Article

Linking COVID-19-Related Awareness and Anxiety as Determinants of Coping Strategies' Utilization among Senior High School Teachers in Cape Coast Metropolis, Ghana

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Abstract: Cognitive-behavioral coping among teachers is an important issue of investigation due to the reported high prevalence of anxiety associated with the COVID-19 pandemic. Whereas several studies have assessed COVID-19 awareness of individuals as a predictor of anxiety, the moderating role of awareness in anxiety and coping mechanisms remains unclear. The study primarily examined the nexus between awareness of COVID-19 and (a) anxiety and (b) coping strategies, including the interaction effect of COVID-19-related awareness in the link between anxiety and coping strategies among senior high school teachers. A descriptive cross-sectional survey design was adopted to conveniently select 184 teachers from senior high schools in the Cape Coast Metropolis. Questionnaires were administered to the participants and data were analyzed with means, standard deviation, Pearson correlation, and linear regression statistical procedures. Summarily, the results revealed a negative relationship between COVID-19 awareness and anxiety levels of teachers. COVID-19-related anxiety significantly predicted coping mechanisms of teachers. Further, COVID-19 awareness significantly moderated the relationship between anxiety and coping strategies adopted. These findings imply that the public health education and mass awareness campaign programs on COVID-19 could act as buffers against the spread of COVID-19, its associated comorbidities, and help improve the mental health of teachers. Promoting adaptation to COVID-19 through the use of functional management strategies such as active coping and emotional support should be encouraged in the Cape Coast Metropolis among teachers.

Keywords: active coping; anxiety; behavior disengagement; emotional support; religious coping; senior high school; teachers

1. Introduction

Teaching is considered to be a complex and intricate job identified with perceived pressure and demands on teachers because of numerous recognizable anxious and stressful situations (Cheung and Hui 2011; Desouky and Allam 2017; Ipek 2016; Johnson et al. 2005; Liu and Wu 2021). The outbreak of COVID-19 has affected several sectors (e.g., health, business), including education. Within the educational sector, the pandemic has caused

several modifications in its delivery system, such as working from home, the sudden shift from traditional instruction to online instruction, or emergency remote learning (Bozkurt and Sharma 2020; Burgess and Sievertsen 2020; van Lancker and Parolin 2020; Viner et al. 2020). It has also caused teachers to adjust their curriculum and pedagogical practices to meet the needs of the ever-growing students' populations in many societies (Agormedah et al. 2020; Ali 2020; Crawford et al. 2020; Zou et al. 2021). The sudden shift occurred within a short period without formal orientation and training for both teachers and students on online instruction/e-learning (Agormedah et al. 2020; Dietrich et al. 2020; Hodges et al. 2020; Minkos and Gelbar 2021; Zou et al. 2021).

Responding to these abrupt changes in the education sector due to the COVID-19 pandemic has brought additional psychological burden with anxiety and stress-related reactions among teachers (Cáceres-Muñoz et al. 2020; Sokal et al. 2020). Extant researchers have indicated that individuals, including teachers in various societies, have suffered psychological consequences (anxiety, depression, stress, fear, worry, and sleep disorders) due to the COVID-19 pandemic (Besser et al. 2020; Budimir et al. 2021; Cénat et al. 2021; Cruz et al. 2020; Ho et al. 2020; Li et al. 2020a, 2020b; Ozamiz-Etxebarria et al. 2020a, 2020b, 2020c, 2021a, 2020b, 2020c; Özdin and Özdin 2020; Santamaría et al. 2021; Wang et al. 2021). According to some scholars, the symptomatology during the pandemic has been more severe among teachers (Al-Lily et al. 2020; Besser et al. 2020; Mary-Krause et al. 2021; Ozamiz-Etxebarria et al. 2020a, 2020b, 2020c, 2021a, 2021b, 2021c; Santamaría et al. 2021). For example, in China, different studies have reported moderate to severe anxiety symptoms (e.g., fear, worry, apprehension) which vary between 14% and 53% among teachers (Huang and Zhao 2020; Li et al. 2020a, 2020b; Wang et al. 2020, 2021; Xiong et al. 2020). Similar prevalence rates and symptoms (e.g., worry, fear, depression) have also been reported in several studies across different regions such as Europe: France (Mary-Krause et al. 2021); Germany (Weinert et al. 2021); Italy (Gualano et al. 2020); UK (Allen et al. 2020; Dougall et al. 2021); Spain (Prado-Gascó et al. 2020), and in the US (Cipriano and Brackett 2020; Pressley et al. 2021), as well as Africa (Fodjo et al. 2021; Hafez and El-Din 2021; Ofori et al. 2021; Ominde et al. 2021; Rabei and Abd El Fatah 2021) among teachers.

