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Psychological distress and its management among people living with hypertension in Ghana

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Abstract

Background Hypertension affects a significant number of people globally, with the majority in low- and middle-income countries. Psychological distress such as anxiety, depression and stress, may occur as a consequence of hypertension. However, these distresses among people living with hypertension remain undiagnosed and untreated in Ghana. We assessed the prevalence and management of psychological distress among people living with hypertension, receiving care in selected health facilities in Ghana.

Methods The study employed a concurrent mixed-methods approach. A cross-sectional study was used to assess the prevalence of psychological distress and associated factors among 500 participants living with hypertension, using DASS-21 and some self-developed questions. In-depth interviews with healthcare professionals explored management approaches of psychological distress. Descriptive and logistic regression analyses were used to analyze quantitative data and thematic analysis was used for the qualitative data.

Results We found out that the prevalence of psychological distress including symptoms of depression, anxiety and stress was 80.2%, 89.2%, and 70.6% respectively with 69.8% having multi-morbidity. Age [aOR = 0.19, 95%CI = 0.07–0.52], religion [aOR = 2.88, 95%CI = 1.16–7.13], ethnicity [aOR = 0.28, 95%CI = 0.14–0.57] occupation [aOR = 0.34, 95%CI = 0.13–0.85, $p = 0.023$], and difficulty adhering to medication [aOR = 2.05, 95%CI = 1.13–3.73] were factors associated with psychological distress. General assessment, family support, counseling, education and medication were the management approaches adopted by the health professionals.

Conclusion Psychological distress was highly prevalent among people living with hypertension with many individuals experiencing multiple conditions. Factors such as age, religion, ethnicity, occupation and medication adherence were associated with psychological distress. Strengthening psychosocial support, counseling and education is essential to improve mental health outcomes and advance progress toward SDG 3.

Keywords Anxiety, Depression, Hypertension, Stress, Ghana



1 Introduction

Hypertension, commonly known as high blood pressure is the leading cause of cardiovascular disease and premature death globally [1]. An estimated 1.28 billion adults worldwide have hypertension, the majority of whom live in low and middle-income countries [1]. The global burden of hypertension is projected to rise from 918 million adults in 2000 to 1.56 billion in 2025 [2]. According to the WHO [1], hypertension is responsible for 7.5 million deaths and 12.8% of total deaths. In India and Mexico, the prevalence of hypertension-related psychological distress remains comparatively moderate; 14% and 21.1%, respectively [3–5] reported depressive symptoms among people living with hypertension in these settings at 33.3%, with major depression at 7.8%. Conversely, Sub-Saharan Africa (SSA) endures a heavier burden, with over 30% of adults experiencing hypertension [6–8]. This elevated prevalence is compounded by systemic challenges, including weak health infrastructure, limited access to mental health services, and pervasive sociocultural stressors.

Uncontrolled hypertension is associated with both physical and psychological complications, including depression, anxiety and stress. Evidence suggests that approximately one in four adults with hypertension experience psychological distress [9]. For instance, the prevalence of depression among hypertensive patients was 39.8% in India [10]. In Ethiopia, the pooled prevalence of depression among people living with hypertension was 32.43% [11]. In the same country, depression and anxiety were present in 27.2% and 32.7% respectively in people living with hypertension [12]. In Pakistan, the prevalence of depression among people with hypertension was 40.1% [13]. Afghanistan recorded 42.3% having anxiety, 58.1% with depression and 28.2% with comorbid anxiety-depression among people with hypertension [14].

Psychological distress among people living with hypertension can lead to several negative sociobehavioral outcomes. Depression remains a significant global health burden [15] and, despite its high prevalence, it often goes unrecognized among individuals with hypertension [16]. Previous studies have demonstrated an association between depressive symptoms and poor adherence to antihypertensive therapy [17, 18], while a greater number of prescribed medications have also been identified as a potential contributor to the onset of depression in hypertensive patients [19].

Depression comorbidity can also decrease the quality of life among individuals with hypertension [20]. Psychological distress can be detected through the use of mental health screening tools in routine care management among people with hypertension in health facilities. The common tools used include the Patient Health Questionnaire (PHQ-9), General Anxiety Disorder scale (GAD-7) and Depression Anxiety Stress Scale (DASS-21) [21]. A collaborative care which brings together primary care providers, mental health specialists offer both physical and mental health treatment among people living with hypertension [22].

Effective management of psychological distress among people living with hypertension is essential. Kurniawati and Sari [23] found that incorporating Zikr meditation into hypertension care improved cardiovascular health, offering a non-pharmacological intervention. Ang et al. [24] recommended the implementation of a hypertension care cascade to enhance mental health support in primary care. Furthermore, Loke and Ching [25] advocate for psychological distress screening among people with hypertension.

Khursheed et al. [26] highlights the value of social support in mitigating psychological distress among people with hypertension.

Hypertension is a major public health challenge in Ghana, contributing to the growing burden of non-communicable diseases [27]. A community-based survey in the Ashanti region reported that about 37.4% of adults have hypertension, with about 66.8% of those unaware of their condition [28]. However, the psychological distress on people living with hypertension is often overlooked. For example, a cross-sectional study observed a depression prevalence of 41.7% among Ghanaians living with hypertension [29]. In Accra and Kumasi, 56% of people living with hypertension experienced anxiety symptoms, 20% had stress symptoms and 4% reported symptoms of depression [30]. However, there is a gap in the management of psychological distress among people living with hypertension in Ghana. For example, in Ghana, clinicians hardly pay attention to negative emotional symptoms in people living with hypertension [30]. Mental health in Ghana is also stigmatized and this results in underreporting of psychological symptoms. Therefore, there is the need to assess the prevalence and management of psychological distress among people living with hypertension, receiving care in selected health facilities in Ghana, to meet the SDG 3 target of reducing by one-third premature mortality from non-communicable diseases through prevention and treatment, and promote mental health and well-being [31]

2 Methods

This study was conducted and reported following the STROBE and COREQ guidelines for reporting quantitative and qualitative studies, respectively.

