

Sexual dysfunctions in people with first-episode psychosis assessed according to a gender perspective

Le disfunzioni sessuali in pazienti con primo esordio psicotico valutati secondo una prospettiva di genere

GIACOMO CIOCCA^{1,2}, JUDITH USALL², MONTSE DOLZ³, ERIKA LIMONCIN¹, GIOVANNI L. GRAVINA¹, ELEONORA CAROSA¹, BERNARDO SÁNCHEZ³, ANA BARAJAS^{2,3,4}, IRIS BAÑOS², ELENA HUERTA², AIDA FARRENY², CAMILLA FRANCHI⁵, GENIPE GROUP*, SUSANA OCHOA²

E-mail: giacomo.ciocca@univaq.it

¹Department of Biotechnological and Applied Clinical Sciences, University of L'Aquila, L'Aquila, Italy

²Parc Sanitari Sant Joan de Déu, Sant Boi de Llobregat, CIBERSAM, Barcelona, Spain

³Sant Joan de Déu Hospital, Esplugues de Llobregat, CIBERSAM, Barcelona, Spain

⁴Centre d'Higiene Mental Les Corts, Barcelona, Spain

⁵Department of Mental Health, ASL 01 L'Aquila, Italy

*Araya S, Arranz B, Arteaga M, Asensio R, Autonell J, Baños I, Bañuelos M, Barajas A, Barceló M, Blanc M, Borrás M, Busquets E, Carlson J, Carral V, Castro M, Corbacho C, Coromina M,

Dachs I, De Miquel L, Dolz M, Domenech MD, Elias M, Espezel I, Falo E, Fargas A, Foix A, Fusté M, Godrid M, Gómez D, González O, Granell L, Gumà L, Haro JM, Herrera S, Huerta E, Lacasa F, Mas N, Martí L, Martínez R, Matalí J, Miñambres A, Muñoz D, Muñoz V, Nogueroles R, Núñez M, Ochoa S, Ortiz J, Pardo M, Planella M, Pelaez T, Peruzzi S, Portos J, Rivero S, Rodriguez MJ, Rubio E, Sammut S, Sánchez M, Sánchez B, Serrano E, Solís C, Stephanotto C, Tabuenca P, Teba S, Torres A, Urbano D, Usall J, Vilaplana M, Villalta V

SUMMARY. Aim. Patients with chronic mental disorders often can suffer from sexual dysfunction. Nevertheless, the sexual functioning of new patients with first-episode psychosis has been little explored. The aim of this study was to investigate gender differences in sexual functioning in people with first-episode psychosis. **Methods.** A group of 40 males and 37 females with first-episode psychosis took part in the research. We administered a psychiatric protocol composed of the PANSS, UKU and SCID-DSM-IV diagnosis. **Results.** We found that the 42.5% of the male group had sexual dysfunctions while the percentage of the female group was 37.8%. The correlation between sexual dysfunctions and psychopathology did not reveal any association in males. However, in females, general psychopathology and positive symptoms are linked to the alteration of vaginal lubrication: ($r=0.547$; $p=0.003$) and ($r=0.485$; $p=0.011$), although orgasm alteration was also associated with general psychopathology ($r=0.500$; $p=0.013$). Moreover, we found a relation between the alteration of vaginal lubrication with depression ($r=0.627$; $p<0.0001$) and disorder of volition ($r=0.600$; $p<0.001$). **Discussion and conclusions.** These data suggest that the association between sexual dysfunctions and psychopathology regarded only women. Therefore, during the taking charge of patients it is fundamental to consider the gender-specific relationship between psychopathology and sexual problems.

KEY WORDS: sexual dysfunction, gender differences, first-episode psychosis, assessment, treatment.

