

A study of disability and perceived stress in patients of anxiety disorders

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Abstract

Introduction: Patients of anxiety disorders have substantial work disability, social impairment, perceived stress and lower life satisfaction.

Aims: We assessed perceived stress level in various anxiety disorders and examined association of perceived stress with severity of anxiety and disability.

Materials & Methods: This was an observational, single center, cross sectional, interview based study of 150 patients attending Psychiatry OPD of tertiary care hospital. Every consenting participant was interviewed by Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM 5) for diagnosis of anxiety disorder and those qualifying for the diagnosis were assessed for severity of anxiety disorder by Hamilton Anxiety Rating Scale (HAM-A), perceived stress was measured by the perceived Stress Scale (PSS) and disability by World Health Organization Disability Assessment Schedule 2.0 (WHODAS 2.0). The patients were further assessed for demographic details. The statistical analysis was done with graphpad instat version 3.06. Proportion of participants were compared by using chi-square test while score of PSS, HAM-A and WHODAS 2.0 were compared using Kruskal-Wallis test or Mann-Whitney test. Correlation between severity of anxiety, perceived stress level and severity of disability was assessed by Spearman's rank correlation. A p value of <0.05 was considered statistically significant.

Results: We found participants with high perceived stress level were having more anxiety symptoms ($p < 0.0001$) and vice versa (p value < 0.0001). We found that participants having more anxiety symptoms are likely to have significant disability in all domains of WHODAS 2.0 ($p < 0.0001$).

Conclusion: Participants with higher perceived stress have severe anxiety symptoms and more disability.

Keywords: Anxiety disorders, Disability, Perceived stress.

Introduction

Anxiety is a psychological and physiological state characterized by physical, emotional, cognitive, and behavioral components. It is considered to be a normal response to stress. It may help an individual to cope with the demands of life, but in excess it may become dysfunctional and could meet the diagnosis of an anxiety disorder.⁽¹⁾ Anxiety disorders—defined by excess worry, hyper arousal and fear that is counterproductive and debilitating—are some of the most common psychiatric conditions in the Western world.⁽²⁾ In The United States, according to the National Comorbidity Survey, the overall lifetime prevalence of anxiety disorders is 24.9%, including rates of 3.5%, 13.3%, 5.1%, for panic disorder with or without agoraphobia, social phobia, and generalized anxiety disorder, respectively.⁽³⁾ About 18% of the US population suffer from an anxiety disorder each year and almost 29% will experience an anxiety disorder at some point in their lives.⁽⁴⁾ The World Health Organization (WHO) has estimated that stress-related disorders will be one of the leading causes of disability by the year 2020.^(3,5)

Perceived stress is the feelings or thoughts that an individual has about how much stress they are under at a given point in time or over a given time period. Perceived stress incorporates feelings about the uncontrollability and unpredictability of one's life, how often one has to deal with irritating hassles, how much

change is occurring in one's life, and confidence in one's ability to deal with problems or difficulties. It is not measuring the types or frequencies of stressful events which have happened to a person, but rather how an individual feels about the general stressfulness of their life and their ability to handle such stress. Persistent exposure to chronic stress has been known to be extremely toxic to an individual's health, since chronic strains can result in long-term or permanent changes in emotional, physiological, and behavioral responses.^(6,9) Several research findings point to the fact of a positive association between perceived stress, anxiety and depression.^(6,10) High levels of perceived stress can result in various health issues including weak immune system, mental fatigue, anxiety and depression.⁽¹¹⁾

The World Bank's Burden of Disease estimates suggest that common mental disorders account for at least a fifth of all disability-adjusted life-years (DALYs) in individuals aged 15–44 world-wide.^(4,5)

There are very few studies in which disability of participants with anxiety disorders has been compared, and in which the role of perceived stress has been taken into account. With this background our study was planned. We studied association and correlation of severity of anxiety, disability and perceived stress in patients of anxiety disorders.