2.1 Study design

We employed a concurrent mixed-methods approach, adopting cross-sectional and explanatory designs. This approach leverages the strengths of both quantitative methods such as generalizability and representativeness and qualitative methods like depth and data richness to estimate the prevalence and explore the management of psychological distress [32]

2.2 Study setting

The study was conducted in three districts in Ghana: Suaman District (Western North Region), North Dayi District (Volta Region), and La Nkwantanang-Madina Municipality (Greater Accra Region) (Fig. 1). These sites were purposively selected to reflect the diversity of Ghana's health system and population structure, rural, peri-urban, and urban settings, allowing for a comprehensive understanding of psychological distress and its management among people living with hypertension across different socio-economic and healthcare contexts. Suaman District represents a predominantly rural community with limited health infrastructure and workforce, typical of low-resource settings in Ghana. North Dayi District is a semi-rural, agrarian district with a moderately developed health system that includes a district hospital and several Community Based Health Planning and Services (CHPS) compounds. La Nkwantanang-Madina Municipality, on the other hand, is an urban area with a relatively well-resourced health system and high patient load, offering an urban contrast to the rural and semi-rural districts. This multi-site selection provides a balanced perspective on how geographic, socio-economic, and

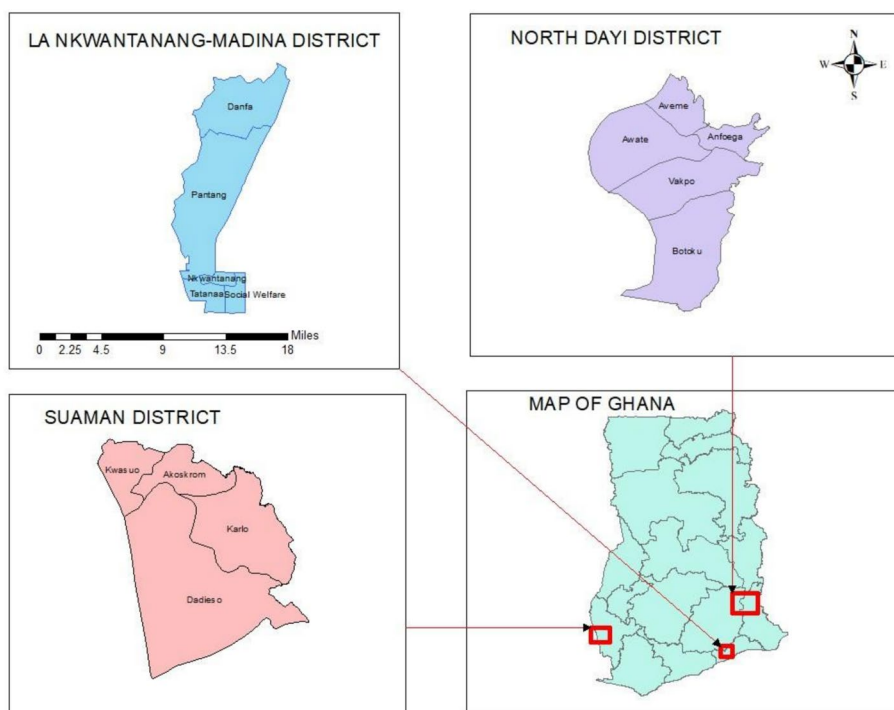


Fig. 1 Map of study sites (author generated)

health system differences influence the psychological well-being and coping mechanisms of individuals living with hypertension [33].

2.3 Population

The study was conducted among people living with hypertension, receiving treatment at selected health facilities in three districts as well as healthcare professionals in these facilities who were directly involved in providing hypertension management services. People living with hypertension were selected to provide self-reported information on their psychological distress, which was measured using a standardized and validated psychometric tool to ensure objectivity of assessment. Healthcare professionals were purposively selected to provide insights into the management of psychological distress among hypertensive patients. Adults living with hypertension who resided in any of the three selected districts and were receiving care at the participating health facilities were included in the study. In addition, healthcare professionals involved in providing care to people living with hypertension at these facilities were also recruited as participants. However, individuals who were critically ill, absent at the time of data collection, or had a prior diagnosis of a mental health problem were excluded from the study.

2.4 Sampling

The sample size for cross-sectional phase was determined using Cochran's formula [34]:

$$n = \frac{(Z^2 * p(1 - p))}{d^2}$$

n=sample size, z=z-score, p=proportion, and d=precision or margin of error. Assuming a 95% confidence level, a significance level of 5%, a 0.05 margin of error, an assumed

prevalence of 50%, a Z-score of 1.96, and a (5%) non-response rate the final sample size was estimated at 403. However, in all 500 participants were recruited due to their availability.

For the qualitative aspect of the study, the sample size was determined by saturation, a point at which no new insights emerge from subsequent interviews [35]. We interviewed nine (9) healthcare professionals.

We used a simple random sampling technique in selecting the respondents. This was done by using the facility hypertension register as a sampling frame. Random numbers corresponding to registration numbers were generated. Individuals corresponding to the selected numbers were approached and those who agreed to participate were included. If a selected participant did not consent, another registration number was randomly selected as a replacement until the required sample size was achieved. In this approach, each member of the population had an equal chance of being selected. Additionally, a purposive sampling technique was employed in selecting the health professionals. This was done to ensure that only healthcare professionals who have experience in providing hypertension management care were selected.

2.5 Study variables

The study had three dependent variables, namely; depression, anxiety, and stress. The variables were measured using the Depression and Anxiety Scale (DASS-21) [36, 37]. The score of each domain (depression, anxiety and stress) were used to determine depressive symptoms, anxiety symptoms and symptoms of stress among the respondents. The independent variables included socio-demographic characteristics (such as age, marital status, religion, occupation and educational level) and the factors associated with psychological distress (social support, and medication adherence).

2.6 Data collection procedures

Data were collected using a questionnaire and an in-depth interview guide. The questionnaire adopting the Depression, Anxiety, Stress Scale-21(DASS-21) was used to collect cross-sectional data. It was structured into three sections. While section A collected socio-demographic information, section B adopted the DASS-21 to assess psychological distress status and factors associated with psychological distress among people living with hypertension assessed in section C. It was interviewer-administered and deployed using the Kobo Toolbox with the support of three trained research assistants. The in-depth interview guide was used to collect qualitative data through interviews. The guide was structured into two sections, with section A collecting sociodemographic data and section B focusing on management of psychological distress. All interviews were conducted in English and audio recorded. Hand-written notes and were taken to capture nonverbal cues. Each interview took an average of 25 minutes. Respondents were recruited for the study from the 3rd of January, 2024 to the 31st of January, 2024.