To help address the public health issues and menace of the COVID-19 outbreak, teachers' level of awareness and knowledge about its infections/transmission, basic hygiene principles, and prevention modes play a critical role in creating effective control measures which could help reduce their level of anxiety, stress, and depression. Teachers who are aware of COVID-19 symptoms, transmissions, and associated prevention strategies are more likely to adopt adaptive or active coping mechanisms in reducing their psychological consequences or mental health illness (e.g., anxiety, depression, fear, stress) and vice versa. Previous studies on teachers' level of awareness or knowledge on COVID-19 produced contradictory findings in different jurisdictions within the general population. For example, in Europe (e.g., UK) and North America (e.g., US), the general public generally had good knowledge about COVID-19, however, some misconceptions about the virus were reported (Geldsetzer 2020). In a related development, a moderate to a high level of awareness and knowledge of COVID-19 has been reported among different Asian populations (Fang et al. 2021; Teo et al. 2021; Xu et al. 2020).

In Africa, teachers' levels of awareness and knowledge about the COVID-19 crisis have been explored with diverse results. In a general review in sub-Saharan Africa, Nwagbara et al. (2021) found that all the included studies showed some evidence of knowledge related to COVID-19. Reuben et al. (2021) found that teachers had good knowledge (99.5%) of COVID-19, while Owhondaa et al. (2021) established that the residents (including teachers) (*n* = 608; 47%) had poor knowledge of COVID-19 in Nigeria. Other contrasting results (i.e., low knowledge) have been reported in other countries (e.g., Ethiopia) and elsewhere (Endriyas et al. 2021; Gebretsadik et al. 2021; Wolka et al. 2020). The aforementioned findings highlight the role of awareness towards the impact of the psychological consequence of COVID-19.

Most of the studies carried out since the COVID-19 have focused on teachers' and students' perceptions, experiences, and challenges related to online learning (Adarkwah 2020; Agormedah et al. 2020; Henaku 2020; Owusu-Fordjour et al. 2020; Tuffour et al. 2021), online learning preparedness and readiness (Banji et al. 2021; Gyampoh et al. 2020; Ogbonnaya et al. 2020), knowledge, attitude, and preventive practices (Apanga et al. 2021; Dubik et al. 2021), online learning technologies and mobile applications (Demuyakor 2021), as well as students' anxiety (Boateng et al. 2021; Quansah et al. 2022a) in Ghana. Despite these attempts, studies exploring the link between teachers' awareness of COVID-19 and anxiety experiences in Ghana are lacking.

Besides, teachers can reduce their psychological reactions caused by the COVID-19 pandemic by adopting appropriate coping mechanisms to maintain their mental health and overall well-being. Coping reflects the use of cognitive and behavioral strategies by individuals to manage loads, threats, losses, and challenges (Bru 2019; Lazarus 2006; Lazarus and Folkman 1984). These strategies are often associated with the need to combat perceived threatening situations (Martínez Ramón and Morales Rodríguez 2020; Martínez et al. 2020). A plethora of investigations have established that coping is a significant variable that contributes to the psychosocial and physical health of individuals (Yıldırım 2019). Individuals with high adaptive coping strategies (i.e., problems-focused, positive reappraisal coping strategies) experienced less anxiety (Joy et al. 2021; Brouzos et al. 2020), whilst maladaptive coping strategies (i.e., emotional, avoidance coping strategies) are negatively associated with mental health consequences and psychological well-being (Joy et al. 2021; Mayordomo et al. 2016). In China, for example, Chew et al. (2020), in a systematic review, reported that people use a wide range of coping strategies (i.e., problem focused-coping, avoidance, seeking social support, and positive appraisal of the situation) to deal with negative psychological outcomes connected with COVID-19 outbreaks. In other developed economies, teachers were found to used more functional coping strategies in Germany (Klapproth et al. 2020), cognitive strategies (ability to seek its positive aspects) in Spain (e.g., Fernández-Cruz et al. 2020), adaptive and maladaptive coping strategies in Turkey and India (Joy et al. 2021; Yıldırım et al. 2021) in adapting to the new situation of isolation. Others studies have also examined COVID-19 anxiety and coping strategies (Yıldırım et al. 2021; Temiz 2020; Millar et al. 2021). Millar et al. (2021) found that a high level of anxiety was linked with behavioural coping, mindful coping, and coping through social media. Temiz (2020) also found anxiety to be associated with self-confident, optimistic, desperate, submissive, and social support coping strategies. Liu et al. (2021) and Yakar et al. (2021) found that a low level of COVID-19 awareness is associated with high anxiety. Quansah et al. (2022b), however, found a positive association between awareness and anxiety.