Material & Methods

One hundred fifty consecutive participants visiting the anxiety clinic run by the department of psychiatry of a tertiary care hospital were taken for the study. The period of study was from December 2016 to June 2017. The purpose of study was explained and written informed consent was taken from every participant. The interview was performed in participant's vernacular language (Gujarati) or English. Participants were interviewed by principal investigator on demographic variables such as age, gender, religion, marital status, education, occupation, socioeconomic status. All participants were interviewed to confirm the diagnosis of anxiety disorders according to the criteria of DSM 5⁽¹²⁾. Participants were then assessed for severity of anxiety disorders, perceived stress level and disability by the Hamilton Anxiety Scale (HAM-A), Perceived stress scale (PSS) and The World Health Organization Disability Assessment Schedule 2.0 (WHODAS2.0) respectively. Concurrent use of any substance was recorded. Past history and Family history of any psychiatric illness was recorded as well. Prior approval for the study was obtained from the hospital ethics committee.

The Hamilton Anxiety Scale (HAM-A):⁽¹³⁾ It is a rating scale developed to quantify the severity of anxiety symptomatology. It consists of 14 items, each defined by a series of symptoms. Each item is rated on 5-point scale, ranging from 0 (not present) to 4 (severe). Has Sensitivity: 85.7% & Specificity: 63.5%.

Scoring is as follows: 14-17 = Mild Anxiety, 18-24 moderate anxiety and 25-30 severe anxiety

The Perceived Stress Scale (PSS):⁽¹⁴⁾ It is the most widely used psychological instrument for measuring the perception of stress. It is a measure of the degree to which situations in one's life is appraised as stressful. Items 4, 5, 7, 8 are scored in reverse direction. 0-13 indicate low perceived stress. 14-26 indicate moderate perceived stress. 27-40 indicate high perceived stress.

The World Health Organization Disability Assessment Schedule 2 (WHODAS 2.0, World Health Organization, 2000):⁽¹⁵⁾ It is used to measure disability. The WHODAS 2.0 is a generic assessment for health and disability and provides a profile of functioning across six activity domains. The domains include cognition, mobility, self-care, social interaction, life activities and participation. High scores on the WHODAS2.0 indicate more disability

Inclusion criteria

- Patients who had been recently diagnosed with anxiety disorders i.e. within six months, and having active symptoms.
- Willing to give written informed consent for participating in the study.
- Ranging between 18-65 years.

Exclusion criteria

- Patients who were not willing to give informed consent.
- Patients with comorbid major mental illnesses were excluded from the study.
- Established medical condition and substance use disorder.

Qualitative data is expressed as percentage and quantitative as mean \pm standard deviations. Statistical analysis was done with graph pad in stat version 3.06. Proportion of participants were compared by using chi-square test while score of HAM A, PSS and WHODAS-II were compared using Mann Whitney test or Kruskal Wallis test followed by Dunns post-hoc multiple comparisons. Statistical correlation between severity of anxiety symptoms, perceived stress and disability was assessed by Spearman's rank correlation. A p value of <0.05 was considered statistically significant.

Results

We recruited 150 patients with anxiety disorders between the ages of 18 to 65 years who attended as outpatients of the anxiety clinics of the department of psychiatry in a tertiary care hospital from December 2016 to June 2017. Socio-demographic and illness details are as follows:

As shown in Table 1, 46% are males and 54% are females among 150 participants. The mean age of the participant is 31 years, mean duration since diagnosis of anxiety was 10.34 months.

Table 1: Socio-demographic and other historical characteristics of the patients

	Variables	Frequency (n=150)
Age	18-28	72(48%)
	29-39	48(32%)
	40-50	20(13.33%)
	51-60	8(5.33%)
	>60	2(1.33%)
Gender	Male	69(46%)
	Female	81(54%)
Religion	Hindu	116(77.33%)
	Muslim/Others	34(22.67%)
Residence	Rural	50(33.33%)
	Town	45(30%)
	Urban	55(36.67%)
Occupation	Unemployed	55(36.67%)
	Labour	54(36%)
	Semiprofessional	35(23.33%)
	Professional	6(4%)
Social class	Upper class	20(13.33%)
	Upper middle class	66(44%)
	Middle class	49(32.67%)
	Lower middle class	7(4.67%)

