mental illness on female sexual functioning; (B) To determine personal and contextual barriers in sexual health of women with DSM-IV Axis-I disorders. A mixed-method study explores perceived sexual health in cross-section of 44 consentable women with serious mental illnesses (SMI). Subscales of sexual activity are used as measurable outcomes. History of sexual abuse (59%), long-term sex abstinence (72.7%), client-provider poor communications (86.3%), and lack of awareness (79.6%) are related to suboptimal sexual health of women with SMI. Satisfaction and pleasure from sexual experience are predominantly affected symptoms that confer higher means of psychotropic medications (4.8 ± 6.3), length of treatment (10.8 ± 9.1) and are partially mediated by the body-mass index, impaired interpersonal skills, and emotional lability. The defined barriers in sexual health inform that the needs of women with SMI in terms of sexual expression and intimacy are in practice ignored or poorly seen as problems. Taking a sexual history should be an integral part of psychiatric assessment.

Keywords Sexual health · Mental illness · Overweight · Behavior and Symptom Identification Scale-24

Introduction

Female sexual functioning is affected by the following psychosocial factors and events: sexual abuse, body memory, poor body image, lack of perceived safety, poor economic status, depression and anxiety disorders [1, 3, 5, 6, 12].

The history of sexual abuse in childhood (CSA) interferes with diagnostics and treatment of mental illnesses [4, 13, 20]. Unipolar depression, bipolar disorder, post traumatic stress disorder, dissociative states, low self-esteem, pseudocyesis, obesity, illicit substance use, compulsive sexual behaviors, poor contraception practices are common adult

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manifestations of the CSA [17, 22, 26, 28]. Psychotropic medications are frequently prescribed in response to the adjustment problems-often diagnosed as mental illnesses associated with the CSA [15, 21]. These medications in turn, impact on sexual functioning [2, 11, 29]. Our study intends to examine the impact of mental illness and associated factors on perceived sexual functioning in a cross-section of outpatient women with serious mental illnesses (SMI).

Methodology

An IRB-approved exploratory, mixed-method study utilizes 44 cross-section surveys followed by 32 semi-structured interviews with mental health consumers and their providers.

Sample

A total of forty-four consentable women with SMI are recruited among the attendees of recovery oriented psychiatric rehabilitation program. Women with DSM-IV Axis-II, and Axis-III disorders are excluded from the sample. The recruited sample is stratified by age and psychiatric diagnoses (schizophrenia, bipolar disorder, unipolar depression, post traumatic stress disorder, anxiety disorder). The age-sensitive division of the sample is based on our expectations for diverse responses in sexual health knowledge and attitudes of younger and older women. The age-grade line of 42 years is chosen as the margin between late reproductive and early premenopausal stages of the female life-cycle [23, 24].

Instruments

The perceived sexual functioning in women with SMI is assessed with the help of a tool adapted from two existing and validated questionnaires: The Brief Index of Sexual Functioning for Women [BISF-W] [14], and Sexual Function Questionnaire for Clinical Trials of Female Sexual Dysfunction [19]. The existing instruments could not be employed in this study, as they assess sexual functioning in women without mental health problems. Therefore, the developed tool is technically the first instrument that measures sexual functioning in psychiatric female outpatients. It affords only a non diagnostic, symptomatic assessment. Hence, prevalence and types of sexual problems are not modeled as measurable outcomes for this study. There are no discussions on sexual function or dysfunction, as we use a non-diagnostic, symptomatic instrument that only scales perceived sexual function. However, reported sexual problems (disparenuria, bleeding during or after the intercourse) have been analyzed through descriptive statistics and mentioned as pathological symptoms. The existing questionnaires are profiled to evaluate sexual activities or abstinence for 1–6 months prior the actual assessment. We chose a twelve-month interval given the specifics in this group: the majority of participants are sexually inactive regardless of their age and diagnosis. Assessment of the interval of interest less than twelve-month would dramatically increase the prevalence of sex abstinence in this sample to the extent that the results would fail of being informative. The survey instrument is pilot-tested prior its use.

Mood profile and functioning is assessed with the help of Behavior and Symptom Identification Scale (BASIS-24).

The interviews are designed to assess challenges that women face while applying for sexual and reproductive health services. The data from interviews are triangulated by eliciting opinions of both, mental health consumers and providers on the same issues.

