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PSYCHOLOGICAL DISTRESS AS A MEDIATED-MODERATOR BETWEEN QUALITY OF LIFE AND SEVERITY OF PANIC DISORDER (PD)

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ABSTRACT
The current study focused on Severity of Panic Disorder and its relationship to psychological distress and Quality of life in Pakistani clinical population diagnosed with Panic Disorder (PD). A sample of 308 adults having a current diagnoses of panic disorder was recruited from government hospitals of Lahore. Age range of the population was 18-35years. The instruments that were used to collect the data included Severity Measure for Panic Disorder—Adult (SMPD) [8,] WHO Quality of Life-BREF [21] and The Kessler Psychological Distress Scale 15. Mediation analysis suggested significant correlations among all three variables of Panic disorder, distress and quality of life. The model fit analysis showed the model to be a good fit with Psychological distress to be a mediating moderator between Panic disorder and quality of life. Covariates such as previous psychological disorder, the duration of current episode, family history of psychological disorder and seeking help from religious scholars first rather than coming to physician contributed majorly in the model as well.

***Keywords*: SMPD; panic disorder; panic attack; Urdu; Pakistan, Psychological distress, Quality of Life**

INTRODUCTION
Mental health conditions greatly impact a person's overall well-being and their quality of life, as noted by Evans and colleagues in 2006. Anxiety disorders, which are quite common, have a significant influence on one's quality of life and can affect people from various backgrounds [28.] It's important to recognize that psychological distress, which includes symptoms like depression and anxiety, plays a role in connecting mental health disorders to a person's quality of life. Quality of life, in this context, refers to a multidimensional concept that encompasses various aspects of well-being [6.]
Anxiety disorders encompass a range of distinct types, including panic disorder, agoraphobia, social anxiety disorder, specific phobias, separation anxiety disorder, generalized anxiety disorder and selective mutism [2]. These conditions are linked to considerable psychological distress, which is marked by symptoms like enduring feelings of sadness, heightened irritability, and difficulties with concentration [23.]
Panic Disorder has garnered significant attention within the realm of anxiety disorders, making it a subject of extensive research and public awareness. This condition is defined as the occurrence of recurrent and unexpected panic attacks (PAs). The formal recognition of panic disorder as a distinct diagnostic entity occurred in 1987, with the publication of DSM-III-R marked a significant milestone

[3.] Panic symptoms were thought of as functional or nervous medical problems prior to its incorporation in the DSM and prior to Freud's presentation of panic as an anxiety neurosis, often referred to as "irritable heart."[30.]

As per DSM-5 diagnostic criteria, to be diagnosed with Panic Disorder (PD), an individual should experience at least a panic attack, followed by a continuous period of 1 month or more during which a continuous state of preoccupation or apprehension regarding the possibility of experiencing another attack and its implications on the individual's wellbeing (e.g., fear of forthcoming heart disease or losing control) are present, or a notable and unfavorable alteration in behavior emerges as a response to the episodes (e.g., engaging in avoidance strategies like refraining from exercise, avoiding caffeinated beverages, or unfamiliar situations) [2.]

Research suggests that the persistent worry surrounding the possibility of experiencing another panic attack can significantly impede daily functioning, disrupt social relationships, and hinder engagement in routine activities. Furthermore, the psychological distress associated with panic disorder may pave the way for development of additional psychological conditions, such as the generalized anxiety disorder, depression, and agoraphobia. Thus, recognizing the intricate interplay between panic disorder and psychological distress is vital, as addressing both dimensions becomes integral to providing comprehensive treatment and promoting enhanced overall well-being [16.]

Psychological distress is regarded as a transient phenomenon, it is not of prolonged duration, and often emerges in response to specific stressors [35.] It is characterized by various disturbances, such as disrupted sleep patterns, fluctuations in eating habits, headaches, gastrointestinal issues like constipation or diarrhea, chronic pain, frequent provocation to anger, excessive fatigue, forgetfulness, memory difficulties, and diminished interest or pleasure in sexual activities. The presence of psychological distress tends to subside or disappear when the individual effectively adapts to the stressor or when the stressor itself is removed from the equation [11.]