RIASSUNTO. Scopo. I pazienti con un disturbo mentale cronico spesso possono soffrire di disfunzioni sessuali. La funzione sessuale dei nuovi pazienti con primo esordio psicotico è stata poco studiata. L'obiettivo di questo studio è quello di indagare le differenze di genere nella funzione sessuale in persone con primo episodio psicotico. **Metodi.** Hanno partecipato alla ricerca un gruppo di 40 uomini e 37 donne con primo episodio psicotico, a cui è stato somministrato un protocollo psichiatrico composto dalla PANSS, dall'UKU, e dalla SCID-DSM-IV per effettuare la diagnosi. **Risultati.** Nel gruppo maschile, il 42,5% dei pazienti aveva disfunzioni sessuali, mentre la percentuale nelle gruppo femminile è stata del 37,8%. Non c'è stata nessuna correlazione tra disfunzioni sessuali e psicopatologia negli uomini. Invece, nelle donne la psicopatologia generale e i sintomi positivi sono risultati associati all'alterazione della lubrificazione vaginale ($r=0,547$; $p=0,003$) and ($r=0,485$; $p=0,011$), sebbene anche l'alterazione nella risposta orgasmica è risultata correlare con la psicopatologia generale ($r=0,500$; $p=0,013$). Inoltre, è stata trovata un'associazione tra l'alterazione della lubrificazione vaginale con la depressione ($r=0,627$; $p<0,0001$) e il disturbo della volontà ($r=0,600$; $p<0,001$). **Discussione e conclusioni.** Questi dati suggeriscono che l'associazione tra disfunzioni sessuali e psicopatologia ha riguardato esclusivamente le donne. Pertanto, durante la presa in carico dei pazienti è fondamentale considerare l'associazione genere-specifica tra psicopatologia e problemi sessuali.

PAROLE CHIAVE: disfunzione sessuale, differenze di genere, primo episodio psicotico, valutazione, trattamento.

INTRODUCTION

Patients with mental disorders often can suffer from sexual dysfunction¹ and in most cases, pharmacological treatment causes sexual-dysfunction side-effects².

Generally, in psychotic patients sexuality is seriously affected by psychopathological disorders and by its related long-term pharmacological treatment³. Moreover, psychosis has a negative effect on personal and sexual relationships and the prevalence of sexual dysfunctions in psychotic patients is higher than in the non-psychotic population⁴. Some interesting studies have stated that therapists do not assess sexual problems in psychotic people with negative repercussions on partners and on the couple⁵. Nevertheless, for a psychiatric patient, the loss of sexual function occurs in addition to severe psychopathological symptoms and the quality of life dramatically worsens⁶. On the other hand, at the stage where pathology is not influenced by many years of cognitive deterioration and antipsychotic drug treatment and patients are at the beginning of symptoms exacerbation, we speak about first episode psychosis⁷.

First-episode psychosis is preceded by a latency period characterized by a subclinical situation, where mental functioning is still largely unaffected and the social functioning is not still irremediably compromised⁸. These patients are often young and during the psychiatric assessment it is fundamental to investigate many aspects, including sexual behaviour⁹ and the related impact on daily life.

Van Bruggen explained that people with first-episode psychosis present a higher prevalence of sexual dysfunctions and are less satisfied with their sexuality, pointing out on the antipsychotic medications that have not necessarily a direct impact on sexuality¹⁰. Recently, also the survey by Malik investigated these aspects in the first year of psychopharmacological treatment, with a particular focus on hormonal alterations and related sexual dysfunctions, although the main side effects caused by an increase of prolactin have regarded endocrinological dysregulations as amenorrhea, galactorrhea and gynecomastia¹¹.

Despite the controversial role of drug side-effects, it is known that the most frequent sexual dysfunctions in youth adult people with first episode psychosis are ejaculatory disorders and erectile dysfunction in men, hypolubrication and anorgasmia in women, a decrease of sexual desire or libido in both the sex^{1,6,12}.

Nevertheless, there is still little information regarding the relation between symptoms and sexual dysfunctions in people with first-episode psychosis, above all on the basis of a gender perspective.

In this regard, many studies have investigated the existence of gender differences in first-episode psychosis from a psychopathological point of view, where various neuroendocrinological and behavioural factors are involved¹³. Literature suggests that men show more negative and obsessive-compulsive symptoms, they are more incline to substance abuse, as cannabis, and develop psychotic symptoms earlier than women¹⁴.

