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# Coping Strategies and Generalized Anxiety Disorder among Female Breast Cancer Patients in Kano, Northwestern Nigeria

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## Abstract

**Context/Aim:** Breast cancer is the most common malignancy among women in Nigeria and is often diagnosed at advanced stages. Generalized anxiety disorder (GAD) is common among patients, but the role of coping strategies remains poorly understood in Northwestern Nigeria. This study assessed the prevalence of GAD and its association with coping strategies among female breast cancer patients in Kano.

**Materials and Methods:** A hospital-based cross-sectional study was conducted between September 2023 and February 2024 at Aminu Kano Teaching Hospital and Murtala Muhammad Specialist Hospital, Kano. Using systematic sampling, 240 adult female patients with histologically confirmed breast cancer were recruited. Coping strategies were assessed with the Brief COPE Inventory and categorised as good (adaptive) or poor (maladaptive). GAD was diagnosed using the Mini-International Neuropsychiatric Interview (MINI-7). Data were analysed using SPSS version 21, with a chi-square test used to assess association at $p < 0.05$.

**Results:** The overall prevalence of GAD was 21.3% (51/240). Good coping strategies were used by 87.1% (209/240) of participants, while 12.9% (31/240) used poor coping strategies. GAD prevalence was similar in both groups: 21.1% (44/209) among those with good coping and 22.6% (7/31) among those with poor coping. There was no statistically significant association between coping category and GAD ($\chi^2 = 0.038, p = 0.846$).

**Conclusion:** Approximately one in five female breast cancer patients in Kano had generalised anxiety disorder. Coping strategies measured by the Brief COPE were not significantly associated with GAD in this setting. Routine screening for anxiety and culturally appropriate psychosocial support should be integrated into breast cancer care in Northwestern Nigeria.

Keywords: Breast cancer, generalized anxiety disorder, coping strategies, Brief COPE, Northwestern Nigeria, mental health.

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## Introduction

Breast cancer is the leading cancer among women globally and in Nigeria, accounting for approximately 22% of all female cancers.[1,2] In Northwestern Nigeria, late presentation is the norm due to low awareness, financial barriers, and sociocultural stigma.[3] These factors contribute to

high levels of psychological distress, including generalized anxiety disorder (GAD), which adversely affects treatment adherence and quality of life.[4]

In African settings, emerging evidence highlights substantial psychological distress among breast cancer patients. Studies in Nigeria have reported significant psychosocial burden following treatment, including anxiety-related symptoms[3]. Similarly, research from Ghana has demonstrated that coping strategies and social support play a critical role in patients' psychological adjustment to cancer[5]. Across the region, late presentation, limited access to care, and socioeconomic challenges further contribute to psychological morbidity among patients with breast cancer[6]. In sub-Saharan Africa, the prevalence of anxiety symptoms among cancer patients is high, ranging from approximately 46% in West Africa to over 60% in North Africa, with even higher rates often reported among breast cancer patients. In Nigeria, studies have documented anxiety prevalence ranging from 18.5% to 81.6% among breast cancer patients, far exceeding rates in the general population[7,8].

Coping strategies are cognitive and behavioural efforts to manage stressful situations.[9] Adaptive coping (e.g., active coping, seeking social support, positive reframing, religion) is generally protective, whereas maladaptive coping (e.g., denial, self-blame, substance use) tends to exacerbate distress.[10]

Most existing evidence on the relationship between coping strategies and anxiety in cancer patients comes from high-income countries with well-developed psycho-oncology services. In sub-Saharan Africa, and particularly in the Muslim-majority Northwestern Nigeria, cultural factors such as belief in divine predestination, strong family networks, and communal support may modify the coping–anxiety relationship[11,12]. However, to the best of our knowledge, no previous study has specifically examined the association between coping strategies and GAD among female breast cancer patients in Northwestern Nigeria.

This study, therefore, aimed to determine the prevalence of GAD and investigate its association with coping strategies (categorised as good/adaptive versus poor/maladaptive) among female breast cancer patients attending two major tertiary hospitals in Kano, Northwestern Nigeria. We hypothesised that patients who predominantly used maladaptive coping strategies would have a higher prevalence of GAD compared with those using adaptive coping strategies.