	Lower class	8(5.33%)
Marital status	Unmarried	60(40%)
	Married	66(44%)
	Widow	5(3.33%)
	Divorced/Separated	19(12.67%)
Education	Illiterate	18(12%)
	Primary	49(32.67%)
	Secondary	46(30.67%)
	Graduate	32(21.33%)
	Postgraduate	5(3.33%)
Concurrent medical illness	Yes	6(4%)
	No	144(96%)
Taking treatment	Yes	6(2.67%)
	No	144(96%)
Past history of psychiatric illness	Yes	2(1.33%)
	No	148(98.67%)

Family history of Psychiatric illness	Yes	5(3.33%)
	No	145((96.67%)

Data is presented as No. (%).

Anxiety disorder patients were grouped; ⁽¹⁾ Low anxiety and (HAM-A<17),⁽²⁾ High anxiety (HAM-A>17) as shown in Table 2 There were no statistically significant differences in variables of gender, religion, residence, occupation, social class, education, total duration of illness, concurrent medical illness and treatment taking, past psychiatric illness/consultation, family history of psychiatric illness and substance use between the two groups of low and high anxiety. There was however a statistically significant difference found in the variables of age and marital status between the two groups.

Table 2: Demographic variable according to HAM-A

		Low anxiety HAM-A(<17)	High anxiety HAM-A(>17)	p value
Age		26.29±7.86	32.38±10.63	0.0022
Gender	Male	11	58	0.5448
	Female	16	65	
Religion	Hindu	21	95	0.6667
	Muslim/Other	6	28	
Residence	Rural	7	43	0.745
	Town	7	48	
	Urban	13	32	
Total duration of illness (in month)		13.03±22.9	9.75±24.5	0.711
Occupation	Unemployed	15	41	0.983
	Labour	7	47	
	Semiprofessional	4	31	
	Professional	2	4	
Social class	Upper/Upper middle class	17	69	0.1008
	Middle class	5	44	
	Upper/Lower middle class	5	10	
Marital Status	Unmarried	19	41	<0.0001
	Married	8	82	
Education	Illiterate	1	17	0.1429
	Literate	26	106	
Concurrent medical illness	Yes	2	4	0.3755
	No	27	117	
Treatment taken	Yes	2	4	0.3755
	No	27	117	
Family psychiatric illness	Yes	1	4	0.9380
	No	27	118	
Substance use	Yes	7	47	0.2285
	No	20	76	

Data was represented in numbers or mean ± S.D, groups were compared by Chi-square test & Mann Whitney U test, p<0.05 is considered to be statistically significant,

Participants were divided into three groups depending on their levels of perceived stress⁽¹⁾ With low perceived stress (LPS),⁽²⁾ medium perceived stress (MPS) and⁽³⁾ high perceived stress (HPS) as shown in Table 3. Participants with high perceived stress level were more anxious (p<0.0001) and scored higher on disability. There was significant disability in cognition (p<0.0001), mobility (p<0.0001), self-care (p<0.0001), life activities (p<0.0001), participation (p<0.0001) and Social interaction (p<0.0395) domains on WHODAS2.0

Table 3: Association of severity of perceived stress level with severity of anxiety and severity of disability

	Low perceived stress (LPS) (0-13)	Mild perceived stress(MPS) (14-26)	High perceived stress(HPS) (27-40)	p value
HAM-A	13.58±5.74	28.93±9	35.95±8.3	<0.0001
Disability(Total)	28.65±5.12	47.42±15.69	61.29±15.45	<0.0001
Domain 1 Cognition	26.27±5.38	50.53±20.37	62.94±15.67	<0.0001
Domain 2 Mobility	22.94±4.69	46.78±20.36	59.33±20.40	<0.0001
Domain 3 Self-care	20±0.0	38.70±19.50	30.09±19.26	<0.0001
Domain 4 Social interaction	29.17±4.69	36.03±15.48	39.61±15.69	0.0395
Domain 5 Life activities	30.58±10.69	50.49±19.80	69.99±17.01	<0.0001
Domain 6 Participation	36.47±9.10	52.61±18.70	73.57±18.10	<0.0001

Represented in Mean ± S.D, Groups were compared by Kruskal Wallis test. P value <0.05 is considered statistically significant.