Instead, women have higher social support during the phase that precedes the crisis with an important protective role for the social functioning¹⁵, although they also show more depressive, anxious and affective symptoms¹⁶. Conversely, any researchers have found no gender differences

with respect to the symptoms of schizophrenic people¹⁷ and others have found that men showed higher levels of negative symptoms only if they were younger than 18 years old¹⁸.

On the whole first-episode psychosis is less incident in women than in men but, in the case of women, it seems that the prognosis is better¹³.

Hence, the gender issue concerning people with first-episode psychosis is more complicate in the cases where is also compromised the sexual function of young persons with a mental disorder. The above cited differences regarding the mental health and the gender could have a sex-specific influence also on sexual health in subjects at the beginning of a mental disease.

Therefore, the aim of the study is to investigate gender differences in sexual functioning in a group of patients with first-episode psychosis; and to assess the relationship between sexual functioning and psychotic symptoms by gender.

MATERIALS AND METHODS

Sample recruitment

Parc Sanitari Sant Joan de Déu and Pediatric Hospital San Joan de Déu recruited 90 consecutive first-episode psychosis patients who were administered a psychiatric assessment protocol that provided socio-demographic and clinical characteristics. Two expert clinical psychologists assessed and diagnosed all patients according to DSM-IV-TR (Diagnostic and Statistical Manual of Mental Disorders, 4th Edition)¹⁹ criteria and through the SCID (Structured Clinical Interview for DSM-IV)²⁰.

Of the 90 patients who were recruited, 13 were excluded due to errors or omissions in completing the psycho-diagnostic tools.

Most of the sample was composed of young men averagely aged 20.85 and young women averagely aged 20.32. All patients had been taking second-generation antipsychotics less than three months.

Patients were required to provide their written informed consent and the Parc Sanitari Sant Joan de Déu Ethic Committee approved this study.

Patient group inclusion criteria

We included young men and women with first-episode psychosis not associated with other organic or psychopathological conditions.

Patients with an onset of symptoms for no more than one year and with two or more psychiatric symptoms on the DSM-IV-TR (point A) schizophrenia diagnosis were included.

Patient group exclusion criteria

We excluded men and women suffering from other organic conditions such as metabolic, cardiovascular and endocrine disorders or neurological injury; women of non-reproductive age or menopausal women were also excluded.

Main outcome measures

Psychometric assessment

All patients were assessed through the use of the psychiatric protocol composed of PANSS^{21,22} and UKU scales^{23,24}.

Sexual dysfunctions and first-episode psychosis

PANSS is the Positive and Negative Syndrome Scale, made up of 30 items and four domains: positive symptoms, negative symptoms, general psychopathology and total score. Responses are rated on a 7-point Likert-type severity scale ranging from 0 (absence of symptoms) to 7 (maximum severity of symptoms).

UKU is the Side Effect Rating Scale and is much used in psychiatric assessment to evaluate drug effects; it is also an instrument for assessing the current psychobiological condition of patients. This test also assesses sexual function through specific items with possible responses that range from 0 [Sexual Dysfunction (SD) absent] to 3 (maximum severity of SD).

We took into account the following UKU sexological items: 4.11 Increase in sexual desire (increased desire to engage in sexual activity); 4.12 Decrease in sexual desire (decreased desire to engage in sexual activity); 4.13 Erectile dysfunction (difficulty in obtaining or maintaining erection); 4.14 Ejaculatory alteration (premature or delayed); 4.15 Orgasm alteration (difficulty in obtaining or experiencing orgasm satisfaction); 4.16 Alteration of vaginal lubrication (vaginal dryness with sexual stimuli).

Information about the antipsychotic drugs and doses were collected and calculated according to risperidone equivalence doses²⁵.

Statistical analysis

All the data were divided between men and women and each alpha error lower 5% indicated statistical significance.

Continuous variables were represented statistically as means and standard deviations and we used Student's t-test for the comparison.

Dichotomous variables, instead, were represented statistically as absolute and percentage frequencies. The difference between dichotomous variables was tested using the Chi-square test or Fisher's exact test when appropriate.

