A Study of Phenomenology of Panic Disorder & Assessment of Severity & Comorbidity of Panic Disorder.

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Abstracts: **Background :** Panic disorder with or without agoraphobia is one of the common anxiety disorder. Panic disorder patient seeking medical help with different presenting complains & many patients also suffer from other anxiety / psychiatric or substance use disorders. **Objectives:** Study sociodemographic characteristics, phenomenology, and assessment of co morbidity and severity of Panic disorder. **Material & methods :** This is a cross sectional study conducted using DSM-IV-TR criteria for the Panic disorder. Then the patients with the diagnosis of Panic disorder were subjected to 7-item Panic Disorder severity scale (PDSS) for assessing the severity of panic disorder. Evaluated clinically for having agoraphobia or not. Particular attention was paid to check whether patients having any co morbid psychiatric illness. **Result :** Majority of patients 65% were female, 52.5% were in age group of 15-24 years & mean age of patients was 23.82 years . Mean age of onset of symptoms of Panic disorder was 21.3 years. Most common substance use tobacco in 30% of patients. Most common co morbidity was Major Depressive Disorder in 40% of patients. Agoraphobia was present in 24(60%) patients. Mean duration of PA was 22.37 minutes. 60% had PD moderate. symptoms pattern majority patients 67.5% had Cardio Vascular System (CVS) symptoms. **Conclusion:** Panic disorder commonly seen in age group 15 – 24 years . Commonly presenting symptoms are CVS related need caution to differentiate. High rate of co morbid substance use & psychiatric illness need attention in Panic disorder patients. [Vala A et al NJIRM 2014; 5(2) :46-53]

Key words : Panic disorder , Agoraphobia , Epidemiology , Severity , Co morbidity

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Introduction: Panic disorder is a kind of an anxiety disorder. Anxiety disorders are among the most prevalent mental disorders in the general population. Women affected nearly twice as frequently as men. Panic disorders are associated with significant morbidity and often are chronic and resistant to treatment. Panic disorder may be with or without Agoraphobia.[1] Agoraphobia can be the most disabling of the phobias, because it can significantly interfere with a person's ability to function in work and social situations outside the home. The lifetime prevalence of panic disorder is in the 1 to 4 percent range, with 6-month prevalence approximately 0.5 to 1.0 percent, and 3 to 5.6 percent for panic attacks.[1] Women are two to three times more likely to be affected than men. Panic disorder most commonly develops in young adulthood, the mean age of presentation is about 25 years but both panic disorder and agoraphobia can develop at any age. The lifetime prevalence of agoraphobia is varying between 2 to 6 percent.[1] In panic disorder patients, 91 percent have at least one other psychiatric disorder as do 84 percent of those with agoraphobia. According to DSM-IV-TR, 10 to 15 percent of persons with panic disorder have comorbid major depressive disorder. About one third of persons with both disorders have major depressive disorder before the onset of panic disorder; about two thirds first experience panic disorder during or after the onset of major depression. Anxiety disorders also commonly occur in persons with panic disorder and agoraphobia. Of persons with panic disorder, 15 to 30 percent also have social phobia, 2 to 20 percent have specific phobia, 15 to 30 percent have generalized anxiety disorder, 2 to 10 percent have posttraumatic stress disorder (PTSD), and up to 30 percent have obsessive-compulsive disorder (OCD). Other common comorbid conditions are hypochondriasis, personality disorders, and substance-related disorders.[1]

Panic disorder is a condition in which a person feels sudden over-whelming fright, usually without any reasonable cause. A panic attack is generally accompanied by physical symptoms, such as a pounding heart, sweating, and rapid breathing. A person with panic disorder may have repeated

panic attacks and feel constant fear as to when the next attack will occur (Anticipatory anxiety).

The first panic attack can strike a person anywhere. Suddenly, for no good reason, the person has a sense of impending doom. His or her palms begin to sweat, and the heart begins to beat wildly.

DSM-IV-TR [2] recognizes 3 types of panic attacks: spontaneous, situationally bound and situationally predisposed. Whereas unexpected or spontaneous panic attacks occur without cue or warning, situationally bound and situationally predisposed panic attacks occur upon exposure to or in anticipation of exposure to a feared stimulus.