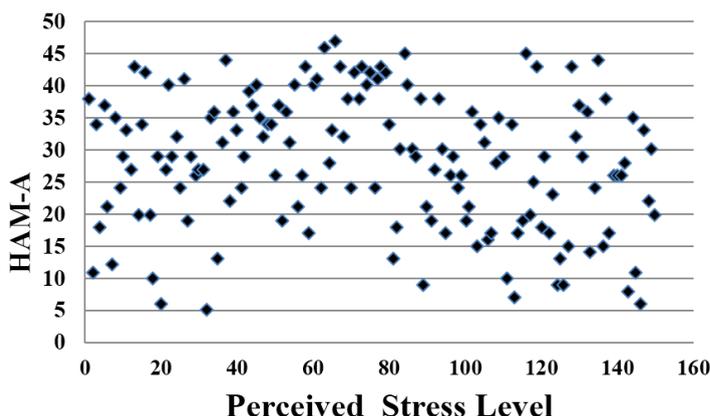


Fig. 1: Correlation of severity of anxiety with perceived stress level

Spearman r = 0.5120, p value is, <0.0001

Data was analyzed using graph pad in stat, Correlation was done using spearman rank correlation on X axis we have severity of anxiety and on Y axis the perceived stress score.

Association between severity of anxiety and perceived stress and disability was found as shown in Table 4. Participants with high anxiety (HAM-A>17) scored higher on Perceived Stress Scale (PSS) with p value <0.0001 which was statistically significant and higher disability on WHODAS2.0 scores with p value < 0.0001 which was again statistically significant in comparison to participants with low anxiety (HAM-A<17).

Table 4: Association of severity of anxiety with perceived stress and severity of disability

	HAM-A Score(<17)	HAM-A Score (>17)	p value
Perceived stress level	14.296±5.934	21.821±4.657	<0.0001
Disability(Total)	32.238±10.766	50.224±16.354	<0.0001
Domain 1 Cognition	31.725±15.397	53.427±19.831	<0.0001
Domain 2 Mobility	28.889±15.215	49.561±20.664	<0.0001
Domain 3 Self-care	24.444±10.222	38.933±19.844	0.0002
Domain 4 Social interaction	29.037±11.071	37.236±15.720	0.0043
Domain 5 Life activities	34.167±15.963	54±20.227	<0.0001
Domain 6 Participation	38.241±10.805	57.175±20.153	<0.0001

Data is represented in Mean ± S.D, groups were compared by Mann Whitney test, p value <0.05 is considered to be statistically significant.

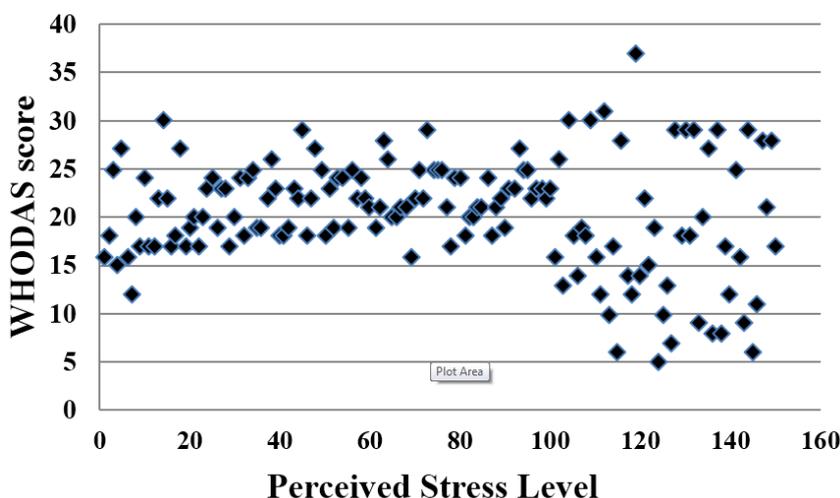


Fig. 2: Correlation of severity of perceived stress level with severity of disability

Spearman r = 0.6371, p value is, <0.0001

Data was analyzed using graph pad in stat, Correlation was done using spearman rank correlation on X axis we have the perceived stress score and on Y axis the severity of disability.