We used non-parametric statistics with Spearman's correlation coefficient with bivariate analysis for the relation between sexual functioning and psychotic symptoms. Bonferroni correction was done in order to provide a protection against Type I error. Univariate logistic regression was used to test the impact of drug doses and the age on sexual dysfunctions. All tests were performed using SPSS 17.

RESULTS

The socio-demographic and clinical characteristics, listed in Table 1, show that there were no significant differences between men and women.

The percentage of different forms of sexual dysfunction is equal to 17.5% in the case of male erectile and ejaculatory dysfunction; the percentage of decreased libido in men is 25% and 27% in women, whereas the percentage of increased libido is 20% in men and 13.5% in women. Orgasmic alteration affects 15% of the male group and 16.2% of the female group, while alteration of vaginal lubrication is present in 16.2% of women (Figure 1).

Table 2 shows that there is a strong and significant correlation between male erectile dysfunction and ejaculatory alteration and between erectile dysfunction and orgasmic alteration; moreover there is also a strong correlation between ejaculatory alteration and orgasmic alteration.

On the other hand, there is a significant and strong correlation between female alteration of vaginal lubrication with

Table 1. Demographic and clinical characteristics

	Men n=40	Women n=37
Age - mean (sd)	20.85 (6.9)	20.32 (7)
Primary education - n (%)	21/40 (52.5)	23/37 (62.16)
Secudary education - n (%)	13/40 (32.5)	7/37 (18.91)
University degree - n (%)	6/40 (15)	7/37 (18.91)
Have a relationship - n (%)	29/40 (72.5)	30/37 (81.08)
Sexual dysfunction - n (%)	17/40 (42.5)	14/37 (37.84)
Risperidone equivalences doses (mg/day) - mean (sd)	6.39 (5.18)	5.79 (3.82)

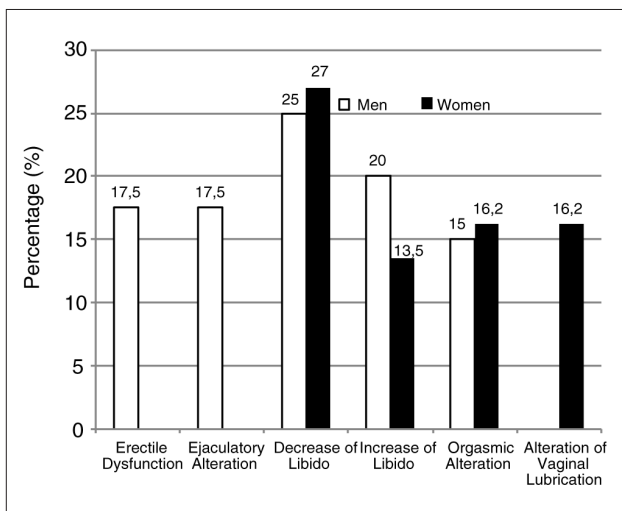


Figure 1. There are no significant differences in the frequency of sexual dysfunction between men and women in the decrease of libido, increase of libido and orgasm alteration (p=0.8; $\chi^2=0.026$), (p=0.3; $\chi^2=0.8$), (p=1; $\chi^2=0$) respectively.

decreased libido and orgasmic alteration. Additionally, there is a strong correlation between decreased libido and orgasmic alteration.

The correlation analysis between sexual dysfunction and psychopathological symptoms (Table 3) shows a significant female correspondence between psychopathology and sexuality, with a clear difference regarding gender.

In fact, in men there is not a significant association between psychopathological domains or symptoms of the PANSS and sexual dysfunction assessed by UKU.

On the contrary, in women the alteration of vaginal lubrication is positively linked to: positive symptoms, general psychopathology symptoms, but also with items of the depressive spectrum of the PANSS general domain such as depression (PG.6) and disorder of volition (PG.13).

