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# Prevalence of Sexual Dysfunction among Newly Diagnosed (Schizophrenia, Depression, Obsessive Compulsive Disorder and Panic Disorder) Drug-Naive Patients Attending Psychiatric Outpatient Department

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***Abstract:***
***Background:***
*Sexual dysfunction occurs in most of the psychiatric illness. It is said that the disease per se and the psychotropic medications result in these sexual dysfunctions. But literature predominantly includes studies addressing drug induced sexual dysfunction. Studies on sexual dysfunction as a result of the illness per se are scarce. Studies performed in this area include only single diagnosis and comparative analysis between the various diagnoses is scarce. Spontaneous reporting of sexual issues is also very low. Hence identifying these sexual issues and addressing them would improve treatment outcomes and overall well-being.*
***Aim of the study:***
*To study the prevalence and to do a comparative analysis of sexual dysfunction among newly diagnosed drug naïve Schizophrenia, Non – psychotic Depression, Obsessive Compulsive Disorder and Panic disorder and to correlate with current psychopathology.*
*Methods:*
*Cross sectional study involving consecutive patients with the above mentioned diagnosis according to ICD-1O criteria and other selection criteria were included after informed consent. Specific individual scales are administrated to each diagnosis followed by ASEX Scale which is administrated to all the subjects.*
***Results:*** *Sexual dysfunction unrelated to pharmacotherapy has been observed in all the four diagnosis included in this study. Dissatisfaction with Orgasm (17%) and reduced desire to involve in sex (16%) were the two domains which were reported more frequently by the subjects. Reduced sexual desire (24%) and Arousal difficulties were reported more frequently in depression. Orgasm dysfunction (30%) and dissatisfaction with orgasm was more reported in Schizophrenia. The total ASEX Score was around 15 in all the diagnosis. Females reported more of sexual dysfunction compared with males. The severity of psychopathology did not correlate with the ASEX Score except for Depressive Illness.*
***Conclusions:***
*Addressing sexual issues during the initial presentation is important. Identifying these sexual dysfunctions during early stages results in selection of appropriate medications, including proper sexual education and addressing patient specific concerns thereby improving treatment outcome and preventing progression of sexual dysfunction from milder to more severe ones.*

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## I. Introduction

Sexuality is considered a natural component of human behavior. It is well known about the nature of sexual behaviour in normal human population[1]. Normal sexual function refers to the normal capacity of a person to experience physiological desire, arousal and orgasm[2].Normal sexual behavior provides pleasure to oneself and one's partner. It involves stimulation of primary sex organs which includes coitus. It is not compulsive. Normal sexual behavior does not involve any anxiety or inappropriate feelings of guilt. When normal males and females are stimulated sexually they experience physiological response in a sequential manner.

DSM IV TR defines a four-phase response cycle
Desire
Excitement
Orgasm

**Resolution**

Sexual dysfunction is known to occur in any of the above mentioned phases. It can occur either independently or in combination.According to ICD-10, sexual dysfunction refers to inability to "participate in a sexual relationship as he or she would wish." It is expressed as reduced desire to involve in sex or of pleasure. It also includes the physiological inability to begin, maintain or complete the sexual act.
The sexual dysfunction involves the following:

**Reduced sexual desire**

Desire for sexual activity is absent or reduced which may be persistent or recurrent which in turn leads to marked distress and and interpersonal difficulty.

1. Sexual aversion
- Avoidance of all sexual contact which is persistent or recurrent leading to marked distress and relationship difficulties.
2. Erection difficulty
- Failure to attain erection. If attained difficulty in maintaining it until the sexual act is completed.
3. Difficulty in achieving orgasm
- Delay or absence of orgasm following a normal excitement phase in sexual cycle.
4. Premature ejaculation
- Ejaculation before or shortly after penetration or with minimal sexual stimulation. This produces marked distress in the patient[43].

Sexual dysfunction is usually missed as they do not form a major part of clinical picture. They can be lifelong or acquired. It can be generalized or in particular situation. It can occur as a result of psychological factors, physiological factors or it can involve a combination of both these factors.
Sexual dysfunction can be an inhibition in one or more of the phases mentioned above. The subjective sense of pleasure or desire is affected or the objective performance or experience can be disturbed.
Seven major categories of sexual dysfunction are listed in DSM-IV-TR -

- Sexual desire disorders.
- Sexual arousal disorders.
- Orgasm disorders.
- Sexual pain disorders.
- Sexual dysfunction due to a general medical condition.
- Substance-induced sexual dysfunction.
- Sexual dysfunction not otherwise specified.

## II. Review of Literature

Studies have shown that psychiatric illness has a life time prevalence of about 3 in 100 persons. These psychiatric illnesses have a great role on sexual functioning. The effects of the mental illness on sexual functioning can occur as a result of the illness per se and also by the psychotropic drugs used in these conditions[3, 6].It is also shown that almost all mental illness such as schizophrenia, depression, anxiety and personality disorders are associated with some kind of sexual dysfunction[4, 5].Dopamine release in the mesolimbic system is said to play a major role in sexual dysfunction in these patients[45].Sexual dysfunction is very much prevalent in Schizophrenia. But it has not received much attention as an aspect of their care. There is no much information about the natural history of sexual functioning in people with diagnosis of schizophrenia. It is shown that there is difference in sexual functioning both qualitatively and quantitatively in these patients.The involvement in sexual activity is less in these patients. They limit themself to masturbation. One of the reason is they find difficulty in maintain relationships. This can occur as a result of the negative symptoms these people experience[7]. It is also said that these people are more likely to experience autoerotic behaviour[8, 9].A complex relationship exists between sexuality and Schizophrenia. Studies have shown that the age of onset of schizophrenia closely parallels with the reproductive period[10]. Studies which have measured the level of hormone estrogen in patients with Schizophrenia have shown that the level of hormone estrogen is lower in females with Schizophrenia when compared with the normal controls measured at the onset of the illness[11]. Similarly in male schizophrenia patients who are not started on any medications it has been found that the total gonadotropins and testosterone are lower when compared with the controls[12, 13]. Research has shown that in people with schizophrenia, estrogen has some protective effect[14]. And sexual dysfunction has been associated

with reduced estrogen levels. Therefore it is said that people with schizophrenia might have some underlying hormonal disturbances that may contribute to the sexual dysfunctions in them keeping aside the medication induced sexual dysfunction.Sexual concerns with schizophrenia patients are discussed with much reluctance. The reason is said that these people find it difficult to manage their sexuality compared to normal individuals. And when discussed it is feared that it would trigger inappropriate behavior in them[15].

Almost most of the literature focusing on sexual dysfunction in schizophrenia evaluated only the effect of medications on these dysfunctions[7].

In patients with depression, studies have shown that there is prevalence of sexual dysfunction about 2 to 3 times when compared to normal controls[16]. Also it is said that almost all the domains of sexual functioning are affected in people with depression[17].

In depressed patients who are not initiated on any medications it has been reported that the prevalence of sexual dysfunction is about 36% to 78%[2, 4-7].

Psychoanalysis has suggested a link between the unconscious sexual desire and the consequent development of anxiety disorders like obsessive compulsive disorder and panic disorder. This has been reported almost a century ago. But sexual functioning in these disorders has been overlooked throughout the 20th century[19].Studies have shown a high incidence of sexual dysfunction in OCD and PD up to 54 to 73% of patients. There is relative scarcity of studies in this area[19] and few data shows it has been studied independently or in specific to particular gender[20].In women with anxiety disorders, it has been shown that they exhibit reduced desire for sex and sexual avoidance. This finding is particularly reported in women with panic disorder[21]. And in the case of OCD, reduced sexual pleasure, disgust towards sex and overall impairment of sexual functioning has been noted[23].

It has also been shown that satisfaction with their sexual life was poor in OCD patients[19] and is associated with marital and sexual problems. This in turn has reduced the likelihood of their sexual and marital relationships[23]. Premature ejaculation, sexual avoidance and low desire for sex were noted in 21%, 36% and 14% of males with panic disorder[21].

Spontaneous reporting of sexual dysfunction to the clinicians has always been a concern. It is not done by most patients because of their personal nature of sexual behaviour. On comparing clinical trials which involved spontaneous reporting versus direct questioning, low rates of sexual dysfunction where noted in spontaneous reporting compared to high rates when the subjects were questioned[24].

It is also said that gender influences spontaneous reporting[24]. It has been shown that clinicians are often hesitant to question patients regarding sexual issues[25]. Few reasons which are put forward are lack of adequate instruction in sexuality and clinicians feel uncomfortable about the subject[27]. But when clinician raises the issue of sexual concerns, patients are much eager and receptive to discuss them[25, 26].

Courtney et al. showed that out of 100 patients with sexual related problems only 18 per cent reported directly to the clinician. The remaining presented with physical symptoms involving genito-urinary, gastro-intestinal systems or skin[28]. All these suggest that the communication about sexual related issues between the patient and the treating physician is very poor.

**RATIONALE FOR THE STUDY**

Studies have shown high incidence of sexual dysfunction in patients with other psychiatric diagnosis but these problems receive very less attention[31]. They are often underexplored and also ignored by the therapist on few occasions. At times it is considered. But when considered these patients receive only vague reassurances regarding these dysfunctions. This might lead to problems with compliance due to already existing sexual dysfunction which in turn is also aggravated by the usage of psychotropic medications, finally resulting in poor quality of life[29, 30].Addressing the issue of sexual dysfunction in treatment of psychiatric illness is very important to improve the quality of life and relationships[32]. More attention is needed regarding sexual dysfunction by the disease per se[33].

Studies addressing sexual dysfunction in psychosis are scarce[34]. Most of the studies have included only individual diagnosis and comparative analysis are scarce[34]. Studies addressing sexual dysfunction caused by disease per se rather by psychotropic medications are scarce and in Indian context only one study[4] has done a comparative analysis between drug naive mentally ill patients which included only depression and anxiety disorders. No study has compared sexual dysfunction between psychotic and non-psychotic conditions in drug naïve patients.

The prevalence, impairment caused by the sexual dysfunction, reporting sexual dysfunction and the barriers caused by these sexual related issues in treatment process needs to be further explored in our patient population.

We considered doing an analysis of prevalence of sexual dysfunction in drug naïve (to exclude the sexual dysfunction caused by drugs) newly diagnosed psychiatric illness and a comparison of sexual dysfunction among these diagnoses.

**PRIMARY AIM:**

- To study the prevalence of sexual dysfunction among newly diagnosed (Schizophrenia, Non - Psychotic Depression, Obsessive Compulsive Disorder and Panic disorder) drug-naive patients attending psychiatric outpatient department.
- To study the rate of total sexual dysfunction.

**SECONDARY** AIMS:

- To study the individual rates of desire, arousal and orgasm dysfunction.
- To do a comparative analysis of sexual dysfunction between the psychiatric diagnoses included in the study.
- To correlate between the current psychopathology and sexual dysfunction.

**INCLUSION CRITERIA:**

- Patients between the age-group of 18 – 50 years.
- Patients who have given informed consent.
- Patients who have received an ICD – 10 criteria diagnosis of the following

1. Schizophrenia.
2. Depression (mild / moderate / severe) without psychotic symptoms.
3. Anxiety disorders (Obsessive Compulsive Disorder, Panic Disorder).

**EXCLUSION CRITERIA:**

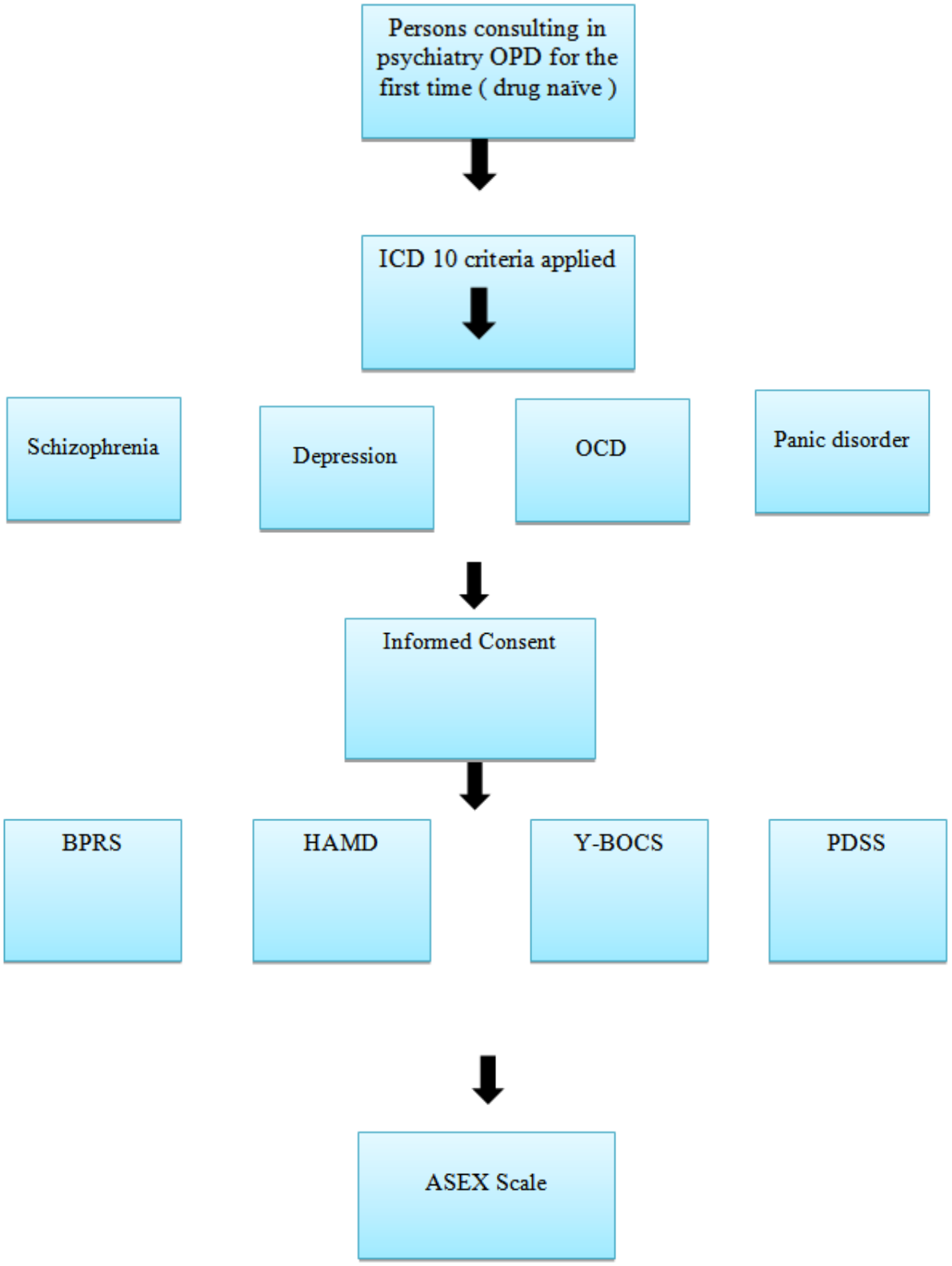
- Patients who have received a Primary Axis 1 diagnosis of sexual dysfunction.
- Patients already on psychotropic medications.
- Alcohol or substance abuse.
- Cardiovascular disorder
- Diabetes mellitus and Hypertension.
- Endocrine disorder.
- Gonadal injury.
- Current usage of medications to treat sexual dysfunction and use of hormone therapy.
- Active psychotic symptoms, catatonia or severe psychomotor retardation.
- Inability to give consent.