Independent Factors

A variety of personal, clinical, and therapeutic variables are considered in the model to measure sexual functioning. Personal characteristics include age, education, marital status, partner's age, living conditions. Medical profile includes thyroid function, diabetes mellitus, obesity, gynecological problems, and general health behaviors. Reproductive history includes menstrual function, obstetrical events, abortions, STI/HIV, birth control, infertility, polycystic ovary syndrome, endometriosis, gynecological surgeries, female cancer, genital prolapse, urinary stress incontinence, premature ovarian failure, menopause/osteoporosis, etc. A number of psychological factors are considered in relation to sexual functioning: history of sexual abuse, mental illness, and provisional psychotropic treatment. Health insurance limitations, lack of social support, lack of awareness in sexual health, poor communication with providers are modeled as candidate barriers in sexual health. The use of the following medications is examined: neuroleptics, anxiolytics, antidepressants (SSRI, SNRI, MAOI, TCA, TeCA), mood stabilizers, hypnotics, sedatives, psychostimulants, anticonvulsants, analgesics, antacids, anticoagulants, antihypertensives, asthma means, cardiac drugs, NSAID, antidiabetics, diuretics, replacement hormones, oral contraceptives, antithyroid, and herbal/homeopathic means.

Outcomes

With the help of multiple-choice and Likert scale questions we assess five symptoms of perceived sexual activity (fantasies, pleasure, orgasm, satisfaction, and interest). The log odds of the subscales of sexual functioning are modeled as measurable outcomes exposed to the history of sexual abuse, sex abstinence, prevalence of STI, hormone replacement therapy, length of psychotropic treatment, number and combinations of the used psychotropic medications.

Mediators

The body mass index (BMI), and BASIS-24 subscales are modeled as mediators of interest to explain the extent to which the factors and outcomes are related. BASIS-24 subscales include mood profile and functioning, interpersonal problems, psychotic symptoms, emotional lability, and symptoms of self-harm.

Data Extraction and Analyses

Quantitative data are analyzed with the help of PASW (SPSS-17), and ASSISTAT (version 7.5 β). One-way analysis of variance (ANOVA) is used for continuous data; Kruskal–Wallis ANOVA is used for ranked ordinal data; and Chi-square (X^2) is used where data are categorical. Descriptive statistics are used to profile characteristics of the sample. Continuous data are presented by weighted mean difference statistic, with a 95% CI and alpha level below 0.05, using a fixed effects model. For multivariate models generalized estimating equations are used with an exchangeable correlation structure into which a Poisson

regression is fitted. Mediator-equations are used to model linear correlations between independent factors and mediators, and between mediators and outcomes.

Results

The sample largely consists of younger women aged 28–42 years (61.4%), with overall mean age of 42 ± 11.4 years ($p < 0.02$), and partners' mean age of 41 ± 9.1 years ($p < 0.005$). 45.4% of women are college graduates, and 11.3%—have postgraduate degrees. 84.1% have single status. Sex abstinence is reported by 72.7% women, of which 52.3%—in the younger group, and 20.4%—in older group. Among those who are sexually active 9.1% have male partners, and 6.8%—female (ego-syntonic) partners.

The sample is profiled with the following mental illnesses: schizophrenia−20.4%; bipolar disorder−31.8%; unipolar depression−36.3%; post traumatic stress disorder (PTSD)−36.3%, generalized anxiety disorder (GAD)−25%, and mixed diagnoses−43.2%. 56.8% of women are taking antispsychotics, 29.5%—anxiolytics, 50%—mood stabilizers, 52.2%—antidepressants (SSRI), 9.1%—atypical antidepressants, 25%—anticonvulsants, 6.8%—psychostimulants, and 34.1%—sedatives. The average duration of psychotropic treatment is 10.8 ± 9.1 years, and the number of prescribed medications is 4.8 + 6.3 ($p < .01$).

11.36% of women report thyroid dysfunction. 20.4% are regular smokers of average 17.5 cigarettes per day. 79.5—exercise regularly. 29.5% report problems with sleeping. The sample is profiled with a mean BMI of 29.37 ± 8.1 (CI 95%, $p < .005$), thus, conferring the highest margin of the overweight scale. 56.8% of women are overweight, and 38.6% are obese.

Figure 1 illustrates: a) distributions of overweight women in diagnostic groups; b) the use of psychotropics by overweight women, and by the total sample.