Moreover, in the female group, orgasmic alteration is also positively linked to general psychopathology (Table 3). Fi-

Table 2. Correlation among disorders of sexual function (UKU)

	Men r; (p)					Women r; (p)			
	Erectile dysfunction	Ejaculatory alteration	Decrease of libido	Increase of libido	Orgasmic alteration	Alteration of vaginal lubrication	Decrease of libido	Increase of libido	Orgasmic alteration
Erectile dysfunction	1	<u>.670; (.0001)</u>	NS	NS	<u>.735; (.0001)</u>	NA	NA	NA	NA
Ejaculatory alteration	<u>.670; (.0001)</u>	1	NS	NS	<u>.929; (.0001)</u>	NA	NA	NA	NA
Decrease of libido	NS	NS	1	NS	NS	<u>.596; (.001)</u>	1	NS	<u>.648; (.0001)</u>
Increase of libido	NS	NS	NS	1	NS	NS	NS	1	NS
Orgasmic Alteration	<u>.735; (.0001)</u>	<u>.929; (.0001)</u>	NS	NS	1	<u>.733; (.0001)</u>	<u>.648 (.0001)</u>	NS	1
Alteration of vaginal lubrication	NA	NA	NS	NS	NS	1	<u>.596; (.001)</u>	NS	<u>.733; (.0001)</u>
Erectile dysfunction	1	<u>.670; (.0001)</u>	NS	NS	<u>.735; (.0001)</u>	NA	NA	NA	NA

Table 3. Correlation between sexual dysfunctions (UKU) and psychopathological symptoms (PANSS)

PANSS	UKU	Men r; (p)					Women r; (p)			
		Erectile dysfunction	Ejaculatory alteration	Decrease of libido	Increase of libido	Orgasmic alteration	Alteration of vaginal lubrication	Decrease of libido	Increase of libido	Orgasmic alteration
Positive		NS	NS	NS	NS	NS	<u>.485; (.011)</u>	NS	NS	NS
Negative		NS	NS	NS	NS	NS	NS	NS	NS	NS
General		NS	NS	NS	NS	NS	<u>.547; (.003)</u>	NS	NS	<u>.500; (.013)</u>
Depression (PG.6)		NS	NS	NS	NS	NS	<u>.627; (.0001)</u>	NS	NS	NS
Disorder of volition (PG.13)		NS	NS	NS	NS	NS	<u>.600; (.001)</u>	NS	NS	NS
Total		NS	NS	NS	NS	NS	NS	NS	NS	NS

NS: not significant; NA: not applicable; PG: PANSS General; Bonferroni Correction: p=0.016 for PANSS domains and p=0.002 for PANSS items.

nally univariate logistic regression shows that antipsychotic drugs do not significantly influence sexual function and age does not even predict sexual dysfunction. Only in the ejaculatory alteration age has a significant impact (Table 4).

DISCUSSION

These results show that almost half (40.25%) of all our patients experiencing a first-episode psychosis suffer from some form of sexual dysfunction and that there are no dif-

ferences in gender prevalence. As in other studies, we also found out that antipsychotic drugs do not influence sexual function in the initial phase of pharmacological treatment¹¹ and this evidence highlights once again the importance of an adequate assessment of sexual function in the newly diagnosed patients with psychosis episode⁵.

In this regard, erectile and ejaculatory dysfunction are the most common sexual dysfunctions in male patients and these sexual disorders occur in patients at the same time with an high comorbidity²⁶. Additionally, both the above-mentioned sexual dysfunctions had a strong positive correlation with or-

Sexual dysfunctions and first-episode psychosis

Table 4. Univariate Logistic Regression regarding the impact antipsychotic dosis and age on sexual functioning

	Men OR; CI-95%; (p)					Women OR; CI-95%; (p)			
	Erectile dysfunction	Ejaculatory alteration	Decrease of libido	Increase of libido	Orgasmic alteration	Alteration of vaginal lubrication	Decrease of libido	Increase of libido	Orgasmic alteration
Antipsychotic dosis*	.857; .636-1.155; (.311)	.860; .653-1.133; (.284)	.890; .714-1.110; (.1303)	1.089 .887-1.338; (.416)	.877; .683-1.126; (.302)	1.087; .812-1.454; (.577)	1.075; .833-1.387; (.579)	1.020; .769-1.354; (.888)	1.139; .814-1.592; (.447)
Age	1.1449; .982-1.333; (.085)	1.158; 1.015-1.321; (.03)	1.087; .973-1.213; (.139)	.746; .488-1.140; (.176)	1.152; .995-1.333; (.058)	.866; .635-1.181; (.384)	.918; .722-1.166; (.483)	.916; .641-1.308; (.629)	1.057; .685-1.632; (.802)

