

Prevalence and Associated Factors of Depression, Anxiety, and Stress Among Patients with Chronic Illnesses in Sri Lanka: A Study at Teaching Hospital Kalutara

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ABSTRACT

Chronic Non-communicable Diseases (NCDs) have been a significant public health problem in Sri Lanka, accounting for approximately 83% of all deaths nationally. Although the physical burden of conditions such as diabetes mellitus, hypertension, ischemic heart disease, and chronic respiratory diseases is well established, their psychological consequences remain insufficiently explored in routine clinical care. This cross-sectional study included 365 adult patients attending the medical clinic at Teaching Hospital Kalutara. The study aimed to assess the prevalence of depression, anxiety, and stress symptoms, and to identify associated sociodemographic, clinical, and psychosocial factors. Depression, anxiety, and stress were estimated using the Depression Anxiety Stress Scales-21, and a questionnaire was designed specifically to collect data on associated factors. The prevalence of anxiety, depression, and stress was 43.0%, 27.4%, and 9.3%, respectively. Age was significantly associated with all three domains ($p < 0.05$), with younger participants exhibiting higher levels of severe depression. Gender was significantly associated with anxiety and stress ($p < 0.05$), with males reporting higher mean scores. Lower educational attainment, unemployment, and low income were significantly associated with increased depression and anxiety ($p < 0.05$). Clinical factors, including type of chronic illness and increased healthcare utilization, were also significantly associated with higher psychological distress ($p < 0.01$). Economic strain and lack of social support were also significantly associated with the levels of depression, anxiety, and stress ($p < 0.05$). The findings indicate the importance of integrating routine psychological screening and psychosocial support into chronic disease management programs in Sri Lanka.

Keywords: Anxiety, Chronic Illness, Depression, Stress, Sri Lanka

INTRODUCTION

Chronic non-communicable diseases (NCDs) have become the leading cause of morbidity and mortality worldwide and represent a major challenge for global health systems. According to the World Health Organization (WHO, 2021), NCDs such as cardiovascular diseases, diabetes mellitus, chronic respiratory diseases, and cancers account for more than 70% of all deaths globally. The impact of these conditions is especially high in low- and middle-income countries, where health systems must simultaneously address communicable diseases while responding to a rapidly increasing prevalence of chronic illnesses (WHO, 2021).

Beyond their physical consequences, chronic diseases are strongly associated with psychological distress (Prince et al., 2007). Individuals living with long-term illnesses commonly have to go through continuous medical monitoring, lifestyle changes, uncertainty regarding disease progression, and concerns about future health outcomes. These challenges are the major contributing factors for the development of symptoms of depression, anxiety, and stress (Mphatswe et al., 2021). Research conducted worldwide indicates that people with chronic illnesses experience significantly higher rates of psychological distress compared with the general population. Such psychological problems can negatively impact treatment adherence, disease management, and overall quality of life of the patients (Siboni et al., 2019; Mphatswe et al., 2021).

The relationship between chronic physical illness and psychological problems is often explained by the biopsychosocial model, which describes the dynamic interaction among biological, psychological, and social factors in determining health outcomes (Gatchel et al., 2007). Furthermore, unrecognized and untreated psychological problems can exacerbate emotional difficulties, hinder self-care behaviors, reduce treatment adherence, and limit engagement with health care services, thereby worsening the underlying medical condition (Mphatswe et al., 2021).

According to the studies conducted worldwide, rates of depression, anxiety, and stress among patients with conditions such as diabetes, hypertension, and cardiovascular diseases are higher than those observed in the general population. For instance, a few recent studies indicate the prevalence of depressive symptoms as approximately 20–40% among individuals with chronic illnesses, while anxiety and stress-related symptoms are also widely reported (Katon et al., 2010; Chauhan et al., 2023). Sri Lanka is currently experiencing a significant epidemiological transition characterized by a growing burden of NCDs. National statistics indicate that NCDs account for approximately 83% of all deaths in the country (Ministry of Health, Sri Lanka, 2019). Although some studies conducted in Sri Lanka have reported the prevalence of depression and anxiety among individuals with specific chronic conditions as 28%- 32% (Gunathilaka et al., 2022; Senanayaka et al., 2022), the evidence is still limited and fragmented (Katulanda et al., 2012). This limited evidence could be due to several factors, such as many studies focusing primarily on single diseases, such as diabetes, or being conducted in large urban tertiary care centers. Consequently, there is limited evidence describing the broader psychological burden among patients with diverse chronic illnesses attending regional healthcare facilities.