## Materials and Methods

### Study design and setting

A cross-sectional study was conducted between September 2023 and February 2024 at the Surgical Outpatient Clinics of Aminu Kano Teaching Hospital (AKTH) and Murtala Muhammad Specialist Hospital (MMSH), Kano, Nigeria.

### Sample Size Estimation

The sample size was calculated using the formula for estimating prevalence in a population:

$n = Z^2p(1 – p)/d^2$ where: $Z = 1.96$ (corresponding to 95% confidence level), $p = 0.169$ (prevalence GAD from a previous study among females diagnosed with breast cancer)[7], and $d = 0.05$ (desired precision). This gave a minimum sample size of 216. After adjusting for an anticipated 10% non-response rate, the final sample size was 240 participants.

### Study Population and sampling

Adult female patients (≥18 years) with histologically confirmed breast cancer who attended the clinics, which are the main tertiary oncology referral centres in Kano.

A total sample size of 240 participants was determined. Proportional allocation was used based on the average monthly patient load at each hospital over the six-month study period. Aminu Kano Teaching Hospital (AKTH) had an average of 24 eligible patients per month, while Murtala Muhammad Specialist Hospital (MMSH) had an average of 60 eligible patients per month, giving a combined monthly total of 84 patients. Over the six-month period, the sampling frame was 504 patients (84 patients/month × 6 months) recruited until the required number of participants was obtained at each site.

Using proportional allocation, 69 participants were allocated to AKTH and 171 participants to MMSH. At each hospital, systematic sampling was employed. The sampling interval (k) was calculated as $504/240 \approx 2$. At each clinic, the first eligible participant was selected randomly using a table of

random numbers. Thereafter, every second consenting eligible patient was.

**Data collection tools**

Socio-demographic and clinical proforma

A structured questionnaire was used to collect information on age, marital status, educational level, occupation, stage of breast cancer, and treatment received.

Brief Coping Orientation to Problems Experienced (Brief-COPE) Inventory.

The 28-item Brief-COPE was used to assess coping strategies. Each item is rated on a 4-point Likert scale.[13] The subscales were grouped into adaptive (good) coping and maladaptive (poor) coping. Participants were categorised as using predominantly good coping if their mean score on adaptive subscale was higher than on maladaptive subscales, and poor coping if the mean score on maladaptive subscales was higher than on adaptive subscales. A median split was also applied on the total adaptive coping score to create binary categories for analysis. Adaptive coping included active coping, planning, positive reframing, acceptance, seeking support, and religious coping. Maladaptive coping included denial, self-blame, behavioural disengagement, substance use, venting, and self-distraction.[14,15]

Mini International Neuropsychiatric Interview version 7.0 (MINI-7) – Module for current GAD.

Current generalized anxiety disorder (GAD) was diagnosed using the MINI-7 module for GAD according to DSM-5 criteria. The interview was administered by the lead researcher, who had received specific training on the administration of the MINI-7 from a consultant psychiatrist before the start of the study.

**Ethical considerations**

Ethical approval was obtained from the Research Ethics Committee of Aminu Kano Teaching Hospital (NHREC/21/08/2023; AKTH/MAC/SUB/12A/P-3/VI/3748). Written informed consent was obtained from all participants before enrolment. Confidentiality was strictly maintained.

**Data analysis**

Data were analysed using SPSS version 21.0. Categorical variables were presented as frequencies and percentages. The association between coping category (good vs poor) and the presence of GAD was tested using Pearson's chi-square ($\chi^2$) test. The level of statistical significance was set at $p < 0.05$.

**Results**

A total of 240 female breast cancer patients participated in the study, giving a 100% response rate. The mean age was 40.3 ± 14.4 years. The majority were Hausa-Fulani (85.8%), Muslim (95.4%), married (64.6%), and employed (64.6%). Socio-demographic and clinical characteristics are shown in Table 1.