Psychological distress is associated with various mental health disorders, including anxiety disorders. Higher distress levels are linked to lower quality of life (QOL) in individuals, particularly in social relationships, work functioning, and overall well-being [30, 31]. A religious component of patients going to religious healers for treatment of illnesses and to treat psychological distress is also found to be a core factor in Muslim south Asian communities [251.]

A multidimensional and comprehensive concept, quality of life (QOL) encompasses various dimensions of well-being and the individual's living conditions. It represents the extent to which a person experiences good health, comfort, and the ability to engage in and derive satisfaction from life events [14]. Understanding the impact of mental health disorders, psychological distress, and QOL necessitates considering the factors that influence QOL itself. QOL encompasses physical health, psychological well-being, social relationships, and environmental factors [4.] Impairments in QOL have been observed in individuals with anxiety disorders, highlighting the need for comprehensive interventions addressing the multifaceted nature of QOL [9.]

Research suggests that psychological distress plays a mediating role between anxiety disorders and quality of life (QOL), with higher distress levels associated with lower QOL [34.] In Pakistan, where mental health disorders are prevalent, including depression, anxiety disorders, and substance use disorders, understanding the factors contributing to psychological distress and its impact on QOL is crucial [13.]

To sum up, there are significant connections between Panic Disorder, psychological distress, and Quality of Life (QOL). Panic Disorder has adverse effects on different aspects of a person's Quality of Life. Recognizing these relationships in Pakistani Muslim population will enable us to implement specific strategies aimed at improving the well-being and overall quality of life for individuals dealing with Panic Disorder.

Current Study

The current study aimed to examine the relationship among severity of Panic Disorder, Psychological Distress, and Quality of Life in patients diagnosed with PD. Objectives included investigating the association between Panic Disorder severity and psychological distress, along with exploring the

impact of Panic Disorder severity on various domains of Quality of Life, and assessing the mediating role of psychological distress.

Hypotheses

The study was based on the following hypotheses;

1. To Examine the relationship between Panic Disorder severity, Quality of Life, and Psychological Distress.
2. To Predict psychological distress and quality of life-based on Panic Disorder severity.
3. Investigate the mediating role of psychological distress in the relationship between Panic Disorder severity and Quality of Life.

METHOD

Ethics & Procedure

The research process commenced following the approval of the proposal by the Departmental Doctoral Program Committee (DDPC). The researcher requested permission from the respective authors to use, translate, or adapt the scales intended for the study, adhering to MAPI guidelines for translation. A demographic information sheet, a research information sheet, and an informed consent form was developed in alignment with the study's objectives. Signed permission letters from the institute was submitted to the heads of departments in various hospitals before data collection. Once consent was obtained from the hospital administrations, data collection was commenced in the outpatient departments of these hospitals. The assessment of psychological constructs was done after obtaining patient consent and gathering demographic information. Subsequently, statistical analysis performed on the collected and cleaned data.

Participants

The study's sample size was calculated using G power. G power data suggestion to include at least 150 patients who had been diagnosed with Panic Disorders was obtained. Data of a sample of 308 participants (Male= 39.9%; Female=60.1%) was collected from three different public and private hospitals. The age range of the participants in the sample was between 20 and 32 years (*M*=26.23 years, *SD*=3.85). We collected this sample by using non-probability purposive sampling method. Participants did not receive any kind of reimbursement for the participation.

Assessment Measures

Personal information sheet and informed consent

For the purpose of clarity and right to information, an information sheet regarding the nature and purpose of the study was given to potential participants. Individuals willing to participate were then provided with informed consent form for purposes of record keeping and authenticating participant. Demographic information questionnaire was then administered which inquired as to general and specific questions related to PD e.g. age, gender, education, vocation, marital status, number of children, family structure, onset etc according to the literature.

Severity Measure for Panic Disorder—Adult (SMPD, APA,2013).

To gather information about Panic Disorder, we utilized the SMPD (APA, 2013), a questionnaire comprising 10 items with a 4-point Likert scale. This tool assesses the severity of panic disorder symptoms in individuals aged 18 and above. It aligns with the diagnostic criteria specified in DSM V. Its Urdu translated version done by Sheilkh and Dawood (2024), with reliability of 0.78 was used in the study

WHO Quality of Life-BREF (WHO,2004).