## III. Method

The sample was selected from the persons who attended psychiatric outpatient department for the first consultation, who are not on any psychotropic drugs and who fulfilled the selection criteria mentioned. Consecutive sampling was used. ICD-10 criteria were applied to arrive at the diagnosis mentioned. Informed Consent was obtained from all the participants.The selected cases were then assessed for the severity of the illness using the respective individual scales.

- Arizona Sexual Experience Scale was applied to measure the baseline sexual functioning in all the subjects with the four diagnoses.
- One of the following scales is administrated to each of the patients according to the diagnosis received.

✓ Brief Psychiatric Rating Scale for Schizophrenia.
✓ Hamilton Depression Rating Scale for Depression.
✓ Panic Disorder Severity Scale for Panic Disorder.
✓ Yale - Brown Obsessive Compulsive Scale Rating Scale for OCD.




**STUDY DESIGN:**
Cross - sectional study.
Consecutive sampling.

**STUDY PARTICIPANTS:**

Patients who are attending Psychiatric Outpatient Department who qualify according to the inclusion and exclusion criteria mentioned above.

**SAMPLE SIZE ESTIMATION:**

Considering the previous similar studies and the number of patients attending our out-patient department from the previous statistics, we decided to have a sample size of 30 patients in each of the groups.

**STATISTICAL ANALYSIS:**

Scoring was provided for four types of respondents. Grouping was done for the quantitative variables using quartile deviation method. Chi square was used for the analysis of distribution of three types of respondents on various socio demographic indicators. The socio demographic variables are then compared with the subject variables namely ASEX 1 to 5, Total ASEX Score and Severity of Psychopathology scores. When there are two groups, t-test was employed. When more than two groups, One way ANOVA was used and if ANOVA was significant, then Post-hoc test was used to compare the level of significance. In all the analysis 2-tailed level of significance was set at $p < 0.05$. The data was analyzed using evaluation version of SPSS version 14.0.As the individual scales used varied in the total score, the mean percentage scores were calculated for comparison purposes.

Score obtained / maximum possible score * 100. Correlation analysis between total and individual ASEX Scores, BPRS, HAM-D, Y-BOCS and PDSS was performed using Pearson's correlation.

**SCALES USED:**

The following are the criteria[24] for instruments which assess sexual functioning in psychiatric patients. It is said that it should be

- Gender specific.
- Address specific phases of sexual cycle.
- Brief one.
- Should be considered non-intrusive by the patient.
- And it should have the ability to separate illness from the medication effects.
- For assessing sexual dysfunction, we used a questionnaire which is self-completed, brief, addressing specific phases and also gender specific.

Patients were given their own time to complete the questionnaire. And also to complete the scale in privacy. We thought this might encourage them to be more honest in their responses. This also avoids interviewer bias.

But a disadvantage was that the responders find it difficult to understand points within the questionnaire. So to overcome this, the sexual questionnaire was converted to local language (Tamil) using translation-back translation procedure so that patients find it more understandable.

Either the English or Tamil version of the sexual scale was used according to subject preference. When interviewing female subjects it was offered to them if they need a female staff to be present with the primary researcher. Since the scale used was not an observer-rated one, inter-rater reliability is not relevant.Since we included both married and single people, the patients were asked to answer each question in reference to either sexual intercourse or masturbation.Patient administrated version was selected. The reason in doing so was clinicians have a tendency to underestimate the sexual dysfunction experienced by the patients.

**ARIZONA SEXUAL EXPERIENCE SCALE:**

ASEX is a self-administrated scale. This sexual assessment scale includes five questions. The third question is gender specific. 5 important aspects of sexual dysfunction are assessed in this scale. They are as follows

1. Desire
2. Arousal
3. Penile erection/Vaginal lubrication
4. Ability to reach orgasm
5. Satisfaction from orgasm.

The items are measured on a 6 point scale (1 to 6) with higher scores reflecting impaired sexual functioning. Rapid detection of sexual dysfunction is possible with this scale. The total score ranges from 5 to 30. It ranges from extremely positive (1) to none (6). Sexual dysfunction is said to be present if the total ASEX score is 19 or greater, or any one individual item with score of 5 or greater, or any 3 times with individual score of 4 or greater. This can be rapidly administrated. This scale does not require any special training in interpreting

the results of it. It has demonstrated internal consistency, test-retest reliability significant at 0.01 level and construct validity[37]. It is a reported as a reliable, valid and sensitive tool for measuring sexual dysfunction.

The severity of illness for Schizophrenia, Depression, OCD and Panic disorder was measured using BPRS, HAM-D, Y-BOCS and PDSS scales respectively.

**BRIEF PSYCHIATRIC RATING SCALE**

BPRS is one of the globally used assessment instruments in evaluating psychopathology in patients with schizophrenia[36]. It measures the severity of the patient's psychopathology. A wide range of areas are covered which includes

- Disturbances in thought.
- Emotional withdrawal.
- Psychomotor retardation.
- Anxiety.
- Depression.
- Hostility and
- Suspiciousness.

Totally there are 18 items. These items are rated on a 7 point likert scale. It ranges from 0 to 6 with a total score ranging from 0 to 108. Reliability and validity are good as measured by correlations with other measures of symptom severity, in particular those assessing schizophrenia symptomatology[36].

**HAMILTON RATING SCALE FOR DEPRESSION:**

HAM-D is used to monitor the severity of depression. There are numerous versions. The one used in this study is the 24 – item version which have been used in many studies as well. Items on the HAM-D are scored from 0 to 2 or from 0 to 4. The total score ranges from 0 to 50.

Scores of 7 or less may be considered normal;
8 to 13 - mild
14 to 18 - moderate
19 to 22 - severe
23 and > - very severe

Patient interview and observations are used to complete the ratings. The rating can be in 15 to 20 minutes. Reliability is good to excellent, particularly when the structured interview version is used. Validity appears good based on correlation with other depression symptom measures.

**PANIC DISORDER SEVERITY SCALE:**

This is a brief rating scale. This measure the severity of panic symptoms. It is reported that it is based on Yale-Brown Obsessive - Compulsive Scale. It has 7 items. Each is rated on an item - specific, 5 point likert scale. The 7 items address the following

- Frequency of attacks,
- Distress associated with attacks,
- Anticipatory anxiety,
- Phobic avoidance, and
- Impairment.

The items are scored from 0 to 4. The total score ranges from 0 to 28. Reliability is excellent based on interrater studies, but, in keeping with the small number of items and multiple dimensions, internal consistency is limited.

**YALE-BROWN OBSESSIVE - COMPULSIVE SCALE:**

This scale is used to measure the severity of OCD symptoms. It has 10 items. It is rated based on a semi structured interview. The first 5 items concern obsessions which includes the following

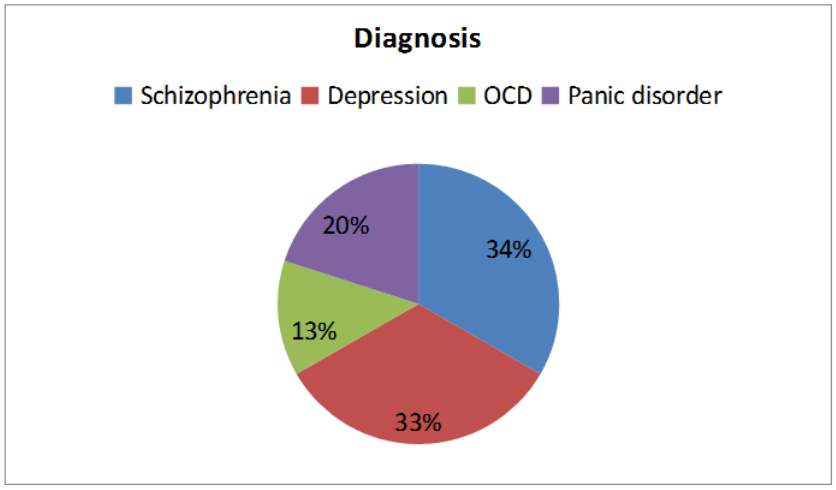
- The amount of time that they consume.
- The degree to which they interfere with normal functioning.
- The distress that they cause.
- The patient's attempts to resist them.
- The patient's ability to control them.

The remaining five items ask parallel questions but involving compulsions. Each item has a set of item-specific anchors. The scores of each item range from 0 to 4. The total scores for obsessions and compulsions each range from 0 to 20. The overall total score ranges from 0 to 40. It requires 15 minutes or less to complete

the scale. Reliability studies of the YBOCS show good internal consistency, interrater reliability, and test–retest reliability over a 1-week interval. Validity appears good, although data are fairly limited in this developing field.

## IV. Results

| S.No | Diagnosis | Frequency | Percentage |
|---|---|---|---|
| 1 | Schizophrenia | 30 | 33.3 |
| 2 | Depression | 30 | 33.3 |
| 3 | OCD | 12 | 13.3 |
| 4 | Panic disorder | 18 | 20.0 |
| | Total | 90 | 100.0 |



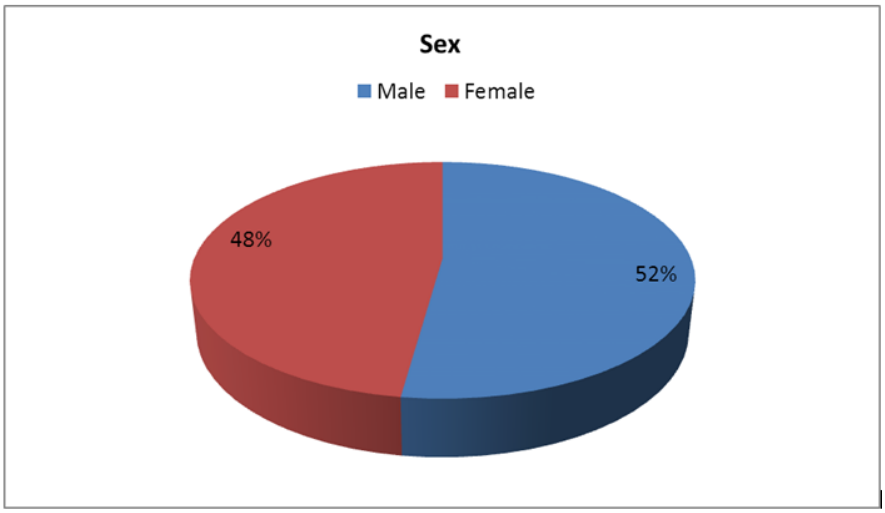

The overall sample included 90 patients. Out of the 90 patients, 30 with a diagnosis of Schizophrenia, 30 with a diagnosis of Depression which included mild, moderate and severe depressive episodes without psychotic symptoms, 12 with a diagnosis of OCD and 18 subjects with a diagnosis of Panic disorder together comprising 30 in the anxiety disorder spectrum.

During the process of recruiting the patients, 4 patients refused to give consent expressing that they were not interested to participate.

**SOCIO-DEMOGRAPHIC VARIABLES:**

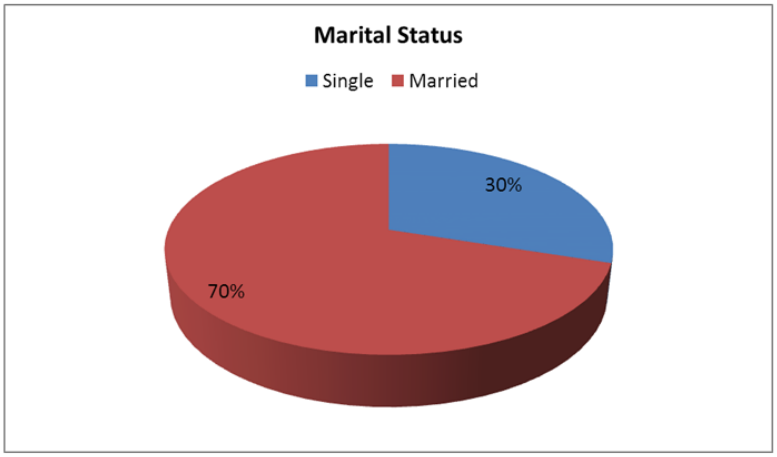
**SEX:**

| S.No | Sex | Frequency | Percentage |
|---|---|---|---|
| 1 | Male | 47 | 52.2 |
| 2 | Female | 43 | 47.8 |
| | Total | 90 | 100.0 |



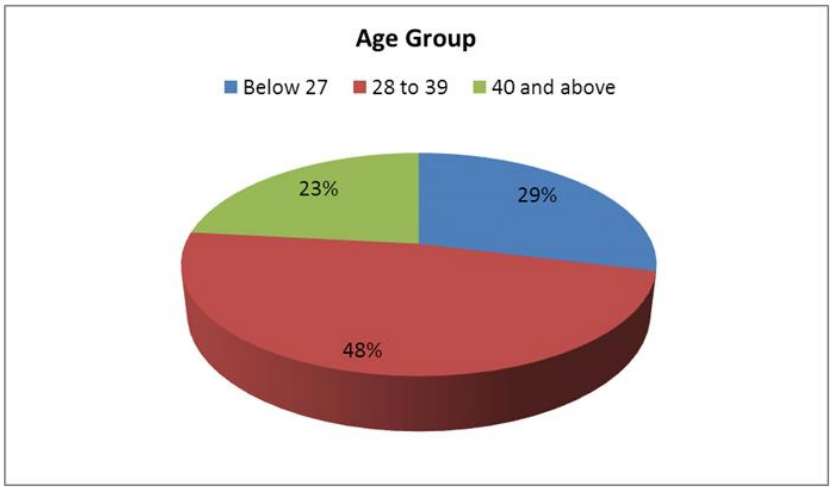
Of the total sample size of 90, 47 were males and 43 were females comprising 52.2% and 47.8% respectively.
MARITAL STATUS:
Most of them were married, about 70%

| S.No | Marital Status | Frequency | Percentage |
|---|---|---|---|
| 1 | Single | 27 | 30.0 |
| 2 | Married | 63 | 70.0 |
| | Total | 90 | 100.0 |




AGE GROUP:
After grouping by quartile deviation method, almost 43 patients fell in the age group of 28 to 39, comprising about 48% and the remaining 29% below 27 years of age and 23.3% were 40 and above.

