Original Article

Study of Depression, Anxiety, Stress, Suicide Risk and Resilience in Undergraduate Medical Students

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Abstract

Background: To assess depression, anxiety, stress, suicide risk and resilience in undergraduate MBBS 1st Professional medical student. **Subjects and Methods:** 48 first professional MBBS students were participated in study before educational intervention. DASS, Suicidal behaviour questionnaire-Revised (SBQ-R), Connor Davidson's resilience scale were used. **Results:** Results showing that 43.75% having moderate depression, 25% have moderate anxiety and stress. 29.16% students have SBQ-R≥7 (considered at risk of suicide). Depression has positive correlation with stress, anxiety and suicide. No significant correlation was found between resilience and depression, anxiety, stress and suicide risk. **Conclusion:** We need more such studies to assess mental wellbeing of medical students and appropriate measures to tackle the threat of suicide of future healer.

Keywords: Depression, Anxiety, Stress, Resilience.

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Introduction

As we all know, getting a medical degree in India is not an easy task. Students have to pass from stressful situations not only in under-graduation but also in speciality courses. Some students have been committed suicide due to unwearable stress and depression. Studies has been done to evaluate the ongoing stress and its effect on performance.[1] We not only need more such studies but also action plan to minimise stress in students so that future healer can heal their patients in a better way.

Objective and aim

1. To study stress, anxiety, suicidal ideation, in undergraduate MBBS 1st Professional medical students.
2. Educate them about coping strategy for stress, anxiety and identify persons at risk of suicide.

Subjects and Methods

Forty eight MBBS first professional students were asked to participate in study. DASS, SBQ-R, Connor Davidson's resilience scale were used to assess depression, anxiety, stress, suicidal ideation and resilience respectively before educational intervention.

Connor Davidson's Resilience Scale:[2]

Conner-Davidson Scale consist of 25 items to measure resilience. It is five point likert scale that ranged from 0-4. The reliability and validity of scale is verified.

Depression Anxiety Stress Scale (DASS):[3,4]

Depression Anxiety Stress Scales is made up of 42 self-report items to be completed over five to ten minutes, each reflecting a negative emotional symptom.[5] Each of these is rated on a four-point likert scale of frequency or severity of the participants' experiences over the last week . These scores ranged from 0, meaning that the client believed the item "did not apply to them at all", to 3 meaning that the client considered the item to "apply to them very much, or most of the time". It is also stressed in the instructions that there are no right or wrong answers.

Suicidal Behaviour Questionnaire-Revised (SBQ-R):

SBQ-R has 4 items, each tapping a different dimension of suicidality. Response can be used to identify at risk individuals and specific risk behaviours. It has cut off score ≥ 7 in adult general population.[6]

Analysis:

Analysis was done by using SPSS version 17.

Results

Table 1:

Rating	Depression	Anxiety	Stress
Moderate	21 (43.75%)	12(25%)	12 (25%)
Severe	5 (10.41%)	15(31.25%)	4 (8.33%)
Extremely severe	1(2%)	8(16.66%)	-

Total 48 undergraduate students participated in study in which 15 were female (31.3%) and 33 male (68.8%). One male student did not fill suicide questionnaire. 14(29.16%)

students has SBQ-R score ≥ 7 i.e considered at risk of suicide. 43.75% students fall in moderate category of depression, 16.66% fall under extremely severe anxiety [Table 1]. Mean score of resilience and others are as per [Table 2]. Correlation analysis [Table 3] shows that depression has positive correlation with anxiety (p< .05, pearson correlation 0.741), stress (P<.05, Pearson correlation 0.792) & stress suicide (p<.05, pearson correlation .402). There is not significant correlation of

resilience with DAS and suicide risk.

Table 2:

Rating	Mean	Std. deviation	N
Resilience	60.70	15.45	48
Depression	12.43	7.00	48
Anxiety	12.93	7.27	48
Stress	15.79	7.16	48
Suicide	5.17	2.72	47

Table 3:

Rating	Resilience	Depression	Anxiety	Stress	Suicide
Resilience Pearson correlation Sig.(2 tailed) N	1 48	-.123 .406 48	.009 .953 48	-.202 .169 48	.012 .935 47
Stress Pearson correlation Sig.(2 tailed) N	-.123 .406 48	1 48	.741** .000 48	.792** .000 48	.402** .005 47
Anxiety Pearson correlation Sig.(2 tailed) N	.009 .953 48	.741** .000 48	1 48	.790** .000 48	.283 .054 47
Stress Pearson correlation Sig.(2 tailed) N	-.202 .169 48	.792** .000 48	.790** .000 48	1 48	.189 .204 47
Suicide Pearson correlation Sig.(2 tailed) N	.012 .935 47	.402** .005 47	.283 .054 47	.189 .204 47	1 47

**Correlation is significant at the 0.01 level(2-tailed)

Discussion

As we all know that getting a medical degree in India is not an easy task. It required dedication and hard work. Most medical colleges are overburden due to patient load which affect the mental wellbeing of medical students due to excessive stress and long working hours. Now a days we heard increasing suicide rates in medical students due to many contributing factors needed to be evaluate. At global level about one million people commit suicide every year, a global mortality rate 16 per 10000, or one suicide death every 40 second.[4] But there are not much studies which shows suicide in medical students. Study has done to assess suicidal ideation in Indian medical students showing that suicidal ideation among medical students were 53.6%.[5] Many factors seems to be contributing for suicidal risk including socioeconomic status, depression, stress etc.[5] Which warrents further studies and favourable action to prevent such grave loss specially when our country is facing shortage of doctors. This study aimed to identify prevalence of depression, anxiety, stress and suicidal risk with resilience in first year undergraduate medical students. Medical students has to go many stressful situation making them vulnerable to depression and anxiety and suicide. A meta-analysis demonstrated that first year students has highest rate of depression and rate of depression, then gradually decreased at final year.[7] This study shows that there is no correlation of resilience with depression, stress,

anxiety and suicide risk. This may be due low sample size which may increased in further studies. So addressing mental wellbeing from root might make future doctors to be more stress free so can deliver better health services.

Conclusion

This study find that depression, stress, anxiety and suicidal risk are significant in medical students. There is no any significant correlation of above factors with resilience.

Limitation of Study:
Less sample population is major limitation of study.

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Auditory Hallucinations: A Phenomenological Study

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ABSTRACT

Background: Auditory hallucinations are common feature in psychotic disorder and have also given diagnostic importance. These hallucinations can be rated on different dimensions both quantitatively and qualitatively, so here comes phenomenological aspect. Study of phenomenological aspects may lead to more understanding about them and further can help in management of distressing auditory hallucinations. **Aims and Objectives:** The aims and objectives of the current study was as follows- 1. To explore the phenomenology of auditory hallucination in schizophrenia spectrum disorder. 2. To find out clinical correlation of auditory hallucination with other psychotic symptoms. 3. To find out factor structure of PSYRATS (Psychotic Symptom Rating Scale) and their correlation with PANSS and its subscales. **Materials and Methods:** One hundred patients, who had schizophrenia spectrum diagnoses attending general hospital psychiatry unit in India having auditory verbal hallucination (AVH) in last seven days were studied. Phenomenology was assessed by using Psychotic Symptoms Rating Scale (PSYRATS) and Positive and Negative Syndrome Scale (PANSS). Pearson correlation for the psychotic symptoms, Dimensions of psychotic symptoms on PSYRATS were explored by principal component analysis. **Results:** In study 82% patients had schizophrenia. More than one third patients heard voices continuously, in more than two-third patients voices were coming from outside head only, had no control over them, and had same loudness as one's own voice. One third patients had AVH (Auditory Verbal Hallucinations) with all negative content, 19% had AVH commanding nature. 79% had delusions, 96% had hallucinatory behavior. Bipolar index showed dominance of positive symptoms. 80% reported depression. On principal component analysis three factors found, all three factors were positively correlated with positive subscale and total PANSS score. None of three factors were correlated with negative subscale of PANSS. **Conclusion:** In this study of AVH phenomenology among schizophrenia spectrum disorders, most dimensions of AVH correlated well with one another. On principal component analysis three factor structure of PSYRATS was found.