Also, these psychological difficulties show an association with various sociodemographic, clinical, and psychosocial factors, such as younger age, lower socioeconomic status, disease severity, duration of illness, financial hardship, and limited social support. Collectively, the evidence indicates that psychological distress constitutes a significant and integral component of the chronic illness experience, particularly in low- and middle-income countries where healthcare resources are often limited.

Teaching Hospital Kalutara is a major tertiary care institution that serves a diverse population in the Western Province of Sri Lanka. Patients attending the medical clinic frequently require long-term follow-up for chronic conditions such as diabetes and hypertension. Although routine clinical care primarily emphasizes monitoring physiological indicators and medication management, psychological well-being is not systematically assessed within the current service framework. Consequently, the extent of psychological distress among this patient population remains largely undocumented.

Understanding the prevalence of psychological distress and its associated factors among patients with chronic illnesses is important to implement suitable treatment approaches. Identifying at-risk patients can also be important for developing necessary psychosocial interventions and for promoting the incorporation of mental health screening into routine chronic disease management (Wade & Halligan, 2017).

Therefore, the present study aimed to determine the prevalence of symptoms of depression, anxiety, and stress among patients with chronic illnesses attending the medical clinic at Teaching Hospital Kalutara, Sri Lanka, and to identify the sociodemographic, clinical, and psychosocial factors associated with these conditions.

METHODS

Study Design and Setting

This cross-sectional study was conducted at the medical outpatient clinic of Teaching Hospital Kalutara, a major tertiary care facility serving urban, suburban, and rural populations in the Western Province.

Study Population and Sample

The study population included adult patients (aged ≥ 18 years) attending the medical clinic at the Teaching Hospital Kalutara who were diagnosed with at least one chronic illness (e.g., diabetes, hypertension, chronic kidney disease, and chronic liver disease). According to the clinic attendance records, 12 medical clinics are held

per week, with an average of 150 patients per clinic, which shows an estimated monthly patient population of 7,200. The sample size was calculated using the Morgan–Krejcie table. Accordingly, a sample of 365 participants was selected for the study. A non-probability consecutive sampling technique was employed, whereby all eligible patients presenting to the clinic during the study period were invited to participate until the desired sample size was achieved. To ensure equitable inclusion, participants with low literacy were accommodated by verbal administration of questionnaires by the researcher, with explanations provided in understandable language. Patients with a history of mental disorders or those unable to provide informed consent due to cognitive impairment were excluded. This exclusion is justified to minimize risks to vulnerable individuals and ensure data reliability, but efforts will be made to include a broad range of participants to promote fair subject selection. Institutionalized patients will also be excluded.

Instruments

Data was collected using two instruments. Symptoms of depression, anxiety, and stress were estimated using the cross-culturally validated Sinhala translation of the Depression Anxiety Stress Scales-21, which is commonly used in clinical and research settings (Lovibond & Lovibond, 1995). In addition, a structured sociodemographic and clinical questionnaire was given to obtain information on participants' age, gender, educational level, marital status, and socioeconomic status, as well as clinical characteristics such as type and duration of chronic illness, history of hospitalizations, and relevant psychosocial factors, including social support and financial difficulties.

Data Collection Procedure

The principal investigator collected the data in a private setting within the clinic to ensure confidentiality. Written informed consent was also obtained from all participants prior to inclusion. Participants were briefed on their right to withdraw from the study at any time without consequences.

Data analysis

Data analysis was performed using IBM SPSS Statistics software. Descriptive statistics summarized the data, with categorical variables presented as frequencies and percentages. The prevalence of depression, anxiety, and stress symptoms was calculated as proportions with corresponding 95% confidence intervals. Inferential statistical analyses were performed to examine associations between sociodemographic, clinical, and psychosocial factors and levels of depression, anxiety, and stress. Chi-square tests were used to assess the associations between the categorical variables.