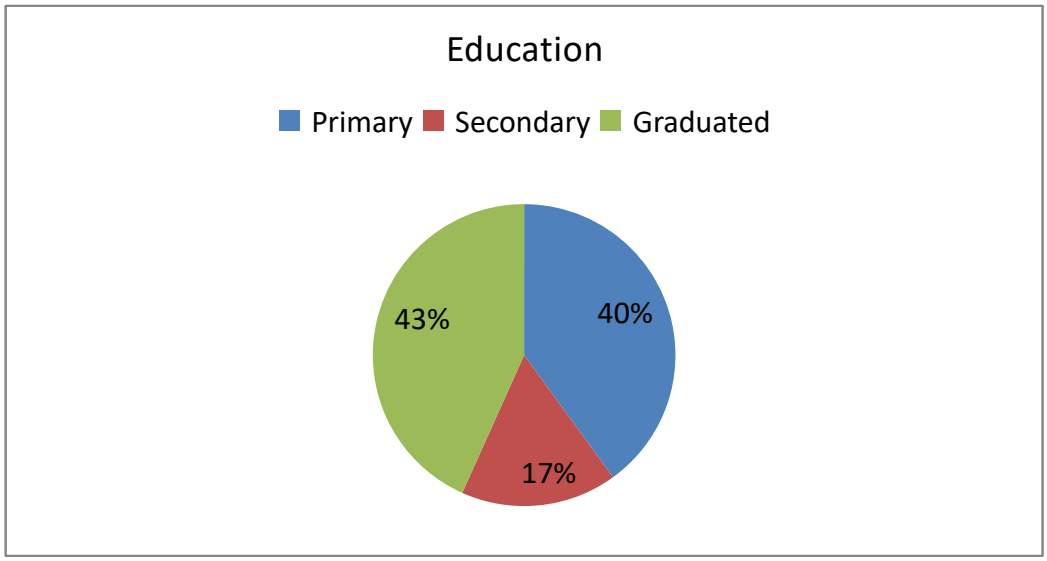
| S.No | Age | Frequency | Percentage |
|---|---|---|---|
| 1 | Below 27 | 26 | 28.9 |
| 2 | 28 to 39 | 43 | 47.8 |
| 3 | 40 and above | 21 | 23.3 |
| | Total | 90 | 100.0 |




**EDUCATION LEVEL:**

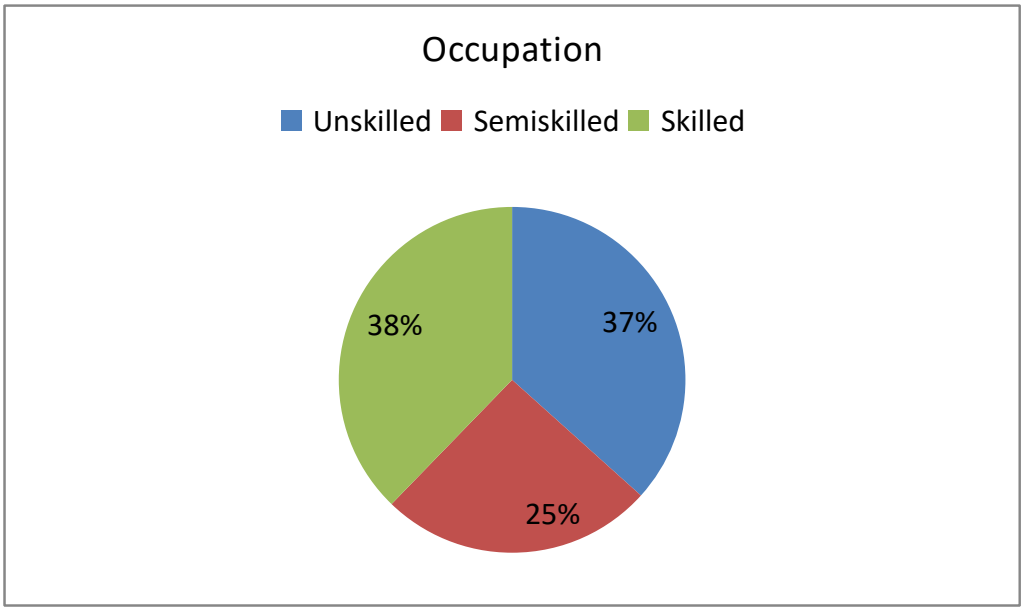
When education level of the patients was analyzed, almost 44% were graduated, 40% finished only their primary schooling and 17% had done their secondary schooling.

| S.No | Education | Frequency | Percentage |
|---|---|---|---|
| 1 | Primary | 36 | 40.0 |
| 2 | Secondary | 15 | 16.7 |
| 3 | Graduated | 39 | 43.3 |
| | Total | 90 | 100.0 |

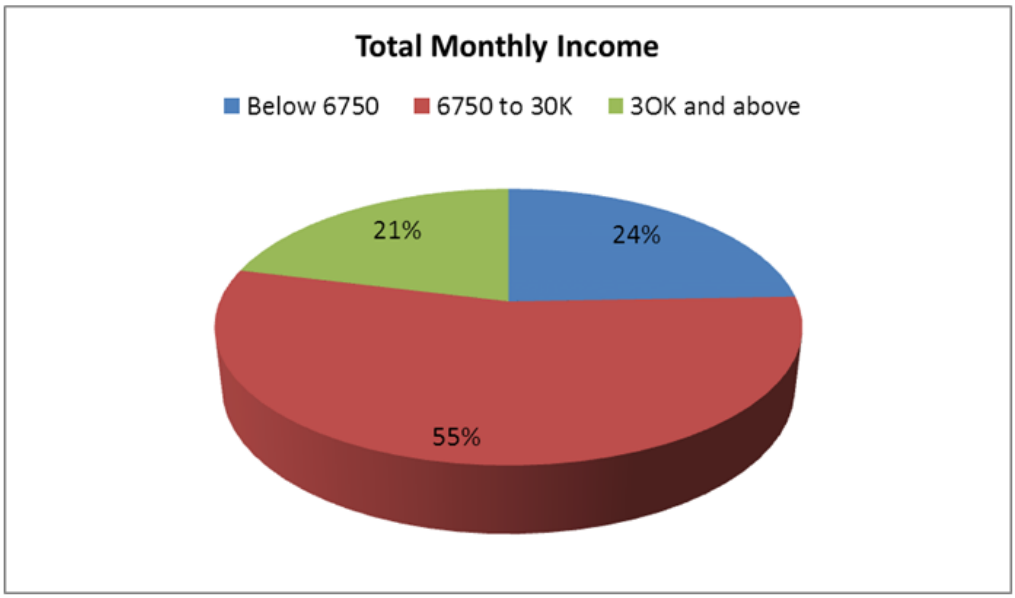



OCCUPATION:
37% were unskilled, 25% were semiskilled and almost 38% belonged to the skilled category.

| S.No | Occupation | Frequency | Percentage |
|---|---|---|---|
| 1 | Unskilled | 33 | 36.7 |
| 2 | Semiskilled | 23 | 25.6 |
| 3 | Skilled | 34 | 37.8 |
| | Total | 90 | 100.0 |



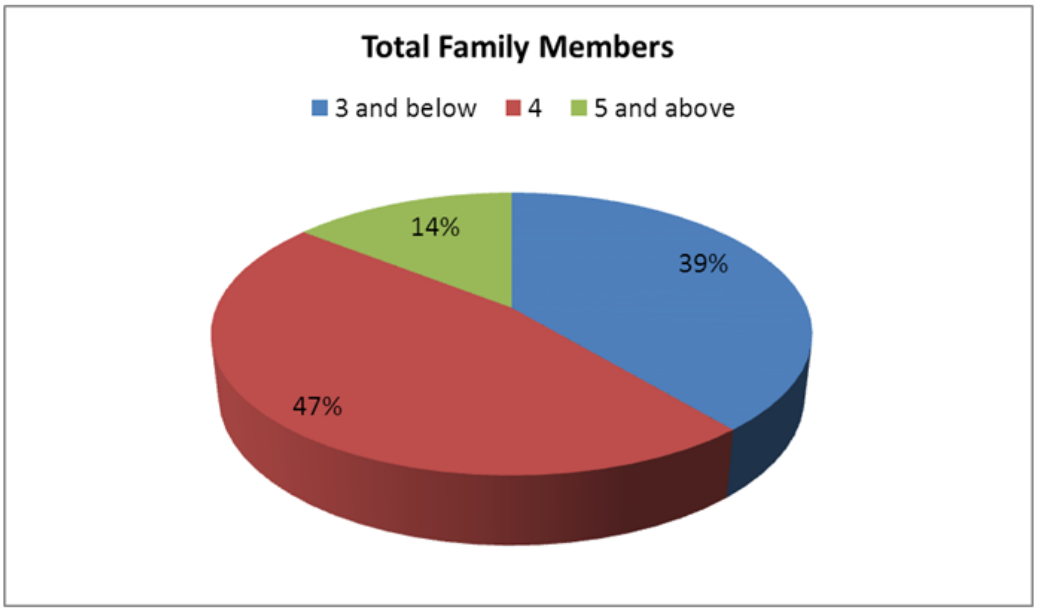

| S.No | Total Monthly Income | Frequency | Percentage |
|---|---|---|---|
| 1 | Below 6750 | 22 | 24.4 |
| 2 | 6750 to 30000 | 49 | 54.4 |
| 3 | 30000 and above | 19 | 21.1 |
| | Total | 90 | 100.0 |




**TOTAL FAMILY MEMBERS:**

Almost 50% of the sample had 4 family members, 39% had 3 or less number of family numbers and 15% had a family size of 5 members or more.

| S.No | Total Family Members | Frequency | Percentage |
|---|---|---|---|
| 1 | 3 and below | 35 | 38.9 |
| 2 | 4 | 42 | 46.7 |
| 3 | 5 and above | 13 | 14.4 |
| | Total | 90 | 100.0 |

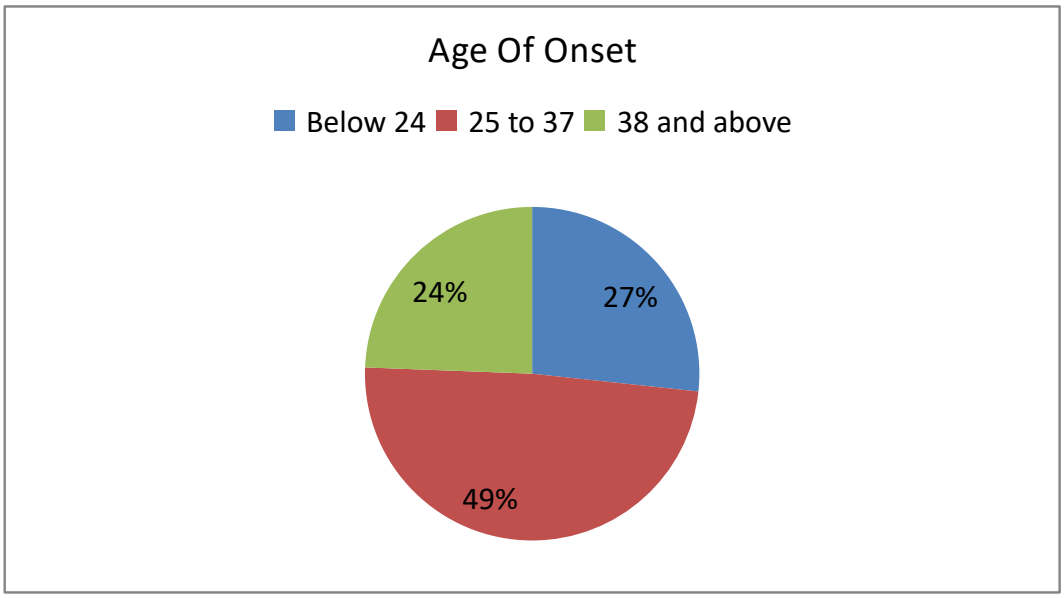



**FACTORS ASSOCIATED WITH THE ILLNESS:**

**AGE OF ONSET OF ILLNESS:**

Most of the individuals, almost 50% had an age of onset of illness around 25 to 37 years, 27% were below 24 years of age and 25% were 38 and above when the illness started.

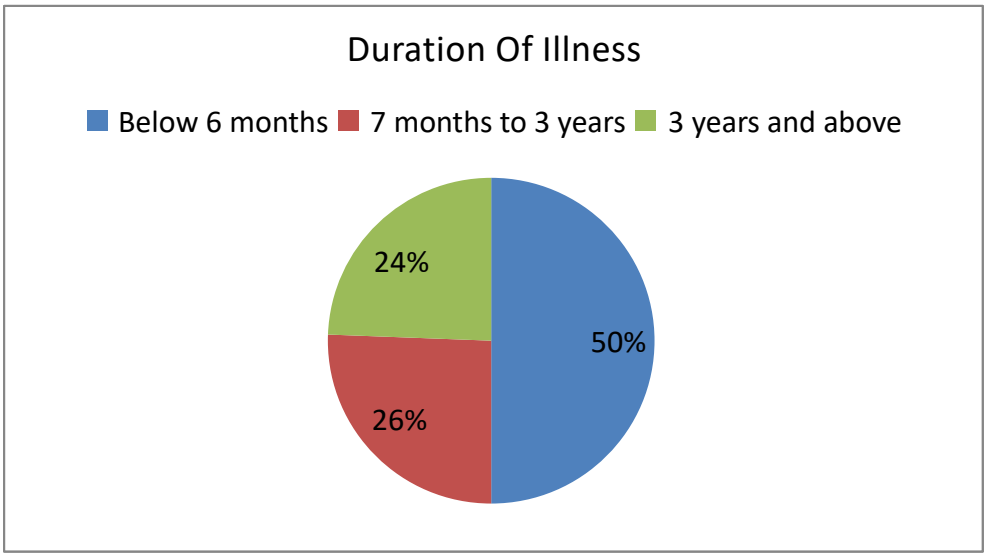
| S.No | Age Of Onset | Frequency | Percentage |
|---|---|---|---|
| 1 | Below 24 | 24 | 26.7 |
| 2 | 25 to 37 | 44 | 48.9 |
| 3 | 38 and above | 22 | 24.4 |
| | Total | 90 | 100.0 |




**DURATION OF ILLNESS:**

When considering the duration of illness, 50% had duration of less than 6 months which comprised mostly from the depressive and the anxiety disorder spectrum which we know is the natural course of the illness. Remaining 25% had duration of illness of about 7 months to 3 years and remaining 25% had duration of 3 years and above

| S.No | Duration Of Illness | Frequency | Percent |
|---|---|---|---|
| 1 | Below 6 months | 45 | 50.0 |
| 2 | 7 months to 3 years | 23 | 25.6 |
| 3 | 3 years and above | 22 | 24.4 |
| | Total | 90 | 100.0 |