2.7 Depression, anxiety, stress scale (DASS-21)

Psychological distress was measured using the 21-item Depression, Anxiety, Stress scale (DASS21) developed by Lovibond and Lovibond (1995) [36]. The tool measures symptoms of depression, anxiety, and stress experienced over the past week. It comprises three subscales, each containing seven items that correspond to the three emotional

states. Responses were rated on a 4-point Likert scale ranging from 0 (“did not apply to me at all”) to 3 (“applied to me most of the time”). Scores for each subscale are obtained by summing the item responses and multiplying the total by two, allowing for comparison with the original 42-item DASS. Higher subscale scores indicate greater levels of depression, anxiety, or stress [36]. The cut-off points were applied to classify symptom severity as recommended by Lovibond and Lovibond (1995) [36]: Depression:

Normal (0–9), Mild (10–13), Moderate (14–20), Severe (21–27), Extremely severe (≥ 28) Anxiety: normal (0–7), Mild (8–9), Moderate (10–14), Severe (15–19), Extremely severe (≥ 20) Stress: Normal (0–14), Mild (15–18), Moderate (19–25), Severe (26–33), Extremely Severe (≥ 34) For the purpose of this study, participants who scored 13 and above for Depression were classified as having depressive symptoms, those who scored 9 and above for Anxiety were classified as having anxiety symptoms and those who scored 18 and above for Stress were classified as having symptoms of stress. The overall psychological distress was dichotomized into “Distress” and “Normal”. Respondents who scored above the recommended DASS-21 threshold for any of the three domains; Depression, Anxiety and Stress, were classified as “Psychological Distress” and those who scored below the cut-off points for all three domains were classified as “Normal”. In this study, all the subscales of the DASS-21 demonstrated good internal consistency, with Cronbach’s alpha coefficients of 0.90 for depression, 0.88 for anxiety, and 0.89 for stress.

2.8 Data analysis

Quantitative data were exported to STATA v17.0, cleaned and analyzed using the same tool. We employed both descriptive statistics such as frequency and proportion, and inferential statistics, including chi-square tests and logistic regression to analyze the data. The descriptive statistics summarized the variables while logistic regressions test was used to analyze the factors associated with psychological distress. Statistical significance was set at a p-value of less than 0.05 with a 95% confidence interval. Logistic regression analysis was carried out using depression (≥ 13), anxiety (≥ 9) and stress (≥ 18)

All the interviews were transcribed verbatim and prepared for analysis. The data were analyzed using reflexive thematic analysis with ATLAS.Ti v7.5. The reflexive thematic analysis guide by Braun and Clarke [38] was adopted. Transcripts were read and re-read to ensure familiarization with the data and emerging ideas were identified and coded. Recurrent and related codes were organized into themes and subthemes. Finally, the themes were defined and finalized with supporting quotes selected.

2.9 Trustworthiness

The trustworthiness of a qualitative study is the extent to which the identified meanings accurately represent the participant’s perspectives [39]. To ensure the rigour of the qualitative component, Lincoln and Guba’s (1985) principles of credibility, dependability, confirmability, and transferability were applied [40]. Credibility was established through prolonged engagement with participants and triangulation by involving multiple researchers in data analysis to minimize bias.

Reflexivity was maintained using a research diary that documented the researcher’s reflections and decisions throughout the study. Confirmability was achieved through a detailed audit trail that included transcripts, field notes, and analytic memos, demonstrating how themes were derived from the data. Dependability was enhanced by clearly

outlining the research procedures to allow for replication, while transferability was supported by providing a comprehensive description of the study context, participants, and procedures. The study adhered to the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist to ensure transparency and methodological consistency.

2.10 Ethical issues

The research study adhered to the Declaration of Helsinki guidelines. Ethical approval was obtained from the University of Health and Allied Sciences Ethics Research Committee (Ref: UHAS-REC B.10[117]24-25). Permission was granted by health facility heads to conduct the study at the selected health facilities. Participation in the study was completely voluntary and participants were provided written informed consent before they were included. Personal identifying information of the participants was not collected to ensure their anonymity and privacy. Their confidentiality was ensured by storing the electronic copy of the data on a password protected computer of the researchers without access to any third parties.

3 Results

3.1 Socio-demographic information

3.1.1 Socio-demographic information of quantitative respondents

Table 1 presents the socio-demographic characteristics of the 500 respondents. It shows that the majority of respondents fell within the 40–49 years (29.8%) and 60+ years (27.0%) age groups, with a relatively lower proportion aged 30–39 years (17.8%) and 50–59 years (25.4%). Most of the respondents were females representing (57%). In terms of marital status, most of the participants living with hypertension were married (55.6%). Regarding religious affiliation, Christianity was the predominant religion (75.8%). The study also captured the ethnic distribution of respondents, with Ewe (30.4%) being the majority. Employment status shows that the largest occupational groups were traders (32.4%). Educational attainment among respondents showed that 33.4% had completed Senior High School (SHS).

3.2 Demographic characteristics of qualitative participants

Table 2 shows the demographic characteristics of the participants. The majority were aged 30–35 years (55%), and most were male (66.7%). All the participants had tertiary education with 66.7%. The majority (66.7%) of the participants were nurses while a comparative majority (44.5%) had four years of work experience.

3.3 Prevalence of psychological distress

Of the 500 respondents, 89.6% experienced psychological distress (Fig. 2).

Figure 3 illustrates the prevalence and overlap of depressive, anxiety, and stress symptoms among the respondents. Majority of the participants had some psychological distress: depressive symptoms (80.2%), anxiety symptoms (89.2%) and stress symptoms (70.6%). More than half of the respondents (69.98%) experienced all three conditions. (Questionnaire-Appendix 1).