Existing educational challenges (e.g., instructional resources, infrastructure, facilities, technical equipment) in many developing nations, amidst inadequate personal protective equipment (PPEs) and logistical, as well as human-capital, support could create additional psychological burden and pressure on teachers in light of the ongoing pandemic (Agormedah et al. 2020; Henaku 2020; Quansah et al. 2022a). Given the public health implications of these challenges, the need to provide an empirical inquiry on what teachers utilize as coping strategies to manage their psychological experiences in one research design would be significant to help guide public policy directed towards the ongoing pandemic (Iddi et al. 2021; Nketsia et al. 2021).

This study examines teachers' COVID-19-related awareness and anxiety as determinants of coping strategies' utilization among secondary school teachers in Ghana. Specifically, the current inquiry was guided by the following research objectives: to (1) explore the relationship between the COVID-19 awareness of teachers and their anxiety level; (2) assess the influence of COVID-19-associated anxiety on coping mechanisms of teachers; and (3) moderate the COVID-19 awareness of teachers in the relationship between anxiety and coping strategies. The outcome of this research could assist the Government, Ministry

of Education (MoE), and Ghana Health Service to enact appropriate measures aimed at promoting teachers' mental health and well-being during this crisis.

2. Methods and Materials

2.1. Study Participants

Participants for this study were comprised of one hundred and eighty-four (184) secondary school teachers in the Cape Coast Metropolis in Ghana. The original sample size was 214 teachers, and this was computed through G-Power software (version 3.1.9.2) with an effect size of 0.15 at 95% confidence interval, regression model, two predictors and actual power of 0.952. Nevertheless, 184 out of 214 valid responses were obtained, resulting in a response rate of 86%. The use of this approach to sample size estimation was necessitated by two reasons. First, as of the time of conducting this study, the senior high school year groups had been classified into green and gold tracks, and each track had its teachers within each semester. Consequently, only second years, gold and green track groups were available at the time of data collection, hence only teachers who taught these year groups were available to participate in the study. Secondly, the population size for teachers at the national level, and even those at the local level (i.e., study settings), were not available to the investigators. This explains why the population size was not used to estimate the sample size. Despite this, the structure of the sample in this study was relatively closer to that of previous studies in terms of gender, with males dominating the general teacher population, except for male- or female-dominated subject areas such as Home Economics and Mathematics (Ansah et al. 2020; Boadu 2013).

The descriptive cross-sectional survey design was adopted to conveniently select the teachers, of which 63 (34.2%) were females and 121 (65.8%) were males. The ages of participants were categorized into five (5) as: 20–24 ($n = 10$; 5.4%), 25–29 ($n = 47$; 25.5%), 30–34 ($n = 41$; 22.3%), 35–39 ($n = 33$; 17.9%), and 40 and above (53; 28.8%). A majority of the participants, 87.5% ($n = 161$), belonged to the Christian religion, while 12.5% ($n = 23$) were Moslems. The level of education of participants ranged from certificate ($n = 11$; 6.0%), diploma ($n = 46$; 25.0%), bachelor's degree ($n = 95$; 51.6%) and master's degree ($n = 32$; 17.4%). Moreover, the study participants' working experiences were categorized into less than 1 year ($n = 21$; 11.4%), 1–2 years ($n = 38$; 20.7%), 3–4 years ($n = 43$; 23.4%), above 5 years ($n = 82$; 44.6%). The inclusion criteria involved all teachers who were available at the time of data collection.