The WHOQOL-BREF (WHO, 2004) is a questionnaire with 26 questions that individuals complete themselves. It examines four aspects of quality of life: 6 questions relate to psychological well-being,

7 to physical health, 3 to social relationships, and 8 to the environment. Respondents rate their answers on a scale from 1 to 5, where a higher score represents a better quality of life.

The Kessler Psychological Distress Scale- Kessler 10 (Kessler, 2005).
The Kessler Psychological Distress Scale is consisting of 10 questions. It provides an overall assessment of distress by asking about symptoms related to anxiety and depression experienced over the past 4 weeks. In this study, we used the Urdu translated version, as provided by Sitwat (2017).

Research design
In this research, we employed a cross-sectional study design to explore how demographic factors, psychological distress, and quality of life are interconnected. We collected data at one specific moment, allowing us to examine how participant characteristics influence their mental well-being and overall quality of life.

Statistical analyses
The statistical analysis in this research followed a three-phase approach. First, it was assessed whether the data had a normal distribution, which is a common practice in statistics. Afterward, we conducted a detailed analysis of the variables that might influence the outcomes. The effect size of the sample was checked and the reliability of sample was also computed which came out to be satisfactory so as to proceed to further analysis. To assess the quality of the measurement scales used, Cronbach's alpha reliability coefficients were used. In the third phase, the relationships between the variables were measured by using Pearson product-moment correlation. Additionally, regression analysis was performed to determine how well these variables could predict outcomes. Finally, Structural Equation Modeling (SEM) was utilized to investigate mediation and moderation effects in our proposed model.

RESULTS
The study provided descriptive statistics and findings related to demographic characteristics, psychological distress, and quality of life (QOL) in a sample of (N=308) Muslim participants living in Pakistan.

Table 1 *Baseline characteristics of the sample*

		Mean	St. Deviation
Age in years		26.23	4.85
		Frequencies (*f*)	**Percentages *(%)***
Gender			
	Male	127	39.9
	Female	191	60.1
Education			
	No formal education	20	6.3
	Middle	43	13.5
	Matric	27	8.5
	Intermediate	46	14.5
	Graduation	60	18.9
	Master	72	22.6
	Other	50	15.7
Marital Status			
	Single	146	45.9
	Married	163	51.3
	Divorced / Widowed	09	2.8
History of Psychological illness in family			
	Yes	100	31.4
	No	218	68.6
Previous history of Panic attack			
	Yes	211	66.4
	No	107	33.6

Previous management of symptoms through religious bodies ?	Yes	170	55.19
	No	138	44.40
Previous management of symptoms through doctors/psychologists?	Yes	78	25.32
	No	203	74.5

Table 1 provides an overview of the initial attributes of the study's participants, encompassing variables such as gender, educational attainment, income, family composition, familial dynamics, as well as the quality of relationships with parents, siblings, and spouses. A significant portion of the sample consisted of females (60.1%), individuals in marital unions (51.3%), and those with educational backgrounds up to the matriculation level (60.7%). Furthermore, approximately one-third of the participants reported a history of psychological disorders within their family backgrounds (31.4%). More than half of the diagnosed participants reported to go to religious healers or dwelled into religious practices to manage their symptoms before coming to the psychologist.

Table 2 *Descriptive Statistics and Cronbach's Alpha Values*

Factors	Mean (SD)	A	K
Panic attack	21.41 (4.49)	.785	09
Kessler Psychological Distress	24.19 (7.04)	.976	10
WHO Physical	17.18 (5.71)	.983	7
WHO Psychological	13.81 (4.91)	.980	6
WHO Social Relationship	6.65 (2.63)	.967	3
WHO Environment	19.08 (7.48)	.988	8
WHO QOL	61.36 (22.28)	.995	26

Table 2 displays the outcomes of the reliability analysis conducted on the assessment tools utilized in this study. The results indicate the Cronbach's Alpha values for the Panic Attack Scale, Kessler Psychological Distress Scale, and WHO Quality of Life Scale. These values fall within acceptable ranges, demonstrating that the measures exhibit strong reliability within the current sample.