Table 1 Socio-demographic characteristics of respondents

Variable	Frequency (N = 500)	Percent (%)
Sex		
Female	285	57.0
Male	215	43.0
Age		
30–39	89	17.8
40–49	149	29.8
50–59	127	25.4
60+	135	27.0
Marital status		
Married	278	55.6
Never married	199	39.8
Separated	23	4.6
Religion		
African traditionalist	31	6.2
Christianity	379	75.8
Muslim	90	18.0
Ethnicity		
Akan	149	29.8
Ewe	152	30.4
Fante	64	12.8
Ga-Dangbe	117	23.4
Others	18	3.6
Education level		
No formal education	76	15.2
Basic or primary	71	14.2
Junior high school (JHS)	58	11.6
Senior high school (SHS)	167	33.4
Tertiary	128	25.6
Occupation		
Apprentice	19	3.8
Farmer	105	21.0
Government worker	149	29.8
Retired	6	1.2
Student	37	7.4
Trader	162	32.4
Unemployed	13	2.6
Others	9	1.8

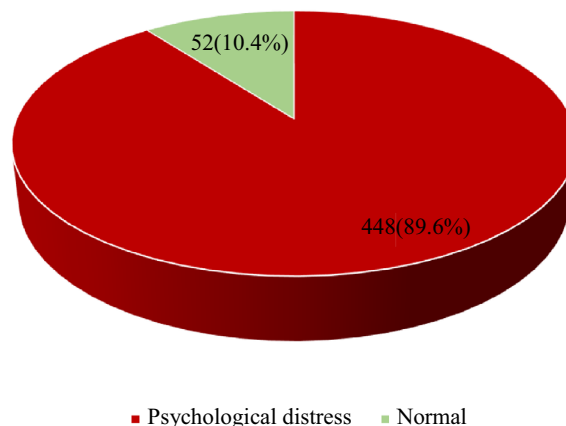
3.4 Factors associated with psychological distress

3.4.1 Factors associated with depressive symptoms among people living with hypertension

Table 3 summarizes the results of bivariate (cOR) and multivariate logistic regression (aOR) analyses, highlighting the factors associated with depressive symptoms among participants. After adjusting for these variables; age, sex, religion, occupation, and difficulty adhering to medication remained significantly associated with depressive symptoms. Respondents aged over 60 years were 81% less likely to experience depressive symptoms compared to those aged 30–39 years (aOR=0.19, 95% CI=0.07–0.52, $p=0.001$). Muslims were 2.88 times (95% CI=1.16–7.13, $p=0.022$) more likely to exhibit symptoms of depression than Christians. As compared to government workers, farmers were 66% (aOR=0.34, 95% CI=0.13–0.85, $p=0.023$) less likely to experience symptoms of depression and unemployed individuals were 0.12 times (95% CI=0.02–0.69, $p=0.019$) less likely to experience symptoms of depression compared to government workers.

Table 2 Demographic characteristics of qualitative participants

Variable	Frequency (n)	Percentage (%)
Age		
30–35	5	55%
36–39	4	45%
Sex		
Male	6	66.7
Female	3	33.3
Educational level		
Tertiary	9	100
Qualification		
Certificate	1	11.1
Diploma	2	22.2
Degree	6	66.7
Occupation		
Nurse	6	66.7
Physician assistant	1	11.1
Community health nurse	1	11.1
Public health nurse	1	11.1
Years of experience		
Four	4	44.5
Five	2	22.2
Seven	1	11.1
Eleven	1	11.1
Thirteen	1	11.1

**Fig. 2** Overall prevalence of psychological distress

Additionally, participants who reported difficulty adhering to medication were 2.05 times (95% CI=1.13–3.73, $p=0.017$) more likely to experience depressive symptoms compared to those who did not.

3.4.2 Factors associated with stress symptoms among people with hypertension

Table 4 summarizes the results of bivariate (cOR) and multivariate logistic regression (aOR) analyses, highlighting the factors associated with stress symptoms among participants with hypertension. After adjusting for these variables, age, ethnicity, and difficulty adhering to medication remained significantly associated with stress symptoms. As compared to those aged 30–39 years, respondents aged above 60 years were 74%

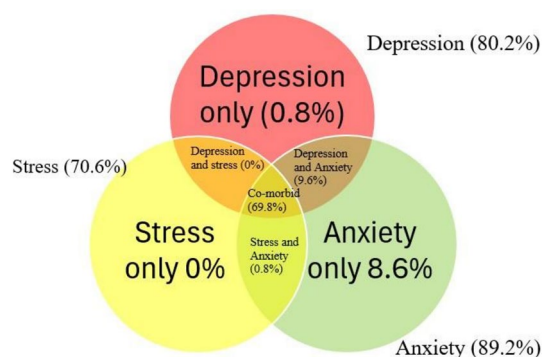


Fig. 3 Prevalence of psychological distress (Depressive symptoms, Anxiety symptoms and symptoms of Stress)

less likely to experience stress symptoms (aOR=0.26, 95% CI=0.12–0.57, $p=0.001$). Ewe respondents were 0.53 less likely to experience stress symptoms as compared to the Akan ethnic group (95% CI=0.32–0.88, $p=0.014$).

Additionally, participants who reported difficulty adhering to medication were twice as likely to experience stress symptoms compared to those who did not (aOR=2.04, 95%CI=1.27–3.31, $p=0.003$).

3.4.3 Factors associated with symptoms of anxiety among people with hypertension

Table 5 highlights the results of bivariate (cOR) and multivariate logistic regression (aOR) analyses, showing the factors associated with symptoms of anxiety among participants with hypertension. After adjusting for these variables, age, ethnicity, and difficulty adhering to medication remained significantly associated with anxiety symptoms. Participants aged 60+ years had 0.27 less likelihood of experiencing anxiety symptoms as compared to those aged 30–39 years (95% CI=0.08–0.84, $p=0.024$). As compared to the Akan ethnic group, Ewe respondents were 72% less likely to experience anxiety symptoms (aOR=0.28, 95% CI=0.14–0.57, $p=0.001$).

Additionally, participants who reported difficulty adhering to medication were twice as likely to experience symptoms of anxiety compared to those who did not (aOR=2.13, 95%CI=1.01–4.46, $p=0.044$).