Key words: Auditory hallucinations; Schizophrenia spectrum disorders

INTRODUCTION

Auditory hallucinations are common feature of psychotic illnesses. The diagnosis of schizophrenia is entirely dependent on its cluster or phenomenology and there lies the importance of study the disease from this angle. Hallucination can be analyzed according to their form and content. A hallucination is the perceptual experience that exists in time and space and relates affectively cognitively to present and past experience. The form elements reflect present and perceptual experience, perceived as objective reality. The content of hallucination focuses on patient's life experiences synthesized through memory. The classical teaching proposes a discrimination of form from content in explication of phenomenology. There are conflicting observations in literature regarding both form and content of hallucination. Phenomenology may provide clues to mechanism and pathogenesis of hallucinations. Persistent

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and refractory hallucinations are an important source of morbidity. A phenomenological enquiry that includes the common coping strategies of hallucinating patient may have therapeutic implications. There are many excellent studies published in this area assessing the different dimensions of AVH.[1-4]

Aims and objectives
- To explore phenomenology of auditory hallucination in schizophrenia spectrum disorders.
- To find out clinical correlation of auditory hallucination with other psychotic symptoms.
- To find out factor structure of PSYRATS (Psychotic Symptom Rating Scale) and their correlations with PANSS and its subscales.

MATERIALS AND METHODS

Setting and duration
The study was conducted at a medical school affiliated general hospital in Western India between september2014 to july2015.

Sample size
One hundred patients of schizophrenia spectrum diagnoses (schizophrenia, schizoaffective disorder, schizophreniform disorder, brief psychotic disorder, psychotic not otherwise specified) were included (DSM-IV TR).[5]

Inclusion criteria
Diagnosed cases of schizophrenia spectrum psychoses, reporting auditory verbal hallucination, able to provide informed written consent and willing to participate in study were included.

Exclusion criteria
Patients with co-morbid substance abuse disorder, organic disorder and primary mood disorder, or having severe cognitive deficit that would prohibit the person to participate in interview.

Methodology
Written informed consent was taken from all participants, socio-demographic data was collected by semi-structured interview with patients and their relatives.

Phenomenology of auditory hallucination and its correlation with other dimensions of psychosis were assessed by using two questionnaires.

1. Psychotic Symptoms Rating Scale (PSYRATS): (Carter, Mackinnon, Howard, Zeegers, Copolov,1995)
   It was designed to be more easily administered than lengthy hallucination interviews. It is structured interview, examines 11 auditory hallucinations (PSYRATS-AH) and 6 delusion dimensions. 11 dimensions of Auditory Verbal Hallucination (AVH) are frequency, duration, location (inside head or external), loudness, conviction in belief regarding origin, amount of negative content, degree of negative content, amount of distress, intensity of distress, disruption to life and controllability of voices. Delusion subscale comprises of, amount and duration of preoccupation, conviction, amount and intensity of distress, disruption of life caused by belief. Ratings are done from 0-4, higher rating indicates more severity. Reliability statistics indicated strong inter-rater reliability of PSYRATS-AH (0.79) and adequate test-retest reliability.[1] Haddock et al. considered that dimensions measured by items were largely independent and found few significant correlations between items.[6] However, a more recent study has suggested it to be more internally consistent.

2. Positive and Negative Syndrome Scale (PANSS), (Kay et al.)[7]
   It is 30 items scale. 7 items constitute a positive scale, 7 items a negative scale and remaining 16 items a general psychopathology scale. The score for these scales is arrived at by summation of ratings across component items. Therefore, the potential ranges are 7 to 49 for the positive and negative scale, and 16 to 112 for the general psychopathology scale. In addition to these measures, a composite scale is scored by subtracting the negative score from positive score. This yield a bipolar index range from -42 to +42, which is essentially a difference score reflecting the degree of predominance of one syndrome in relation to other. The validity and reliability of PANSS has shown in many studies, Inter-rated reliability is 0.80 (Kay, Opler, Lindemayer, 1988).[8]

Analysis
- Done by using SPSS (Statistical Package for Social Sciences,1996) version 17.[9]
- Bivariate correlation (Pearson Correlation) was calculated for different dimensions of PSYRATS and PANSS.
- Principal component analysis was done on PSYRATS.

RESULTS

Demographic characteristics
Patients age range was 16 to 68 years (Mean 39.68, SD 10.79), predominant were male (68%), married (64%), belongs to Hindu religion (91%), nuclear family (80%), urban area (64%). Only 9% patients had graduate or postgraduate degree. The most common diagnosis was schizophrenia (82%) [Table 1].

The descriptive features of auditory hallucinations is depicted in Table 2.

Seventy-two percent with AVH have abnormal belief, 29% had severe disruption to life due to belief and hospitalization was usually necessary. Patients reported continuous hearing of voices (47%), coming outside head only (73%), of same loudness as his/her own (70%). 53% had 100% conviction that voices solely due to external causes. Patients reported all voices content was negative and unpleasant (35%), command to harm self or others (19%), majority of voices were distressing (23%), extremely distressing (intensity of distress), felt the worst he/she could possibly feel (12%), causes severe disruption of life so that hospitalization was usually necessary (37%). Nine percent patients reported that voices caused complete disruption of daily life, requiring hospitalization. The patients were unable to maintain any daily activities and social relationship, self-care also severely disrupted. 71% admitted that they had no control over their voices.

Persons who had AVH also have hallucinatory behavior (96%), suspiciousness (85%) and hostility (46%). Most of patients had blunted affect (93%), emotional withdrawal (89%), apathetic social withdrawal (90%) and stereotyped thinking (71%) [Table 3].

Bipolar index showed predominance of positive symptoms (61%) over negative symptoms (35%). Most of patients reported somatic concern (72%), anxiety (73%), tension (67%), unusual thought content (72%), lack of judgment and insight (78%) and preoccupation (76%). 80% patients reported depression and 93% patients had active social avoidance.

The correlation between different dimensions of PSYRATS is shown in Table 4.

The principal component analysis of PSYRATS is shown in Table 5.

The screen plot of eigen value showing two major factors is shown in Figure 1.

The rotated component matrix is shown in Table 6.

On principal component analysis three factors extracted whose eigen value was greater than unity and named as F1 (delusion), F2 (influence), F3 (externality). These factors captured 76% of total variance. On drawing scree plot two major factors were found i.e F1 & F2 [Figure 1].