**COMPARATIVE ANALYSIS OF SOCIO-DEMOGRAPHIC FEATURES BETWEEN THE STUDY GROUPS:**

**SEX:**

There was no significant difference between three groups when comparing the gender. The proportion of male and female were similar between schizophrenia and depression groups and anxiety group had 70% males.

| S.No | Sex | | Schizophrenia | Depression | Anxiety | Total |
|---|---|---|---|---|---|---|
| 1 | Male | Count | 13 | 13 | 21 | 47 |
| | | % within type | 43.3 | 43.3 | 70.0 | 52.2 |
| | | Type % of total | 14.4 | 14.4 | 23.3 | 52.2 |
| 2 | Female | Count | 17 | 17 | 9 | 43 |
| | | % within type | 56.7 | 56.7 | 30.0 | 47.8 |
| | | Type % of total | 18.9 | 18.9 | 10.0 | 47.8 |
| | | Total | 30 | 30 | 30 | 90 |
| Chi square - 5.700 ; df = 2 ; p > 0.05 NS | | | | | | |

MARITAL STATUS - Most of the patients in the anxiety and the depression group were married, around 72% and 77% respectively. But there were no significant difference between the groups in the marital status

| S.No | Marital status | | Schizophrenia | Depression | Anxiety | Total |
|---|---|---|---|---|---|---|
| 1 | Single | Count | 12 | 8 | 7 | 27 |
| | | % within type | 40.0 | 26.7 | 23.3 | 30.0 |
| | | Type % of total | 13.3 | 8.9 | 7.8 | 30.0 |
| 2 | Married | Count | 18 | 22 | 23 | 63 |
| | | % within type | 60.0 | 73.3 | 76.7 | 70.0 |
| | | Type % of total | 20.0 | 24.4 | 25.6 | 70.0 |
| | | Total | 30 | 30 | 30 | 90 |
| Chi square - 2.222 ; df = 2 ; p > 0.05 NS | | | | | | |

AGE:

All the three groups had majority of patients in the age group of 28 to 39 except for depression which also had an equal number of patients in the other agegroup that is below 27 and above 40 but all three groups did not differ significantly

| S.No | Age | | Schizophrenia | Depression | Anxiety | Total |
|---|---|---|---|---|---|---|
| 1 | Below 27 | Count | 10 | 9 | 7 | 26 |
| | | % within type | 33.3 | 30.0 | 23.3 | 28.9 |
| | | Type % of total | 11.1 | 10.0 | 7.8 | 28.9 |
| 2 | 28 to 39 | Count | 16 | 11 | 16 | 43 |
| | | % within type | 53.3 | 36.7 | 53.3 | 47.8 |
| | | Type % of total | 17.8 | 12.2 | 17.8 | 47.8 |
| 3 | 40 and above | Count | 4 | 10 | 7 | 21 |
| | | % within type | 13.3 | 33.3 | 23.3 | 23.3 |
| | | Type % of total | 4.4 | 11.1 | 7.8 | 23.3 |
| | | Total | 30 | 30 | 30 | 90 |
| Chi square – 4.273 ; df = 4 ; p > 0.05 NS | | | | | | |

**EDUCATION LEVEL:**

There was a significant difference between the three groups when comparing their educational status. Almost 60% of patients were graduated in the anxiety group spectrum while around 54% of patients in the depressive group had just done their primary schooling. In the group schizophrenia, patients were equally distributed in three subgroups of educational level

| S.No | Education | | Schizophrenia | Depression | Anxiety | Total |
|---|---|---|---|---|---|---|
| 1 | Primary | Count | 9 | 16 | 11 | 36 |
| | | % within type | 30.0 | 53.3 | 36.7 | 40.0 |
| | | Type % of total | 10.0 | 17.8 | 12.2 | 40.0 |
| 2 | High School | Count | 10 | 4 | 1 | 15 |
| | | % within type | 33.3 | 13.3 | 3.3 | 16.7 |
| | | Type % of total | 11.1 | 4.4 | 1.1 | 16.7 |
| 3 | Graduated | Count | 11 | 10 | 18 | 39 |
| | | % within type | 36.7 | 33.3 | 60.0 | 43.3 |
| | | Type % of total | 12.2 | 11.1 | 20.0 | 43.3 |
| | | Total | 30 | 30 | 30 | 90 |
| Chi square – 13.49 ; df = 4 ; **p < 0.05 S** | | | | | | |

**OCCUPATIONAL STATUS:**

On considering the occupational status, the three groups did not differ significantly. Within the group schizophrenia most of the patients, about 50% belonged to unskilled category. And almost 54% of the patients in the anxiety disorder group were skilled laborers.

| S.No | Occupation | | Schizophrenia | Depression | Anxiety | Total |
|---|---|---|---|---|---|---|
| 1 | Unskilled | Count | 15 | 12 | 6 | 33 |
| | | % within type | 50.0 | 40.0 | 20.0 | 36.7 |
| | | Type % of total | 16.7 | 13.3 | 6.7 | 36.7 |
| 2 | Semiskilled | Count | 6 | 9 | 8 | 23 |
| | | % within type | 20.0 | 30.0 | 26.7 | 25.6 |
| | | Type % of total | 6.7 | 10.0 | 8.9 | 25.6 |
| 3 | Skilled | Count | 9 | 9 | 16 | 34 |
| | | % within type | 30.0 | 30.0 | 53.3 | 37.8 |
| | | Type % of total | 10.0 | 10.0 | 17.8 | 37.8 |
| | | Total | 30 | 30 | 30 | 90 |
| Chi square – 7.309 ; df = 4 ; p > 0.05 NS | | | | | | |

SOCIO – ECONOMIC STATUS:

There was no significant difference between the three groups according to the total monthly income and total family members thereby in their socioeconomic status. In the three subgroups the number of family members was about 4 mostly.

| S.No | Total Monthly Income | | Schizophrenia | Depression | Anxiety | Total |
|---|---|---|---|---|---|---|
| 1 | Below 6750 | Count | 8 | 10 | 4 | 22 |
| | | % within type | 26.7 | 33.3 | 13.3 | 24.4 |
| | | Type % of total | 8.9 | 11.1 | 4.4 | 24.4 |
| 2 | 6751 to 30K | Count | 15 | 16 | 18 | 49 |
| | | % within type | 50.0 | 53.3 | 60.0 | 54.4 |
| | | Type % of total | 16.7 | 17.8 | 20.0 | 54.4 |
| 3 | 30K and above | Count | 7 | 4 | 8 | 19 |
| | | % within type | 23.3 | 13.3 | 26.7 | 21.1 |
| | | Type % of total | 7.8 | 4.4 | 8.9 | 21.1 |
| | | Total | 30 | 30 | 30 | 90 |
| Chi square – 4.200 ; df = 4 ; p > 0.05 NS | | | | | | |

| S.No | Total Family Members | | Schizophrenia | Depression | Anxiety | Total |
|---|---|---|---|---|---|---|
| 1 | 3 and below | Count | 11 | 11 | 13 | 35 |
| | | % within type | 36.7 | 36.7 | 43.3 | 38.9 |
| | | Type % of total | 12.2 | 12.2 | 14.4 | 38.9 |
| 2 | 4 | Count | 14 | 16 | 12 | 42 |
| | | % within type | 46.7 | 53.3 | 40.0 | 46.7 |
| | | Type % of total | 15.6 | 17.8 | 13.3 | 46.7 |
| 3 | 5 and above | Count | 5 | 3 | 5 | 13 |
| | | % within type | 16.7 | 10.0 | 16.7 | 14.4 |
| | | Type % of total | 5.6 | 3.3 | 5.6 | 14.4 |
| | | Total | 30 | 30 | 30 | 90 |
| Chi square – 1.415 ; df = 4 ; p > 0.05 NS | | | | | | |

**FACTORS ASSOCIATED WITH THE ILLNESS:**

**AGE OF ONSET:**

There was no significant difference between the three groups when considering the age of onset. In all the three groups, around 50% of patients were between 25 to 37 years of age when their illness started.

| S.No | Age of Onset | | Schizophrenia | Depression | Anxiety | Total |
|---|---|---|---|---|---|---|
| 1 | Below 24 | Count | 11 | 5 | 8 | 24 |
| | | % within type | 36.7 | 16.7 | 26.7 | 26.7 |
| | | Type % of total | 12.2 | 5.6 | 8.9 | 26.7 |
| 2 | 25 to 37 | Count | 15 | 15 | 14 | 44 |
| | | % within type | 50.0 | 50.0 | 46.7 | 48.9 |
| | | Type % of total | 16.7 | 16.7 | 15.6 | 48.9 |
| 3 | 38 and above | Count | 4 | 10 | 8 | 22 |
| | | % within type | 13.3 | 33.3 | 26.7 | 24.4 |
| | | Type % of total | 4.4 | 11.1 | 8.9 | 24.4 |
| | | Total | 30 | 30 | 30 | 90 |
| Chi square – 4.841 ; df = 4 ; p > 0.05 NS | | | | | | |

DURATION OF ILLNESS:

Significant difference was present between the three groups in duration of their illness. In the depression subgroup almost 90% had duration of less than 6 months while in Schizophrenia group had approximately two to three years of illness which, as we know is the natural phenomenon in both the conditions.

| S.No | Duration of Illness | | Schizophrenia | Depression | Anxiety | Total |
|---|---|---|---|---|---|---|
| 1 | Below 6 months | Count | 9 | 27 | 9 | 45 |
| | | % within type | 30.0 | 90.0 | 30.0 | 50.0 |
| | | Type % of total | 10.0 | 30.0 | 0.0 | 50.0 |
| 2 | 7 months to 3 years | Count | 8 | 3 | 12 | 23 |
| | | % within type | 26.7 | 10.0 | 40.0 | 25.6 |
| | | Type % of total | 8.9 | 3.3 | 13.3 | 25.6 |
| 3 | 3 years and above | Count | 13 | 0 | 9 | 22 |
| | | % within type | 43.3 | 0 | 30.0 | 24.4 |
| | | Type % of total | 14.4 | 0 | 10.0 | 24.4 |
| | | Total | 30 | 30 | 30 | 90 |
| Chi square – 31.79 ; df = 4 ; **p < 0.05 S** | | | | | | |

**ASEX SCORES – TOTAL SAMPLE:**

Almost 16% of the total sample reported low desire in involving in sexual act.

13.3% had difficulty in sexual excitement or arousal.

10% of the sample had problems with penile erection/vaginal lubrication. Orgasmic dysfunction was noted in 13.3% and Almost 17% of the sample reported reduced satisfaction with orgasm.