Agoraphobia is patient afraid of being alone into public places. Patients with agoraphobia rigidly avoid situations in which it would be difficult to obtain help. They prefer to be accompanied by a friend or a family member in busy streets, crowded stores, closed-in spaces and closed-in vehicles.[3]

Material & Methods: This study was a prospective study, conducted in Department of Psychiatry G.G. Hospital, affiliated with M.P.Shah Medical College, Jamnagar- India. The patients, suggestive of suffering from panic disorder were thoroughly evaluated for the diagnosis of Panic disorder by using DSM-IV-TR [2] criteria for the Panic disorder. Then the patients with the diagnosis of Panic disorder were subjected to 7-item Panic Disorder severity scale (PDSS) [4] for assessing the severity of panic disorder. Along with panic disorder, patients were also evaluated clinically for having agoraphobia or not. Particular attention was paid to check whether patients having any comorbid psychiatric illness. Verbal informed consent was obtained from each patient prior to data collection. Institution permission taken, IRB committee did not exist at that time.

Inclusion criteria: Diagnosis of panic disorder as per DSM-IV-TR [2] criteria by clinical interview.
Age 16 to 60 years.

Exclusion criteria: Patient with axis-I diagnosis of other mental disorder like Schizophrenia & other psychotic disorders, Bipolar mood disorder & somatoform disorders.
Patient with axis II & III disorder (Mental retardation , Personality disorder , Physical illness)
Patients who are uncooperative, Unable to complete or not willing to participate.

After interviewing the participated patients clinically, the data was filled in a predetermined proforma. The data were tabulated and categorized statistical analysis was done wherever applicable.

Instruments Used In the Study:
1) Semi structured proforma for recording socio demographical variables including details of chief complains, medical and psychiatric history and Mental status examination.
2) Prasad's classification of social class, 2008 revised.
3) DSM-IV-TR diagnostic criteria for Panic disorder.

4) Panic Disorder Severity Scale. (PDSS): The panic disorder severity scale (PDSS) [4] was developed to provide a simple way of measuring the overall severity of DSM-IV panic disorder. The PDSS consists of 7 items, each rated on a 5-point Likert scale from 0 (no symptoms) to 4 (extreme symptoms) with a total range of 0 to 28. The items are carefully anchored and assess panic frequency, distress during panic, panic-focused anticipatory anxiety, phobic avoidance of situation, phobic avoidance of physical sensations, impairment in work functioning, and impairment in social functioning. Time required to complete the scale is 30 minutes. Score more than or equal to 8 signifies the symptoms of panic disorder. Increase in score indicates increase in severity of panic disorder.

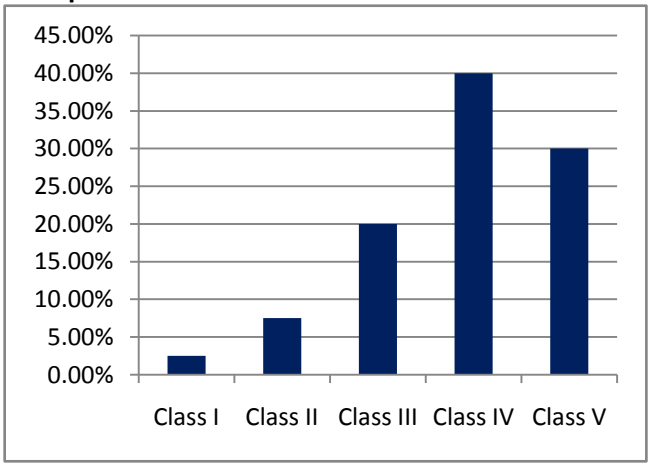
Result & Discussion: 40 patients with the diagnosis of Panic disorder were phenomenological studied. The results are as under. A demographic characteristic of study population is as shown in table 1. Lifetime prevalence of DSM-IV panic disorder among 14-24 year-olds was 1.6% (0.8% with and 0.8% without agoraphobia). Panic symptoms were found to be quite frequent (13.1%) in the community, with lifetime prevalence of DSM-IV panic attack at 4.3% (12-month prevalence, 2.7%) [5]