F1 named as delusional factor comprises frequency, duration, disruption to life caused by voices and all six

## Table 1: Demographic Characteristics of the patients (N=100)

Characteristics		%
Age range (years) 16-68	Mean (SD) years 39.68(10.79)	
sex	Male	68
	Female	32
Marital status	Married	64
	Single	30
	Divorced	6
Religion	Hindu	91
	Islam	9
Family type	Nuclear	80
	Joint	20
Locality	Urban	64
	Rural	36
Occupation	Professional	4
	Semi-professional	1
	Clerk/shop owner/farmer	2
	Skilled worker	7
	Semiskilled worker	33
	Unskilled worker	25
	Unemployed	28
Education	Graduate/ postgraduate	9
	Intermediate	9
	High school	17
	Middle school	31
	Primary school	22
	Illiterate	12
Family income (by kuppuswamy scale)	9798-19575	10
	7323-9797	18
	8491-7322	39
	2936-4893	27
	Upto Rs. 2935	6
Diagnosis	Schizophrenia	82
	Schizophreniform disorder	6
	Brief psychotic disorder	1
	Psychotic NOS	3
	Schizoaffective disorder	5

Table 2: Descriptive feature of AVH as per PSYRATS Ratings

PSYRATS	%				
	0	1	2	3	4
Frequency	1	9	21	32	37
Duration	0	10	19	24	47
Location	0	6	2	19	73
Loudness	0	8	70	18	14
Belief regarding origin of voices	0	4	13	30	53
Amount of negative content of voices	17	5	20	23	35
Degree of negative content	18	16	14	33	19
Amount of distress	9	11	14	43	23
Intensity of distress	8	15	29	36	12
Disruption to life caused by voices	9	11	34	37	9
Controllability of voices	0	5	4	20	71
DELUSION: 72% having abnormal belief associated with AH)					
Amount of preoccupation with delusion	29	7	5	14	45
Duration of preoccupation	26	2	11	13	48
Conviction	25	2	22	18	33
Amount of distress	25	8	22	23	22
Intensity of distress	25	12	25	27	11
Disruption to life	24	15	23	29	7

Table 3: Relationship of AVH with other psychotic features

Positive symptoms PANSS	%	Negative Symptoms PANSS	%
Delusion	79	Blunted affect	93
Conceptual disorganization	82	Emotional withdrawal	89
Hallucinatory behavior	96	Poor rapport	49
Excitement	72	Apathetic social withdrawal	90
Grandiosity	34	Difficulty in abstract thinking	57
Suspiciousness/persecution	85	Lack of spontaneous flow of conversation	67
Hostility	46	Stereotyped thinking	71
General Psychopathology PANSS			
Somatic concern	72	Unusual thought content	72
Anxiety	73	Disorientation#	8
Guilt feeling	13	Poor attention	27
Tension	67	Lack of judgment and insight	78
Mannerism &posturing	5	Disturbance of volition	18
Depression	80	Poor impulse control	35
Motor retardation	65	Preoccupation	76
Uncooperativeness*	26	Active social avoidance	
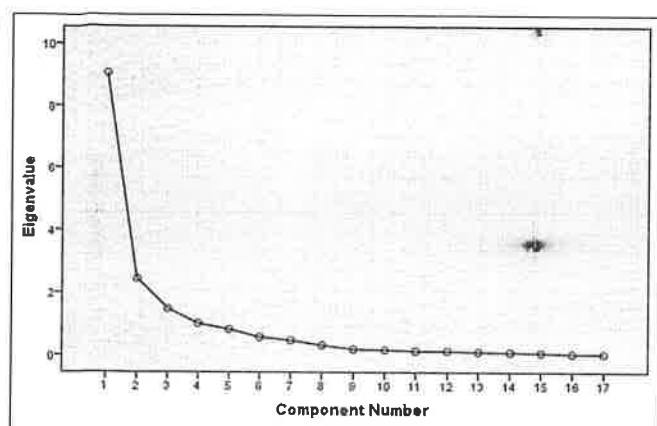
Figure 1: Screen plot of eigen value

components of delusional subscale of PSYRATS. F2 named as influence factor includes loudness of voices, amount and degree of negative content, amount and intensity of distress and disruption of life caused by voices. F3 named as externality factor includes location of voices, belief regarding origin of voices and controllability of voices.

DISCUSSION

Demographic profile

All patient with AVH had age range of 16-68 years (Mean 39.68, SD 10.79) which is close to McCarthy-Jones et al study.[3] 68% were male and 32 % were female, which is around similar sex ratio as in Singh et al study.[4] More than half of patients were married (63%) and belonged to Hindu religion (91%), urban (60%), nuclear (80%) family. One third patients were educated up to middle school. The most common diagnosis was schizophrenia (82%) which was also close to McCarthy-Jones et al. study (80.9%).[3]

Phenomenology of AVH

Frequency, Duration, Location, Loudness

Auditory hallucinations are the most common hallucinations found in schizophrenic patient. Around 61% patients with schizophrenia reported auditory hallucinations and 50% from outer space and most of voices spoke in normal conversational tone.[10] According to Lewis, et al. 70% schizophrenic patients have auditory hallucinations.[11] In our study patients who had auditory verbal hallucination were included in which 37% were hearing the voices continuously, 47% had voice lasted for hours at a time (vs 59% in McCarthy-Jones et al.)[3], 73% had voices sound like they are from outside head only (vs 49% in Nayani and David, et al study),[2] 70% had same loudness of voices as their own voice (vs 73% Nayani and David et al).[2] 18% had voices louder than own voice (vs 29% S.McCarthy-jones et al.).[3] Traditionally, voices perceived as originating outside of head have been given greater emphasis in diagnosis. It may be that the important characteristics of voices perceived as outside the head is not their location but rather the patient's delusional attribute that they are alien. There is no firm evidence that the perception of external voices is somewhat more pathological or indicative of a particular class of disorder.[12] In Nayani et al. study the internal or external did not differ on reality score.[2]

The neurological literature suggests that experience of unilateral hallucination is associated with contralateral temporal lobe diseases (Almedia et al. 1993)[13] or with ipsilateral ear discharge (Taylor and Fleminger,1981).[14]

Loudness has high correlation with all other dimensions (including disruption to life) used in PSYRATS except location and controllability of voices. In one study loudness of voices was not correlated with significant interference in patient behavior.[15] Nayani et al. also showed that frequency was significantly correlated with duration, and total

Table 4: Correlation of AVH characteristics

Variables	Frequency	Duration	Location	Loudness	Beliefs re-origin of voices	Amount of negative content	Degree of negative content	Amount of distress	Intensity of distress	Disruption to life caused by voices	Controllability of voices
Frequency											
Duration	0.802**										
Location	0.209*	0.222*									
Loudness	0.220	0.212*	#								
Beliefs re-origin of voices	0.356**	0.442**	0.547**	#							
Amount of negative content	0.286**	0.397**	0.322**	0.388**	0.260**						
Degree of negative content	0.290**	0.410**	0.312**	0.411**	0.288**	0.889**					
Amount of distress	0.433**	0.510**	0.316**	0.335**	0.203*	0.769**	0.783**				
Intensity of distress	0.432**	0.499**	0.337**	0.389**	0.264**	0.762**	0.796**	0.909**			
Disruption to life caused by voices	0.476**	0.521**	0.336**	0.397**	0.241*	0.666**	0.690**	0.859**	0.887**		
Controllability of voices	0.273**	0.215*	0.479**	#	0.459**	#	#	0.207*	0.268**	0.228*	

Most of dimensions of PSYRATS-AVH were correlated well with each other.

number of recorded words.[2] As time pass, most of patients experienced a decrease in frequency of their hallucination or change in nature of their hallucinatory experience.[11]

Beliefs regarding origin of voices

There is a powerful explanation for the belief in external sources of hallucinations by person experiencing them is that no one would want to generate such an experience, the hallucination is usually so unpleasant, so intrusive that it makes no sense that it would arise from within the person who experiences it.[11]

In our study 53% patients believed that voices were solely due to external causes (100% conviction). There was significantly high correlation between location of voices and belief regarding origin of voices (0.547).