As shown in Fig. 1 mood stabilizers, antipsychotics, and sedatives are the major prescription medications-reported by the overweight women. While *Pearson correlations* fail to find linear associations between the duration of psychotropic treatment and BMI ($r = 0.0042$), weak positive associations are found between the number of psychotropic medications and BMI ($r = 0.2012$).

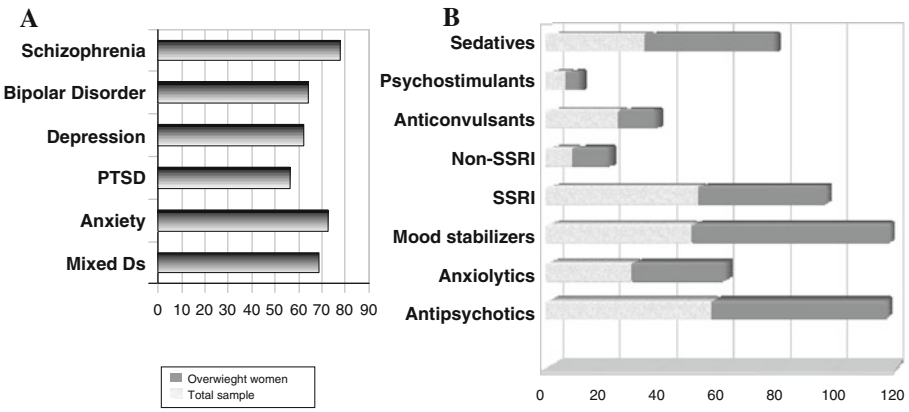

Fig. 1 **a** Prevalence of overweight women in diagnostic groups. **b** Psychotropics used by the overweight women and by the total sample

Figure 2 presents mood profile and functioning subscales per diagnostic groups:

As can be seen from Fig. 2, according to the BASIS-24, women who are diagnosed with Depression are identified as having predominant subscales of depressed mood and impaired functioning, while women with Schizophrenia and Anxiety are featured with interpersonal problems and psychotic symptoms, and women with PTSD, Anxiety-with emotional lability.

Poisson regression analysis reveals weak negative associations between the duration of psychotropic treatment and emotional lability ($r^2 = -0.05$, $\beta = -0.23$), and week positive associations between the number of psychotropic medications and emotional lability ($r^2 = 0.18$, $\beta = 0.25$).

Among those who are sexually active 68.2% approve condoms, 34% report STI, and 16% report STI in their partners. These findings suggest on infrequent use of condoms by women with SMI. Women with PTSD and Anxiety are infected at a higher rates (43.7 and 36.3%, respectfully) than have women with Schizophrenia (11.1%). Gardnerella, Candidiasis, and Genital Herpes are the mostly met STI in the sample (16, 11.3 and 9.1%, respectfully). STI, such as Syphilis, Haemophilus Ducreyi, HIV, Cytomegalovirus, Molluscum Contagiosum, Mycoplasma, Lamblias, Shygella, Pubic Lice, and Hepatitis C, are not reported. The sample shows high adherence to annual preventive exams: annual Pap-smear tests are performed in 88.6% of women.

Unwanted pregnancies and abortions are reported by 27.2% women. The abortion/live birth ratio is 1.43. The cumulative abortion rates are higher in Bipolar and PTSD groups.