2.2. Measurement of Variables

2.2.1. Anxiety

Anxiety was measured using 6 statements, which required the respondents to state the extent to which their experiences reflected the statements provided. Particularly, the respondents were obliged to limit their responses to the stressful situations presented by COVID-19 within the teaching and learning environment in their respective schools. The 6 items which reflected non-clinical symptoms were adapted from Beck et al.'s (1988) anxiety scale to measure the anxiety variable, with the same items' composition used in a recent study by Quansah et al. (2022a). The adapted items include: *"I fear the worst happening"*, *"I feel unsteady"*, *"I have self-doubts"*, *"I feel unrelaxed"*, *"I feel nervous"*, and *"I feel very much concerned"*. The scale options ranged from 0 to 3, with *0* representing '*not at all*', *1* reflecting *somewhat*, *2* reflecting *moderately*, and *3* representing *very much so*. In addition to the high level of validity and reliability established from the scale by previous researchers (Beck et al. 1988; Quansah et al. 2022a), the scale was also validated by the investigators of this current research. Omega reliability procedure showed a reliability estimate of 0.73.

2.2.2. Awareness

Awareness in this study was conceptualized as the extent to which participants are aware of COVID-19 infections, transmission, and prevention modes. Six items were developed by the investigators to measure the awareness of participants. The items had

a preamble, "I am aware that", and were followed by the following items: "*I can contract COVID-19 in crowded places*", "*I can contract COVID-19 through droplets of saliva on object surfaces*", "*wearing nose masks can help to avoid contracting COVID-19*", "*adhering to safety and hygienic protocols will help avoid COVID-19 infection*", "*COVID-19 can be transmitted in the classroom situation when teaching*", and "*I have to isolate when I feel some related symptoms of COVID-19*". For each item, the participants were to respond with either a "*yes*" or "*no*" response. To quantify the awareness variable, all "*yes*" responses were quantified as 1 and "*no*" responses were weighted as 0. The total scores ranged from 0 to 6, with 6 being the highest and 0 being the lowest. Because of the response nature of the items, Kuder–Richardson 21 reliability test procedure was utilized, and the results showed an estimate of 0.77 (Quansah 2017).

2.2.3. Coping Strategies

A coping scale developed and calibrated by Quansah et al. (n.d.) was adopted for this research. The coping inventory had 16 items with four dimensions (active coping, religious coping, behavior disengagement, and emotional support). Each of the items had 4 items reflecting the construct. The items included: "*I take additional action to try to get rid of the problem*" (active coping), "*I put my trust in God/object of worship*" (religious coping), "*I reduce the amount of effort I'm putting into solving the problem*" (behavior disengagement coping), and "*I admit to myself that I can't deal with the stressor and quit trying*" (emotional support). The reported Omega ω reliability estimates for the sub-dimensions include 0.823 for active coping dimension, 0.812 for religious coping, 0.869 for behavior disengagement, and 0.826 for emotional support dimension.

2.3. Data Collection Procedure

Reference number: UCCIRB/EXT/2020/25 was received after the Institutional Review Board of UCC ethically permitted the conduct of the study. Official approval was also sought from all headmasters of the various senior high schools in the Cape Coast Metropolis to allow their teachers to take part in the study. The researchers began the recruitment process by visiting and meeting with all Secondary School teachers in their various schools to declare the rationale for embarking on the research. The teachers who consented to participate in the study gathered in their school's assembly halls, where the survey instruments were discussed thoroughly for clarity and understanding by the researchers. This was done to make sure that participants respond appropriately to the survey items with clarity. Ethical considerations including the freedom to continue or discontinue to participate in the research anytime they so wished, anonymity, confidentiality, and the protection and security of the responses they would provide were assured by the researchers. Participants were given nose masks and hand sanitizers. Hand washing buckets with soap and tissue papers were also provided at the data collection center, while chairs and tables were cleaned and arranged to maintain social distance between the participants. These were part of the safety measures to prevent the COVID-19 disease from spreading. The survey instruments were given to participants who were willing to respond to the items. Data collection began at 7 a.m. and ended at 2 p.m. each day for 2 days in each of the schools. Therefore, the participants had between 7 am on the first day to 2 pm on the second day to answer and submit their questionnaires. The majority of the respondents answered the survey items immediately and submitted them to the researchers within 25 min. Other participants also took advantage of the time frame and returned the answered questionnaires at the time of closing (2 p.m.) on the first day, while a few of them submitted theirs on the second day between the agreed time duration. The answered survey instruments were collected and put in brown envelopes for safekeeping. The entire data collection process lasted for three months.