ASEX 1 – Desire

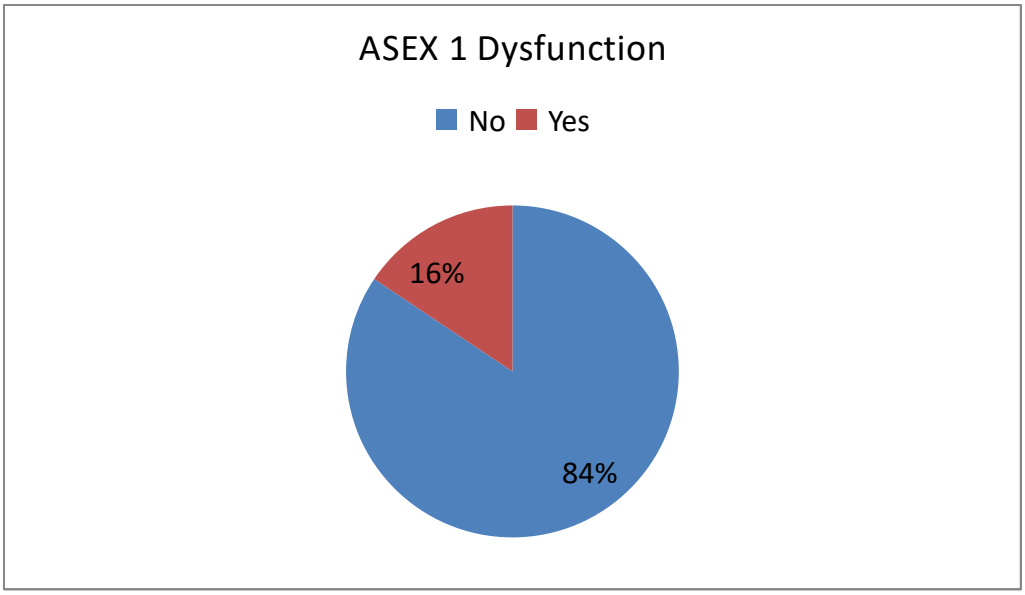
ASEX 2 – Arousal / Excitement

ASEX 3 – Penile Erection / Vaginal Lubrication

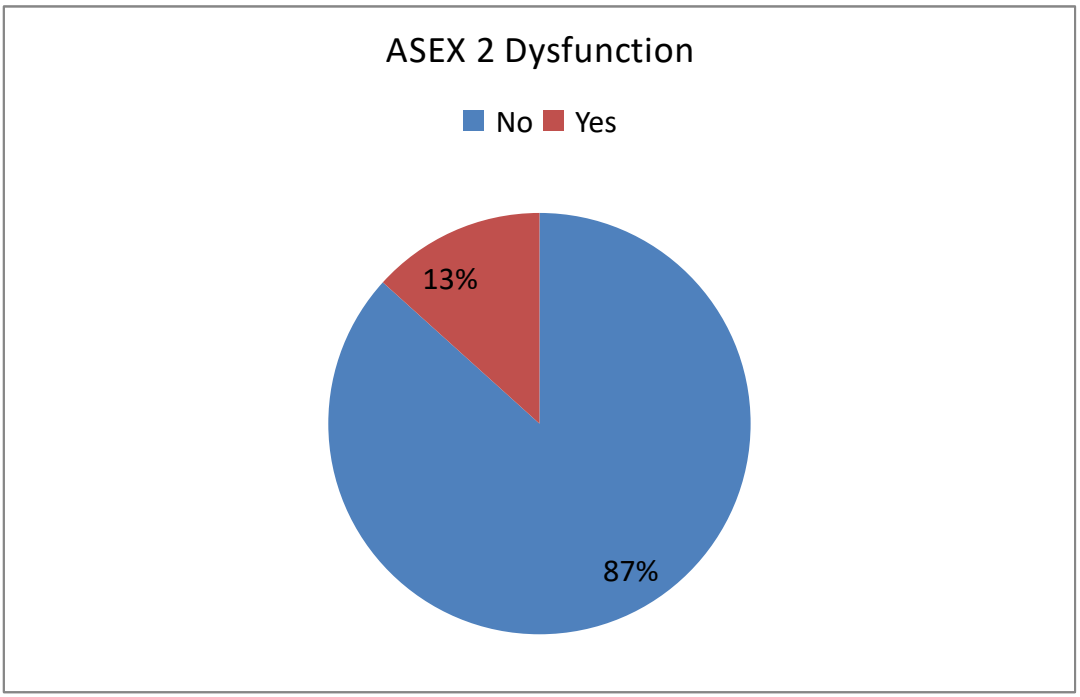
ASEX 4 – Orgasm

ASEX 5 – Satisfaction with Orgasm

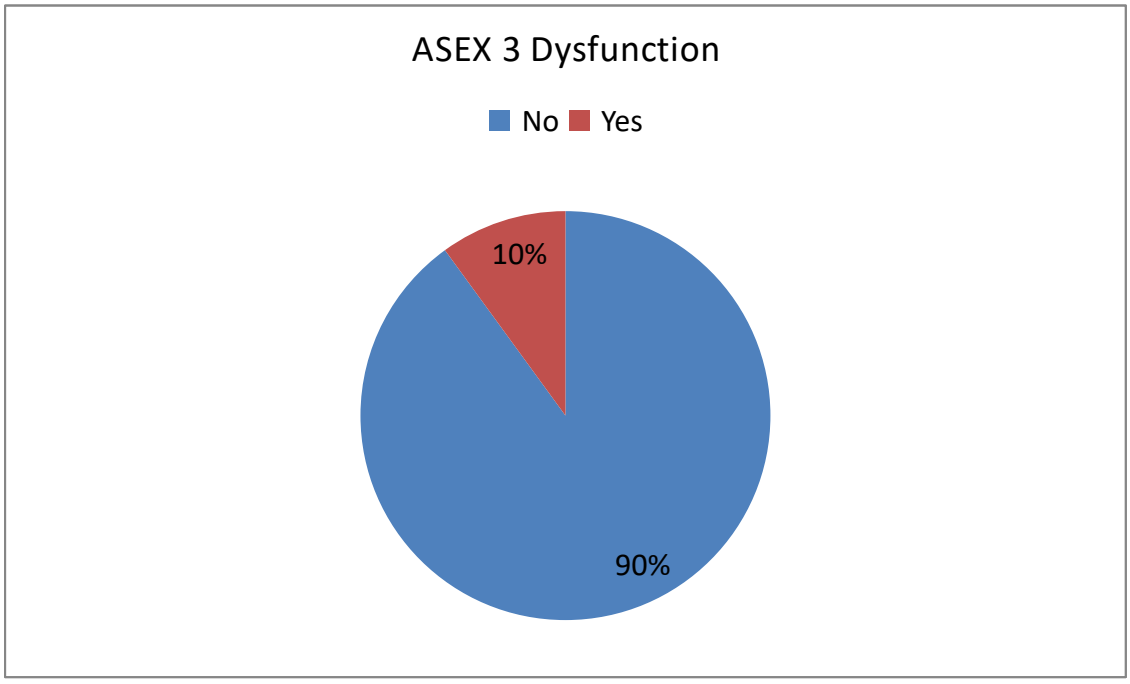
| S.No | ASEX 1 | Frequency | Percent |
|---|---|---|---|
| 1 | No dysfunction | 76 | 84.4 |
| 2 | Yes dysfunction | 14 | 15.6 |
| | Total | 90 | 100.0 |



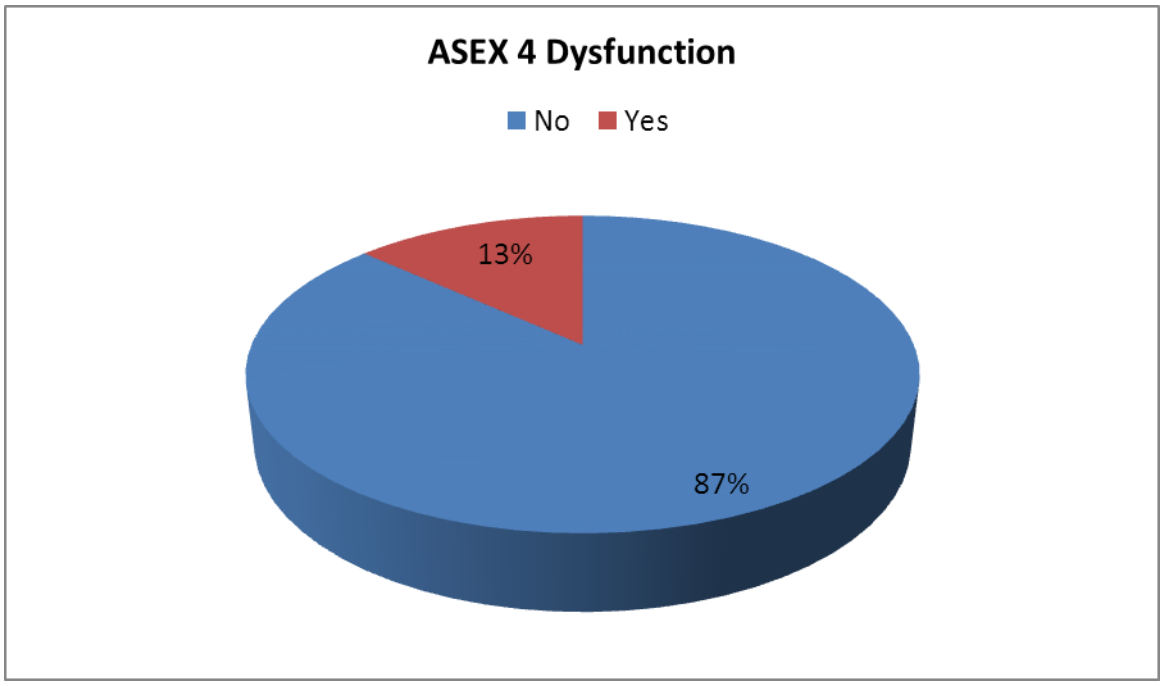

| S.No | ASEX 2 | Frequency | Percent |
|---|---|---|---|
| 1 | No dysfunction | 78 | 86.7 |
| 2 | Yes dysfunction | 12 | 13.3 |
| | Total | 90 | 100.0 |



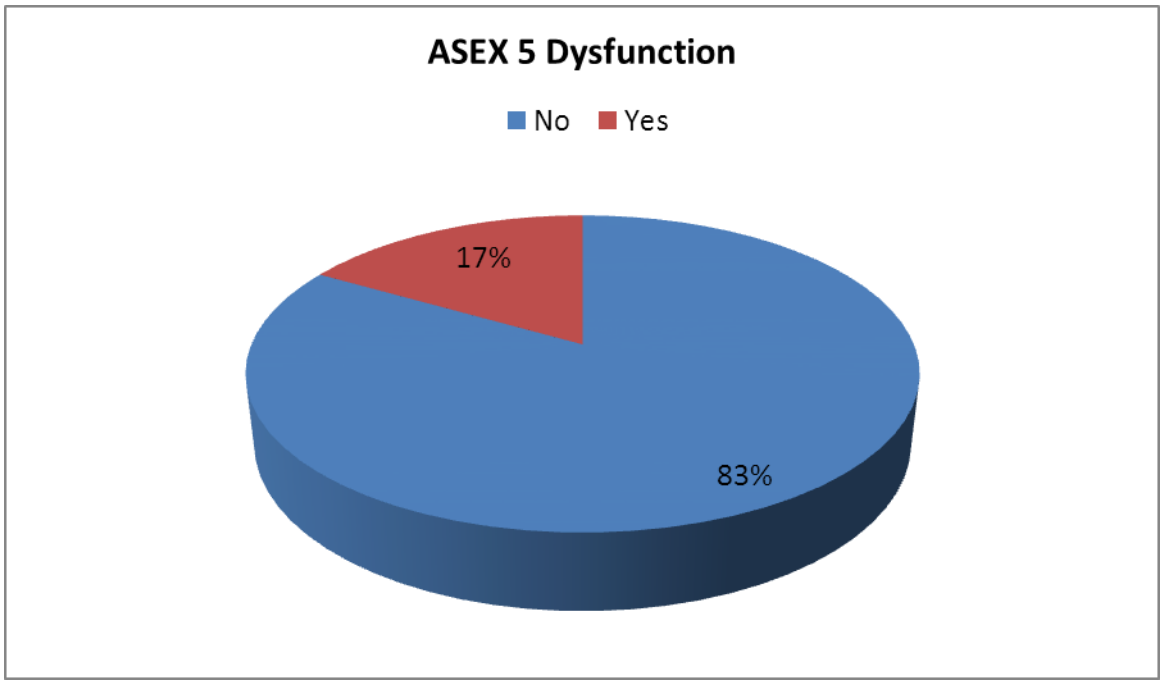

| S.No | ASEX 3 | Frequency | Percent |
|---|---|---|---|
| 1 | No dysfunction | 81 | 90.0 |
| 2 | Yes dysfunction | 9 | 10.0 |
| | Total | 90 | 100.0 |



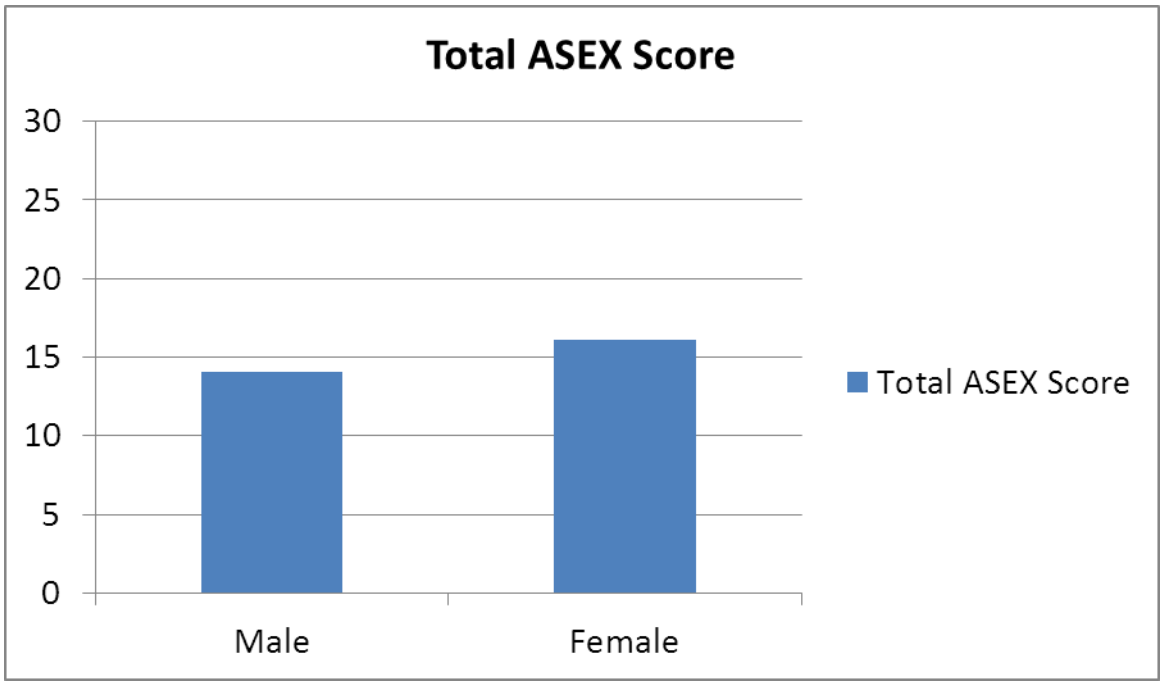

| S.No | ASEX 4 | Frequency | Percent |
|---|---|---|---|
| 1 | No dysfunction | 78 | 86.7 |
| 2 | Yes dysfunction | 12 | 13.3 |
| | Total | 90 | 100.0 |




| S.No | ASEX 5 | Frequency | Percent |
|---|---|---|---|
| 1 | No dysfunction | 75 | 83.3 |
| 2 | Yes dysfunction | 15 | 16.7 |
| | Total | 90 | 100.0 |




**ASEX TOTAL SCORE AND GENDER :** Of the total subjects, females reported a higher total sexual dysfunction score compared to males. Female subjects had a total ASEX score of 16.09 compared to males who had 14.06 but the difference was not statistically significant.




| S.No | Factors | N | Mean | SD | t value | Sig. |
|---|---|---|---|---|---|---|
| 1 | Male | 47 | 14.06 | 4.47 | - 2.05 | .043 |
| 2 | Female | 43 | 16.09 | 4.89 | | |

**ASEX INDIVIDUAL SCORES AND GENDER:**

**ASEX 1:**

Low desire for sex was more reported in females compared to males, around 21% of females when compared to 11% in males. This comprised all the three groups. However the difference was not statistically significant between the sexes

| S.No | ASEX 1 | | Male | Female |
|---|---|---|---|---|
| 1 | No dysfunction | Count | 42 | 34 |
| | | % within type | 89.4% | 79.1% |
| 2 | Yes dysfunction | Count | 5 | 9 |
| | | % within type | 10.6% | 20.9% |
| Chi square - 1.811 ; p > 0.05 NS | | | | |

**ASEX 2:**

Reduced sexual arousal /excitement were reported more frequently in females, about 16.3% but did not differ from males statistically

| S.No | ASEX 2 | | Male | Female |
|---|---|---|---|---|
| 1 | No dysfunction | Count | 42 | 36 |
| | | % within type | 89.4% | 83.7% |
| 2 | Yes dysfunction | Count | 5 | 7 |
| | | % within type | 10.6% | 16.3% |
| Chi square - .618 ; p > 0.05 NS | | | | |

**ASEX 3:**

Around 12% of females reported reduced vaginal lubrication compared to 8.5% of males who reported poor penile erection. This difference was not statistically different.

| S.No | ASEX 3 | | Male | Female |
|---|---|---|---|---|
| 1 | No dysfunction | Count | 43 | 38 |
| | | % within type | 91.5% | 88.4% |
| 2 | Yes dysfunction | Count | 4 | 5 |
| | | % within type | 8.5% | 11.6% |
| Chi square - .242 ; p > 0.05 NS | | | | |

**ASEX 4:**

Orgasmic dysfunction was reported in 21% of female subjects in the overall sample which differed significantly from male subjects. 6.4% of male subjects reported orgasmic dysfunction.

| S.No | ASEX 4 | | Male | Female |
|---|---|---|---|---|
| 1 | No dysfunction | Count | 44 | 34 |
| | | % within type | 93.6% | 79.1% |
| 2 | Yes dysfunction | Count | 3 | 9 |
| | | % within type | 6.4% | 20.9% |
| Chi square - 4.112 ; **p < 0.05 S** | | | | |

**ASEX 5:**

Reporting of reduced satisfaction with orgasm was almost equal in both male and female subjects which was around 17%

| S.No | ASEX 5 | | Male | Female |
|---|---|---|---|---|
| 1 | No dysfunction | Count | 39 | 36 |
| | | % within type | 83.0% | 83.7% |
| 2 | Yes dysfunction | Count | 8 | 7 |
| | | % within type | 17.0% | 16.3% |
| Chi square - .009 ; p > 0.05 NS | | | | |

Overall female subjects reported more dysfunction in all the domains of Arizona Sexual Scale namely desire, arousal, physiological arousal, orgasmic dysfunction except for satisfaction with orgasm which was almost similar between both the sexes.