Amount of negative content

Content of auditory hallucinations is more likely to be threatening, antagonistic and isolating during acute psychoses but more likely to be helpful friendly and socially focused during remission.[16] Person afflicted often hears middle-aged voices with a different accent than is spoken by the patient. Younger patients tend to hear somewhat younger voices, while older patient hear somewhat older voices.[11] Although there have been decades of speculation about why the content of auditory hallucination is so often threatening or demeaning, there is at present no clear explanation for the generally negative content of auditory hallucination.

In this study 83 % had voices of negative content (vs 60% McCarthy et al.)[3], 35% voices had unpleasant or negative content.

Degree of negative content

Most of patients with AVH in schizophrenia reported negative content which comprises personal verbal abuse, threat to harm self and command to harm others. Hayashi et al. also showing that negative content, negative patient response, and uncontrollability of voices significantly correlated with depression.[17]

This study showing that depression is found in 80% of patient with AVH. 33% had voices of personal verbal abuse, 19% had voices personal threat to self, including command to harm self and others (vs 35% command hallucination in MacCarthy-Jones et al).[3] The presence of command hallucination is associated with "danger related events" in patients units.[18] However Goodwin et al. reported that patients usually ignore command hallucinations.[19] In a study of outpatients with schizophrenia, command hallucinations were found in significant number of patients, in most cases they had minimal influence on the outcome of schizophrenia.[20]

Table 5: Principal component analysis of PSYRATS

Component	PSYRATS: Total variance explained					
	Initial eigenvalues			Rotation sums of squared loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.049	53.232	53.232	6.244	36.727	36.727
2	2.434	14.320	67.551	4.546	26.742	63.469
3	1.469	8.640	76.191	2.163	12.723	76.191

Table 6: Rotated component matrix

PSTRATS	Components		
	1	2	3
Frequency	0.613	0.263	0.177
Duration	0.572	0.370	0.195
Location	0.092	0.233	0.810
Loudness	0.163	0.473	0.009
Belief regarding origin of voices	0.274	0.100	0.779
Amount of negative content	0.056	0.879	0.179
Degree of negative content	0.113	0.901	0.179
Amount of distress	0.351	0.862	0.075
Intensity of distress	0.387	0.853	0.124
Disruption to life caused by voices	0.422	0.792	0.093
Controllability of voices	0.261	0.034	0.738
Amount of preoccupation with delusion	0.918	0.184	0.125
Duration of preoccupation with delusion	0.943	0.145	0.174
Conviction	0.914	0.146	0.205
Amount of distress	0.890	0.320	0.161
Intensity of distress	0.898	0.272	0.173
Disruption to life caused by belief	0.855	0.293	0.211

*Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 5 iterations. Correlation cofficients (loadings)>0.4 are highlighted and bold.

Table 7: Correlation of factors with subscale of PANSS

PANSS	F1 (Delusion)	F2 (Influence)	F3 (Externality)
Positive Scale	0.784*	0.471*	0.439*
Negative Scale	0.015	0.028	0.1
General Psychopathology scale	0.319*	0.323*	0.112
Total	0.603*	0.690*	0.919*

*Significant Correlation

Amount of distress

Majority of subject ascribed reality characteristics of their voices and so they are more distressing. 91% patient reported distressing voices, 43% had majority (around 50%) of voices distressing. 23% had all distressing voices. 9% had no distressing voices. Distress is also significantly correlated with other dimensions of AVH, like frequency, duration, belief, content.

Disruption to life

The voices of AVH may form an insistent background to life, so ensuring that a large part of patient's speech and behavior is occupied in answering and obeying the voices. The AVH described by patients are as real to them as any other remembered conversation and both real and auditory perception form the memories on which patients base their life and behavior in the present.

In this study 91% had effect of voices on life, 9% had complete disruption of daily life, unable to maintain daily activity, self-care and social relation.

Controllability

Hayashi et al. reported that uncontrollability of voices is significantly correlated with depression.[17] Literature shows that about half of patient are able to exert some control over their voices.[2] and two third developed the coping mechanism to deal with them. When various types of auditory input were presented to patient with schizophrenia who experienced hallucinations, it was found that it was not the degree of external stimulation that was required to diminish hallucination but the nature of stimulus and degree of attention it received.[10] The mechanism used by patients with chronic schizophrenia to cope with persistent auditory hallucinations were discussed by Fallon and Talbot.[21] High level of distress was found in patients who have little control and few means of coping.

This study is showing the significant positive correlation between controllability of voices and frequency, duration, location, belief regarding origin of voices, amount and intensity of distress and to disruption to life caused by voices. In this study 29% patients have some control over voices, 71% had no control over voices. This difference in finding may be due to involvement of patients of Hospital for Mental Health (HMH) where most patients were chronic and resistant.

Delusions

Delusion associated with AVH may be responsible for unprovoked behavior disturbance. Literature shows that up to 90% of patients with hallucination also have delusions.[22] Kulhara et al. found that delusion of persecution was the commonest, being present in 84.6% patients.[23] They also found that the male patients had more delusions of persecution which was in agreement with the findings of Lucas et al.[24] When perception is altered, illusions, hallucinations, and often delusion are experienced together.

This study showed that 79% patients had delusion associated with AVH (mostly persecutory), 76% admitted that delusion affect their life, 29% had severe disruption to life so that hospitalization is usually necessary.

Relation of AVH with other psychotic feature

1. Relation with positive and negative scale of PANSS: Ninety six percent (96%) patients with AVH had hallucinatory behavior, 85% had suspiciousness/persecution, 46% had hostility, 93% had blunt affect. Bipolar index shows predominance of positive symptoms over negative symptoms (Bipolar index was positive in 61% and negative in 35%).
2. Relation with general psychopathology scale: Eighty percent (80%) reported depressive features, 73% had anxiety, 35% had poor impulse control. It has been shown that as the time passages most of patients experience the decrease in frequency or change in nature of their hallucinations.[11]

Correlation of various dimensions of AVH

Most of dimensions of AVH (of PSYRATS-AH) correlated well with each other with the following exceptions:

- Loudness was not significantly correlated with location of voices.
- Location of voices was not significantly correlated with controllability and belief regarding origin of voices.
- Amount of negative content of voices was not significantly correlated with controllability.
- Degree of negative content of voices was not significantly correlated with controllability of voices.
- Controllability of voices was not correlated with loudness and amount of negative content and degree of negative content.