Discussion

Also consistent with earlier studies we found there is significant association between severity of anxiety and level of perceived stress.^(16,17)

In our study we found that participants who experience symptoms related to perceived stress, are likely to also experience symptoms of anxiety and vice versa. Previous studies have shown that perceived stress is a prospective predictor of negative health-related and pathological outcomes.^(18,19) Furthermore, chronic perceived stress has been shown to induce neurobiological changes in brain structures associated with enhanced fear conditioning (i.e., amygdale)^(18,20) and regulation of emotion (i.e., prefrontal cortex).^(18,21) These changes impair one's ability to regulate affective states and increase the likelihood that heightened levels of perceived stress will develop into a more severe pathological condition.(Anxiety and depression)⁽¹⁸⁾

Participants having high perceived stress are more likely to have higher disability in cognition, mobility, self-care, life activities, participation and social

interaction domain as compared to those having low perceived stress. Similar findings are also seen in previous studies.^(22,23,24,25)

There is significant association between severity of anxiety and severity of disability in all domains.^(16,24,25,26)

Previous research found that disability in anxiety disorders is generally associated with physical disability.^(10,27) Physical functioning is not very well measured by the WHODAS 2.0 (only by the item mobility which does not include questions about physical health) and hence a relationship of anxiety disorders and physical disability needs further evaluation.

To our knowledge, there are few studies in which disability of subjects with anxiety disorders has been directly compared, and in which the role of perceived stress has been taken into account. The strength of our study is the standardized scales used for assessment of severity of anxiety, perceived stress and disability. This study has important clinical implications. The results of this study demonstrate that subjects with anxiety

disorders have serious disability and should be recognized as major public health concerns and treated accordingly.

Limitations

The results should be interpreted in the light of the following limitations. First, the results could be biased by the possibility that people with mental disorders may give overtly pessimistic appraisals of their disability and quality of life. We cannot examine the validity threat, because no objective outcome measurements were included in this study. The second limitation is the cross-sectional design. Being a cross sectional study cause-effect relationship could not be established. The third limitation is recall bias might have occurred, as some of the questionnaires require to state whether the condition had been present for the past two weeks. The fourth limitation is the participants were only eligible for the study if they met criteria for an anxiety disorder at intake. The fifth is, we have not analyzed participants having mental illnesses or having substance use disorder about their psychopathology. Thus, we do not know if onset of an anxiety disorder preceded the impairment or vice versa. Further, larger scale randomized longitudinal study is required to study cause-effect relationship and for further evaluation.

Conclusion

Participants with higher perceived stress are associated with higher anxiety and sever disability and vice a versa.