**ASEX AND SEVERITY OF PSYCHOPATHOLOGY:**

**SCHIZOPHRENIA:**

There was no statistically significant difference between the subjects with Schizophrenia who have reported sexual dysfunction and those who did not in all the domains of ASEX except for Orgasmic dysfunction, when compared with the mean BPRS Score of these subjects.

In subjects who have reported dysfunction in orgasm, the mean BPRS Score was 29.63 compared to 20.86 who did not report dysfunction in orgasm which was statistically significant.

However subjects who reported dysfunction in desire and psychological arousal had a lower mean BPRS Score compared to those who did not report. This could be due to the poor understanding as 60% of subjects in the Schizophrenia subgroup had lower educational level and question of cultural validity of the scale.

SPP – Severity of Psychopathology

| S.No | ASEX 1 | N | SPP Score % | | t value | Sig. |
|---|---|---|---|---|---|---|
| | | | Mean | SD | | |
| 1 | No dysfunction | 26 | 24.07 | 9.362 | .910 | .370 |
| 2 | Yes dysfunction | 4 | 19.67 | 19.67 | | |

| S.No | ASEX 2 | N | SPP Score % | | t value | Sig. |
|---|---|---|---|---|---|---|
| | | | Mean | SD | | |
| 1 | No dysfunction | 27 | 23.97 | 9.261 | .882 | .385 |
| 2 | Yes dysfunction | 3 | 19.13 | 4.660 | | |

| S.No | ASEX 3 | N | SPP Score % | | t value | Sig. |
|---|---|---|---|---|---|---|
| | | | Mean | SD | | |
| 1 | No dysfunction | 26 | 23.47 | 8.796 | - . 028 | .978 |
| 2 | Yes dysfunction | 4 | 23.61 | 11.576 | | |

| S.No | ASEX 4 | N | SPP Score % | | t value | Sig. |
|---|---|---|---|---|---|---|
| | | | Mean | SD | | |
| 1 | No dysfunction | 21 | 20.86 | 7.778 | **- 2.708** | **.011** |
| 2 | Yes dysfunction | 9 | 29.63 | 8.955 | | |

| S.No | ASEX 5 | N | SPP Score % | | t value | Sig. |
|---|---|---|---|---|---|---|
| | | | Mean | SD | | |
| 1 | No dysfunction | 20 | 22.27 | 9.034 | - 1.054 | .301 |
| 2 | Yes dysfunction | 10 | 25.93 | 8.797 | | |

**DEPRESSION:** Statistically significant difference was noted in subjects who reported reduced desire, problems with psychological arousal and reduced satisfaction with orgasm with those who did not when compared to the mean HAM-D Score. Subjects with a higher mean HAM-D Score reported more dysfunction in the above

mentioned domains which can be attributed to the depressive illness itself which results in anhedonia, reduced interest and reduced energy level.

| S.No | ASEX 1 | N | SPP Score % | | t value | Sig. |
|---|---|---|---|---|---|---|
| | | | Mean | SD | | |
| 1 | No dysfunction | 23 | 24.94 | 7.057 | **-4.008** | **.000** |
| 2 | Yes dysfunction | 7 | 36.84 | 6.171 | | |

| S.No | ASEX 2 | N | SPP Score % | | t value | Sig. |
|---|---|---|---|---|---|---|
| | | | Mean | SD | | |
| 1 | No dysfunction | 24 | 25.55 | 7.361 | **-3.229** | **.003** |
| 2 | Yes dysfunction | 6 | 36.40 | 7.379 | | |

| S.No | ASEX 3 | N | SPP Score % | | t value | Sig. |
|---|---|---|---|---|---|---|
| | | | Mean | SD | | |
| 1 | No dysfunction | 27 | 27.34 | 7.692 | - . 731 | .471 |
| 2 | Yes dysfunction | 3 | 31.14 | 15.915 | | |

| S.No | ASEX 4 | N | SPP Score % | | t value | Sig. |
|---|---|---|---|---|---|---|
| | | | Mean | SD | | |
| 1 | No dysfunction | 28 | 27.44 | 8.100 | - .660 | . 515 |
| 2 | Yes dysfunction | 2 | 31.58 | 16.744 | | |

| S.No | ASEX 5 | N | SPP Score % | | t value | Sig. |
|---|---|---|---|---|---|---|
| | | | Mean | SD | | |
| 1 | No dysfunction | 29 | 27.18 | 8.082 | **-1.976** | **.058** |
| 2 | Yes dysfunction | 1 | 43.42 | | | |

**ANXIETY SPECTRUM:** In both OCD and Panic disorder, statistically significant difference was not noted in any of the domains of ASEX in those who reported sexual dysfunction and those who did not when compared with the Y – BOCS and PDSS Scales.

| S.No | ASEX 1 | N | SPP Score % | | t value | Sig. |
|---|---|---|---|---|---|---|
| | | | Mean | SD | | |
| 1 | No dysfunction | 27 | 49.86 | 15.273 | . 245 | . 808 |
| 2 | Yes dysfunction | 3 | 47.62 | 10.912 | | |

| S.No | ASEX 2 | N | SPP Score % | | t value | Sig. |
|---|---|---|---|---|---|---|
| | | | Mean | SD | | |
| 1 | No dysfunction | 27 | 49.86 | 15.273 | . 245 | . 808 |
| 2 | Yes dysfunction | 3 | 47.62 | 10.912 | | |

| S.No | ASEX 3 | N | SPP Score % | | t value | Sig. |
|---|---|---|---|---|---|---|
| | | | Mean | SD | | |
| 1 | No dysfunction | 28 | 50.12 | 15.051 | . 666 | . 511 |
| 2 | Yes dysfunction | 2 | 42.86 | 10.105 | | |

| S.No | ASEX 4 | N | SPP Score % | | t value | Sig. |
|---|---|---|---|---|---|---|
| | | | Mean | SD | | |
| 1 | No dysfunction | 29 | 50.11 | 14.780 | . 958 | . 346 |
| 2 | Yes dysfunction | 1 | 35.71 | | | |

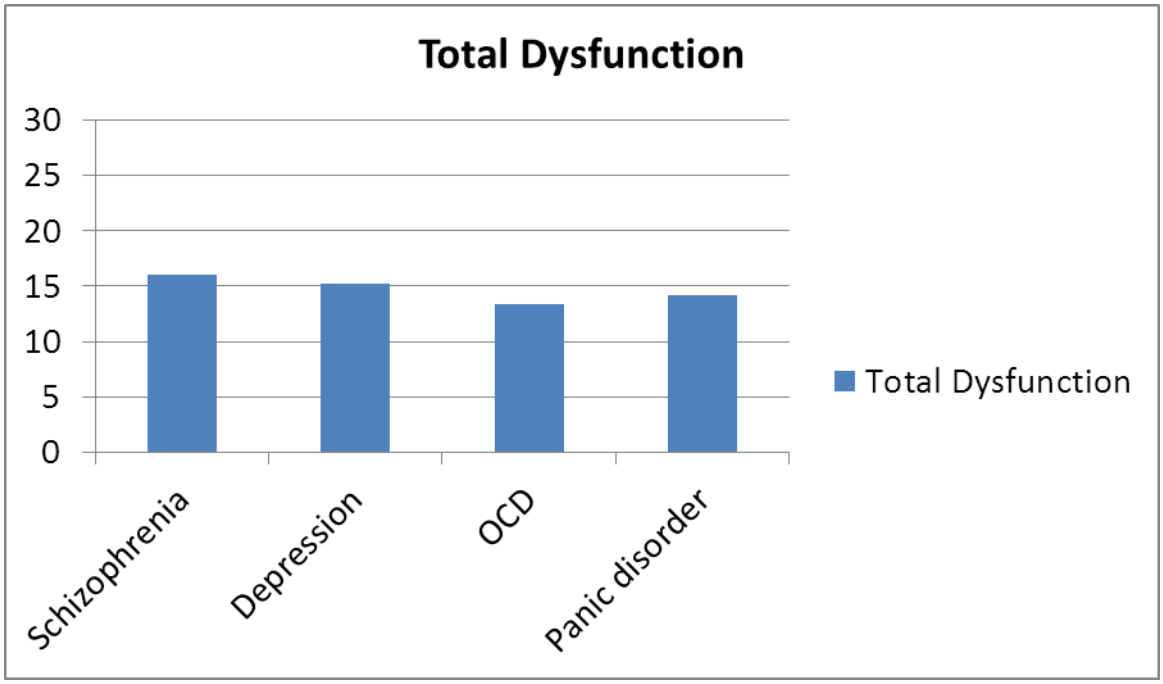
| S.No | ASEX 5 | N | SPP Score % | | t value | Sig. |
|---|---|---|---|---|---|---|
| | | | Mean | SD | | |
| 1 | No dysfunction | 26 | 48.75 | 14.852 | - . 829 | . 414 |
| 2 | Yes dysfunction | 4 | 55.36 | 14.728 | | |

**COMPARATIVE ANALYSIS OF ASEX TOTAL AND INDIVIDUAL SCORES BETWEEN THE STUDY GROUPS:**

The mean total sexual dysfunction score was 15.03 for the whole sample. It was around 16, 15, 14 and 13 in Schizophrenia, Depression, OCD and Panic disorder groups with a standard deviation of 5.71, 3.96, 4.69 and 3.84 respectively. The score in few patients were around 19 denoting sexual dysfunction. One way ANOVA did not reveal statistical difference between the three groups in the total sexual dysfunction score.The scores of the individual scales to assess the severity of the psychopathology were converted to percentage. One way ANOVA revealed significant difference between the 4 groups following which Post-hoc analysis was done

which revealed difference between the four diagnoses in severity of psychopathology.When both OCD and Panic disorder patients were grouped together, they had a mean total sexual dysfunction score of 14 and did not have any statistically significant difference compared to other two groups

| S.No | Factors | N | Mean | SD | F ratio | Sig. | Post Hoc |
|---|---|---|---|---|---|---|---|
| A | ASEX Total Score | | | | | | |
| 1 | Schizophrenia | 30 | 16.03 | 5.71 | 1.14 | .337 (p >0.05) | - |
| 2 | Depression | 30 | 15.20 | 3.96 | | | |
| 3 | OCD | 12 | 13.33 | 3.84 | | | |
| 4 | Panic disorder | 18 | 14.22 | 4.69 | | | |
| | Total | 90 | 15.03 | 4.76 | | | |
| B | SPP Score % | | | | | | |
| 1 | Schizophrenia | 30 | 23.49 | 8.97 | 33.04 | **.000** (p <0.05) | 1 vs 3<br>1 vs 4<br>2 vs 3<br>2 vs 4 |
| 2 | Depression | 30 | 27.72 | 8.47 | | | |
| 3 | OCD | 12 | 53.25 | 19.78 | | | |
| 4 | Panic disorder | 18 | 47.22 | 10.14 | | | |
| | Total | 90 | 33.61 | 15.91 | | | |

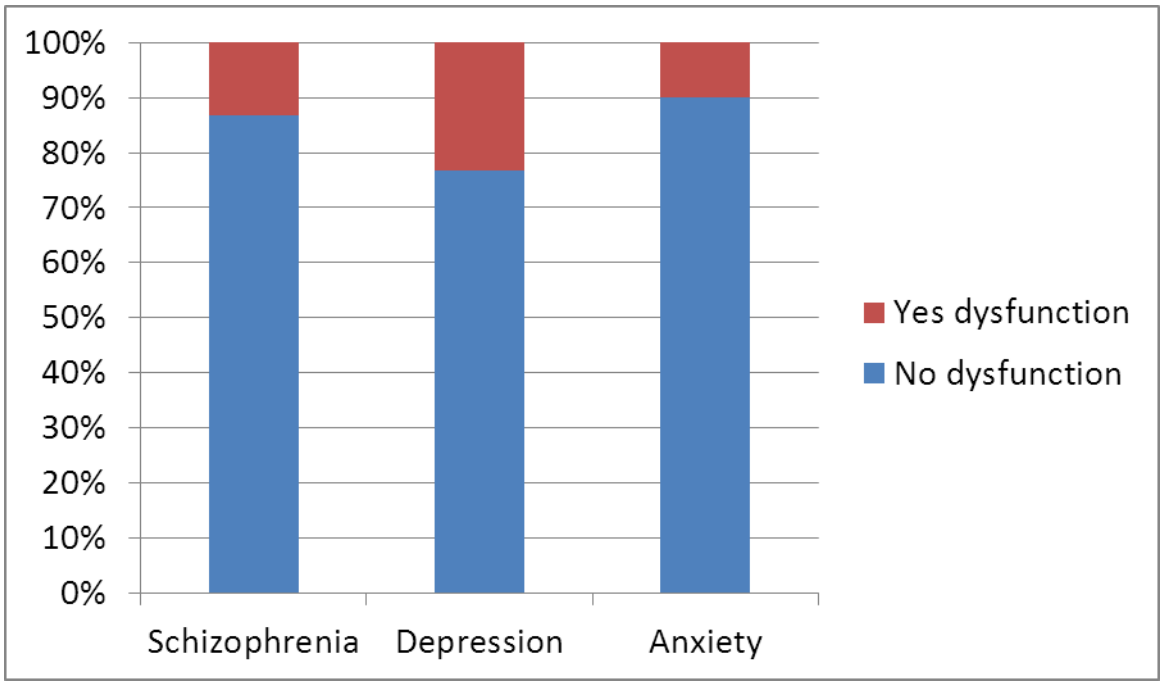



**ASEX INDIVIDUAL SCORES BETWEEN THE STUDY GROUPS:**

**ASEX 1:**

Among the three groups, patients with depression reported the highest frequency of low desire. Almost 24% of the patients in the depressive subgroup had complaints of low desire when compared with Schizophrenia and Anxiety subgroup, in which 13% and 10% had low sexual desire. But the three groups did not statistically differ.