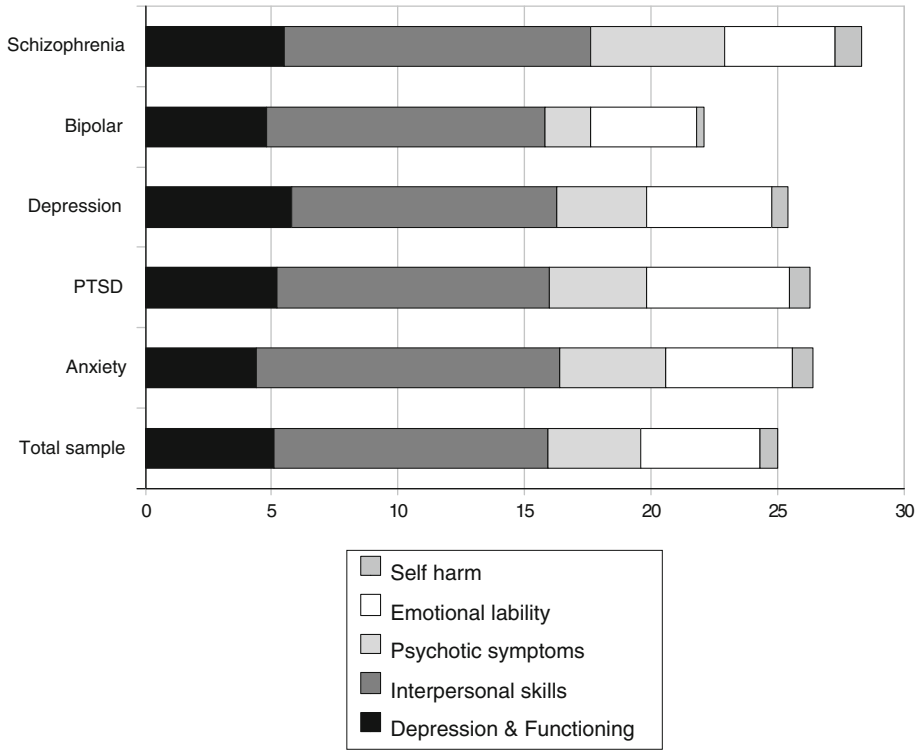

Fig. 2 BASIS-24 subscales in diagnostic groups

59% of women report sexual abuse in childhood: an episode in 22.5% women, and more than one episode in 36.3% women. Figure 3 illustrates the prevalence of childhood sex abuse in diagnostic groups:

Results suggest on higher CSA-prevalence in PTSD and Depression groups, compared to that from Schizophrenia, Bipolar, and Anxiety groups (test for trend 0.056). The BASIS-24 subscales suggest that depressed mood and impaired functioning are the major manifestations of sexual abuse in women with PTSD ($p < 0.02$) compared to those with PTSD and without history of sexual abuse ($p < 0.005$). Psychotic symptoms ($p > 0.005$), and emotional lability ($p < 0.001$) are the major manifestations of sexual abuse in Anxiety group, compared to women with anxiety and without history of sexual abuse ($p < 0.05$).

Subscales of sexual functioning are firstly analyzed with descriptive statistics. Homoscedasticity of variance of error is not measured, thus, the subscales are presented in weighted averages. Findings suggest that the history of sexual abuse (SA) is associated with less satisfaction from sexual experience among women with Schizophrenia (0.7; $p < 0.05$), Depression (1.0; $p < 0.002$), Anxiety (0.9; $p < 0.05$), compared to those with the same diagnoses and without history of SA (1.3; 1.2; and 1.2, correspondingly). Less pleasure (1.2; $p < 0.03$) and orgasm (1.4; $p < 0.01$) are reported by women with Depression and history of SA, compared to those with the same diagnosis and without history of SA (2.0; and 2.0, respectfully). Reported pathological symptoms, like dispareunia, vaginal dryness, bleeding during or after intercourse, are significantly higher in PTSD group (15.9%), and lower in Schizophrenia group (4.5%).

Pearson correlations find weak-negative associations between the duration of psychotropic treatment and satisfaction from sex ($r = -0.304$), and between the number of medications and satisfaction from sex ($r = -0.303$). The age of women has no associations with sexual activity (r ranges-0.156 to $+ 0.140$). Also, no associations are found between the psychotropic treatment and subscales of sexual functioning for fantasies, pleasure, orgasm, and importance (r range 0.008–0.275).

Poisson binominal regression reveals weak negative association between the BMI and satisfaction from sexual experience ($r^2 = 0.2$; $\beta = 0.41$). It also finds weak negative relevance between the BMI and psychotropic treatment ($r^2 = 0.09$; $\beta = 0.304$), thus suggesting on partial intervening effect of the BMI on the impaired sexual functioning in women with SMI.