Ethical Considerations

Ethical approval was obtained from the Ethics Review Committee of the National Institute of Health Sciences, Kalutara. In addition, administrative approval was obtained from the Director of the Teaching Hospital, Kalutara, and the relevant clinic authorities prior to data collection. Written informed consent was obtained from all participants after they were provided with detailed information about the study. Participation was entirely voluntary, and participants were informed of their right to withdraw at any stage without any consequences. Confidentiality and anonymity of participant information were strictly maintained throughout the study. Participants identified with mild to severe psychological problems based on DASS-21 scores were referred to mental health services within the hospital. Referrals were facilitated immediately through a formal process, including provision of a referral letter and assistance in arranging an appointment with the on-duty psychiatrist or clinical psychologist at the Mental Health Unit during clinic hours.

RESULTS

Sociodemographic and Clinical Characteristics

A total of 365 patients with chronic medical conditions attending the medical clinic at Teaching Hospital Kalutara participated in the study. The mean age of the participants was 57.33 years (SD = 11.50), with ages ranging from 19 to 87 years. When categorized by age, the largest proportion of participants were middle-aged

(44.7%, n = 163), followed by elderly individuals (40.0%, n = 146) and young adults (15.3%, n = 56). Females comprised a slightly larger proportion of the sample (57.3%, n = 209) than males (42.7%, n = 156). The majority of participants were married (84.4%, n = 308), while 10.4% (n = 38) were single and 5.2% (n = 19) were divorced or widowed.

Regarding educational attainment, 40.5% (n = 148) had completed secondary education, 28.8% (n = 105) had higher education, and 18.6% (n = 68) had tertiary education. Smaller proportions reported primary education (5.8%, n = 21) or no formal education (6.3%, n = 23). In terms of employment status, 42.2% (n = 154) were employed, 24.4% (n = 89) were unemployed, 23.8% (n = 87) were homemakers or engaged in other forms of unpaid work, and 9.6% (n = 35) were retired. Approximately half of the participants (50.4%) reported having a low monthly income. 25.5% (n = 93) of the participants had diabetes mellitus, 22.5% (n = 82) had hypertension, and 19.2% (n = 70) reported having both diabetes and hypertension. The remaining 32.9% (n = 120) had other combinations of chronic illnesses. The mean duration of illness was 7.43 years (SD = 7.12). Most participants (66.8%, n = 244) reported no hospitalizations in the previous year.

In relation to psychosocial factors, 72.1% (n = 263) reported having adequate social support, while 27.9% (n = 102) indicated a lack of such support. More than half of the participants (54.5%, n = 199) reported experiencing financial stress related to their illness, and only 5.5% (n = 20) reported having medical insurance coverage (Table 1).

Table 1: Sociodemographic data

Characteristic	Category	Frequency	Percentage (%)
Age (Years)	Young Adults	56	15.3
	Middle- Age	163	44.7
	Elderly	146	40
Gender	Male	156	42.7
	Female	209	57.3
Marital Status	Single	38	10.4
	Married	308	84.4
	Divorced/Widowed	19	5.2
Education Level	No formal education	23	6.3
	Primary education	21	5.8
	Secondary education	148	40.5
	Higher education	105	28.8
Employment status	Tertiary education	68	18.6
	Employed	154	42.2
	unemployed	89	24.4
	Retired	35	9.6

	Homemaker/other	87	23.8
Chronic Illness	Diabetes	93	25.5
	Hypertension	82	22.5
	Diabetes Hypertention	70	19.2
	Other combinations	120	32.9

Prevalence of Depression, Anxiety, and Stress

The prevalence of symptoms of depression, anxiety, and stress was assessed using the Depression Anxiety Stress Scales-21.

Stress

Most participants reported mild levels of stress (90.7%, n = 331). A smaller proportion reported moderate stress (8.2%, n = 30), while 1.1% (n = 4) reported severe stress. The overall prevalence of clinically significant stress (moderate to severe) was 9.3% (Table 2).