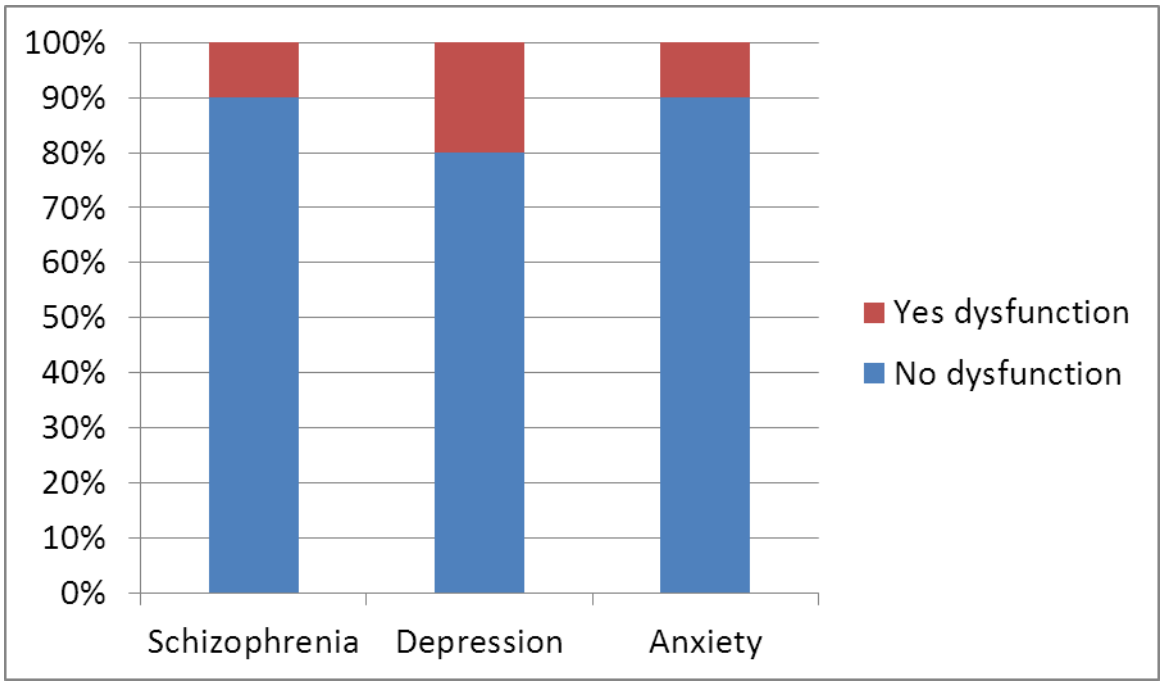
| S.No | ASEX 1 | | Schizophrenia | Depression | Anxiety | Total |
|---|---|---|---|---|---|---|
| 1 | No dysfunction | Count | 26 | 23 | 27 | 76 |
| | | % within type | 86.7 | 76.7 | 90.0 | 84.4 |
| | | Type % of total | 28.9 | 25.6 | 30.0 | 84.4 |
| 2 | Yes dysfunction | Count | 4 | 7 | 3 | 14 |
| | | % within type | 13.3 | 23.3 | 10.0 | 15.6 |
| | | Type % of total | 4.4 | 7.8 | 3.3 | 15.6 |
| | | Total | 30 | 30 | 30 | 90 |
| Chi square – 2.199 ; df = 2 ; p > 0.05 NS | | | | | | |




**ASEX 2:**

The three subgroups did not differ statistically in difficulties in sexual arousal or excitement. 20% of patients in depressive subgroups reported arousal as a problem compared to 10% in both Schizophrenia and Anxiety subgroups.

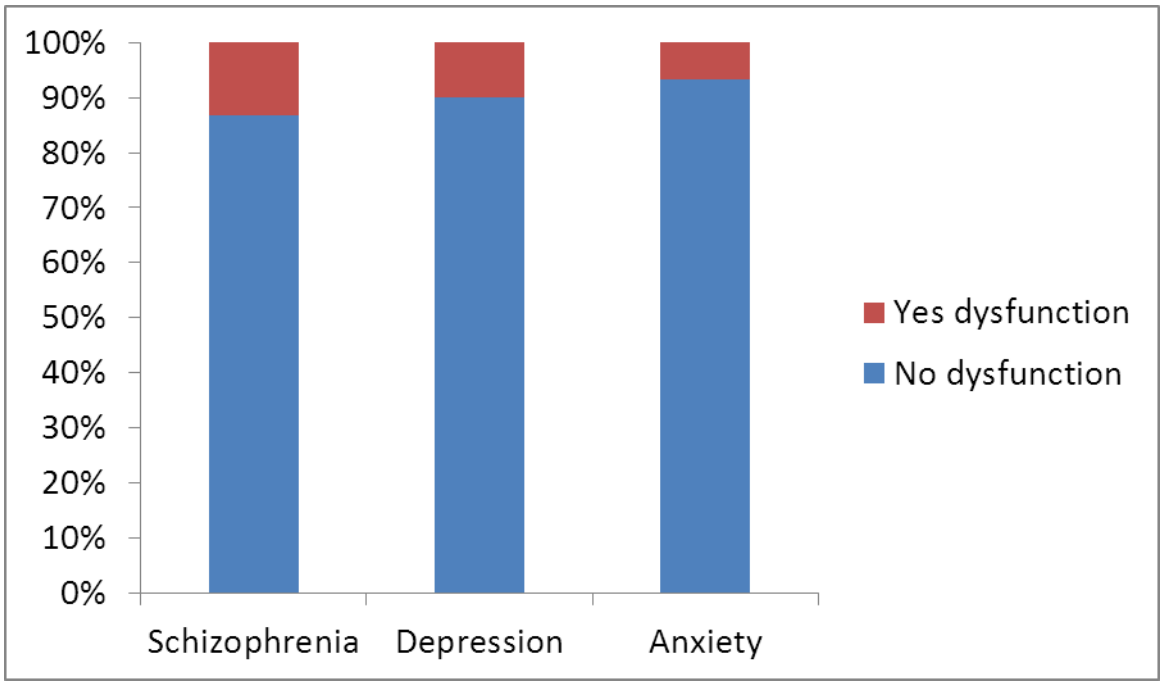
| S.No | ASEX 2 | | Schizophrenia | Depression | Anxiety | Total |
|---|---|---|---|---|---|---|
| 1 | No dysfunction | Count | 27 | 24 | 27 | 78 |
| | | % within type | 90.0 | 80.0 | 90.0 | 86.7 |
| | | Type % of total | 30.0 | 26.7 | 30.0 | 86.7 |
| 2 | Yes dysfunction | Count | 3 | 6 | 3 | 12 |
| | | % within type | 10.0 | 20.0 | 10.0 | 13.3 |
| | | Type % of total | 3.3 | 6.7 | 3.3 | 13.3 |
| | | Total | 30 | 30 | 30 | 90 |
| Chi square – 1.731 ; df = 2 ; p > 0.05 NS | | | | | | |



**ASEX 3:**

There was no significant difference between the three groups in problems with penile erection/vaginal lubrication. 13%, 10% and 7% of patients in Schizophrenia, Depression and Anxiety subgroups experienced problems with penile erection/vaginal lubrication

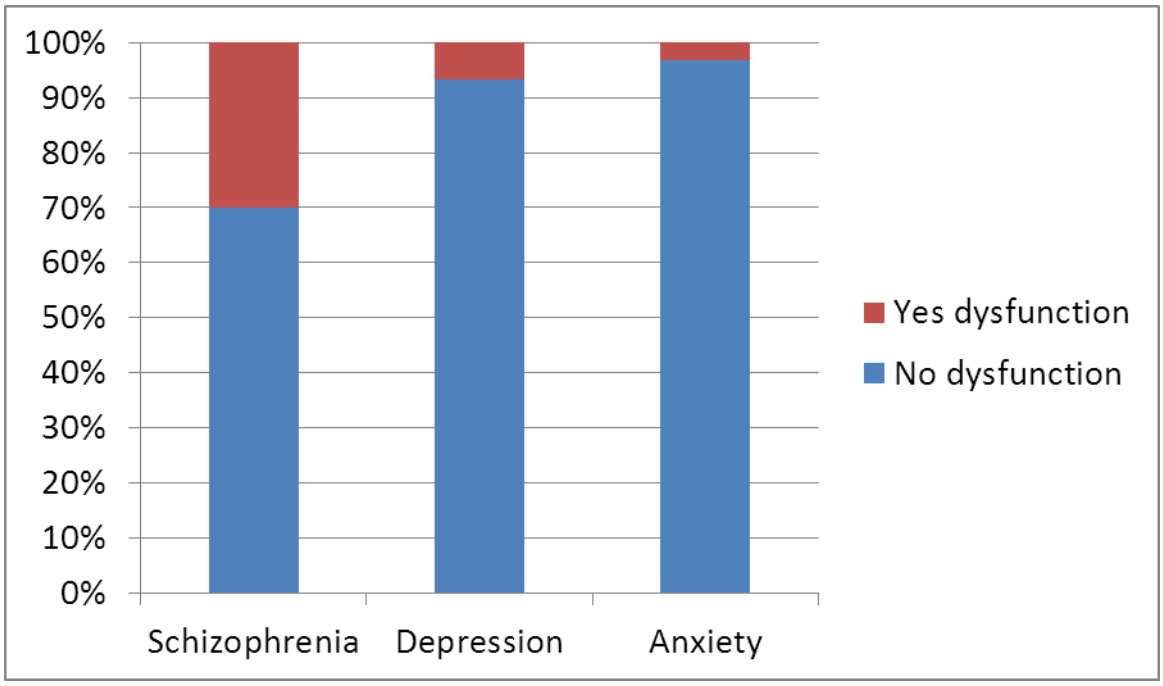
| S.No | ASEX 3 | | Schizophrenia | Depression | Anxiety | Total |
|---|---|---|---|---|---|---|
| 1 | No dysfunction | Count | 26 | 27 | 28 | 81 |
| | | % within type | 86.7 | 90.0 | 93.3 | 90.0 |
| | | Type % of total | 28.9 | 30.0 | 31.1 | 90.0 |
| 2 | Yes dysfunction | Count | 4 | 3 | 2 | 9 |
| | | % within type | 13.3 | 10.0 | 6.7 | 10.0 |
| | | Type % of total | 4.4 | 3.3 | 2.2 | 10.0 |
| | | Total | 30 | 30 | 30 | 90 |
| Chi square - .741 ; df = 2 ; p > 0.05 NS | | | | | | |




**ASEX 4:**

Significant difference was noted between the three groups in orgasmic dysfunction. Orgasmic dysfunction was reported the most in people with Schizophrenia. About 30% in the Schizophrenia subgroup had problems with orgasm compared to 7% and 4% in the depression and anxiety subgroups.

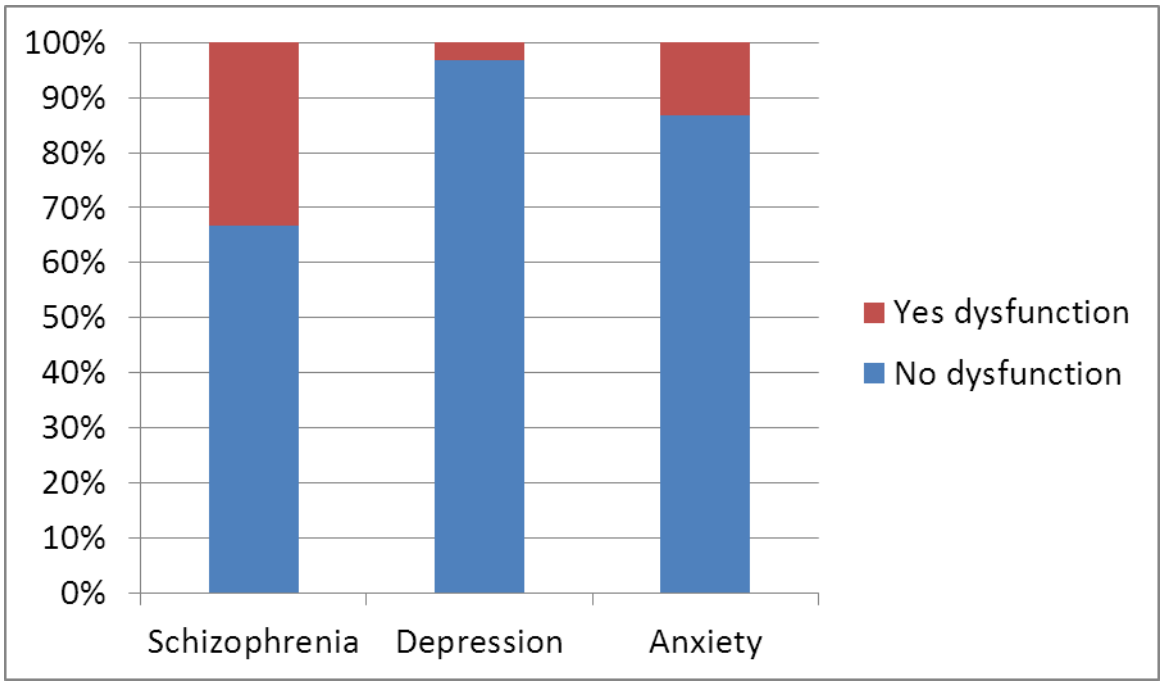
| S.No | ASEX 4 | | Schizophrenia | Depression | Anxiety | Total |
|---|---|---|---|---|---|---|
| 1 | No dysfunction | Count | 21 | 28 | 29 | 78 |
| | | % within type | 70.0 | 93.3 | 96.7 | 86.7 |
| | | Type % of total | 23.3 | 31.1 | 32.2 | 86.7 |
| 2 | Yes dysfunction | Count | 9 | 2 | 1 | 12 |
| | | % within type | 30.0 | 6.7 | 3.3 | 13.3 |
| | | Type % of total | 10.0 | 2.2 | 1.1 | 13.3 |
| | | Total | 30 | 30 | 30 | 90 |
| Chi square – 10.962 ; df = 2 ; **p < 0.05 Sig.** | | | | | | |




**ASEX 5:**

Most evident in the Schizophrenia subgroup, in which about 34% reported reduced satisfaction with orgasm compared to 13% in the anxiety subgroup. 13% of subjects in the anxiety spectrum belonged to the diagnosis of Panic disorder. Statistically significant difference was noted between the three groups.

| S.No | ASEX 5 | | Schizophrenia | Depression | Anxiety | Total |
|---|---|---|---|---|---|---|
| 1 | No dysfunction | Count | 20 | 29 | 26 | 75 |
| | | % within type | 66.7 | 96.7 | 86.7 | 83.3 |
| | | Type % of total | 22.2 | 32.2 | 28.9 | 83.3 |
| 2 | Yes dysfunction | Count | 10 | 1 | 4 | 15 |
| | | % within type | 33.3 | 3.3 | 13.3 | 16.7 |
| | | Type % of total | 11.1 | 1.1 | 4.4 | 16.7 |
| | | Total | 30 | 30 | 30 | 90 |
| Chi square – 10.080 ; df = 2 ; **p < 0.05 Sig.** | | | | | | |



**ASEX and SOCIO-DEMOGRAPHIC FACTORS:**

**ASEX and MARITAL STATUS:**

No significant difference was noted in the total ASEX score between single and married patients.

| S.No | Factors | N | Mean | SD | t value | Sig. |
|---|---|---|---|---|---|---|
| 1 | Single | 27 | 15.37 | 5.97 | .437 | .663 |
| 2 | Married | 63 | 14.88 | 4.18 | | |

**ASEX and AGE:**

There was no statistically significant difference in the total sexual dysfunction scores between the different age groups.

| S.No | Factors | N | Mean | SD | F ratio | Sig. | Post Hoc |
|---|---|---|---|---|---|---|---|
| 1 | Below 27 | 26 | 14.07 | 5.06 | .748 | .476 | - |
| 2 | 28 to 39 | 43 | 15.34 | 4.70 | | | |
| 3 | 40 and above | 21 | 15.57 | 4.54 | | | |

**ASEX and EDUCATION:**

One way ANOVA revealed statistically significant difference in the total sexual dysfunction score between the different education levels. The mean score were 15.41, 17.33 and 13.79 in primary, high school and graduated patients respectively. Post-hoc analysis revealed significant difference between the patients were graduated and patients who finished high school.

| S.No | Factors | N | Mean | SD | F ratio | Sig. | Post Hoc |
|---|---|---|---|---|---|---|---|
| 1 | Primary | 36 | 15.41 | 5.27 | 3.35 | **.040** | 2 vs. 3 |
| 2 | High School | 15 | 17.33 | 4.56 | | | |
| 3 | Graduated | 39 | 13.79 | 4.00 | | | |

**ASEX and OCCUPATION:**

Unskilled laborers reported more of sexual dysfunction than skilled laborers which were statistically significant in Post-hoc analysis but no difference were noted in their severity of psychopathology.

| S.No | Factors | N | Mean | SD | F ratio | Sig. | Post Hoc |
|---|---|---|---|---|---|---|---|
| 1 | Unskilled | 33 | 16.84 | 4.98 | 5.00 | **.009** | 1 vs. 3 |
| 2 | Semiskilled | 23 | 14.95 | 5.53 | | | |
| 3 | Skilled | 34 | 13.32 | 3.22 | | | |

One way ANOVA did not reveal any statistically significant difference in total sexual dysfunction score in the various socio-demographic variables mentioned below such as socio-economic status, total family members, duration of illness and the age of onset.