3.5 Management of psychological distress in people with hypertension

The Table 6 presents the theme, sub-theme, and codes of the qualitative aspect of the study. Two main themes were realized; the general management approaches in addressing psychological distress in people with hypertension along with the challenges that come with the process.

3.6 Management approaches to psychological distress

Management of psychological distress among people with hypertension was defined as a holistic and patient-centered process that requires a tailored approach which addresses the complex interplay between physical and emotional health. The management of this condition was viewed and addressed in various ways in different districts across the country. The management included, general assessment of patient, interventions, and treatment options.

Regarding the general assessment of patients, the health professionals interviewed defined it as the routine procedures conducted daily to assess or identify psychological

Table 3 Logistic regression on socio-demographic and depressive symptoms

Variable	cOR (95% CI)	P-value	aOR (95% CI)	P value
Sex				
Female	Ref			
Male	1.76 (1.10–2.79)	0.017*	1.58 (0.91–2.77)	0.10
Age				
30–39	Ref		Ref	
40–49	0.76 (0.28–2.07)	0.586	1.04 (0.36–3.00)	0.94
50–59	0.33 (0.13–0.84)	0.020*	0.47 (0.17–1.29)	0.15
60+	0.09 (0.04–0.24)	< 0.001***	0.19 (0.07–0.52)	0.00**
Marital status				
Married	Ref			
Never married	1.05 (0.66–1.65)	0.839		
Separated	5.8 (0.76–43.93)	0.089		
Religion				
Christianity	Ref		Ref	
African traditionalist	1.55 (0.58–4.16)	0.384	0.88 (0.26–2.97)	0.84
Muslim	3.53 (2.64–4.26)	0.002**	2.88 (1.16–7.13)	0.02*
Ethnicity				
Akan	Ref		Ref	
Ewe	0.42 (0.26–0.68)	< 0.001***	0.69 (0.38–1.25)	0.23
Ga dangbe	2.52 (1.17–5.43)	0.018	2.27 (0.97–5.30)	0.06
Others	1.68 (0.37–7.62)	0.500	1.34 (0.22–8.22)	0.75
Education level				
SHS	Ref		Ref	
Basic or primary	0.32 (0.17–0.60)	< 0.001***	0.56 (0.25–1.27)	0.17
JHS	0.64 (0.30–1.35)	0.238	0.68 (0.28–1.64)	0.39
No formal education	0.98 (0.47–2.07)	0.965	2.13 (0.85–5.39)	0.12
Tertiary	0.88 (0.48–1.65)	0.709	0.47 (0.20–1.12)	0.09
Occupation				
Government worker	Ref			
Farmer	0.33 (0.18–0.61)	< 0.001***	0.34 (0.13–0.85)	0.02*
Student	1.35 (0.43–4.21)	0.601	0.98 (0.28–3.54)	0.99
Trader	0.79 (0.42–1.45)	0.441	0.88 (0.38–2.05)	0.78
Unemployed	0.03 (0.01–0.14)	< 0.001***	0.12 (0.02–0.69)	0.02*
Support from friends and family				
No support	Ref			
Support	0.63 (0.36–1.08)	0.095		
Difficulty adhering to medication				
No	Ref			
Yes	3.21 (1.91–5.41)	< 0.001***	2.05 (1.13–3.73)	0.02*

*p < 0.05

**p < 0.01

***p < 0.001

distress. This assessment included practices such as clinical investigations, medical history taking, patient interviews, laboratory tests, physical examinations and vital signs monitoring. Nonverbal cues, including body language and tone of voice are also of vital importance. These cues reflect nuanced clinical skills; as nonverbal expressions can sometimes reveal psychological distress even when individuals with hypertension do not verbally express their emotional struggles. Each of these plays a major role in the assessment of psychological distress among people with hypertension. Here is a comment from one of the health professionals;

Table 4 Logistic regression on socio-demographic and stress symptoms

Variable	cOR (95% CI)	P-value	aOR (95% CI)	P value
Sex				
Female	Ref			
Male	1.05 (0.71–1.55)	0.810		
Age				
30–39	Ref		Ref	
40–49	0.89 (0.43–1.85)	0.757	0.99 (0.46–2.16)	0.10
50–59	0.40 (0.19–0.81)	0.010*	0.48 (0.23–1.02)	0.06
60+	0.15 (0.08–0.29)	< 0.001***	0.26 (0.12–0.57)	0.00**
Marital status				
Married	Ref			
Never married	1.05 (0.55–2.01)	0.884		
Separated	-	-		
Religion				
Christianity	Ref			
African traditionalist	1.04 (0.46–2.32)	0.927		
Muslim	1.10 (0.66–1.84)	0.703		
Ethnicity				
Akan	Ref			
Ewe	0.42 (0.26–0.68)	< 0.001***	0.53 (0.32–0.88)	0.01*
Ga-Dangbe	2.52 (1.17–5.43)	0.018*	1.31 (0.71–2.42)	0.39
Others	1.68 (0.37–7.61)	0.500	2.53 (0.49–12.92)	
Education level				
SHS	Ref			
Basic or primary	0.42 (0.24–0.75)	0.004**	0.61 (0.31–1.23)	0.17
JHS	0.83 (0.43–1.62)	0.597	0.77 (0.36–1.63)	0.49
No formal education	0.71 (0.39–1.28)	0.251	0.96 (0.45–1.99)	0.91
Tertiary	1.13 (0.66–1.93)	0.649	0.74 (0.36–1.48)	0.42
Occupation				
Government worker	Ref			
Farmer	0.35 (0.20–0.61)	< 0.001	0.50 (0.23–1.10)	0.09
Student	1.17 (0.47–2.91)	0.733	1.04 (0.37–2.90)	0.94
Trader	0.68 (0.41–1.16)	0.161	0.91 (0.46–1.82)	0.81
Unemployed				
Support from friends and family				
No support	Ref			
Support	0.62 (0.38–0.99)	0.046*	0.84 (0.49–1.43)	0.53
Difficulty adhering to medication				
No	Ref			
Yes	3.04 (1.97)	< 0.001***	2.04 (1.27–3.31)	0.00**