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Conflict of Interest – Nil

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References

1. US Department of Health and Human Services. National Institute of Mental Health. (2008). National institute of mental health strategic plan (NIH Publication No. 08-6368).
2. Simpson H. B, Neria Y, Lewis-Fernandez R, and Schneier F. Anxiety disorders – theory, research and clinical perspectives. 1st ed Cambridge University Press, Cambridge. 2010.
3. Kessler RC, McGonagle KA, Zhao S et al. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: results from the National Comorbidity Survey. *Arch Gen Psychiatry.* 1994 Jan;51(1):8-19
4. Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR, Walters EE. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Arch Gen psychiatry* 2005;62:593-602.
5. Murray CJ, Lopez AD, World Health Organization. The global burden of disease: a comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020: summary.
6. Massion AO, Warshaw MG, Keller MB. Quality of life and psychiatric morbidity in panic disorder and generalized anxiety disorder. *The Am J Psychiatry* 1993;150:600.
7. Schneier FR, Heckelman LR, Garfinkel R, et al. Functional Impairment in Social Phobia. *Year Book of Psychiatry & Applied Mental Health.* 1996;332-3.
8. Katon W, Hollifield M, Chapman T, Mannuzza S, Ballenger J, Fyer A. Infrequent panic attacks: psychiatric comorbidity, personality characteristics and functional disability. *J Psychiatr Res.* 1995 Mar-Apr;29(2):121-31.
9. Klein DF, McNally J. Functioning and well-being of patients with panic disorder. *Am J Psychiatry.* 1996;1:53.
10. Schonfeld WH, Verboncoeur CJ, Fifer SK, Lipschutz RC, Lubeck DP, Buesching DP. The functioning and well-being of patients with unrecognized anxiety disorders and major depressive disorder. *J Affect Disord.* 1997 Apr;43(2):105-19.
11. Stewart-Brown S, Evans J, Patterson J, et al. The health of students in institutes of higher education: an important and neglected public health problem?. *Journal of Public Health* 2000;22:492-9.
12. American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Washington, DC:
13. Hamilton M. The assessment of anxiety states by rating. *Br J Med Psychol* 1959;32:50-5
14. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *Journal of health and social behavior* 1983 :385-96.
15. World Health Organization. WHO Disability Assessment Schedule 2.0 (WHODAS 2.0). World Health Organization. 2016.
16. Pozebon D, Piccin CF, Silva AM, Corrêa EC. Relationship among perceived stress, anxiety, depression and craniocervical pain in nursing professionals under stress at work. *Fisioterapia em Movimento* 2016;377-85.
17. Olson AC, Surette MA. The interrelationship among stress, anxiety, and depression in law enforcement personnel. *Journal of Police and Criminal Psychology* 2004;19:36-44.
18. Bardeen JR, Fergus TA, Orcutt HK. Experiential avoidance as a moderator of the relationship between anxiety sensitivity and perceived stress. *Behavior Therapy* 2013;44:459-69.
19. Golden-Kreutz DM, Thornton LM, Wells-Di Gregorio S et al. Traumatic stress, perceived global stress, and life events: prospectively predicting quality of life in breast cancer patients. *Health psychology: official journal of the Division of Health Psychology, American Psychological Association* 2005;24:288.
20. Hölzel BK, Carmody J, Evans KC et al Stress reduction correlates with structural changes in the amygdala. *Social cognitive and affective neuroscience* 2009;5:11-7.
21. Liston C, McEwen BS, Casey BJ. Psychosocial stress reversibly disrupts prefrontal processing and attentional control. *Proceedings of the National Academy of Sciences* 2009;106:912-7.
22. Maideen SF, Sidik SM, Rampal L, Mukhtar F. Prevalence, associated factors and predictors of anxiety: a community survey in Selangor, Malaysia. *BMC psychiatry* 2015;15:262.
23. Grant JE, Leppink E, Chamberlain S. Body focused repetitive behavior disorders and perceived stress: Clinical and cognitive associations. *Journal of Obsessive-Compulsive and Related Disorders.* 2015;5:82-6.
24. Mogotsi M, Kaminer D, Stein DJ. Quality of life in the anxiety disorders. *Harvard Review of Psychiatry* 2000;8:273-82.

25. Hendriks SM, Spijker J, Licht CM et al Disability in anxiety disorders. *Journal of affective disorders* 2014;166:227-33.
26. Bijl RV, Ravelli A. Current and residual functional disability associated with psychopathology: findings from the Netherlands Mental Health Survey and Incidence Study (NEMESIS). *Psychological medicine* 2000;30:657-68.
27. Lochner C, Mogotsi M, du Toit PL, Kaminer D, Niehaus DJ, Stein DJ. Quality of life in anxiety disorders: a comparison of obsessive-compulsive disorder, social anxiety disorder, and panic disorder. *Psychopathology* 2003;36:255-62.