Table 1: Demographic characteristics

Characteristic		N = 40 (%)
Gender	Male	14(35)
	Female	26(65)
Age	15-24	21(52.5)
	25-34	13(32.5)
	35-44	05(12.5)
	45-54	01(2.5)
Age	Range	16-46
	Mean	23.82
	SD	6.93
Marital status	Unmarried	16(40)
	Married	11(27.5)
	Divorced/ separated	07(17.5)
	Widow/widower	06(15)
Education	Illiterate	14(35)
	Primary	15(37.5)
	Secondary	08(20)
	Higher secondary or higher	03(7.5)
Type of Family	Nuclear	22(55)
	Joint	18(45)

Socioeconomic class: As show in Graph 1. Maximum numbers of patients were considered as poor as in class IV – 16(40%) patients and in class V – 12(30%) patients. While 8(20%) patients were in class III and 3(7.5%) patients were in class II. Only 1(2.5%) patient is in socioeconomic class I. Graph 1. show high rate of panic disorder among socioeconomic class III & IV.

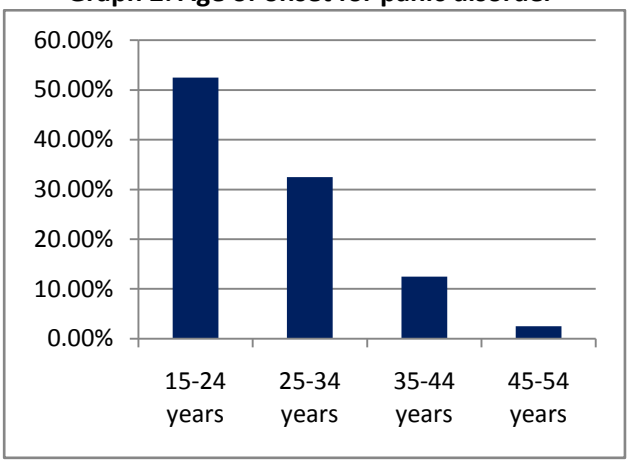
Graph 1: Socioeconomic class & Panic disorder.



Age of onset of Panic Disorder: In our study age of onset of panic disorder in male is 23.07 years & in female 20.35 years & mean age of onset of symptoms of Panic disorder is 21.3 years with a range of 16-35 years and standard deviation (SD) of 4.63. As shown Graph 2.

Female patients have quiet early onset with mean of 20.35 years as compare to male (23.07 years). Similar result had shown in an Indian study by Sheikh JI et al., (2004) [6] who showed mean age of onset of Panic disorder at 21.9 years.

Graph 2: Age of onset for panic disorder



Argyle N, Roth M (1989) [7] in his phenomenological study of 90 patients with panic disorder demonstrated mean age of onset of Panic disorder was 22.35 years with SD=6.68. The age of onset for PD varies considerably, but most typically is the early to mid-twenties, In clinical samples the mean age of onset is around 25 years: the total estimated prevalence of panic attacks and PD is greatest in people aged 15–24 years. The association with age seems to differ by sex. For men, the highest rates for both panic attacks and PD are in the lowest age group, but for women, the peak is in the age range of 35–44 for attacks. The pattern for both men and women suggests a bimodal distribution: the early mode for panic disorder is in the same age range of 15–24 for both and the later mode occurs in the age range of 45–54. A small number of cases begin during childhood. About 15% of the patients the age of onset is after age 40.

Most panic attacks start before the age of 30 (usually during adolescence or at the ages 26-29),

but it can take years until a professional treatment and diagnosis starts. [8]

Table 3: Substance use in Panic disorder

Substance	N =40 n(%)
Alcohol	6(15%)
Tobacco	12(30%)
Others	3(7.5%)

Substance use in Panic disorder: Pattern of substance use in our study is as shown in table 3. Patients were taking other substance like snuff (tobacco powder / smokeless tobacco).