*p < 0.05

**p < 0.01

***p < 0.001

When I'm assessing the psychological distress in a hypertensive patient, I pay attention to their emotional indicators such as anxiety, sadness, low mood and anger. I also take note of their nonverbal cues such as body language, tone of voice etcetera. I measure the severity of anxiety and depression if present. (Senior Community Health Nurse, 31 years)

In an attempt to manage psychological distress, interventions are also put in place to help fast track the process. The interventions include collaboration with other health professionals who have relevant expertise to support the management of individuals

Table 5 Logistic regression on socio-demographic and anxiety symptoms

Variable	cOR (95% CI)	P-value	aOR (95% CI)	P-value
Sex				
Female	Ref			
Male	1.54 (0.85–2.75)	0.148		
Age				
30–39	Ref		Ref	
40–49	0.59 (0.18–1.91)	0.380	0.60 (0.18–2.03)	0.42
50–59	0.38 (0.12–1.19)	0.098	0.38 (0.11–1.24)	0.11
60+	0.18 (0.63–0.56)	0.003**	0.27 (0.88–0.84)	0.02*
Marital status				
Married	Ref			
Never married	1.12(0.63–1.98)	0.694		
Separated	–	–		
Religion				
Christianity	Ref		Ref	
African traditionalist	1.00 (0.34–2.98)	0.997	0.93 (0.28–3.06)	0.91
Muslim	4.30 (1.31–14)	0.016*	3.00 (0.87–10.35)	0.08
Ethnicity				
Akan	Ref		Ref	
Ewe	0.21 (0.11–0.41)	< 0.001***	0.28 (0.14–0.57)	0.00**
Ga_dangbe	1.25 (0.44–3.25)	0.716	1.00 (0.08–5.81)	0.73
Others	1.11 (0.13–8.96)	0.926	0.68 (0.79–5.82)	0.73
Education level				
SHS	Ref			
Basic or primary	0.53 (0.23–1.23)	0.145		
JHS	1.33 (0.42–4.18)	0.624		
No formal education	0.65 (0.27–1.52)	0.323		
Tertiary	0.69 (0.32–1.45)	0.331		
Occupation				
Government worker	Ref			
Farmer	0.67 (0.32–1.37)	0.273		
Student	2.25 (0.49–10.22)	0.292		
Trader	1.17 (0.57–2.41)	0.661		
Unemployed	0.29 (0.08–1.04)	0.058		
Support from friends and family				
No support	Ref		Ref	
Support	0.44 (0.20–0.96)	0.041*	0.60 (0.26–1.38)	0.24
Difficulty adhering to medication				
No	Ref			
Yes	3.23 (1.63–6.42)	0.001**	2.13 (1.01–4.46)	0.04*

with hypertension experiencing psychological distress. The health professionals also seek the support of family members, friends or relatives to ensure a smooth treatment process for patients. Regular meetings are also held to discuss other useful measures that can be put in place to manage patients with such conditions. Referrals are also done in cases where need be. This is a comment made by one of the health professionals;

So, someone presenting with psychological distress, the Mental Health Unit plays a major role in terms of stress management, so we refer them and also, if there is any support system, we can help them with, so we also bring the family in, the husband, or the wife, etc, can also support the patient in psychological distress management. (Senior Nursing Officer, 30 years)

Table 6 Thematic results

Themes	Sub-theme	Frequency (9)
Management	General assessment	
	Clinical presentation	5
	Interrogation	5
	Laboratory investigation	1
	Medical history	1
	Physical assessment	5
	Vitals checking	4
	Interventions	
	Collaboration with health professionals	8
	Effective communication	1
	Family support	5
	Referrals	5
	Regular meetings	1
	Treatment options	
	Counselling	5
	Education	6
	Medication	3
	Education on diet	2
	Patient-centered communication	1
	Stress management technique	1
Challenges	Patient related	
	Financial constraint	2
	Non-adherence to medication	3
	Low knowledge	3
	Low review attendance	1
	Misconception	2
	Myth	2
	Stigmatization	1
	Health system related	
	Limited expertise	2
	Limited resources	1
	Language barrier	1
	Limited consultation time	2
	Patient load	1

In managing the patients, treatment options are also considered. Treatment options here is defined as a comprehensive approach that incorporates various strategies for addressing psychological distress. Health professionals interviewed highlighted several key methods used to support people living with hypertension. These included counselling, education on their health condition and dietary plans and promoting adherence to medication. These strategies were primarily employed to manage individuals with hypertension who were experiencing psychological distress.

We mostly counsel them on their medications, especially their lifestyle, e.g. diet and adherence to taking their medicines. Maybe, reduce certain ingredients in their foods or even stop eating certain foodstuff if possible. (Senior Nursing Officer, 33years).

3.7 Challenges in managing psychological distress among hypertensive patients

Despite the various measures implemented to manage hypertension, several challenges were encountered. These included patient-related factors such as financial constraints, non-adherence to medication, limited knowledge of their condition, poor follow-up

attendance, misconceptions about hypertension, myths and stigmatization within the community

Some of the challenges we face is about compliance when they will refuse to come for review or when they don't believe that this condition is real and some relay it to spirit so when you tell them to come for review, they prefer prayer camps instead to review at the hospital... (Nurse, Male, 35 years)

Challenges related to the health system was also identified. These refer to difficulties faced by health professionals arising from their work setting or routine activities. Such challenges include limited consultation time due to high patient volumes, limited expertise, particularly in Community-based Health Planning and Services (CHPS) compound, limited resources, language barriers and heavy patient load. Here's a comment from one of the health professionals;

Another hurdle is the limited availability of resources especially in rural communities. It's difficult for patients to find qualified mental health professionals for assistance. (Senior (Community Health Nurse, 31 years)

4 Discussion

Our study sought to assess the prevalence and management of psychological distress among people living with hypertension receiving care in selected health facilities in Ghana, to determine the prevalence of psychological distress, examine factors associated with psychological distress and explore the management approaches adopted by health professionals in addressing psychological distress among people living with hypertension in Suaman district(Western North), North Dayi district(Volta region) and La Nkwatanang-Madina municipality(Greater-Accra region) of Ghana. A majority of people living with hypertension were found to be experiencing psychological distress. 4 out of 5 people living with hypertension were likely to be experiencing depression, 4 out of 5 had symptoms of anxiety and 3 out of 5 experienced stress symptoms. These findings indicate a high prevalence of psychological distress among people living with hypertension in the selected health facilities. The high prevalence of depressive, anxiety, and stress symptoms observed in this study may partly be attributed to the use of lower cut-off points on the DASS-21 scale. Martsenkovskyi et al. (2022) similarly employed low cut-off values and reported elevated rates of depression, anxiety, and stress [41]. However, differences in prevalence between the two studies may also be explained by variations in study populations. While the present study involved a clinical sample of individuals living with hypertension, Martsenkovskyi et al. [41] investigated psychological distress among medical professionals [41].