2.4. Data Analysis

The descriptive statistics of the variables were first computed. Specifically, mean and standard deviation statistics were presented for each of the variables. A simple linear regression analysis was conducted to establish the influence of COVID-19 awareness of teachers and their anxiety levels. Moreover, a multivariate linear regression analysis was performed to ascertain how anxiety levels of teachers determined the level of use of the various coping mechanisms. To reduce the extent of Type 1 error, an adjustment was made on the 0.05 alpha level based on the number of criterion variables. Thus, an alpha level of 0.013 was used instead to determine whether the results were significant or not. Finally, moderation analysis was performed using a bootstrapping approach via PROCESS software by HAYES. The moderation analysis used 5000 bootstrap samples. Probing of significant moderation analysis was done using the pick-a-point approach (graph), as well as the conditional effects of the focal predictors at values of the moderator. The Cohen f^2 was used for the effect size estimation, with a small effect size being ~0.02, moderate being ~0.15, and ~0.35 representing a high effect size (Selya et al. 2012).

3. Results

3.1. Descriptive Statistics on Study Variables

The descriptive analysis was presented for the study in Table 1. These statistics include the mean and standard deviation for each variable.

Table 1. Descriptive Statistics of the variables in this research.

Variables	Mean	Standard Deviation
Anxiety	1.60	0.59
Awareness	4.82	1.03
Active coping	2.53	0.64
Religious coping	3.22	0.77
Behavior disengagement	1.76	0.73
Emotional support	2.68	0.68

As presented in Table 1, anxiety showed a mean score of 1.60 with a standard deviation of 0.59, whereas awareness had a mean of 4.82 with a standard deviation of 1.03. For the coping strategies, the mean values ranged from 1.76 to 3.22, with religious coping being the highest and behavior disengagement recording the lowest mean value.

3.2. The Relationship between COVID-19 Awareness of Teachers and Their Anxiety Level

The investigators sought to establish how teachers' awareness of COVID-19 predicts their anxiety level. Table 2 presents the details of the analysis.

Table 2. Model fit and regression coefficients on COVID-19 awareness predicting teachers' anxiety level.

Model	Sum of Squares	*df*	Mean Square	*F*	*p*
Regression	6.288	1	6.288	19.937	<0.001
Residual	57.404	182	0.315		
Total	63.693	183			

	B	Std. Error	Beta	*t*	*p*
(Constant)	2.464	0.199		12.401	<0.001
Awareness	−0.180	0.040	−0.314	−4.465	<0.001

$R^2 = 0.100$; $f^2 = 0.111$; Criterion Variable: Anxiety; Predictors: (Constant), COVID-19 Awareness.

The model comprising awareness of COVID-19 as a predictor and anxiety as criterion variable was significant, $F(1, 182) = 19.937$, $p < 0.001$. It was found that awareness of COVID-19 explained about 10% of the variances in anxiety levels. Most importantly,

COVID-19 awareness negatively predicted the anxiety level of teachers, $B = -0.180$, $SE = 0.040$, $t = -4.465$, $p < 0.001$. The effect size of the analysis was moderate.

3.3. The Influence of COVID-19-Related Anxiety on Coping Mechanisms of Teachers

The influence of COVID-19-related anxiety on teachers' coping strategy was also explored. Table 3 presents the details of the multivariate regression analysis.

Table 3. Parameter estimates.

Criterion Variable	Parameter	*B*	*SE*	*t*	*p*	*f*²	*LLCI*	*ULCI*
Active Coping	Intercept	2.165	0.134	16.197	<0.001	0.047	1.901	2.428
	Anxiety	0.231	0.079	2.944	0.004 *		0.076	0.386
Religious coping	Intercept	2.974	0.163	18.235	<0.001	0.014	2.652	3.296
	Anxiety	0.154	0.096	1.608	0.110		−0.035	0.343
Behavior disengagement	Intercept	1.571	0.155	10.157	<0.001	0.009	1.266	1.876
	Anxiety	0.117	0.091	1.282	0.202		−0.063	0.296
Emotional support	Intercept	2.953	0.145	20.408	<0.001	0.021	2.668	3.239
	Anxiety	−0.168	0.085	−1.979	0.049		−0.336	0.000

* Significant at $p < 0.013$.