Anxiety

Anxiety symptoms were more widely distributed. Nearly half of the participants (47.7%, n = 174) fell within the normal range. However, 27.1% (n = 99) reported moderate anxiety, 9.3% (n = 34) reported mild anxiety, 7.4% (n = 27) reported severe anxiety, and 8.5% (n = 31) reported extremely severe anxiety. The overall prevalence of clinically significant anxiety (moderate to extremely severe) was 43.0%(Table 2).

Depression

More than half of the participants (57.8%, n = 211) reported normal levels of depressive symptoms, and 14.8% (n = 54) reported mild depression, 12.6% (n = 46) reported moderate depression, 6.3% (n = 23) reported severe depression, while 8.5% (n = 31) reported extremely severe depression. The overall prevalence of clinically significant depression (moderate to extremely severe) was 27.4% (Table 2).

Table 2: Prevalence of Depression, Anxiety and Stress

DASS -21 Domain	Severity Level	Frequence	Percentage (%)
Stress	Mild	331	90.7
	Moderate	30	8.2
	Severe	4	1.1
Anxiety	Normal	174	47.7
	Mild	34	9.3
	Moderate	99	27.1
	Severe	27	7.4
	Extremely Severe	31	8.5

Depression	Normal	211	57.8
	Mild	54	14.8
	Moderate	46	12.6
	Severe	23	6.3
	Extremely Severe	31	8.5

Bivariate analyses using chi-square tests were conducted to examine associations between sociodemographic, clinical, and psychosocial variables and levels of depression, anxiety, and stress.

Age was significantly associated with all three domains of stress ($\chi^2 = 12.101, p = 0.017$), anxiety ($\chi^2 = 29.984, p < 0.001$), and depression ($\chi^2 = 40.158, p < 0.001$) (Table 3). Young adults demonstrated the highest proportion of extremely severe depression (21.4%) compared with middle-aged (2.5%) and elderly participants (10.3%). Also, the gender was significantly associated with anxiety ($\chi^2 = 21.462, p < 0.001$). A greater proportion of males reported extremely severe anxiety (13.5%) compared to females (4.8%). Independent samples t-tests further indicated that males had significantly higher mean anxiety scores (9.76 vs. 7.20, $p < 0.001$) and stress scores (8.12 vs. 6.28, $p = 0.019$). No significant gender differences were observed in depression scores ($p = 0.939$). Educational level showed significant associations with stress ($\chi^2 = 39.447, p < 0.001$), anxiety ($\chi^2 = 55.856, p < 0.001$), and depression ($\chi^2 = 35.341, p = 0.004$). Participants with lower educational attainment reported higher levels of psychological distress across all domains. Employment status and monthly income were significantly associated with anxiety and depression ($p < 0.05$). Unemployed individuals and those reporting lower income levels were more likely to experience elevated psychological distress. The type of chronic illness was significantly associated with depression, anxiety, and stress ($p < 0.01$). Patients with both diabetes and hypertension, as well as those with hypertension alone, demonstrated higher levels of distress. Healthcare utilization, including the number of hospital visits and admissions during the past year, was also strongly associated with increased stress, anxiety, and depression ($p < 0.001$). Financial stress was significantly associated with higher stress ($\chi^2 = 8.297, p = 0.016$), anxiety ($\chi^2 = 16.930, p = 0.002$), and depression ($\chi^2 = 17.807, p = 0.001$). Lack of social support was significantly associated with higher anxiety levels ($\chi^2 = 12.343, p = 0.015$). Furthermore, participants without medical insurance were more likely to report elevated stress ($\chi^2 = 11.191, p = 0.004$) and depression ($\chi^2 = 15.330, p = 0.004$) (Table 3, Table 4, Table 5).