This table 3, represents multiple response in the sense that 1(2.5%) patient took only alcohol while 4(10%) patients took alcohol and tobacco and 1(2.5%) patient took alcohol and snuff. Similarly 8(20%) patients were taking tobacco alone and 2(5%) patients took only snuff.

Milrod B, Busch F.(1996)[9] in their study demonstrated that 30% patients with panic disorder took alcohol and 26% patients took tobacco in various forms. Raichle, M. E., Martin W(1983) [10] in their study showed that around 46% patients with panic disorder took various substances. Prevalence of substance use was increased two third than general population.

Symptoms pattern in Panic disorder: Symptoms pattern in our study, as shown in table 4, Graph 3.

Table 4: Symptoms pattern in Panic disorder

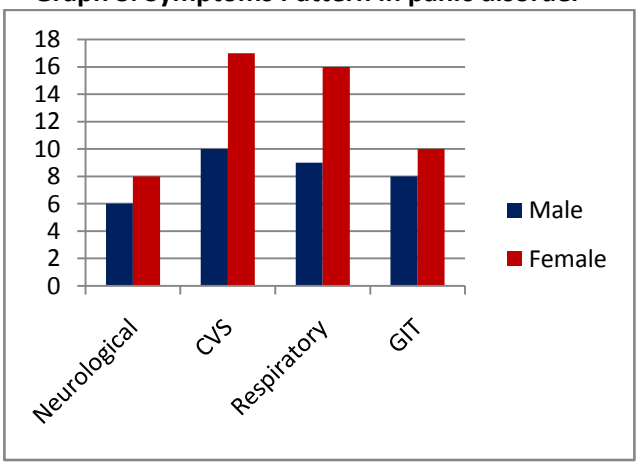
Symptoms	Male N= 14	Female N=26	Total N=40(%)
Neurological	6	8	14(35)
CVS	10	17	27(67.5)
Respiratory	9	16	25(62.5)
GIT	8	10	18(45)

*multiple response,

Chi-square(X^2) 0.446 , **Df** = 3, **P=** 0.93

No statistically significant difference was found in content of symptoms pattern between male and female patients. Graph 3. Showing high rate of CVS & Respiratory symptoms in panic disorder patients. Saji Joseph, A Krishnadas (2005) [11] in their study showed that 82% patients of panic disorder presented with complaining of chest pain, 32% patients with abdominal pain, 30% patients with headache, 18% patients with burning sensation, 18% patients with autonomic symptoms and 10% patients were unresponsive.

Graph 3. Symptoms Pattern in panic disorder



Similar results had shown in one another study by Roy-Byrne PP et al. (1999) [12]in that study demonstrated that patients with panic disorder most commonly presented with cardiovascular symptoms (72%) and respiratory symptoms (68%). Mean duration of Panic attacks in our study is 22.37 minutes and anticipatory anxiety was noted in 22(55%) patients

Stein MB (2005) [13] reported that mean duration of panic attack was 21.33 ± 1.28 minutes and 58% of panic attacks were unexpected, 32% were situationally bound and10% were situationally predisposing panic attacks.

Table 5 : Frequency & nature of Panic Attack

Frequency / Nature of Panic Attack	N= 40 (%)
Frequency of Panic Attack(PA)	
PD moderate (4 PA in a month)	24(60%)
PD Severe (4 PA per week in a month)	16(40%)
Mean duration of PA	22.37 mins
Nature of Panic Attack(PA)	
Unexpected	26(65%)
Situational	14(35%)
Anticipatory Anxiety	22(55%)

Frequency & nature of Panic Attack: In our study frequency of panic attack is as shown in table 5.

Table 6: Co morbidity in patients with Panic Disorder.

Co morbidity	Male N=14	Female N=26	Total N=40 n(%)
MDD	6	10	16(40)
SP	4	8	12(30)
SF	0	4	4(10)
GARD	1	1	2(5)
PTSD	0	2	2(5)
OCD	3	4	7(17.5)
SOMF	0	1	1(2.5)
PD	0	2	2(5)
SUB	3	0	3(7.5)

*multiple response

Chi-square ($\chi 2$) = 10.91, **Df =** 8, **P=** 0.21

Table 6 shows co morbid psychiatric illness seen in our study population. Above table shows no significant difference in co morbidity seen in male and female patients with Panic Disorder.