Table 3: *Relationship between panic attack, psychological distress, and WHO QOL*

	2	3	4	5	6
Panic attack	.644**	-.428**	-.616**	-.539**	-.664**
Psychological distress	1	-.410**	-.585**	-591**	-654**
WHO Physical		1	.420**	.440**	.419**
WHO Psychological			1	.551**	.681**
WHO Social Relationship				1	.703**
WHO Environment					1

Table 3 illustrates the connections between panic attacks, psychological distress, and different aspects of quality of life. The findings indicate a robust and positive relationship between panic attacks and psychological distress (r = 0.644**). Moreover, there are substantial adverse associations between panic attacks and various domains of the WHO quality of life, including physical well-being, psychological well-being, social relationships, and the environment (r = -0.428**, -0.616**, -0.539**, and -0.664**, respectively).

Table 4 *Standardized direct, indirect, and total effects of paths affecting the WHO Quality of lifz*

	Direct effect	Indirect effect	Total effect
Panic attack → WHO QOL	-.460	-.296	-.756
Panic attack → Psychological distress	.644	.000	.644
Panic attack → Covariates (Demographics)	-.075	.798	.723
Psychological distress → WHO QOL	-.459	.000	-.459
Psychological distress → Covariates (Demographics)	.000	.484	.484
Covariates (Demographics) → WHO QOL	-1.055	.000	-1.055

Table 4 summarizes the standardized direct, indirect and total effects of paths on WHO QoL in the SEM used. For example, the standardized direct effect (i.e. direct arrow) of Panic attack on QoL was -.460, but its indirect effect was estimated by multiplying two relevant coefficients through mediating by a psychological distress as: 0.644 (the coefficient of panic attack on psychological distress) × -0.459 (the coefficient of psychological distress on WHO QoL) = *-.296. Based on our findings, a positive significant standardized direct effect (β=-.459) of Psychological distress on WHO QoL was revealed.

Meanwhile, a more duration of panic attack is linked with both psychological distress and WHO QoL.

Table 5 *Mediation Analysis Summary*

	Psychological Distress			**Covariates (Demographics)**			**WHO QOL**		
	B	**SE**	**p-value**	***B***	**SE**	**p-value**	***B***	**SE**	**p-value**
Panic attack	.793	.053	<.001	-.002	.013	.903	-.081	.012	<.001
Psychological distress							-.066	.009	<.001
Covariates (Demographics)							-.129	.389	.740
	R^2 = .695			95% CI (LL = -.362 , UL = -.233)					

In table 5 The model 1 showed that the panic attack had a significant impact on WHO Quality of life, and Kessler Psychological Distress as (p-value < .05) in the presence of the mediator (Kessler psychological distress).

The panic attack and WHO QoL were found to be insignificant influencing the demographic characteristics (B=-.002, t=.013, p> .903) and (B=-.129, t=.389, p >.740), respectively. The model accounted 69.5% variance in demographic characteristics and WHO Quality of life due to psychological distress. Table 5 presents the model fitting indexes with RMSEA=0.032, CFI=0.983, IFI=0.983, NFI=0.934 and RFI=.916, and overall the fitted model met the fitting criteria of the hypothesized model and shows the unifying structure of determinants of WHO QOL in panic attack survivors.

Table 6 *Model Fitting Indexes*

NFI	*RFI*	*IFI*	*CFI*	*RMSEA*	*CMIN/df*	*p-value*
.934	.916	.983	.983	.032	1.324	.005

Table 6 displays the model fit indicators for the structural equation model (SEM). The model demonstrates a strong fit with the data, as evidenced by the following indicators: RMSEA = 0.032, CFI = 0.983, IFI = 0.973, NFI = 0.934, and RFI = 0.916.

These metrics indicate that the proposed model aligns well with the observed data and offers a comprehensive insight into the factors influencing the quality of life in individuals experiencing panic attacks.