* mg/d equivalences of risperidone; OR=Odds Ratio.

gasmic dysfunction, so demonstrating the linearity of phases of sexual behaviour according to the DEPOR model of sexual response^{27,28}. In these cases, literature suggests an integrate treatment focused on psychological and pharmacological treatment for the care of sexual function²⁹, to avoid the mutual reinforcement of these male sexual symptoms together to the possible female partner distress^{30,31}.

On the other hand, in the female group, sexual arousal response is often associated with desire; in fact the alteration of lubrication had a strong positive correlation with decreased libido. This aspect confirms that in women the phase of desire plays a central role in the sexual behaviour³². When female patients have an alteration of vaginal lubrication or orgasmic response, they also have a lack of desire confirming the Kaplan's sexuality model that puts desire at the apex of sexual response^{27,28}. In the male group no direct association exists between sexual arousal disorder or orgasmic alteration and lack of desire, highlighting the first important gender differences that we found in our patients.

When we associated sexual functioning with psychopathology, we did not find any significant link between psychopathology and sexual dysfunctions in the male group, while this relation was very present in women. Regarding this essential evidence, we could affirm that the correlation between sexual dysfunctions and psychopathological symptoms is gender-specific. In particular, female alteration of vaginal lubrication is associated with the depressive spectrum (depression and disorder of volition), general psychopathology and positive symptoms. Also orgasmic alteration is linked to general psychopathology confirming the fundamental role of mental health for in the female sexual pleasure³³.

Therefore, our results according to a gender perspective suggest that in women sexuality is more linked to the psychopathological condition compared to men, and the strong connection between psychopathology and female sexuality is also present at the beginning of a mental disorder.

These aspects highlight that in the female population sexual behaviour mostly depends on psychological and relational health, while in men it depends on direct sexual stimuli³⁴. From this point of view, sexual functioning represents an important index of psychological health more in women than in men. On the whole, after our assessment we can state that the association between sexual dysfunction and psychopathology assessed in men is absent, while in females this

association is extended to two important phases of the sexual response cycle: sexual arousal and orgasmic pleasure³⁵.

In this regard, we can hypothesize that in female youth patients with FEP the psychotic symptoms and anhedonia significantly influence the cycle of sexual response and directly generate sexual dysfunctions. Moreover, we know that female sexuality is very linked to hormonal states, as puberty, pregnancy, menstrual cycle and menopausal age that expose sexual function to various vulnerability factors³⁶⁻³⁸.

Hence, the strong association between PANSS general domain with alteration of vaginal lubrication and orgasmic alteration in women represents an important clinical aspect to take into consideration during the psychological, pharmacological and psycho-educational treatment of female patients with FEP.

Limitations

The relatively low number of patients represents the main limit of this investigation³⁹. Another limit is the lack of information about the levels of hormones, such as sex hormones and the prolactin and their impact on sexual functioning⁴⁰. Finally, the lacking of the clinical history and also of the history of life with possible experiences of trauma or sexual abuse in the assessed patients is a limit of this study.

CONCLUSIONS

To conclude, we can state that sexual symptoms are very common in the above-described patients, therefore the sexual assessment is fundamental to establishing the mutual influence between sexuality and psychopathology. In first-episode psychosis patients there is a gender-specific correlation between sexual dysfunctions and psychopathological symptoms that seems to be stronger in the women. The understanding of this aspect is necessary to determine both psychiatric and sexological treatment.

Acknowledgements

This work was supported by the "Fondo de Investigaciones Sanitarias de España (FIS PI05/1115)"; "Instituto de Salud Carlos III de

España, Centro de Investigación en Red de Salud Mental (CIBERSAM)” and “Caja Navarra”.