Table 3: Associated factors of Stress

Demographic characteristic	Level of Stress		p-value
	Normal n (%)	Presence of symptoms n (%)	
Gender			
Male	141 (90.4)	15 (9.6)	0.019*
Female	190 (90.9)	19 (9.1)	
Age Group			
Young Adults	51 (91.1)	5 (8.9)	0.017*
Middle-Aged/Elderly	280 (90.6)	29 (9.4)	
Education Level			

Primary/No Formal	36 (81.8)	8 (18.2)	<0.001*
Secondary and above	295 (91.9)	26 (8.1)	
Financial Stress			
Presence (Yes)	174 (87.4)	25 (12.6)	0.016*
Absence (No)	157 (94.6)	9 (5.4)	
Medical Insurance			
No Insurance	311 (90.1)	34 (9.9)	0.004*
With Insurance	20 (100.0)	0 (0.0)	

Table 4: Associated factors of Depression

Demographic characteristic	Level of Depression		p-value
	Normal n (%)	Presence of symptoms n (%)	
Gender			
Male	113 (72.4)	43 (27.6)	0.939*
Female	152 (72.7)	57 (27.3)	
Age Group			
Young Adults	44 (78.6)	12 (21.4)**	<0.001*
Middle-Aged	159 (97.5)	4 (2.5)**	
Elderly	131 (89.7)	15 (10.3)**	
Employment Status			
Employed	122 (79.2)	32 (20.8)	<0.05*
Unemployed	58 (65.2)	31 (34.8)	
Chronic Illness Type			
Diabetes + Hypertension	42 (60.0)	28 (40.0)	<0.01*
Other Combinations	98 (81.7)	22 (18.3)	

Table 5: Associated factors of Anxiety

Demographic characteristic	Level of Anxiety		p-value
	Normal n (%)	Presence of symptoms n (%)	
Gender			
Male	79 (50.6)	77 (49.4)	<0.001*
Female	129 (61.7)	80 (38.3)	
Age Group			
Young Adults	23 (41.1)	33 (58.9)	<0.001*
Middle-Aged/Elderly	185 (59.9)	124 (40.1)	
Social Support			
No Support	42 (41.2)	60 (58.8)	0.015*
With Support	166 (63.1)	97 (36.9)	
Monthly Income			
Low Income	81 (44.0)	103 (56.0)	<0.05*
Middle/High Income	127 (70.2)	54 (29.8)	

DISCUSSION

This study examined the prevalence of depression, anxiety, and stress among patients with chronic illnesses attending the medical clinic at Teaching Hospital Kalutara, Sri Lanka, and analyzed associated sociodemographic, clinical, and psychosocial factors. The findings indicated a high prevalence rate of anxiety (43.0%), depression (27.4%), and stress (9.3%). These results suggest the importance of integrating mental health assessment into routine care in chronic disease management clinics.

The prevalence of anxiety in the current study is high, and it is consistent with global literature, which often reports anxiety as a dominant psychological concern among individuals with chronic illnesses due to ongoing uncertainty about disease progression, treatment demands, and future health outcomes (Tesfaye et al., 2020; Chauhan et al., 2023). Prevalence rates of depression were also consistent with previous Sri Lankan studies, such as Gunathilaka et al. (2022), though the prevalence in our sample was higher, likely reflecting the more complex and severe cases typically managed in tertiary care settings. This suggests that patients with multiple comorbidities or advanced disease stages may be particularly vulnerable to psychological distress. Mental illness is often hidden by families to avoid social discrimination, and it is frequently attributed to "fate or blame" rather than a clinical condition (Gumber et al., 2015). This cultural perception may explain why patients in the current study reported higher distress despite having access to free healthcare, the social cost of acknowledging distress remains high. Furthermore, inadequate caregiving and insufficient emotional support from primary caretakers have been shown to exacerbate stress, anxiety, and depression in patients with chronic conditions (Swathi et al., 2023). Also, In South Asian contexts, depression and anxiety are frequently expressed through somatic complaints (physical symptoms) (Aggarwal et al., 2014). findings of the current study that patients with comorbidities (diabetes and hypertension) had higher distress scores might reflect not just the physical burden, but

a culturally sanctioned way of expressing emotional pain through physical illness labels (Sumathipala et al., 2008).