The outcome of the multivariate regression showed that anxiety positively predicted active coping, B = 0.231, t = 2.944, p = 0.004, $f^2 = 0.047$. This suggests that teachers with a high level of anxiety were more likely to use active coping. The analysis further revealed that anxiety did not influence religious coping, behavior disengagement, and emotional support.

3.4. Moderating Role of COVID-19 Awareness of Teachers in the Relationship between Anxiety and Coping

The moderating role of COVID-19 awareness of teachers in the link between anxiety and coping strategies. Table 4 presents the details of the analysis.

Table 4. Moderating effect of COVID-19 awareness in the link between anxiety and coping strategies.

Model		B	SE	t	LLCI	ULCI	R²	F (df1, df2)	f²	p
1	Constant	2.346	0.716	3.277	0.933	3.758	0.084	5.52 (3, 180)	0.092	0.001
	Anxiety	−0.216	0.408	−0.530	−1.020	0.588				
	Awareness	−0.047	0.134	−0.346	−0.312	0.219				
	Int_1	0.101	0.079	1.277	−0.055	0.257				
2	Constant	5.016	0.864	5.806	3.311	6.720	0.075	4.85 (3, 180)	0.081	0.003
	Anxiety	−0.569	0.492	−1.156	−1.540	0.402				
	Awareness	−0.377	0.162	−2.323	−0.697	−0.057				
	Int_1	0.124	0.095	1.296	−0.065	0.312				
3	Constant	4.815	0.787	6.118	3.262	6.368	0.141	9.88 (3, 180)	0.164	0.001
	Anxiety	−2.080	0.448	−4.640	−2.964	−1.195				
	Awareness	−0.635	0.148	−4.295	−0.927	−0.343				
	Int_1	0.443	0.087	5.089	0.271	0.614				
4	Constant	6.575	0.740	8.884	5.115	8.036	0.144	10.07 (3, 180)	0.168	0.001
	Anxiety	−2.253	0.421	−5.345	−3.084	−1.421				
	Awareness	−0.696	0.139	−5.008	−0.971	−0.422				
	Int_1	0.408	0.082	4.986	0.246	0.569				

Criterion Variable: Model 1—Behavior disengagement, Model 2—Religious coping, Model 3—Active coping, Model 4—Emotional support. Int_1—Anxiety*Awareness.

The outcome of the analysis revealed that COVID-19 awareness significantly moderated the relationship between anxiety and active coping, B = 0.443, *SE* = 0.087, Boot*CI*

(0.271, 0.614), with a moderate effect size of 0.168. Similarly, COVID-19 awareness was found to moderate the relationship between anxiety and emotional support, *B* = 0.408, *SE* = 0.082, Boot*CI* (0.246, 0.569), with a moderate effect size of 0.164. However, COVID-19 awareness did not significantly moderate the relationship between anxiety and behavior disengagement, as well as that of anxiety and religious coping.

Given the significant moderation effect of COVID-19 awareness, probing was conducted to understand the nature of the moderation effect. Table 5 and Figure 1 show the details of the probing.

Table 5. Conditional effects of the focal predictor at values of the moderator(s) in Models 3 and 4.

Probing	Awareness	Effect	*SE*	*t*	*LLCI*	*ULCI*
Model 3:	4.000	−0.309	0.128	−2.414	−0.561	−0.056
Active	5.000	0.134	0.090	1.496	−0.043	0.311
Coping	6.000	0.577	0.122	4.726	0.336	0.818
Model 4:	3.786	−0.708	0.133	−5.315	−0.971	−0.445
Emotional	4.815	−0.288	0.086	−3.338	−0.459	−0.118
Support	5.844	0.131	0.107	1.232	−0.079	0.342