**Table 1: Socio-demographic characteristics of the participants (n=240)**

| Variable | Category | Frequency (n) | Percentage (%) |
|---|---|---|---|
| Age (years) | Mean ± SD = 40.3 ± 14.4 | - | - |
| | < 40 | 116 | 48.3 |
| | 40–50 | 79 | 32.9 |
| | 51–60 | 25 | 10.4 |
| | > 60 | 20 | 8.3 |
| Number of children | 0–4 | 156 | 65.0 |
| | ≥ 5 | 84 | 35.0 |
| Marital status | Married | 155 | 64.6 |
| | Unmarried | 85 | 35.4 |
| Family type | Monogamy | 206 | 85.8 |
| | Polygamy | 34 | 14.2 |
| Religion | Islam | 229 | 95.4 |
| | Christianity | 11 | 4.6 |
| Educational status | High (≥12 years) | 148 | 61.7 |
| | Low (<12 years) | 92 | 38.3 |
| Ethnicity | Hausa-Fulani | 206 | 85.8 |
| | Others | 34 | 14.2 |
| Employment status | Employed | 155 | 64.6 |
| | Unemployed | 85 | 35.4 |
| Monthly income (₦) | ≥ 70,000 | 222 | 92.5 |
| | < 70,000 | 18 | 7.5 |
| Source of support | Relatives | 207 | 86.2 |
| | Others | 33 | 13.8 |

**Table 2: Association between coping strategies and generalized anxiety disorder (GAD) (N = 240)**

| Coping Category | GAD Present n (%) | GAD Absent n (%) | Total n (%) | $\chi^2$ | p-value | Crude OR (95% CI) |
|---|---|---|---|---|---|---|
| Good (Adaptive) | 44 (21.1) | 165 (78.9) | 209 (87.1) | 0.038 | 0.846 | 1.00 (Reference) |
| Poor (Maladaptive) | 7 (22.6) | 24 (77.4) | 31 (12.9) | | | |

Note: CI = Confidence interval; OR = Odds Ratio; $p < 0.05$ is significant.

Good (adaptive) coping strategies were used by 209 participants (87.1%), while poor (maladaptive) coping strategies were used by 31 participants (12.9%). The overall prevalence of generalized anxiety disorder (GAD) was 21.3% (51/240; 95% CI: 16.4–27.0%). GAD prevalence was 21.1%

(44/209) among those with good coping and 22.6% (7/31) among those with poor coping.

Bivariate analysis (summarised in Table 2) showed no statistically significant association between coping category and GAD ($\chi^2 = 0.038$, $p = 0.846$). The crude odds ratio for GAD among participants with poor coping compared to good coping was 1.09 (95% CI: 0.45–2.65).

## Discussion

This study found no statistically significant association between coping strategies and generalized anxiety disorder (GAD) among female breast cancer patients in Northwestern Nigeria. This finding contrasts with most international literature, where maladaptive coping has consistently been associated with higher levels of anxiety.[10,16]

Several context-specific explanations may account for this observation. First, the vast majority of participants (87.1%) reported predominantly adaptive coping strategies, with heavy reliance on religious coping and acceptance. In this Muslim-majority setting, such strategies are culturally normative and may reflect fatalistic beliefs in divine predestination more than active problem-solving, potentially limiting their protective effect against anxiety.[17] Second, strong communal and family support systems, which are deeply rooted in Hausa-Fulani culture, may buffer psychological distress irrespective of individual coping styles.[18] Third, the overwhelming influence of socioeconomic and clinical factors, such as late-stage disease at presentation, financial toxicity, and societal stigma, may overshadow the role of individual coping strategies in the development of anxiety.

Similar null or weak associations between coping strategies and psychological outcomes have been reported in other African studies from Ghana and Ethiopia.[5,6] Third, the overwhelming influence of socioeconomic and clinical factors, such as late-stage disease at presentation, financial toxicity, and societal stigma, may overshadow the role of individual coping strategies in the development of anxiety.

Similar null or weak associations between coping strategies and psychological outcomes have been reported in other African studies from Ghana and Ethiopia. These findings highlight the limitations of directly applying Western coping models in African contexts and emphasise the importance of developing culturally sensitive psycho-oncology interventions.

Routine screening for GAD should be integrated into breast cancer care in Northwestern Nigeria. Furthermore, interventions that incorporate religious leaders and leverage existing family and communal support networks may be more effective than conventional coping skills training alone.

## Conclusion

Among female breast cancer patients in Kano, coping strategies as measured by the Brief COPE were not significantly associated with generalized anxiety disorder. Cultural, religious, and communal factors likely modify the coping–anxiety relationship. Routine mental health screening and culturally adapted psychosocial support are strongly recommended in oncology practice.

## Limitations

Cross-sectional design precludes causality.

A small number with poor coping reduced the power to detect differences.

Brief COPE may not capture culturally unique coping strategies.

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## Conflict of interest

None declared.

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