REFERENCES

1. Montejo AL, Majadas S, Rico-Villademoros F, et al. Frequency of sexual dysfunction in patients with a psychotic disorder receiving antipsychotics. *J Sex Med* 2010; 7: 3404-13.
2. Serretti A, Chiesa A. Sexual side effects of pharmacological treatment of psychiatric diseases. *Clinical Pharmacol Ther* 2011; 89: 142-7.
3. Nunes LV, Moreira HC, Razzouk D, Nunes SO, Mari Jde J. Strategies for the treatment of antipsychotic-induced sexual dysfunction and/or hyperprolactinemia among patients of the schizophrenia spectrum: a review. *J Sex Marital Ther* 2012; 38: 281-301.
4. Bourdeau G, Masse M, Lecomte T. Social functioning in early psychosis: are all the domains predicted by the same variables? *Early Interv Psychiatry* 2012; 6: 317-21.
5. Östman M, Björkman AC. Schizophrenia and relationships: the effect of mental illness on sexuality. *Clin Schizophr Relat Psychoses* 2013; 7: 20-4.
6. Fan X, Henderson DC, Chiang E, et al. Sexual functioning, psychopathology and quality of life in patients with schizophrenia. *Schizophr Res* 2007; 94: 119-27.
7. Boydell KM, Stasiulis E, Volpe T, Gladstone B. A descriptive review of qualitative studies in first episode psychosis. *Early Interv Psychiatry* 2010; 4: 7-24.
8. Schultze-Lutter F, Ruhrmann S, Fusar-Poli P, Bechdolf A, Schimmelmann BG, Klosterkötter J. Basic symptoms and the prediction of first-episode psychosis. *Curr Pharm Des* 2012; 18: 351-7.
9. Brown A, Lubman DI, Paxton S. Sexual risk behaviour in young people with first episode psychosis. *Early Interv Psychiatry* 2010; 4: 234-42.
10. van Bruggen M, van Amelsvoort T, Wouters L, Dingemans P, de Haan L, Linszen D. Sexual dysfunction and hormonal changes in first episode psychosis patients on olanzapine or risperidone. *Psychoneuroendocrinology* 2009; 34: 989-95.
11. Malik P, Kemmler G, Hummer M, Riecher-Roessler A, Kahn RS, Fleischhacker WW. Sexual dysfunction in first-episode schizophrenia patients: results from European First Episode Schizophrenia Trial. *Journal Clin Psychopharmacol* 2011; 31: 274-80.
12. Zhang XR, Zhang ZJ, Zhu RX, Yuan YG, Jenkins TA, Reynolds GP. Sexual dysfunction in male schizophrenia: influence of antipsychotic drugs, prolactin and polymorphisms of the dopamine D2 receptor genes. *Pharmacogenomics* 2011; 12: 1127-36.
13. Ochoa S, Usall J, Cobo J, Labad X, Kulkarni J. Gender differences in schizophrenia and first-episode psychosis: a comprehensive literature review. *Schizophr Res Treatment* 2012; 2012: 916198.
14. Køster A, Lajer M, Lindhardt A, Rosenbaum B. Gender differences in first episode psychosis. *Soc Psychiatry Psychiatr Epidemiol* 2008; 43: 940-6.
15. Willhite RK, Niendam TA, Bearden CE, Zinberg J, O'Brien MP, Cannon TD. Gender differences in symptoms, functioning and social support in patients at ultra-high risk for developing a psychotic disorder. *Schizophr Res* 2008; 104: 237-45.
16. Cotton SM, Lambert M, Schimmelmann BG, et al. Gender differences in premorbid, entry, treatment, and outcome characteristics in a treated epidemiological sample of 661 patients with first episode psychosis. *Schizophr Res* 2009; 114: 17-24.
17. Usall J HJ, Ochoa S, Márquez M, Araya S. Needs of patients with schizophrenia group influence of gender on social outcome in schizophrenia. *Acta Psychiatr Scand* 2002; 106: 337-42.
18. Barajas A, Baños I, Ochoa S, et al. Gender differences in incipient psychosis. *Eur J Psychiatry* 2010; 24: 176-94.
19. APA. Diagnostic and statistical manual of mental disorders, 5th edition. In: Association DAP (ed): Washington, 2013.