There is vigorous debate about the presence of auditory verbal hallucination (AVH) in disorder other than psychoses such as borderline personality disorder and also in normal population.[3] What remains to be answered is whether the form of these verbal hallucination is identical to the form of the verbal hallucination in schizophrenia for example.

Factor structure of PSYRATS

On principal component analysis with variance rotation for 17 items scale PSYRATS, yielded 3 broad factors (Eigen value more than 1) underlying the relationship among the participants responses to these items. These factors could be considered as three new hypothetical variables and can preserved for further studies. On the basis of nature of items included in factors they were named as delusional (F1), influence (F2), and externality (F3). Delusional factor (F1) having all delusional dimensions of PSYRATS scale with frequency of AVH and its effect on patient's life. The loading ranges from 0.943 to 0.422 and occupied 36.7 % of total variance. F1 resembles F2(named as immersion in hallucination) of Singh et al. study which contains frequency, duration, constancy, overt behavior, time and affect characteristics of BPRS (Brief Psychiatric Rating Scale).[4]

Factor 2 in this study named as influence as it having negative content of AVH with its severity, distress, and its effect on patient's life. This factor has similarity with F3 of Hayashi et al. study.[17] The loading range is from 0.473 to 0.901 with 26.7 % of total variability. Factor three (F3) named as externality as it is mainly denoting external things like location of voices, origin of voices (internal/external) and patient's ability to control them (similarity to Hayashi et al. study).[17] The loading range 0.738 to 0.810 with 12.7 % occupancy of total variance.

In study done by Singh et al. five eigen values greater than unity was obtained, however on analyzing scree plot two factors was obtained (same as in our study). First named as reality of hallucinatory perception, second as immersion in hallucination. Both factors were observed to have positive correlation with BPRS (Brief Psychiatric Rating Scale).[4] In our both F1 (delusion) and F2 (influence) have positive correlation with total PANSS, positive and negative subscale. F3 (externality) have positive correlation with positive subscale and total PANSS. None of three factors has correlation with negative scale [Table 7].

Limitations of this study

1. Duration of schizophrenia spectrum psychoses and AVH was not included.
2. Less number of phenomenological dimensions.

CONCLUSION

Patients with schizophrenia spectrum disorders having auditory hallucinations attending psychiatry department of medical school affiliated general hospital in Western India were interviewed for studying the phenomenological features.

All patients were interviewed using PSYRATS which was followed by administration of PANSS. Majority of patients were schizophrenic (82%), 79% patients had delusion. 72 % admitted that voices were coming from outside, 71% had no control over them. 19% reported voices threat to harm self, extreme instructions or command to harm self or others. Majority of patient (96%) had hallucinatory behavior with predominance of positive symptoms. Majority of dimensions of PSYRATS were also correlated to each other. On principal component analysis there are three factors with Eigenvalue more than

-one in PSYRATS with 76% of total variance. But on scree plot two main factors were found. F1 and F2 both have positive correlation with total PANSS, positive and general psychopathology. None of three is correlated to negative subscale of PANSS.

ACKNOWLEDGEMENT

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Study of Knowledge, Attitude and Practice regarding Alcohol among College Students

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Abstract: *Alcohol consumption is widely prevalent world-wide. It can leads to many physical, mental and social problems. Good knowledge and attitude can leads to change the practice regarding alcohol use and can prevent harm from it. To study the knowledge, attitude and practice among college students a semi-structured questionnaire having thirty nine questions in three sections (knowledge, attitude,practice) was given before educational intervention. 527 graduate students participated in this study.The statistical analysis was done using SPSS version 17. The result of study showed good knowledge attitude and practice with Some prominent myths about alcohol likeBeer is not an alcohol, alcohol improves sleep, potentiate sexual performance,significantly reduces anxiety and depression, and alcohol addiction is a bad habit not psychiatric illness. There is need for more educational intervention to correct the myths regarding alcohol.*

Keywords: knowledge, Attitude, Practice, Alcohol, Health

1. Introduction

Alcohol consumption is common among college going students.26.4 % students consume alcohol and many students know the ill effects of alcohol consumption though, most of them considered it as a part of life style (1). Alcohol influences traffic and results in road accidents, family problem and relationship violence and crime, health and financial problems(2). Knowledge and awareness regarding alcohol can change the attitude and which leads to change in practice.

2. Aims and Objectives

1) To study the knowledge, attitude and practice among college students, regarding alcohol use.
2) Improve the knowledge and attitude towards the alcohol use.

3. Method and Material

A semi-structured questionnaire was prepared having 39 questions in three section,first section having twenty one questions to assess the knowledge, second section having fifteen questions to assess attitude and third section having three questions to asses practice. 527 B.Com students from a degree college in Ahmedabad participated in study and given to fill above described questionnaire in 15 minute before educational intervention.

4. Analysis

The statistical analysis was done using SPSS version 17.

5. Result

Students belong to age group of 17-22 years in which around 62% were female and 37% were male.All were graduate students (B.COM). Most of students (91.7%) agreed that positive family history is risk for alcohol, two third(71.9%) agreed that suicide is more common in alcohol use disorder. 65% students completely agree that Prohibition of alcohol from country is necessary. There were also misconception like beer is not an alcohol(55.8%) and alcohol improves sleep(62%).Alcohol addiction is bad habit not psychiatric illness(62.4). Only 1.3 % students accepted that they had taken alcohol and someone in family wasalso taking alcohol.

Table 1: Section1 (knowledge)

S. No	Statement	Agree %	Disagree %	Neutral %
1	liquer is chemical knows as alcohol	94.1	5.7	0.2
2	Beer is not alcohol	55.8	43.6	0.6
3	Family history is risk factor for alcohol addiction	91.7	7.2	1.1
4	Alcohol improves sleep	62	37.6	0.4
5	Alcohol potentiate sexual performance	47.1	48.8	4.2
6	Alcohol significantly reduce anxiety and depression	56.2	43.3	0.6
7	Suicide is more in person with alcohol use disorder	71.9	27.7	0.4
8	Early age of onset of alcohol is risk factor for dependence	87.9	11.8	0.4
9	Alcohol improves physical strength	28.5	70.8	0.8
10	Alcohol is risk factor for anxiety and depressive disorder	68.7	30.2	1.1
11	Alcohol de-addiction can be possible by faith healing	22.4	76.7	0.9
12	Tremors are part of withdrawal symptoms	68.9	29.8	1.3
13	Alcohol withdrawal can be life threatening condition	50.7	48.6	0.8
14	Alcohol intake increase risk of heart attack	77.2	21.8	0.9
15	Intake of sleeping pills increase the risk of accident	80.3	19	0.8

16	Effect of alcohol is more in female than male even amount of consumption is same	80.3	19.2	0.6
17	Consumption of alcohol during pregnancy increase risk of MR in child	78.9	19.5	1.5
18	Alcohol consumption leads to early death	92	7.8	0.2
19	'Lattho' is methyl alcohol	83.3	15.4	1.3
20	Intake of 'lattho' causes blindness or death	86.3	12.5	1.1
21	Alcohol consumption leads to vitamin deficiency	87.5	12.5	0

Table 2: Section 2 (attitude)