Using randomly generated values of the moderator, it was found that, at the highest point of COVID-19 awareness, there is a positive significant effect of anxiety on active coping, *B* = 0.577, *SE* = 0.122, Boot*CI* (0.336, 0.818). The results also revealed that, with lower levels of COVID-19 awareness, the relationship between anxiety and emotional support was found to be negative, B = −0.708, SE = 0.133, Boot*CI* (−0.971, −0.445). A pictorial view of the probing results is shown in Figure 1.
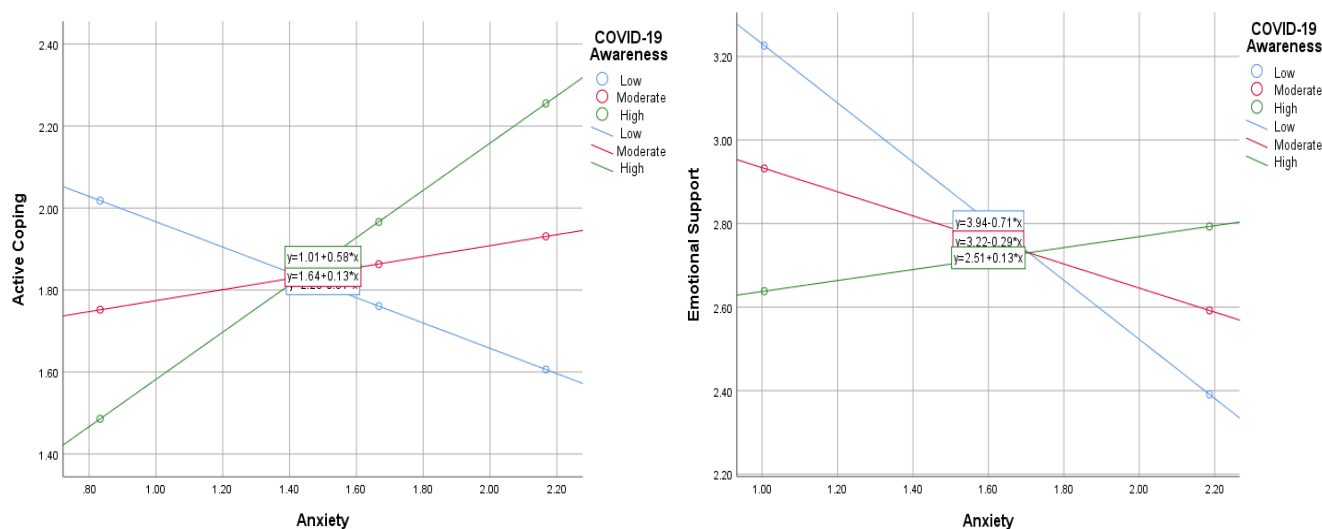

Figure 1. Probing the effect of the significant moderation analysis.

As can be observed in Figure 1, the high COVID-19 awareness curve (green) shows a positive steeper curve between anxiety and active coping, whereas low COVID-19 awareness curve (blue) shows a slightly steeper negative curve. This suggests that, when anxiety is high among teachers, those with a high level of awareness adopted a high level of active coping; those with low COVID-19 awareness adopted low levels of active coping. The trend of results was similar to moderating COVID-19 awareness in the relationship between anxiety and emotional support.

4. Discussion

The study primarily examined the nexus between awareness of COVID-19 and (a) anxiety and (b) coping strategies among senior high school teachers. In addition, the study also assessed the interaction effect of COVID-19-related awareness in the link between anxiety and coping strategies. The findings of the study revealed that COVID-19-related awareness and anxiety are inversely related. As such, an increment in the level of awareness signifies teachers becoming highly aware of the COVID-19 infections, transmission, and prevention. The results suggest that, as teachers become more aware of issues about COVID-19, particularly the disease, its mode of transmission, and prevention, they are less likely to feel unrelaxed, nervous, unsteady, and also experience self-doubt. The findings of the current study agree with a number of studies (Agha 2021; Ozamiz-Etxebarria et al. 2020a; Özdin and Özdin 2020; Weinert et al. 2021; Yıldırım et al. 2021). Yıldırım et al. (2021), for example, found that teachers' anxiety of COVID-19 was negatively related to general health. Moreover, Weinert et al. (2021) found anxiety to be a correlate of COVID-19 protection measures. The protection measures in Weinert's study can be likened to an awareness of COVID-19, as used in the current study. The findings from the current study re-echo the calls for the intensification of public sensitization and awareness of COVID-19 infections, transmission, and prevention among the general public. These sensitization programs are generally meant for awareness and knowledge creation to prevent the spread of the disease.