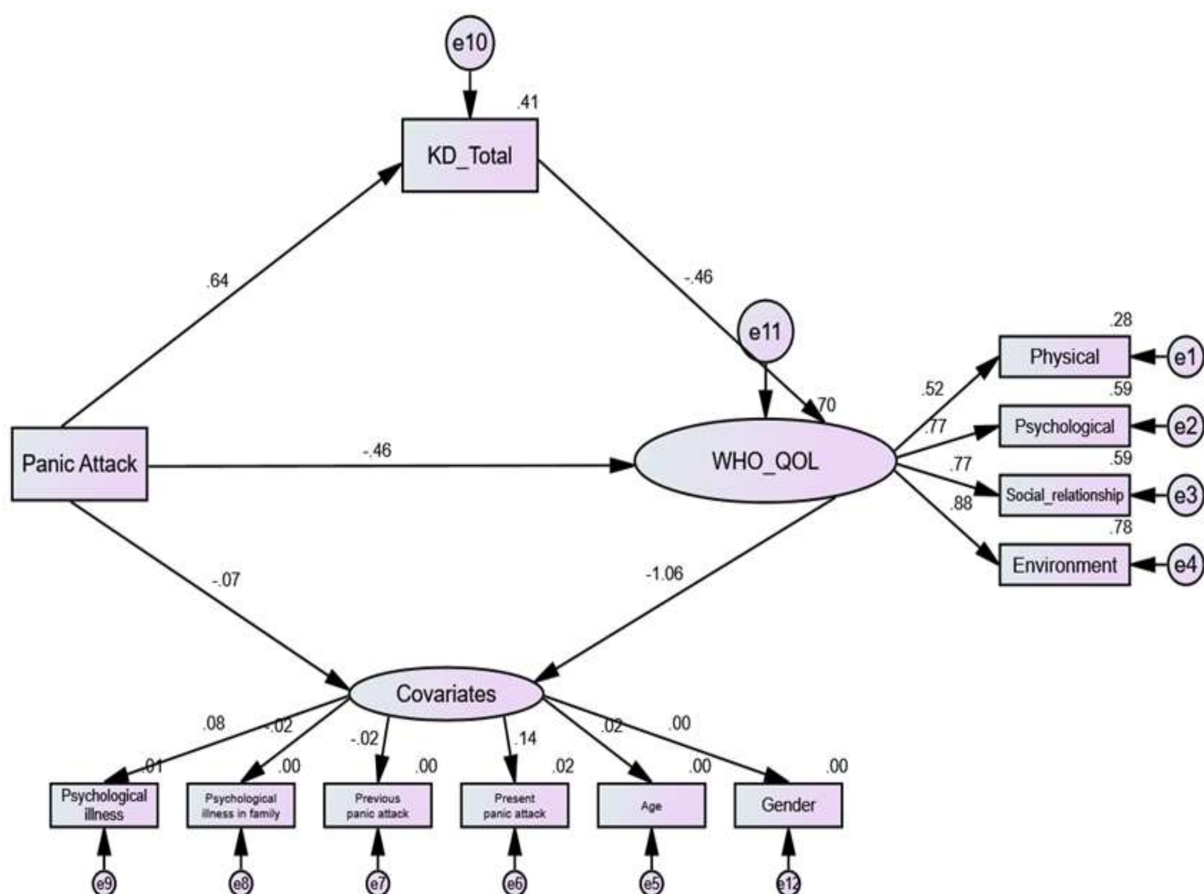

Figure 1: The path standardized coefficients of determinants of WHO QoL (Quality of life) in panic attack participants. KPDS: Kessler psychological distress scale and demographic variables (any psychological illness, psychological illness in family, previous panic attack, present panic attack, age and gender). It shows, the coefficients of all scales designated for the construct of WHO QoL in the structural model were significant. The paths in Figure 1 show the standardized coefficients and the inter-relationship between demographic characteristics, panic attack, Psychological distress and WHO QOL.

DISCUSSION

The aim of the study was to investigate the relationship between panic disorder, psychological distress and quality of life among participants diagnosed with Panic Disorder. It was hypothesized that all these three variables will have a relationship with each other. It was also hypothesized that Psychological distress will work as a mediator between panic disorder and quality of life. Correlational analysis and Cronbach alphas showed a significant relationship between our three variables. The mediation analysis revealed that the psychological distress was found to be the cause of mediated moderator among the two variables panic disorder and quality of life. The covariates such as age m gender, previous psychological history and current duration of PD also paved way for this mediated moderation relationship.