Several other factors may account for the higher prevalence of psychological distress observed in this study. One contributing factor is the healthcare system and socio-economic context in Ghana, which may be associated with psychological distress. Limited access to mental health services and financial constraints associated with hypertension treatment may be linked to increased anxiety, depression and stress symptoms in these patients. By contrast, countries with more developed mental health infrastructure reported lower psychological distress rates among people with hypertension which may be associated with more accessible psychological support [42]. Cultural perceptions of mental health may be associated with differences in distress levels. In some societies,

mental health issues are stigmatized, which may be associated with delayed diagnosis and treatment. Patients may not recognize their symptoms or seek help, which may contribute to persistence or worsening over time [43].

However, our findings contrast with those of other studies. Ojike et al. [44] reported that only 3.2% of people with hypertension experienced psychological distress, which may be related to the fact that their study focused on a general population in which hypertension was only one of many health conditions. Additionally, another study of hospitalized patients with chronic diseases reported prevalence rates of 21.3% for depression, 61.3% for anxiety, and 48.7% for stress [42]. A study conducted in Afghanistan found that 42.3% of hypertensive patients had anxiety, 58.1% had depression, and 28.2% had comorbid anxiety and depression [14].

We identified several key factors associated with psychological distress among people with hypertension, including age, religion, occupation, ethnicity, and difficulty adhering to medication. These findings are consistent with previous research, which indicates that both socio-demographic and medical factors are associated with the mental health of individuals with hypertension. One of the most significant factors identified in this study is age. Older patients, particularly those over 60 years, were found to have a lower likelihood of experiencing depression, anxiety, and stress compared to younger patients. This finding is consistent with Ojike et al. [44], who suggested that younger individuals with hypertension may experience greater stress due to employment concerns, financial instability, and family responsibilities. Additionally, younger patients may face the psychological burden of being diagnosed with a chronic illness at an early stage in life, which may be associated with higher levels of psychological distress.

Religious affiliation was also identified as a factor associated with psychological distress, with Muslim participants having higher odds of experiencing depression than Christian participants.

The reasons for this difference remain unclear. Previous studies have shown that religious beliefs may influence how individuals cope with stress and illness [14]. Religious coping mechanisms, community support, and faith-based stress management strategies have been associated with lower levels of psychological distress [30]. The differences observed in this study may be related to variations in religious community support structures or differences in healthcare-seeking behaviors.

This study also identified occupation as a factor associated with psychological distress. Farmers and unemployed individuals were less likely to experience depression compared to government workers. This may be because government workers, who often operate in high-pressure environments experience greater job-related stress, which may be associated with psychological distress. Additionally, unemployed individuals while not exposed to workplace stressors, may face other economic challenges that contribute to different forms of psychological distress. Fattouh et al. [42] also reported that employment type was directly associated with anxiety and depression, particularly among individuals in high-stress occupations. This contrasts with other studies that observed a strong association between unemployment and psychological distress [45–47]. Ethnicity was also identified as a significant factor associated with psychological distress. Cultural differences in coping strategies, social support networks, and community resilience may help explain these variations. Lu et al. [43] indicated that ethnic background can shape individuals' perceptions of illness and their ability to manage psychological distress.

These findings underscore the need for culturally sensitive mental health interventions that take into account the specific experiences of different ethnic groups.

Difficulty adhering to medication was identified as a strong factor associated with depression, anxiety, and stress. This is consistent with findings from Fattouh et al. [42], who reported that poor medication adherence was directly associated with higher levels of anxiety and depression in chronic disease patients. Reasons for non-adherence may include financial constraints and concerns about side effects, yet the psychological impact remains substantial.

The management of psychological distress among people with hypertension by healthcare providers in this study primarily involved general assessment, family support, counseling, patient education, and medication. These approaches were adopted to support patients in coping with symptoms of depression, anxiety, and stress while ensuring better hypertension management. However, challenges such as financial constraints, stigma, and limited access to mental health professionals were reported to affect the perceived effectiveness of these strategies. General assessment was the first and most commonly employed approach by healthcare providers to identify psychological distress in people with hypertension. During routine consultations, providers evaluated patients' emotional wellbeing through informal observations, self-reported symptoms, and discussions about stressors.

While this approach may facilitate early identification of distress, a major limitation was the lack of standardized mental health screening tools in most healthcare facilities. As a result, healthcare providers relied heavily on clinical judgement rather than structured assessments, which may be associated with under-diagnosis or inconsistent evaluations. There is the need to integrate standardized mental health screening into routine hypertension care, as this may facilitate early detection and appropriate intervention [30]. However, the shortage of trained mental health professionals and time constraints in clinical practice made systematic screening challenging. Family support was another key strategy employed by healthcare providers in managing psychological distress. Providers often encouraged family members to be actively involved in the patient's care, as emotional and social support has been associated with lower levels of stress, improve treatment adherence, and enhance overall well-being. In some cases, providers included family members in counseling sessions to help them better understand the mental health challenges faced by people with hypertension. However, a major challenge was the lack of awareness and understanding of mental health issues among family members, which sometimes led to misinterpretation or neglect of the patient's psychological distress. Patients with strong family support experience lower levels of anxiety and depression [42].