S. No	statement	Totally disagree%	Disagree %	Neutral %	Agree %	Totally agree %	No answer%
1	Alcohol addiction is bad habit not the psychiatric illness	5.1	2.8	2.7	26.6	62.4	0.4
2	Prohibition of alcohol in country is necessary	4.4	5.7	9.3	14.6	65.1	0.9
3	Alcohol de-addiction can not possible in addicted person	15.2	33.4	15.4	17.6	17.6	0.8
4	Female should not take alcohol	10.1	8.2	7.6	24.5	48.8	9
5	Person himself is responsible for failure of de-addiction	7.2	10.1	16.3	24.9	41.6	0
6	Alcohol is medicine	31.1	20.7	20.1	16.7	11.4	0
7	Alcohol addiction is sign of weak mind	7.4	10.1	13.7	36.1	31.9	0.9
8	Once alcohol addiction occurred it is difficult to control intake of amount of alcohol	9.5	17.8	18.2	25.4	28.1	0.9
9	Alcohol de-addiction is possible forcefully	23.5	30.6	15.4	12.7	16.9	0.9

Table 3: Section 3 (practice)

Statement			
Did u ever took alcohol	Yes 1.3%	No 83.7%	No answer 15%
If yes, then when	< 1 month 0.4%	< 1 year 0.6% / > 1 year 0.2%	No answer 98.9%
Does anyone in your family has alcohol addiction	Yes 1.3%	No 80.6%	No answer 18%

6. Discussion

Majority of graduate students were in the age group of 17-22 years. This study showing that alcohol use is uncommon in college going students in contrast to study in Banglore where it was reported that alcohol use was fairly commonamong undergraduate college students(3).This may be due to good knowledge and prohibition of alcohol in Gujarat by government. Majority of students (62.4%) totally agree that alcohol addiction is part of bad habit not the psychiatry illness, this also similar to other study in which majority of students considered it as part of life style(1). Only 1.3 % students had tried alcohol which is contrast to other study (1), this may again due to good knowledge and favourable attitude towards alcohol. Prohibition of alcohol in Gujarat state may be contributing to these contrast findings.

7. Conclusion

Knowledge, attitude and practice is good in college students of Ahmedabad. Although there were some myths related to alcohol need to be corrected by frequent education interventions. Such educational interventions will improve knowledge which will leads to change of attitude and practice.

8. Limitation of study

Post educational intervention knowledge, attitude and practice was not assessed.Small sample size.

9. Acknowledgement

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Does a Didactic Lecture On Epilepsy for Nursing Students Improve Knowledge and Attitude?

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Abstract: _Background:_ *Adequate knowledge regarding epilepsy and positive attitude towards epilepsy would make early recognition of and appropriate intervention in this disorder more likely and better outcome of illnesses. Good knowledge regarding the epilepsy can promote treatment adherence, failure of which is the main cause of further precipitation of seizures.* _Aims and objectives_*: To find out the efficacy of educational program on epilepsy in nursing student by measuring the pre and post intervention knowledge.* _Methods and Materials_*: Knowledge and attitudes of 94 nurses before and after attending one hour lecture on epilepsy care was assessed using questionnaires.* _Statistical analysis used_*: Chi square test. SPSS version 15(statistical Package for social services) . P value of <0.05 was considered statistically significant.* _Results:_ *After the lecture, knowledge and attitudes of nurses improved regarding investigations and medical treatment. The most misunderstanding were reported regarding epilepsy surgery. There was no improvement in knowledge regarding quality of life.* _Conclusion:_ *This is the first study to objectively measure improvement of knowledge and attitudes among nursing after lecture about epilepsy care. Reasons for low impact of lecture and strategies for improvement are discussed.*

Keywords: Awareness, Attitude, Epilepsy, Knowledge, Nurse,

1. Introduction

Seizures are sudden, uncontrolled episodes of excessive electrical charges of the brain cells with associated sensory, motor and or behavioral changes. The phenomenon of recurrent seizures is termed as epilepsy, from the Greek word epilambanein, meaning to seize or attack. So epilepsy is a chronic disorder of the brain characterized by recurrent seizures.As per a recent study, 70 million people have epilepsy worldwide and nearly 90% of them are found in developing regions(1).Epilepsy was estimated to account for 0.5% of the global burden of disease, accounting for 7,307,975 disability adjusted life years (DALYs) in 2005(2).The crude Prevalence of epilepsy is5.35 per thousand in India (3). So early recognition and improved treatment of seizure disorder can predict and possibly to prevent seizures in people with known epilepsy.Radhakrishnan K, et al.(4) and Pandian JD, et al.(5) conducted study on epilepsy among the people of the state of kerala,India .ChaichonLocharamkul, et al.(6)of Thailand conducted similar study.

2. Aims and Objectives

- To find out the efficacy of educational program on epilepsy in nursing student by measuring the pre and post intervention knowledge.
- Improve the knowledge and attitude towards the epilepsy.

3. Method and Materials

Knowledge and attitudes of 94 nursing students (2nd year bachelor of science) before and after attending one hour lecture on epilepsy care was assessed by using printed questionnaire.The Lecture was consist of power point presentation showing facts and images related to epilepsy.

There were 25 questions in questionnaire based on basic knowledge, diagnosis and treatment, quality of life and first aid. It was loosely similar as used in Thai epilepsy study(6).

4. Analysis

Analysis was done by using SPSS-15 version(Statistical Package For Social Sciences), Chi- square test was applied and p value <0.05 was considered statistically significant.

5. Result

The age range of students who participate in study were 19 to 21 years, predominant female(85 out of 94 participants). All students were studying graduation in bachelor of science(B.Sc) in nursing at government nursing college. There was statistically significant improvement in knowledge regarding questions like drugs should be used in generic form and normal EEG does not mean that patient has no epilepsy (table 1). Awareness regarding misconception like epileptic person cannot work as normal person and all patients with tonic attack or blackout should have epilepsy also improved but was not statistically significant (table 2). Students also reported more misunderstanding like epilepsy person must take drugs for all their life (table 3).

Table 1: p <0.05, positive improvement in knowledge

Questions	Intervention	Agree (%)	Disagree (%)	No Response
Drugs should be used in generic form	Pre-	50	27.7	22.3
	Post-	72.5	23.4	4.3
CT should the 1st test for detecting the cause of epilepsy	Pre-	54.3	35.1	10.6
	Post-	25.5	68.1	6.4
Patient Should continue the same dose of antiepileptic drugs	Pre-	41.5	52.1	6.4
	Post-	67	29.8	3.2
Normal EEG means that pt. has no epilepsy	Pre-	53.2	43.6	3.2
	Post-	29.8	68.1	2.1
Only GTCS is harmful and must be treated	Pre-	56.4	31.9	11.7
	Post-	28.7	61.7	9.6
Medically intractable epileptic pt. cannot become seizure free be cured	Pre-	31.9	39.4	28.7
	Post-	38.3	47.9	13.8
Soft object should be placed between the patient's teeth during GTCS	Pre-	80.9	12.8	6.4
	Post-	53.2	39.4	7.4
Epilepsy pt. who wander around during or after seizure should be restrained for their safety.	Pre-	74.5	19.1	6.4
	Post-	52.1	44.7	3.2
Normal people should never have seizure in their life	Pre-	39.4	53.2	7.4
	Post-	24.5	74.5	1.1

Table 2: Improvement in knowledge But Not Statistically Significant

Questions	Intervention	Agree(%)	Disagree (%)	No Response
Epilepsy persons cannot work like normal people	Pre	27.7	70.2	2.1
	post	25.5	73.4	1.1
All patient with tonic attack or blackout should have epilepsy	Pre	28.7	63.8	7.4
	post	30.9	68.1	1.1
Only psychological support can not diminish seizure	Pre	51.1	42.6	6.4
	post	67.0	28.7	4.3
A patient having isolated seizure attack should admitted in hospital, resuscitated, given iv fluid and monitored in ICU.	Pre	52.1	43.6	4.3
	post	38.3	59.6	2.1

Table 3: Misunderstanding reported in following Qs.