One of the study reported lifetime prevalence of Major Depressive Disorder in more than one third of panic disorder patients. They also showed that other anxiety disorders, personality disorders as other co morbid diagnosis. [14] Another study demonstrated comorbidities in patients with panic disorder as following: [15]

Co morbidity	%
MDD	26.5
SP & SF	16.9
GARD	6.8
PTSD	3.2
OCD	7.3
PD	2.7
SUB	4.6

The higher rate of prevalence of MDD in our study may be due to small sample size in our study.

Table 7, calculates association between demographical variables of panic disorder and Agoraphobia.According to above table 7 there was no significant association seen between demography of panic disorder and presence of agoraphobia.

Table 7: Association with agoraphobia

Variables	Agoraphobia			X^2, Df, p
Sex	Present N (%)	Absent N (%)	Total 100%	X^2=0.0046 Df=1 P=0.35
Female	15(57.7)	11(42.3)	26	
Male	9(64.3)	5(35.7)	14	
Education				X^2=2.08 Df=3 P=0.55
Illiterate	7(50)	7(50)	14	
Primary	11(73.3)	4(26.7)	15	
Secondary	4(50)	4(50)	8	
Above	2(66.7)	1(33.3)	3	
Type of family				X^2=0.0379 Df=1 P=0.31
Nuclear	14(63.6)	8(36.4)	22	
Joint	10(55.6)	8(44.4)	18	
Socio-economic class				X^2=2.59 Df=4 P=0.63
Class I	0(0)	1(100)	1	
Class II	2(66.7)	1(33.3)	3	
Class III	5(62.5)	3(37.5)	8	
Class IV	11(68.8)	5(31.2)	16	
Class V	6(50)	6(50)	12	
Occupation				X^2=2.64 Df=6 P=0.85
Study	7(70)	3(30)	10	
Unemployed	3(60)	2(40)	5	
Laborer	4(50)	4(50)	8	
Farmer	2(50)	2(50)	4	
Job	6(66.7)	3(33.3)	9	
Business	0(0)	1(100)	1	
Others	2(66.7%)	1(33.3)	3	

Table 8: Association with agoraphobia

Variables	Agoraph-obia Present N (%)	Agoraph-obia Absent N (%)	Total N (%)	X^2, Df, p
Sub use				X^2=0.916 Df=3 P=0.821
None	13(54.2)	11(45.8)	24(100)	
Alcohol	1(100)	0	1(100)	
Tobacco	4(50)	4(50)	8(100)	
Others	1(50)	1(50)	2(100)	
Past h/o				**X^2=0.60 Df=2 P=0.34**
None	18(58.1)	13(41.9)	31(100)	
Psychiatric illness	0	0	0	
Physical illness	6(66.7)	3(33.3)	9(100)	
Family h/o				**X^2=1.21 Df=2 P=0.55**
None	14(53.8)	12(46.2)	26(100)	
Psy.illness	2(66.7)	1(33.3)	3(100)	
Phy.illness	8(72.7)	3(27.3)	11(100)	

Table 8, shows association between substance use, past history & family history in patients with panic disorder and agoraphobia. According to above table there was no significant association seen between demography of panic disorder and presence of agoraphobia.

Noyes R Jr, Crowe RR et al [16] studied association between epidemiology of panic disorder and agoraphobia, they found no significant correlation between variables of panic disorder epidemiology and agoraphobia. They concluded that presence of agoraphobia not depended on any variables of panic disorder epidemiology.

Table 9, shows association between co morbidity in a patients of panic disorder and agoraphobia. Total 30 patients with co morbidity of Major Depressive Disorder & anxiety disorder other than panic disorder, agoraphobia was present in 19(63.3%) patients and absent in 11(36.7%).Total 4 patients with Comorbidity of substance use disorder, somatoform disorder and personality disorder, agoraphobia was present in all (100%) patients. According to above table and test there was no statistically significant relation between comorbidity in a patients with panic disorder and agoraphobia.