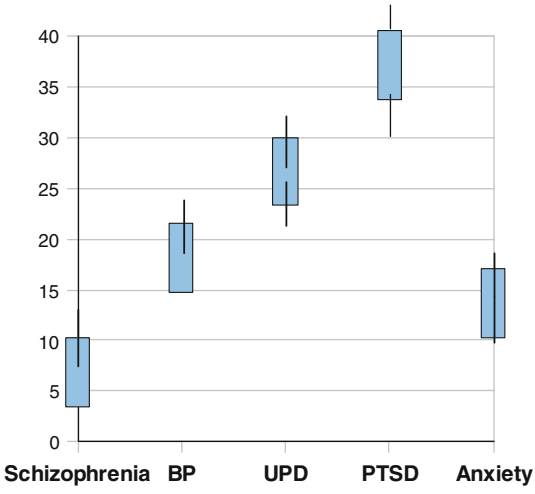

Fig. 3 Prevalence of childhood sexual abuse in diagnostic groups

Table 1 : Regression analysis of perceived sexual functioning

Factors and mediators	Fantasies ($M = 1.4$)		Pleasure ($M = .8$)		Orgasm ($M = 1.8$)		Satisfaction ($M = 1.3$)		Importance ($M = 1.4$)	
Variables:	$R2$	β	$R2$	β	$R2$	β	$R2$	β	$R2$	β
Age	ns		ns		ns		ns		ns	
Partner's age	ns		0.04	0.01	ns		0.08	0.04	ns	
BMI	ns		ns		−0.15	0.25	−0.2	0.04	ns	
Mean # of medications	0.05	0.27	0.03	0.23	0.03	0.18	0.09	0.3	−0.02	0
Duration of treatment	0.02	0.21	−0.01	0.08	−0.02	0.01	0.09	0.3	−0.02	0.04
Depression and functioning	ns		0.09	0.05	ns		ns		ns	
Interpersonal problems	ns		−0.01	0.06	ns		0.03	0.01	ns	
Psychotic symptoms	0.02	0.01	ns		ns		ns		ns	
Emotional lability	ns		ns		ns		0.08	0.02	ns	
Self-harm	ns		ns		ns		ns		ns	

Table 1 presents a regression model with log odds of numerical variables, regression coefficient and its standard error. Statistically non-significant findings are marked as [ns]:

As shown in the Table 1, the two symptoms (pleasure and satisfaction) conferred the highest means of partner's age, prescribed psychotropic medications, impaired interpersonal skills, and emotional lability.

Interviews

45.8% of the interviewees have depression, 50%—PTSD, 29.1%—Bipolar disorder, and 20.8%—Schizophrenia. Both, the clients and providers, share the perspectives that the health insurance limitations, lack of awareness in sexual health needs, stigma, and poor provider–client communications are the major barriers for sexual health in women with SMI. 59% of women are unaware whether their health plan covers sexual health, 22.7% are unaware of the impact of psychotropic medications on sexual health, and 86.3% never discuss their sexual health with mental health providers.

Discussions

This was a mixed-method study in a cross-section of forty-four outpatient women with DSM-IV Axis-I disorders. The collected data was then triangulated by eliciting opinions of mental health providers of the study participants. For multivariate models of scored outcomes (mean subscales of sexual symptoms), generalized estimating equations were used with an exchangeable correlation structure into which the Poisson regression and Pearson correlations were fitted. BASIS-24 subscales and BMI were modeled as mediators of interest expected to explain the extent of the factor-outcome relationships. Due to the cross-section design, the predictive analysis was inapplicable.

For measuring of sexual functioning in women with serious mental illnesses (SMI) the existing instruments could not be employed, as they were designed for women without mental health problems. Perceived sexual functioning was assessed with the help of a tool

adapted from the existing and validated questionnaires [14, 19]. Thus, the developed tool is technically the first instrument that measures sexual functioning in psychiatric female outpatients through comprehensive, symptomatic assessment. The reason that we chose an non-diagnostic instrument was that the majority of participants were sexually inactive regardless of their age and diagnosis. 72.7% prevalence of sex abstinence in this group is a substantial finding and could be seen as cause, symptom, and outcome of sexual dysfunction in this population.

In line with previous studies [2, 4, 6, 8, 12, 13] we found a substantial prevalence of suboptimal sexual health among women with SMI. Satisfaction and pleasure from sexual experience were the mostly affected symptoms and had high associations with the history of sexual abuse (SA) and long-term abstinence.

History of SA had highest reports in groups of women with Depression, and PTSD, thus confirming findings from other studies [13, 16, 22, 26, 28]. For example, Sarwer and Durlak [20] suggest that in 75–95% cases the childhood sexual abuse predicts sexual dysfunction; Mueser et al. [16] suggest that PTSD is predicted most strongly by childhood sexual abuse; or Mulder et al. [17] have found that the individuals with dissociative symptoms are twice more likely to report childhood sexual abuse.