**ASEX and SOCIOECONOMIC STATUS:**

| S.No | Factors | N | Mean | SD | F ratio | Sig. | Post Hoc |
|---|---|---|---|---|---|---|---|
| 1 | Below 6750 | 22 | 15.72 | 4.86 | .976 | .381 | - |
| 2 | 6751 to 30K | 49 | 15.22 | 5.07 | | | |
| 3 | 30K and above | 19 | 13.73 | 3.64 | | | |

**ASEX and TOTAL FAMILY MEMBERS:**

| S.No | Factors | N | Mean | SD | F ratio | Sig. | Post Hoc |
|---|---|---|---|---|---|---|---|
| 1 | 3 and below | 35 | 15.37 | 4.48 | 1.39 | .253 | - |
| 2 | 4 | 42 | 15.38 | 4.61 | | | |
| 3 | 5 and above | 13 | 13.00 | 5.77 | | | |

**FACTORS ASSOCIATED WITH THE ILLNESS:**

**ASEX and DURATION OF ILLNESS:**

| S.No | Factors | N | Mean | SD | F ratio | Sig. | Post Hoc |
|---|---|---|---|---|---|---|---|
| 1 | Below 6 months | 45 | 14.42 | 4.23 | 1.06 | .349 | - |
| 2 | 7 months to 3 years | 23 | 15.08 | 5.39 | | | |
| 3 | 3 years and above | 22 | 16.22 | 5.07 | | | |

**ASEX and AGE OF ONSET:**

| S.No | Factors | N | Mean | SD | F ratio | Sig. | Post Hoc |
|---|---|---|---|---|---|---|---|
| 1 | Below 24 | 24 | 13.54 | 4.80 | 1.970 | .146 | - |
| 2 | 25 to 37 | 44 | 15.90 | 4.76 | | | |
| 3 | 38 and above | 22 | 14.90 | 4.49 | | | |

## V. Discussion

Schizophrenia, Depressive disorder, OCD and Panic disorder were considered to be included in the study. The reasons are they are commonly seen in psychiatric out-patient department and all the above mentioned illness has a significant negative effect on the patient's life which is in fact pervasive. The three groups were comparable in age, sex, marital status, occupational status, socio-economic status and age of onset of their illness in this study.

Sexual dysfunction which is not related to pharmacotherapy as the subjects are drug naive has been observed in all the four diagnosis included in this study.

The total ASEX Score was around 15 out of the maximum score of 30 in all the four diagnoses included. Subjects with Schizophrenia had the highest mean score of 16 followed by Depression, Panic Disorder and OCD scoring 15, 14 and 13 respectively.

Dissatisfaction with Orgasm (17%) and reduced desire to involve in sex (16%) were the two domains which were reported more frequently by the subjects. Around 13% had difficulty in Arousal and Orgasm dysfunction. Dysfunction with Physiological arousal was reported by 10% of the total sample in which more females reported problems with vaginal lubrication compared to males who reported erectile dysfunction. Dissatisfaction with Orgasm (17%) was similar to the rates observed by Kendurkar et. al[20].

When considering physiological arousal, that is penile erection and vaginal lubrication, subjects in all the four diagnosis reported similar severity of dysfunction in this domain.

The reported dysfunction in sexual activities may be a result of the reduced self confidence in these patients. The other reasons may be the lack of interest or reduced pleasurable experience. Also studies have shown that subjects with Schizophrenia have reduced interest in forming sexual relationships. This is present even before the onset of illness. This might have added up to the sexual dysfunction experienced by these patients[50].

Kendurkar et. al[4] have reported low sexual desire in depressive disorder when compared with OCD and Panic disorder which has been reported in this study also, where almost 24% of subjects with depression have reported low desire to engage in sexual activity. 20% of female subjects with depressive disorder also reported reduced sexual arousal which is similar to study done by Cyranowski JM et. al[47] which evaluated self-reported measures of arousal in about 900 females with around 22% of females reporting arousal difficulty.

Reduced psychological arousal was more reported in subjects with depression compared to the other two groups. The reason would be as a result of the illness per se which exhibits loss of interest, reduced energy level, loss of libido and the patients with depression are unable to experience pleasure[46]. However the rates of orgasm dysfunction in depression were not comparable with similar past studies[46].

Correlation between HAM-D Scores and ASEX Scores is strong similar to the results of study done by Thakurta RG et al., in depression patients[46]. Reduced desire and arousal were directly proportional to the HAM-D Scores.

Patients with anxiety disorders reported a higher dysfunction in desire and arousal phase compared to other domains in ASEX similar to the study done by Aksoy and his colleagues [19]. Even though 10% subjects with anxiety disorder reported reduced desire in sex, it was much lower compared to 20% and 14% report in female and male subjects in a study done by Figueira and Possidente on subjects with Panic disorder[21].

One possible explanation would be the avoidance behavior which these patients present fearing anxiety symptoms[21].

Reduced satisfaction was reported in 14% of patients with Panic disorder similar to a study done by Aksoy and his colleagues which compares sexual dysfunction between OCD and PD[19.] Dissatisfaction with sexuality was not reported in patients with OCD which is similar to findings in the study done by Kendurkar and his colleagues[14].

Orgasm dysfunction was reported more in Schizophrenia subjects when compared to the other 3 diagnoses. Almost 30% of subjects with Schizophrenia have reported reduced satisfaction with orgasm and orgasmic dysfunction which is comparable to results of study done by Macdonald et al., [24, 44]. 14% of subjects in Schizophrenia subgroup reported erection problems which are less when compared to the results in past studies[44] and 13% reported reduced sexual desire and problems with physiological arousal.

There is high chance that these subjects are experiencing more of these dysfunctions. Because the symptoms which these patient's experience such as hallucinations and paranoia would make them less aware of

the sexual dysfunction which is present in them. And even when they are recognized by these patients they are less likely to report these dysfunctions[4].

Also it is possible that these Schizophrenia subjects may experience psychotic symptoms with sexual content. These symptoms can influence their sexual functioning or behavior they exhibit[50]. Study done by Harley EW et. al[50] on sexual problems in Schizophrenia have shown that almost one-fifth of Schizophrenia patient's experienced psychotic symptoms with some sexual content.

More of sexual dysfunction is reported by subjects with Schizophrenia as mentioned and almost 80% of the subjects in the Schizophrenia subgroup are around 20 and 30 years of age, in the reproductive age group. This suggests that these subjects might have some underlying hormonal disturbance which would contribute to sexual dysfunctions experienced by these subjects[12, 13].

The severity of psychopathology did not have a major role in the severity of sexual dysfunction except for the depressive subgroup which experienced more dysfunction with higher mean HAM-D scores. This has also been reported in study done by Lin CF et. al[51] where sexual dysfunction scores correlated more with depressive symptoms compared to anxiety symptoms.

Correlation between psychopathology score and sexual dysfunction in Schizophrenia subjects in this study was noted only for orgasm dysfunction. Similar correlation has been reported in past study done on schizophrenia subjects, in particular females[44].

Even though the severity of psychopathology was more in OCD and Panic disorder subjects there was no statistically significant difference between the four diagnoses in the total ASEX Score. Gender selection bias is absent as the study had equal proportion of males and females.

More female subjects reported sexual dysfunction when compared to males in almost most of the domains of ASEX. Low desire for sex was reported more in female subjects (21%) compared to males (10%) which is similar to reporting in study done by MacDonald et al[44]. Also in this study reduced psychological arousal and physiological arousal (vaginal lubrication) was reported more in female subjects compared to males. The prevalence of arousal and orgasm problems in both sexes were lower when compared to the percentage reported by Harley EW et. al[50].

Around 95% of female subjects declined the need for a female staff to be present which was offered to the female subjects as the primary researcher was male. This provides insight that gender is not a differentiating feature in discussing sexual issues. The treating therapist should involve such discussions irrespective of the sex of the patient as studies have shown that gender may influence spontaneous reporting of sex related issues with misconception that men may report more frequently than women[24], particularly in our community.

Reporting of sexual dysfunction when patients are offered a chance suggests that they are willing to discuss issues related to sex. Hence these issues should be explored with tact. A non-judgmental attitude, understanding the patient and encouraging to openly discuss these issues is much needed to address this area[50].

One of the strengths is that almost 70% of the study samples were married. This gives a more meaningful outcome as these subjects were sexually functioning compared to subjects who are single where sexual activity is more focused rather than actual sexual functioning. Unmarried individuals mean total sexual dysfunction scores were comparable to that of married persons total sexual dysfunction scores.

As drug naïve subjects have been selected in this study, the sexual dysfunction assessment provides a reliable estimate of the baseline sexual dysfunction in these patients before the initiation of psychotropic medications. These results suggest that before the patient is started on psychotropic medications it is necessary that the patient's sexual functioning should be assessed. The mean total ASEX scores also did not vary significantly between the different age groups.

All these suggest that sexual dysfunction should be explored as a part of optimal psychiatric care. It should be assessed regardless of the patient's age, his/her marital status, the diagnosis which the patient receives, current functional ability and finally whether the patient is on medications or not.

A more unambiguous data is tried to obtain by the following. The study eliminated the subjects who had onset of sexual dysfunction prior to the onset of the current illness and also other physical conditions which are notorious to cause sexual dysfunction where also considered in the exclusion criteria.

Results have shown that sexual dysfunction is a major concern for most of the patients who presented for other complaints receiving other primary psychiatric diagnosis. These results put forward one more aspect of poor quality of life led by these patients which must be addressed during the initial phase of assessment.

In our study only four of the patients refused to participate in the study and all others were comfortable in participating in the study. Studies have shown that patients with a diagnosis of schizophrenia, both men and women have reported that discussion and counseling about intimate relationships is one area which is not addressed properly[37]. It has also been shown that persons with diagnosis of schizophrenia are willing and ready to discuss sex related issues[38, 39] when raised by their treating physician.

Dossenbach M et. al[49] have reported that sexual dysfunction is less reported in Asia. Hence exploring sexual function taking into account the cultural sensitivities is very important which is applicable to our community.

It is very difficult to discuss sexual functioning unless trust is established between the clinician and the patient. Hence open communication and trust is very much needed to be established between the clinician and patient so that sexual dysfunctions can be addressed properly[4].

Apart from discussing sexual functioning directly with the patient it is very important to watch for some cues which the patient might come out with during the interviews. These cues would help the clinicians suspect that the patient might have problems with his sexual functioning. For example the patient might report that he or she is experiencing problems with personal relationships which later can be probed by the clinician to uncover a possible dysfunction with sex which might be the reason for the relationship difficulties the patient is experiencing[4].

Considering the results very little attention has been given to sexual issues in patients with other primary psychiatric diagnosis. Evidence suggests that people with severe mental illness believe that, when treating physicians discuss sexual related issues with these patients, it can improve their overall well being[40], the quality of their life and interpersonal relationships.

**LIMITATIONS:**

In this study the cause and effect relationship between the primary psychiatric diagnosis and the sexual dysfunction cannot be determined considering the cross-sectional nature of this study.

Small sample size is one of the limitations in our study.

Inclusion of a control group (healthy volunteers) would have provided a comparison of sexual dysfunction between normal individuals and individuals with mental illness thereby estimating the effect of psychiatric illness in causing sexual dysfunction by eliminating the other factors.

Also the results cannot be generalizable to the whole population as the study involved a specific set of population.

Even though the ASEX Scale was translated to local language for easy understanding for the subjects, the scale raises issues whether it is culturally valid and appropriate, which is one of the major limitations of this study which would have resulted in fewer percentages of dysfunction in some domains of ASEX in all the three groups.

## VI. Conclusion

Considering the prevalence of sexual dysfunction in this study and previous similar results, it is highly important to include proper sexual education, relationship counseling. It is important to address specific concerns of the patients in the treatment plan of patients with other primary psychiatric diagnosis. In patients who are difficult to be stabilized on psychotropic medications and also who are likely to experience side effects or worsening of current symptoms, conservative measures should be taken in managing sexual dysfunction[42].

By addressing the sexual dysfunction, we can also improve the compliance, as neglecting sexual related issues in treatment plan might lead to non-compliance, as psychotropic drugs per se might worsen the sexual dysfunction in addition to the already existing sexual dysfunctions.

We should keep in mind that not all sexual disturbances can be attributed to psychotropic medications which we use in these patients. Even though sexual dysfunctions can be attributed to various causes, when these sexual dysfunctions are identified during the early stages and when appropriate medications are chosen it might help in preventing the progression of the sexual dysfunction from a milder one to more severe dysfunctions.

Studies have shown that sexual dysfunction mainly occurs during the initial acute phase of the illness. But it is also shown that they are not limited to this acute period alone. Therefore management strategies should involve long term care to improve the quality of life of these patients[41].

It has been shown that communication about sexual related issues between the therapist and the patient is often poor. Improving communication skills is one important area to be addressed.

Even though the past decade has made attempts to address this issue of sexual dysfunction, more attention is required in this area to further improve the overall treatment outcomes. Future studies should involve different cultural background. It should also analyze the effect of the duration of the illness on the sexual functioning of these patients which is necessary to address the above mentioned issues.

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