Counseling was also utilized by healthcare providers. Professionals offered brief counseling sessions focused on stress management, coping strategies, and emotional support. When available, some patients were referred to trained psychologists or mental health specialists. However, the limited availability of professional mental health services, particularly in rural or resource constrained settings, meant that many individuals with hypertension did not receive specialized counseling. Studies have shown that structured counseling interventions, such as cognitive behavioral therapy (CBT), are associated with reductions in psychological distress among patients with chronic patients [43]. However, in many settings, healthcare providers relied on informal counseling approaches

due to resource limitations. Patient education was another strategy employed to help individuals better understand the connection between hypertension and psychological distress. Healthcare providers educated patients on the potential impact of blood pressure on stress, the importance of lifestyle modifications, and strategies for improving mental well-being. People with hypertension were also advised on relaxation techniques, such as deep breathing exercises and mindfulness, as part of hypertension management. However, challenges such as low health literacy, misconceptions about mental illness, and reluctance to discuss mental health issues may have affected the perceived effectiveness of this approach. Research indicates that people with hypertension who receive mental health education are more likely to engage in self-care behaviors, which may be associated with improved psychological well-being [42].

Despite its benefits, education alone was not always sufficient, and individuals often required additional counseling or family support to manage distress effectively.

Regarding pharmacological approaches, medications were prescribed by healthcare providers for people with hypertension experiencing severe psychological distress, particularly those with clinical depression or anxiety. Pharmacological interventions, such as antidepressants and anxiolytics, were used in cases where non-medical approaches were considered insufficient. However, providers had to be cautious about potential interactions between psychotropic drugs and antihypertensive medications. Ojike et al. [44] highlighted the importance of monitoring people living with hypertension on psychotropic medication, as some antidepressants may be associated with changes in blood pressure or metabolic outcomes.

4.1 Implications of the study for policy and practice

Hypertension has been associated with psychological distress, highlighting the importance of integrating mental health services into hypertension care. The Ministry of Health and Ghana Health Service may consider incorporating routine psychological distress screening into hypertension care protocols. Collaboration with community organizations could help strengthen social support networks for people with hypertension experiencing psychological distress. Community-based support groups, religious organizations, and local health volunteers could be engaged to provide emotional and psychological support for people with hypertension.

There is also a need for collaboration among Ghana Health Service, Ministry of Health and Ghana Psychology Council to provide lay counselling training for these groups, particularly in areas with limited numbers of mental health professionals. Recognizing the role of clinical psychologists in the management of chronic conditions in Ghana which is predominantly based on a biomedical model may help ensure that the quality of life of patients is better supported.

5 Strengths

The strength of this study is the fact that it is a mixed method study so it was able to leverage the strengths of both cross-sectional and quantitative methods such as the ability to generalize findings to a larger population and ensure study representativeness while also drawing on the strengths of qualitative methods to explore in-depth issues related to the management of psychological distress.

6 Limitations

This study has several limitations that should be considered when interpreting the findings. One limitation is that many psychological conditions in Ghana are often perceived as normal experiences, which may have influenced respondents' ability to accurately recall or recognize psychological symptoms. To mitigate this, a standardized tool focusing on symptoms experienced within the past week was employed to enhance recall accuracy. The study was limited to three districts, which may affect the generalizability of the findings to other regions of Ghana, although the use of simple random sampling enhanced internal validity. The purposive selection of health professionals could also have introduced selection bias; however, combining both sampling methods provided complementary insights that enriched the study's conclusions. Another potential limitation is the risk of social desirability bias, as some participants may have underreported distress due to stigma or fear of judgment. Efforts were made to reduce this by assuring confidentiality and emphasizing the potential benefits of honest responses for improving mental health care access. Furthermore, as a cross-sectional study, causal relationships between hypertension and psychological distress cannot be established. While validated tools such as the

DASS-21 were used, cultural or contextual factors may have influenced participants' understanding of certain items. Additionally, while psychological distress was assessed using a validated psychological tool, social support and medication adherence were not assessed with standardized instruments, which may limit the generalizability of findings. Moreover, some potentially influential variables such as experiences of abuse, substance use, socio-cultural dynamics, and income level were not captured, though they may contribute to psychological distress. Despite these limitations, the study provides valuable insights into the mental health challenges and management needs of individuals living with hypertension in Ghana.

7 Conclusion

The study revealed a high burden of psychological distress among individuals, with notable levels of probable depression, anxiety and stress. The coexistence of multiple psychological problems highlights the need for integrated mental health screening and management in routine clinical care. Socio-demographic and behavioral factors such as age, ethnicity, religion, occupation and medication adherence were associated with psychological distress, underscoring the importance of culturally tailored interventions. Strengthening psychosocial support including family involvement, counseling, education and adherence support remains essential for improving mental health outcomes and overall quality of life among people living with hypertension.

Abbreviations

WHO	World Health Organization
SSA	Sub Saharan Africa
DASS	Depression, anxiety, stress scale
CHPS	Community-based health planning and services
STROBE	Strengthening the reporting of observational studies in epidemiology
COREQ	Consolidated criteria for reporting qualitative research

Supplementary Information

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Additional file 1.

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KEY: Conceptualisation, Data collection and analysis, Data visualization, Funding, Drafting, and Review. MDKE: Drafting, and Review. RL: Data visualization, Drafting, and Review. FIS: Data visualization, Drafting, and Review. HA: Conceptualisation, Data visualization, Funding, Supervision, Drafting, and Review. TYB: Conceptualisation and Supervision. JO: Analysis, Drafting and Data visualization

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Data availability

Data has been made available as a supplementary material and can be obtained from the corresponding author upon reasonable request.

Declarations**Ethics approval and consent to participate**

Ethical approval was obtained from the University of Health and Allied Sciences Research Ethics Committee with reference number-UHAS-REC B.10 [117]24-25. Permission was granted by health facility heads to conduct the study at the selected health facilities. Participation in the study was completely voluntary and all respondents were provided written informed consent prior to the questionnaire administration. Participants voluntarily contributed their time and effort without receiving any form of compensation. They were informed about the purpose and significance of the study and were made aware of their right to withdraw at any stage without penalty. No personal identifying information was collected to maintain anonymity and protect participants' privacy. Participants were assured of strict confidentiality throughout the research process. The study adhered to the ethical principles outlined in the 1964 Declaration of Helsinki.

Consent for publication

Informed consent to participate and for publication was obtained from all participants included in this study. All authors consent and approved the final manuscript for publication.

Competing interests

The authors declare no competing interests.

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