20. Spitzer RL, Williams JB, Gibbon M, First MB. The Structured Clinical Interview for DSM-III-R (SCID). I: History, rationale, and description. *Arch Gen Psychiatry* 1992; 49: 624-9.
21. Kay SR, Fiszbein A, Opler LA. The positive and negative syndrome scale (PANSS) for schizophrenia. *Schizophr Bull* 1987; 13: 261-76.
22. Kay SR, Fiszbein A, Vital-Herne M, Fuentes LS. The Positive and Negative Syndrome Scale. Spanish adaptation. *J Nerv Ment Dis* 1990; 178: 510-7.
23. Lingjaerde O, Ahlfors UG, Bech P, Dencker SJ, Elgen K. The UKU side effect rating scale. A new comprehensive rating scale for psychotropic drugs and a cross-sectional study of side effects in neuroleptic-treated patients. *Acta Psychiatr Scand Suppl* 1987; 334: 1-100.
24. Bobes J G-PM, Bascarán MT, Saiz PA, Bousoño M. Banco de instrumentos básicos para la práctica de la psiquiatría clínica. Barcelona: Plaza de edición, 2002.
25. Andreasen NC, Pressler M, Nopoulos P, Miller D, Ho BC. Antipsychotic dose equivalents and dose-years: a standardized method for comparing exposure to different drugs. *Biol Psychiatry* 2010; 67: 255-62.
26. Jannini EA, Lombardo F, Lenzi A. Correlation between ejaculation and erectile dysfunction. *Int J Androl* 2005; 28 (suppl 2): 40-5.
27. Kaplan H. The new sex therapy. New York: Brunner/Mazel, 1974.
28. Kaplan H. Disorders of desire. New York: Brunner/Mazel, 1979.
29. Ciocca G, Limoncin E, Mollaioli D, et al. Integrating psychotherapy and pharmacotherapy in the treatment of premature ejaculation. *Arab J Urol* 2013; 11: 305-12.
30. Limoncin E, Tomassetti M, Gravina GL, et al. Premature ejaculation results in female sexual distress: standardization and validation of a new diagnostic tool for sexual distress, the FSDDS-RPE. *J Urol* 2013; 189: 1830-5.
31. Burri A, Giuliano F, McMahon C, Porst H. Female partner's perception of premature ejaculation and its impact on relationship breakups, relationship quality, and sexual satisfaction. *J Sex Med* 2014; 11: 2243-55.
32. Mark KP, Murray SH. Gender differences in desire discrepancy as a predictor of sexual and relationship satisfaction in a college sample of heterosexual romantic relationships. *J Sex Marital Ther* 2012; 38: 198-215.
33. Mah K, Binik YM. Are orgasms in the mind or the body? Psychosocial versus physiological correlates of orgasmic pleasure and satisfaction. *J Sex Marital Ther* 2005; 31: 187-200.
34. Rupp HA, Wallen K. Sex differences in response to visual sexual stimuli: a review. *Arch Sex Behav* 2008; 37: 206-18.
35. Atlantis E, Sullivan T. Bidirectional association between depression and sexual dysfunction: a systematic review and meta-analysis. *J Sex Med* 2012; 9: 1497-507.
36. Serati M, Salvatore S, Siesto G, et al. Female sexual function during pregnancy and after childbirth. *J Sex Med* 2010; 7: 2782-90.
37. Ringa V, Diter K, Laborde C, Bajos N. Women's sexuality: from aging to social representations. *J Sex Med* 2013; 10: 2399-408.
38. Caruso S, Agnello C, Malandrino C, Lo Presti L, Cicero C, Cianci S. Do hormones influence women's sex? Sexual activity over the menstrual cycle. *J Sex Med* 2014; 11: 211-21.
39. Mendrek A, Stip E. Sexual dimorphism in schizophrenia: is there a need for gender-based protocols? *Expert Rev Neurother* 2011; 11: 951-9.
40. Maggi M, Buvat J, Corona G, Guay A, Torres LO. Hormonal causes of male sexual dysfunctions and their management (hyperprolactinemia, thyroid disorders, GH disorders, and DHEA). *J Sex Med* 2013; 10: 661-77.