Questions	Intervention	Agree (%)	Disagree(%)	No response
Epilepsy patient must take drugs for all their life	Pre-	22.3	71.3	6.4
	Post-	50	47.9	2.1
Epilepsy is caused by stress	Pre	72.3	24.5	3.2
	post	96.8	2.1	1.1
All epilepsy patient should have tonic attack or black out	Pre-	22.3	71.3	6.4
	Post-	39.4	59.6	1.1
Only psychological support cannot diminish seizure	Pre-	73.4	22.3	4.3
	Post-	34	62.8	3.2

6. Discussion

This study showing that after intervention there was increase knowledge and awareness regarding epilepsy (table1&2). The misapprehended questions are shown in table 3.The most misunderstanding were reported regarding epilepsy surgery. There was no improvement in knowledge regarding quality of life. There are studies in literature which have measured knowledge and attitude of physician and students towards epilepsy. Chaichon Locharamkul, et al.(6) conducted Study of improvement of knowledge and attitudes on epilepsy care among two groups of physicians and nurses after educational course in Thailand. The most misunderstanding in this study were, incorrect first aid of seizure, misinterpretation of blood changes after antiepileptic drug therapy, prohibition of swimming in people with epilepsy. In AbRahmanAF(7),Conducted a study on about awareness and knowledge of epilepsy among students in a Malaysian university. In this study 5.3% students thought epilepsy is caused by evil sprits, 4.9% thought that it was contagious.The conclusion of this study

also indicate that awareness and knowledge of epilepsy among the students need to be improved. Pandian JD, et al.(5) conducted study on Knowledge and attitude and practice with respect to epilepsy among high school students in Kerala. In this study 60% students reported that epilepsy was a form of Insanity and many had faith in exorcism and visiting religious Places as ways to care epilepsy. 50% admitted that Epilepsy a hindrance to education, employment, and marriage.. Radhakrishnan K, et al. (4) conducted study among the people of the state of Kerala and reported that the prevalence ratio of 4.9 cases per 1,000 people. About 40% of the respondents felt that individuals with epilepsy could not be properly educated or employed. 11 % would object to their children having contact with epileptic children. So Misconceptions and negative attitudes were alarmingly high in all above studies including this study. Persistent and effective information campaigns, therefore, are necessary to change their attitudes toward person with epilepsy. So Adequate knowledge ,positive attitudes towards epilepsy and Early recognition and

appropriate intervention can leads to Better outcome of illnesses and removal misconceptions.

7. Conclusion

The conclusion of this study indicate that awareness and knowledge and epilepsy among the students need to be improved. Such interventions are effective in changing the attitude and improvement in knowledge. Adequate knowledge about the epilepsy identified the individual who may suffering epileptic seizure in that they can give the first aid to the patient they can prevent the injuries of the patient.

8. Acknowledgement

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Original Research Article

Study of sexual side effects in patients undergoing treatment with anti-depressants

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ARTICLE INFO

ABSTRACT

Background: Sexual side effects with psychotropic medications can cause major distress. Antidepressants are known to cause sexual side effects.
Aim: To study the sexual side effects in patients undergoing treatment with anti-depressants.
Materials and Methods: Sixty patients of both genders undergoing treatment with antidepressants and having sexual complaints due to medicines were evaluated. A semi structured questionnaire was used to record demographic details. Arizona Sexual Experience Scale (ASEX) was used to assess sexual dysfunction.
Results: In our study majority patients were males 42 (70%) and diagnosed as having major depressive disorder 51 (85%). SSRIs were main agent responsible for the same 46 (76.7%).
Conclusions: Majority patients reported sexual side effects with antidepressants which can affect their subjective quality of life. Hence, patients should be assessed properly for sexual issues and treated accordingly.

1. Introduction

The Bio-Psycho-Social model, aims to understand the holistic nature of human psyche, and upon this tenet the treatment plans should be based. Sexual symptoms can cause major distress and conversely psychological illnesses may have a sexual symptom as its phenomenology, or the sexual symptom may result as a consequence of the side effect of pharmacotherapies.[1]

Studies have highlighted the sexual side effects of psychotropic medications. However psychological states such as anxiety, depression, social phobia, obsessive compulsive disorder or post-traumatic stress disorder also cause sexual dysfunction. There is an increased prevalence of sexual dysfunction in patients of psychotic disorders, especially those who are being treated with psychotropics.[2,3] Sexual dysfunctions have been reported in 30-60% of schizophrenic patients on treatment with antipsychotics and up to 78% in patients of depression being treated with antidepressants.[4–7] Prevalence is higher; up to 80% in patients of anxiety undergoing treatment.[8,9] Similarly, antipsychotics and mood stabilizers also cause sexual dysfunctions.[10]

Depressive disorders occur in about 10% of population, thus affecting the quality of life and general functioning of one's life. Depressive episodes are generally associated with decreased libido. Age also is a factor for decrease in sexual activity. In depression patients may has low libido and arousal. Erectile dysfunction is prevalent in up to 90% in patients with severe depression.[11] The use of selective serotonin reuptake inhibitors (SSRI's) in depression is generally associated with significant side effects such as low desire and difficulty in orgasm.[9] Increased prevalence

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in sexual side effects because of SSRIs and selective norepinephrine reuptake inhibitors (SNRIs) is due to their action on 5-HT2 receptors.[6]

Hence, it is assumed that antidepressants, can also by virtue of sexual side effects can add to the patient's sexual distress. On this premise, this study was planned to observe the sexual side effects of anti-depressants in patients suffering from major depressive disorder and to correlate with various demographic and phenomenological factors.

2. Materials and Methods

The study was conducted in a multi-specialty hospital for a period of six months after obtaining clearance from institutional ethics committee. Married patients of either gender in the age group of 25-45 years, undergoing treatment with antidepressants only and taking medications for at least 12 weeks were included. Those already having any sexual disorders and comorbid medical condition and substance use were excluded. Written informed consent was taken from patients and their confidentiality was assured. Diagnosis of psychiatric condition was made based on Diagnostic and Statistical Manual-IV TR,[12] 630 patients were screened in the six months period, of which 410 did not fulfilled the selection criteria as many were on combination of medications, some had comorbid illnesses. Of remaining 220, 100 of them did not give consent; of remaining 120, 60 of them had not been regularly compliant to treatment so were excluded. Finally 60 patients were enrolled.