Sociodemographic factors played a major function in influencing mental health outcomes. Younger adults reported higher levels of severe depression compared to older participants, possibly due to greater disruption of employment, family responsibilities, and long-term disadvantages for future plans. Contrary to global evidence that often finds higher distress among females (Fattouh et al., 2020), our study found that males experienced significantly higher anxiety and stress than females. This may indicate cultural expectations in Sri Lankan context, where men are often primary breadwinners, and chronic illness threatens their ability to fulfill these obligations, leading to internalized distress (Sri Lanka Gender Equity Report, 2023).

Another critical determinant was the education level. Participants with lower education reported significantly higher levels of depression, anxiety, and stress. This finding supports the role of education in enhancing health literacy, enabling patients to better understand disease management strategies and utilize coping resources (Griese & Schaeffer, 2025). Similarly, socioeconomic factors such as unemployment and low income were also strongly associated with psychological problems, highlighting the financial burden of chronic illness as a key driver of emotional strain (Hazarika et al., 2023).

Clinical characteristics also influenced outcomes. Patients with multiple chronic conditions, particularly those with both diabetes and hypertension, reported higher levels of depression, anxiety and stress, consistent with evidence that multimorbidity complicates disease management and increases treatment demands (Katon et al., 2010). Frequent healthcare utilization was similarly associated with greater distress, likely reflecting illness severity and heightened vulnerability.

Psychosocial factors, including financial stress and lack of social support, were strongly linked to psychological distress. Social support has been shown to buffer the emotional impact of chronic illness by providing reassurance, encouragement, and practical assistance (Dar et al., 2021). The absence of such support may leave patients more vulnerable to depression and anxiety.

Overall, these findings suggest the urgent need to integrate routine psychological screening into NCD clinics in Sri Lanka. The use of validated tools such as the DASS-21 can facilitate early identification of at-risk patients. Interventions should be tailored to address specific risk factors, including financial counseling, peer support groups, and gender-sensitive approaches that address the unique challenges faced by men and younger adults. Instead of standard Western models, interventions should incorporate "explanatory models" that align with local beliefs (Aggarwal et al., 2014; Sumathipala et al., 2008). For example, integrating mindfulness-based practices that resonate with Buddhist traditions (e.g., meditation) could improve patient engagement. Training healthcare providers to recognize psychological distress is essential, as untreated mental health issues may reduce treatment adherence, worsen physical outcomes, and reduce quality of life.

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limitations

A few limitations can be identified in this study. First, the cross-sectional design of the study limits the ability to establish causal relationships between chronic illness and psychological distress. Second, symptoms of depression, anxiety, and stress were assessed using a self-report screening instrument rather than clinical diagnostic interviews. Therefore, the findings show the prevalence of symptoms rather than confirmed psychiatric disorders. Third, the study was conducted in a single hospital clinic, which may limit the generalizability of the findings to other healthcare settings.

CONCLUSION

This study examined the prevalence of symptoms of depression, anxiety, and stress among patients with chronic medical conditions attending the medical clinic at Teaching Hospital Kalutara. The findings showed a

considerable psychological burden within this population, with anxiety symptoms being the most prevalent, followed by depression, while stress symptoms were comparatively lower.

According to the present study, several sociodemographic, clinical, and psychosocial factors were significantly associated with psychological problems. Specifically, younger age, male gender, lower educational attainment, unemployment, lower income, certain chronic illness profiles, greater healthcare utilization, financial problems, and lack of social support were associated with higher levels of depression, anxiety, and stress symptoms.

These findings show the significance of recognizing the interrelationship between physical and mental health in individuals living with chronic illnesses. Furthermore, routine psychological screening using instruments such as the DASS-21 may help identify patients experiencing psychological distress and facilitate early intervention.

Integrating mental health assessment and psychosocial support into routine chronic disease management may improve emotional well-being, enhance treatment adherence, and improve overall quality of life among patients with chronic medical conditions. Future research using longitudinal designs and diagnostic assessments may further clarify the long-term relationship between chronic illness and psychological distress.

Ethical Considerations: This study was conducted in accordance with ethical standards and received approval from the relevant institutional ethics review committee. The authors declare that there are no conflicts of interest regarding the publication of this paper.

Data availability: The data that support the findings of this study are available from the corresponding author upon reasonable request, due to privacy and ethical restrictions.

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