The findings offer valuable insights into the demographic profiles, levels of psychological distress, and quality of life (QOL) experienced by the participants. The findings revealed a notable prevalence of psychological distress, with panic attacks emerging as the most commonly observed conditions in participants already diagnosed with PD which is also supported by previous literature [26,5.] This emphasizes the importance of addressing mental health issues within the population under investigation.

The correlation analysis showed a positive relationship between panic attacks and psychological distress, suggesting that individuals experiencing panic attacks were more likely to have elevated

levels of distress [12,18]. Furthermore, panic attacks showed negative associations with different aspects of quality of life, including physical health, mental well-being, social relationships, and environmental factors [20]. These results highlighted the negative effects of panic attacks on various aspects of individuals' lives, underscoring the need for comprehensive interventions that address both mental well-being and overall quality of life [7,18].
Mediation analysis explained the fact that psychological distress acted as a mediated moderator in the connection between panic attacks and quality of life which partially supported the hypothesis made in study. Literature has defined psychological distress to both mediate and moderate at the same time in studies including anxiety disorders and depressive disorder [33]. This highlights the importance of addressing psychological distress as a potential mechanism through which panic attacks influence quality of life as it was negatively associated with quality of life [29, 24, 32].
The study also uncovered a significant occurrence of psychological disorders within the families of the participants, with depression being the most frequently cited condition. This underscores the importance of taking into account familial factors and their potential impact on the mental health and overall well-being of individuals [22, 19]. The prevalence of untreated psychological issues running families also has a major role in exuberating psychological issues in the next generation. Furthermore, a substantial portion of the participants reported a history of recurring panic attacks, indicating the chronic nature of this condition [19]. These findings underscored the necessity for implementing long-term management strategies and providing adequate support to individuals with a history of panic attacks [32,1]. This shows the increased dependency on the religious healers among South Asian Muslim community for treating mental health illnesses [27]. It also pointed towards lack of awareness about the proper route to treatment for PD in the Muslim population in Pakistan which can result in exaggerated symptoms of Panic [17, 27].
It's important to note that this study utilized reliable measures to evaluate psychological distress, panic attacks, and quality of life. The strong internal consistency observed in these measures confirms their reliability and appropriateness for assessing the aspects being studied. As a result, the findings emphasize the significance of implementing holistic interventions that specifically target psychological distress, especially in individuals dealing with panic attacks, with the aim of enhancing their overall well-being and quality of life. It also pointed towards the factors that improve or deteriorate the quality of life of the patients diagnosed with panic disorder. This study has given a formal and comprehensive insight towards the psychological distress and practices of Muslim patients diagnosed with PD.

Limitations and Suggestions

While interpreting the findings, it's important to consider certain limitations of this study. The cross-sectional design employed here doesn't allow us to establish causation, and relying solely on self-report measures introduces potential response bias. Hence, investigating the qualitative aspects of variables of psychological distress and i quality of life in individuals with panic attacks would be a valuable avenue for further research.

Conclusion

This study revealed the significant presence of psychological distress and its impact on the quality of life in individuals with panic disorder. The findings highlighted the importance of implementing comprehensive interventions that specifically address psychological distress to enhance overall well-being and quality of life within this group. It also highlighted the need of increased awareness for Muslim population to follow a standard scientific route to treat a psychological disorder like Panic Disorder rather than relying on only spiritual biases. By targeting the root psychological causes of distress, such interventions have the potential to improve mental health outcomes and elevate various aspects of individuals' lives. In the future, both research and clinical practice should prioritize the development and evaluation of tailored interventions designed to effectively alleviate psychological distress and enhance the quality of life for those experiencing panic attacks.

DECLARATIONS

Ethical Approval

The questionnaires and methodology of the study was approved by the Ethic committee of University of the Punjab. Both authors can confirm that all the data was collected adhering to ethical guidelines.

Informed Consent from Participants

Written informed consent was taken from participants before participating in the study they were given leverage to leave the study whenever they wanted to.