Table 9: Agoraphobia & comorbidity

Comorbidity	Agoraph-obia Present N%	Agoraph-obia Absent N%	Total N
GAD	0(0%)	1(100%)	1
MDD	3(37.5%)	5(62.5%)	8
MDD OCD	0(0%)	1(100%)	1
MDD PD	1(100%)	0(0%)	1
MDD SF	1(100%)	0(0%)	1
MDD SP	4(100%)	0(0%)	4
MDD SUB	1(100%)	0(0%)	1
OCD	0(0%)	3(100%)	3
PTSD	0(0%)	1(100%)	1
SF	1(100%)	0(0%)	1
SMFD	1(100%)	0(0%)	1
SP	1(100%)	0(0%)	1
SP GAD	1(100%)	0(0%)	1
SP OCD	2(100%)	0(0%)	2
SP PD	1(100%)	0(0%)	1
SP PTSD	1(100%)	0(0%)	1
SP SF	2(100%)	0(0%)	2
SUB	1(100%)	0(0%)	1
SUB OCD	1(100%)	0(0%)	1

*multiple response

X^2=24.5625, Df=18, P=0.1374

One study demonstrated that presence agoraphobia make no any difference in comorbidity related to panic disorder and similarly presence of comorbidity in panic disorder did not affect agoraphobic condition. [17]

In a study by Katon W, Russo J, Sherbourne C, et al (2006) [14] reported that presence of agoraphobia

had relation with increased prevalence of comorbidities like major depressive disorder and other anxiety disorders in panic disorder.

Table 10: Marital status and agoraphobia

Marital status	Agoraphobia	
	Present N (%)	Not present N (%)
Unmarried	9(56.3)	7(43.7)
Married	7(63.6)	4(36.4)
Divorce	4(57.1)	3(42.9)
Widow /Widower	4(66.7)	2(33.3)
Total	24(60)	16(40)

Chi-square(X^2) = 0.2893 , **Df** = 3, **P**= 0.9620

Table 10. shows relation between agoraphobia and marital status. In our study agoraphobia most commonly seen in widow/widower (66.7%) patients but there was no statistically significant difference between marital status of the patients with panic disorder and agoraphobia. MacKinnon DF, et al. (2002). [18] In their study reported that agoraphobia is more common in divorced 68.3% and widow 63.7% patients with panic disorder.

Table 11: First contact for treatment for present illness.

First person contacted	Total (N=40)	n%
General practitioner	12	30
Physician	8	20
Psychiatrist	10	25
Cardiologist	5	12.5
Neurologist	3	7.5
Hospitalized	2	5
Total	40	100

Table 11, shows patient with Panic disorder went to whom at first for the help. 2(5%) patients were hospitalized in general settings in fear of having serious medical disorder.

The prevalence of panic disorder in primary care settings varies as well. Among distressed, high utilizers of health services in an HMO primary care practice, Katon et al, [14] reported a prevalence of 11.8% for panic disorder in a year and 30.2% for lifetime history of panic disorder.

Elevated rates of panic disorder are also observed in mental health samples, due to increase sensitivity for making diagnosis of panic disorder and also recognized panic disorder may be referred to a mental health setting for treatment.

Conclusion: In our study majority patients were as following. 65% were female, 52.5% were in age group of 15-24 years and 70% were from lower socioeconomic class (class IV-V). It lead to conclude that we need to screen patients of 15-24 years of age, female gender & in lower socioeconomic class who presented with panic attack symptoms to early detection, treatment & better prognosis of panic disorder.

Most common comorbidity was Major Depressive Disorder, we can see for depressive disorder in patients of panic disorder to early detection & treatment of depressive disorder to decrease morbidity & mortality.

Agoraphobia was present in 60% patients. Agoraphobia is most disabling disorder for whom working outdoor, to decrease disability it is useful to detect & treat agoraphobia.

Majority patients 30% first contact to general practitioners for treatment. We can implement training of general practitioners to early detect & treat panic disorder & associated comorbid psychiatric disorders. The study was intended to find the epidemiology, phenomenology, comorbidity and severity of Panic disorder. But to make the results more standardized there should be a longitudinal study of large sample size.