Evidence from this study has shown that, beyond the idea of preventing the spread of the disease, high levels of awareness are found to be associated with a reduced level of anxiety. Teachers' high levels of awareness on issues of COVID-19 mean they are privy to basic information about the disease and are therefore are well informed on what behavioral practices would predispose them to the contraction of the virus. Hence, the fears, doubts, and nervousness associated with the virus are likely to decrease with accurate information on how to prevent the contraction of the virus (Ahinkorah et al. 2020). For instance, Wang et al. (2020) found that updated and precise information about the outbreak, treatment, and precautionary measures associated with COVID-19 is related to reduced levels of anxiety, stress, and depression.

The current study further assessed the influence of COVID-19-related anxiety on the coping mechanisms of teachers. Findings revealed that, among the four dimensions of coping strategies, COVID-19-related anxiety significantly and positively predicted only active coping. The implication of the results is that, among teachers, high levels of COVID-19-related anxiety are associated with teachers' practical attempts to change their stressful situations emanating from COVID-19. Thus, when teachers are highly engulfed with fear, doubts, and nervousness, they are more likely to engage in pragmatic measures in dealing with their anxiety. Rodríguez-Rey et al. (2020) indicated that anxiety-provoking events such as COVID-19 trigger the adoption of protective mechanisms such as coping strategies to manage or deal with the situation. The findings of the current study align with the findings of Millar et al. (2021) that high level of anxiety was linked with the adoption of behavioural coping. This signifies that highly anxious persons are more likely to adopt pragmatic measures of coping. Temiz (2020) also found anxiety to be associated with self-confident, optimistic, and social support coping strategies.

The result indicated that the influence of anxiety on coping differs based on teachers' level of awareness of COVID-19. With increasing anxiety, teachers with a high level of awareness were more likely than those with a low level of awareness to adopt active and emotional support coping strategies. For instance, in the case of active coping, the result can be explained from the view that awareness of COVID-19 inherently lends itself to the adoption of active coping mechanisms. For example, being aware that "*wearing nose masks can help to avoid contracting COVID-19*" and "*adhering to safety and hygienic protocols will help avoid COVID-19 infection*" by themselves are active coping mechanisms. Klapproth et al. (2020) found that teachers with a high level of stress apply functional coping strategies. Functional coping strategies (e.g., active coping) have to do with coping

mechanisms geared toward providing a pragmatic means of dealing with life-stressful or life-threatening situations. The results of the current study can be related to a number of previous studies that have assessed the relationship between COVID-19 awareness and anxiety (Liu et al. 2021; Yakar et al. 2021; Quansah et al. 2022b). Liu et al. (2021) and Yakar et al. (2021) found that a low level of COVID-19 awareness is associated with high anxiety. Quansah et al. (2022b), however, found a positive association between awareness and anxiety. The implication of these results is that awareness interacts with anxiety. Therefore, it is not surprising awareness significantly moderated the relationship between anxiety and coping strategies in the current study. This means that the relationship between anxiety and coping is contingent on awareness. This finding contributes to the existing literature since the moderating role of awareness in the relationship between anxiety and coping appears to be missing in extant literature.

Limitations

This study does not assume any causal link among the study variables. Therefore, interpretations of the findings should be done cautiously. The sample and its selection (i.e., convenience sampling) may introduce some elements of bias which is generally likely to affect the generalization of the results. Because of the cross-sectional nature of the present study, it is difficult to draw conclusions based on its long-term effect on the identified patterns. Moreover, using a convenient sample may result in problems of generalization of the findings from the sample to the population. Conducting future research on these thematic areas with longitudinal designs to mirror the ongoing pandemic might be very useful in identifying the unfolding psychological reactions to guide appropriate interventions.

5. Conclusions

The findings of this study have established that awareness and anxiety are determinants of coping strategies adopted by teachers. Teachers who are highly aware of COVID-19 and its transmission and prevention have reduced levels of anxiety. Teachers' anxiety levels could also be moderated by their level of awareness of COVID-19, leading to the subsequent adoption of a particular coping strategy. These findings imply that the public health education and mass awareness campaign programs on COVID-19 could act as buffers against the spread of COVID-19 and its associated comorbidities and help to improve the psychological health of teachers. Further, promoting teachers' adaptation to COVID-19 through the use of functional management strategies such as active coping and emotional support should be encouraged in the Cape Coast Metropolis. Future studies could replicate this study across a wider sample of teachers in the country, because context-specific variations in the exposure of COVID-19 may evoke different patterns of psychological reactions and coping strategies not identified in the current study.

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