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Disclosure Statement

No conflict of interest is reported

Data Availability Statement

The raw data of the current study with conclusions of this article will be available for scientific community upon request.

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REFERENCES

1. Ahmad SS, McLaughlin MM, Weisman de Mamani A. Spiritual bypass as a moderator of the relationships between religious coping and psychological distress in Muslims living in the United States. Psychology of religion and spirituality. 2023 Feb;15(1):32.
2. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (5th ed.). 2013.
3. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (3rd ed., revised). 1987.
4. Baernholdt M, Hinton I, Yan G, Rose K, Mattos M. Factors associated with quality of life in older adults in the United States. Quality of life research. 2012 Apr;21:527-34.
5. Bandelow B, Michaelis S. Epidemiology of anxiety disorders in the 21st century. Dialogues in clinical neuroscience. 2015 Sep 30;17(3):327-35.
6. Bérenger V, Verdier-Chouchane A. Multidimensional measures of well-being: Standard of living and quality of life across countries. World Development. 2007 Jul 1;35(7):1259-76.
7. Black N, Stockings E, Campbell G, Tran LT, Zagic D, Hall WD, Farrell M, Degenhardt L. Cannabinoids for the treatment of mental disorders and symptoms of mental disorders: a systematic review and meta-analysis. The Lancet Psychiatry. 2019 Dec 1;6(12):995-1010.
8. Craske M, Wittchen U, Bogels S, Stein M, Andrews G, Lebeu R. Severity Measure for Panic Disorder—Adult. American Psychiatric Association. 2013.
9. Edge R, Mills R, Tennant A, Diggle PJ, Young CA, TONiC study group Ammar Al-Chalabi Timothy L. Williams David J. Dick Kevin Talbot Georgina Burke Tahir Majeed John Ealing Christopher J. McDermott Ashwin Pinto Carolyn A. Young Siddharthan Chandran Jannette Walsh Oliver Hanemann Timothy Harrower. Do pain, anxiety and depression influence quality of life for people with amyotrophic lateral sclerosis/motor neuron disease? A national study reconciling previous conflicting literature. Journal of neurology. 2020 Mar;267:607-15.
10. Eskin M, Baydar N, El-Nayal M, Asad N, Noor IM, Rezaeian M, Abdel-Khalek AM, Al Buhairan F, Harlak H, Hamdan M, Mechri A. Associations of religiosity, attitudes towards suicide and

religious coping with suicidal ideation and suicide attempts in 11 muslim countries. Social Science & Medicine. 2020 Nov 1;265:113390..