Limitation of study:

1. Small sample size, future study with large sample needed.
2. It's cross sectional & observational type study and not a longitudinal.
3. This is a tertiary hospital-based study and results cannot be generalized to the whole community.

References:

1. Sadock, Benjamin James; Sadock, Virginia Alcott et al in, " Anxiety disorder " in Synopsis of psychiatry by Kaplan Sadock 10th edn. (2008) : L ippincott Williams & Wilkins publications.
2. American Psychiatric Association. Diagnostic and statistical manual of mental disorders, 4th

ed. Washington, *DC:* American Psychiatric Association, 1994.
3. Bakker A, van Balkom AJ, Spinhoven P. SSRIs vs. TCAs in the treatment of panic disorder: a meta-analysis. Acta Psychiatr Scand 2002;106 (3):163-7.
4. M. K. Shear, D. Barlow, T. Brown, R. Money, D. Sholomskas, S. Woods, J. Gorman, and L. Papp , "Panic disorder severity scale" Modified From: Rush J, et al: psychiatric Measures, APA, Washington, DC, 2000.
5. Reed V, Wittchen HU. " DSM-IV panic attacks and panic disorder in a community sample of adolescents and young adults: how specific are panic attacks? "J Psychiatr Res. 1998 Nov-Dec;32(6):335-45.
6. Sheikh JI, Swales PJ, Carlson EB, and Lindley SE. Aging and Panic Disorder: Phenomenology, Comorbidity, and Risk Factors. Am J Geriatr Psychiatry 2004; 12(1):102-109.
7. Argyle N, Roth M. The phenomenological study of 90 patients with panic disorder, part II Psychiatr Dev, 1989 Autumn;7(3): 187-209.
8. Battaglia M, Bertella S, Bajo S, Binaghi F, Bellodi L." Anticipation of age at onset in panic disorder ". Am J Psychiatry. 1998 May;155(5):590-5
9. Milrod B, Busch F. Long-term outcome of panic disorder. A review of the literature. J Nerv Ment Dis. 1996;184(12):723-30.
10. Raichle, M. E., Martin, W. R. W., Herscovitch, P., Mintum, M. A. & Markham, "Brain blood flow measured with intravenous H2(15)O. II. Implementation and validation". J. J. nucl. Med. 24, 790−798 (1983).
11. Saji Joseph, A Krishnadas. " Panic disorder in pain symptoms: A study from a general hospital in india ". JPPS 2005; 2(2): 73–75
12. Roy-Byrne PP, Stein MB, Russo J, Mercier E, Thomas R, McQuaid J, et al. Panic disorder in the primary care setting: comorbidity, disability, service utilization, and treatment. J Clin Psychiatry 1999;60(7):492-9.
13. Stein MB, BJ Sadock, VA Sadock, et al, In " Anxiety disorders: Somatic treatment." In Kaplan and Sadock's Comprehensive Textbook of Psychiatry, 8th ed. (2005)., vol. 1, pp. 1780–1788. Philadelphia: Lippincott Williams and Wilkins.
14. Katon W, Russo J, Sherbourne C, et al. Incremental cost-effectiveness of a collaborative care intervention for panic disorder.. Psychol Med 2006;36:353–363.
15. Shear MK, Houck P, Greeno C, Masters S. Emotion-focused psychotherapy for patients with panic disorder. Am J Psychiatry 2001;158(12):1993-8.
16. Noyes R Jr, Crowe RR, Harris EL, Hamra BJ, McChesney CM, Chaudhry DR. "Relationship between panic disorder and agoraphobia. A family study." Arch Gen Psychiatry. 1986;43(3):227
17. Weissman MM, Bland MB, Canino GJ, et al. The cross-national epidemiology of panic disorder. Arch Gen Psychiatry 1997;54:305–309.
18. Dean F. MacKinnon, M.D.; Peter P. Zandi, M.P.H.; Jennifer Cooper, M.D.; James B. Potash, M.D. et al. (2002). " Comorbid bipolar disorder and panic disorder in families with a high prevalence of bipolar disorder ". American Journal of Psychiatry, 159(1): 30–35.

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