Low satisfaction from sex profiled women with Schizophrenia, Depression, Anxiety, while pleasure from sexual experience and orgasm were the most affected symptoms in women with Depression. These findings indicate that the deleterious effects of sexual abuse can continue to contribute to psychiatric morbidity for many years.

Pathological symptoms, like dysparenuria, vaginal dryness, bleeding after the intercourse, were significantly higher in PTSD group (15.9%), and lower in Schizophrenia group (4.5%). This can be explained with higher tolerance of the discomfort in women with schizophrenia.

56.8% of women were overweight, and 36.8% were obese, which confirmed findings from other studies on sexual health in obese but mentally unaffected women [8]. Our results exceed the prevalence of overweight women aged 20 and over in the US general population (34–35.7%) [27, 30]. The BMI, emotional lability, and interpersonal problems had partial impact on the impaired sexual functioning in women with SMI.

STI were reported by 34% women. Based on the reported data, women with PTSD and Anxiety were infected at a higher rates (43.7 and 36.3%, respectfully) than had women with Schizophrenia (11.1%). Prevalence of Gonorrhea (4.5%), Trichomoniasis (4.5%), and Scabies (2.2%) was higher than that from the US general data [25]. The prevalence of Gardnerella (16%), Chlamydia (2.2%), Candidiasis (11.3%), HPV (6.8%), and Genital Herpes (9.1%) was less pronounced in our study than that in the US population [31]. This can be explained with relatively uneventful clinics of several infections (HPV, Herpes, Chlamydia, Gardnerella) which may decrease the rate of their detection in women with SMI.

The lack of awareness in sexual health (79.6%) and impact of psychotropic medication (22.7%), health insurance limitations (59%), and poor communication with mental health providers (86.3%) were the major themes discussed during the interviews with both, mental health clients and providers.

This assessment assumes that the lifetime exposure to psychosocial and traumatic events (sexual abuse, depression, anxiety), associated behaviors (sex abstinence, impaired communication with partner and health provider, emotional lability, stigma, lack of awareness in psychotropic medications, poor perception of sexual health), and intervening effects (overweight) increase the risk of sexual dysfunction in women with SMI.

Study Limitations

Because of the cross-section study-design it was impossible to assess temporal order between the variables of interest. For example, depression could be both, cause and sequel of sexual dysfunction. Cross-section design allowed measuring only the prevalence, and not the incidence of the events. The study utilized mostly reported (not examined) data. There was a risk for recall bias: some of the participants could not remember all the names of medications they were using. However, this bias was addressed by detailed case-analysis and data triangulations with mental health providers of the study participants.

Study Strength

The study was vigorous with its methodology of the data triangulation, multiple assesses and mediation-analysis. The symptomatic approach in measuring sexual functioning increased the accuracy and credibility of findings. The data included variables related to whether women were offered or received treatment for sexual problems. Therefore, this study in its larger format is able to gauge rates of treated versus untreated sexual dysfunction.

Conclusions

Findings of this study suggest that the history of sexual abuse (59%), long-term sex abstinence (72.7%), client-provider poor communications (86.3%), and lack of awareness in sexual health (79.6%) are related to suboptimal sexual health in women with serious mental illnesses (SMI). Satisfaction and pleasure from sexual experience are predominantly affected symptoms in this population, and confer higher scores of psychotropic medications (4.8 ± 6.3), and length of psychotropic treatment (10.8 ± 9.1). The defined barriers inform that the needs of women with SMI in terms of sexual expression and intimacy are in practice ignored, or poorly seen as problems. Taking a sexual history should be an integral part of psychiatric assessment.

Implications for Research

Attesting to the complex and diverse nature of the nexus between sexual health and mental illness are wide variations in such relevant factors as these: onset of mental illness, premorbid personality patterns of the patient, traumatic events and their frequency, the impact of psychotropic medications on hypothalamic-gonadal axis (non-transient hyperprolactinemia caused by direct stimulation, or disinhibition through dopamine depletion), the types of precipitants which presumably actuate the disease, level of education, financial constraints, communication problems, and others. Several findings of this study, such as twice higher prevalence of thyroid dysfunction in this group (11.36%) than that in the US general population [7, 9, 18]; more prevalent overweight (56.8%) and obesity (36.8%) than that in the US general population [27, 30]. or higher rates of several STI than that from the US general data [25] hold promise for facilitating further research. There is, however, enough evidence now on the specifics of perceived sexual functioning in women with SMI into the psychiatric assessments.

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