11. Horwitz AV. Distinguishing distress from disorder as psychological outcomes of stressful social arrangements. Health:. 2007 Jul;11(3):273-89.
12. Huang CW, Wee PH, Low LL, Koong YL, Htay H, Fan Q, Foo WY, Seng JJ. Prevalence and risk factors for elevated anxiety symptoms and anxiety disorders in chronic kidney disease: A systematic review and meta-analysis. General Hospital Psychiatry. 2021 Mar 1;69:27-40.
13. Inam SN, Saqib A, Alam E. Prevalence of anxiety and depression among medical students of private university. Journal-Pakistan Medical Association. 2003 Feb 1;53(2):44-6.
14. Jenkinson C. Quality of life. Encyclopedia Britannica, Inc; 2020.
15. Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, Normand SL, Walters EE, Zaslavsky AM. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. Psychological medicine. 2002 Aug;32(6):959-76.
16. Kinley DJ, Walker JR, Enns MW, Sareen J. Panic attacks as a risk for later psychopathology: results from a nationally representative survey. Depression and anxiety. 2011 May;28(5):412-9.
17. Koenig HG, Al-Zaben F, VanderWeele TJ. Religion and psychiatry: Recent developments in research. BJPsych advances. 2020 Sep;26(5):262-72.
18. Leichsenring F, Steinert C, Rabung S, Ioannidis JP. The efficacy of psychotherapies and pharmacotherapies for mental disorders in adults: an umbrella review and meta-analytic evaluation of recent meta-analyses. World Psychiatry. 2022 Feb;21(1):133-45.
19. Leon-Quismondo L, Rodriguez Pedraza E, Fernandez Liria A, Lahera G. Predictors of efficacy of cognitive behavioral therapy in patients with panic disorder. European Psychiatry. 2020 Jul 2;63.
20. Liu CH, Stevens C, Conrad RC, Hahm HC. Evidence for elevated psychiatric distress, poor sleep, and quality of life concerns during the COVID-19 pandemic among US young adults with suspected and reported psychiatric diagnoses. Psychiatry research. 2020 Oct 1;292:113345.
21. Lodhi FS, Raza O, Montazeri A, Nedjat S, Yaseri M, Holakouie-Naieni K. Psychometric properties of the Urdu version of the World Health Organization's quality of life questionnaire (WHOQOL-BREF). Medical journal of the Islamic Republic of Iran. 2017;31:129.
22. Martini J, Beesdo-Baum K, Garthus-Niegel S, Wittchen HU. The course of panic disorder during the peripartum period and the risk for adverse child development: A prospective-longitudinal study. Journal of affective disorders. 2020 Apr 1;266:722-30.
23. McWilliams LA, Cox BJ, Enns MW. Mood and anxiety disorders associated with chronic pain: an examination in a nationally representative sample. Pain. 2003 Nov 1;106(1-2):127-33.
24. Meunier S, Bouchard L, Coulombe S, Doucerain M, Pacheco T, Auger E. The association between perceived stress, psychological distress, and job performance during the COVID-19 pandemic: The buffering role of health-promoting management practices. Trends in Psychology. 2022 Sep;30(3):549-69.
25. Noreen A, Iqbal N, Hassan B, Ali SA. Relationship between psychological distress, quality of life and resilience among medical and non-medical students. J Pak Med Assoc. 2021 Sep 1;71(9):2181-5.
26. Olatunji BO, Cisler JM, Tolin DF. Quality of life in the anxiety disorders: a meta-analytic review. Clinical psychology review. 2007 Jun 1;27(5):572-81.
27. Oussi A, Hamid K, Bouvet C. Managing emotions in panic disorder: A systematic review of studies related to emotional intelligence, alexithymia, emotion regulation, and coping. Journal of Behavior Therapy and Experimental Psychiatry. 2023 Jan 11:101835.
28. Panayiotou G, Karekla M. Perceived social support helps, but does not buffer the negative impact of anxiety disorders on quality of life and perceived stress. Social psychiatry and psychiatric epidemiology. 2013 Feb;48:283-94.
29. Pereira-Morales AJ, Adan A, Lopez-Leon S, Forero DA. Personality traits and health-related quality of life: the mediator role of coping strategies and psychological distress. Annals of general psychiatry. 2018 Dec;17:1-9.

30. Roy-Byrne PP, Stang P, Wittchen HU, Ustun B, Walters EE, Kessler RC. Lifetime panic–depression comorbidity in the National Comorbidity Survey: Association with symptoms, impairment, course and help-seeking. The British Journal of Psychiatry. 2000 Mar;176(3):229-35.
31. Sareen J, Jacobi F, Cox BJ, Belik SL, Clara I, Stein MB. Disability and poor quality of life associated with comorbid anxiety disorders and physical conditions. Archives of internal medicine. 2006 Oct 23;166(19):2109-16.
32. Satici B, Kayis AR, Griffiths MD. Exploring the association between social media addiction and relationship satisfaction: psychological distress as a mediator. International Journal of Mental Health and Addiction. 2023 Aug;21(4):2037-51.
33. Tulucu F, Anasori E, Kinali Madanoglu G. How does mindfulness boost work engagement and inhibit psychological distress among hospital employees during the COVID-19 pandemic? The mediating and moderating role of psychological resilience. The Service Industries Journal. 2022 Mar 12;42(3-4):131-47.
34. Van Ameringen M, Mancini C, Farvolden P. The impact of anxiety disorders on educational achievement. Journal of anxiety disorders. 2003 Jan 1;17(5):561-71.
35. Winning A, Glymour MM, McCormick MC, Gilsanz P, Kubzansky LD. Psychological distress across the life course and cardiometabolic risk: findings from the 1958 British Birth Cohort Study. Journal of the American College of Cardiology. 2015 Oct 6;66(14):1577-86.