Arizona Sexual Experiences Scale (ASEX) was used for the assessment of sexual functions such as drive, arousal, erection/ lubrication, orgasm. It is rated on 5 items, with scores ranging from 1-6, on Likert scale. A total score of >18 on the Arizona Sexual Experiences Inventory (ASEX) or a score of 5 or greater on any one item or a score of 4 on 3 or more items is associated with clinical sexual dysfunction. Higher score is indicative of higher dysfunction. It is brief, reliable and valid tool in which questions are short and easy. Being a bimodal scale, it measures both reduced and enhanced sexual functioning. Its major setback is that the scores are very subjective, due to cultural beliefs and life style biased interpretation.[13,14]

3. Results

The mean age of the sample was 36.25 ± 6.38 years in which 70 percent were males and 30 percent were females. Majority of them were Hindus (80%) [Table 1]. The mean duration of psychiatric illness was 47.80 ± 35.19 months and mean duration of psychopharmacological treatment was 43.40 ± 32.81 months. Most common diagnosis was major depressive disorder (85%) and most common antidepressant used were SSRIs causing sexual side effects (76.7%) [Table 2].

The mean ASEX score was 21.82 ± 2.25 and mean duration of sexual side effects was 12.62 ± 7.96 months. Majority of patients had high scores on ASEX (19 or more) suggestive of serious sexual dysfunction (93.3%) due to ongoing antidepressant. Most common responsible agent was SSRI in which sertraline showed maximum side effects in 40% patients followed by escitalopram (25%) [Table 3].

ASEX score had positive correlation with age of patients, duration of illness and duration of treatment but these were not statistically significant. Females had more mean scores on ASEX than males and it was statistically significant [Table 4].

4. Discussion

The normal sexual functioning in normal humans generally comprises sexual activity which includes transition through different phases of the sexual cycle. These transitional phases range from arousal state to ejaculation and subsequent relaxation without any problem. These are accompanied with a feeling of pleasure, fulfillment and satisfaction.[15]

Some of the psychological illnesses have been fraught with symptoms which pertain to sexuality. But owing to cultural constrains and to the physician factor, these symptoms get mostly overlooked or are given just little importance. At times patients, because of the reluctance to bring their sexual problems to the fore, reveal very less to the clinicians. This fact is evidently seen in the history taking and data collection and also in the course of the study. The psychiatric practice relies heavily on the biological modalities of treatment, including the use of pharmacological agents. So the patients are exposed to the side effects of pharmacological therapy along with the therapeutic effects. These side effects, mostly the sexual ones, usually go unnoticed or under reported because of the nature of them.[16]

Our study has shown that the patients on treatment with antidepressants to an extent had sexual side effects, but the nature of these varied according to the group of antidepressants used. Other factors such as age of the patient, type of symptoms, dosage of medications and duration of illness also affect the sexual side effects in the patients.

In our study MDD was the main diagnosis and SSRIs were the main line of management. This finding is similar to that of Koirala B et al where most of the patients of mood disorders were having depression as diagnosis and SSRIs as main treatment.[17] There has been a marked shift in the prescription of antidepressants with the use of Selective Serotonin reuptake inhibitors (SSRIs) replacing the use of Tricyclic antidepressants (TCAs). SSRIs have fewer side effects as compared to other antidepressants and most importantly they lack anticholinergic action. But one of their major setbacks is the side effect of impairment in

Table 1: Demographic details of study population

Parameter (N = 60)		Mean ± S.D./ Frequency
Age in Years		36.25 ± 6.38 (24-45)
Gender	Male	42 (70%)
	Female	18 (30%)
Religion	Hindu	48 (80%)
	Non- Hindu	12 (20%)

Table 2: Phenomenological details of study population

Parameter (N = 60)		Mean ± S.D./ Frequency
Duration of Illness (in months)		47.80 ± 35.19 (4-192)
Duration of Treatment Taken (in months)		43.40 ± 32.81 (4-180)
Diagnosis	Major Depressive Disorder	51 (85%)
	Obsessive & Compulsive Disorder	5 (8.3%)
	Generalized Anxiety Disorder	2 (3.3%)
	Panic Disorder	2 (3.3%)
Class of Medication Used	SSRIs	46 (76.7%)
	TCA	14 (23.3%)

Table 3: Details of sexual side effects seen

Parameter (N = 60)		Mean ± S.D./ Frequency
ASEX Score		21.82 ± 2.25 (16-26)
Duration of Sexual Side Effects (in months)		12.62 ± 7.96 (1-36)
Sexual Side Effects (ASEX ≥ 19)	Present	56 (93.3%)
	Absent	4 (6.7%)
Drug responsible for Sexual Side Effect	Sertraline	24 (40%)
	Escitalopram	15 (25%)
	Fluoxetine	6 (10%)
	Fluvoxamine	1(1.67%)
	Amitriptyline	6 (10%)
	Clomipramine	5 (8.33%)
	Imipramine	3 (5%)

Table 4: Association of sexual side effects with various factors

ASEX Score (N = 60)	Age of patient	Duration of Illness	Duration of Treatment	Gender (Mean ± S.D.)
r value	0.22	0.16	0.19	Males= 21.84 ± 2.28 Females = 22.68 ± 2.25
p value	0.09	0.22	0.14	$t = -3.76$, $p < 0.01$*

sexual functions which can be in the form of inhibition of orgasm, low desire or impairment of arousal.[8] In our study, Sertraline caused the majority of the sexual side effects amongst the SSRIs, patients on TCAs were much less compared to SSRIs. This finding was similar to Reimherr et al who found a high percentage of sexual dysfuntion in men treated only with sertraline (SSRI) in comparison to those treated with amitriptyline (TCA).[18] Our study also found positive correlation of ASEX with duration of illness and duration of treatment though not statistically significant. Study by Thakurta et al. showed that sexual dysfunction in depressed patients had significant correlation with severity of depression and duration of illness.[19]

5. Conclusions

The sexual side effects of pharmacological agents used in treatment of psychiatric illnesses can affect the quality of life of the patient and can mire the treatment outcome, including noncompliance. The most important clinical issue to be addressed by a clinician is, how to tackle the sexual side effects which is a great challenge in the treatment of a patient. Thus, it becomes imperative that from the out start itself the treating physician should make a conscious effort to delve into the sexual histories properly, so as to make a proper assessment of sexual functioning before starting treatment. There should be a satisfactory sense of awareness in the treating physician, regarding the sexual side effects of different psychotropic agents; and accordingly the choice of

it is to be made considering the possibility of sexual side effects, such that such side effects can be attended to in a timely fashion. Psychopharmacology offers a wide variety of molecules to choose from, and with a firm knowledge of these molecules the clinician can make a choice of a more favourable medicine, which will have fewer side effects.

Psychoeducation and psychotherapies of the patients should be given a greater credence in maintaining patients along with the pharmacotherapy. It's also important to make sure the patients are not influenced by the cultural taboos and their personal issues should be discussed with greater openness.

The sexual side effects whenever identified needs to be dealt with at the earliest. The cornerstone of the management of sexual side effect need to be based on educating the patient and his or her spouse, such that the catastrophic experience of a threatened sexuality can be addressed and the distress mitigated in the process.

Limitations of our study was that sample was small and it was a cross-sectional study. Also, effect of treatment of sexual side effects while continuing antidepressants was not studied.

6. Conflicts of Interest

None.

7. Source of Funding

None.

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