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# Examining Risk Perception and Coping Strategies of Senior High School Teachers in Ghana: Does COVID-19-Related Knowledge Matter?

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**Abstract:** Previous research has established the link between COVID-19 risk perception and the coping behaviors of teachers in different countries. However, these studies have revealed inconsistent result patterns. Moreover, little is known about the role of COVID-19 knowledge in the link between risk perception and the coping strategies of teachers. This study, therefore, examines the relationship between COVID-19 risk perception and the coping behaviors of teachers, as well as the moderating effect of COVID-19 knowledge in this link. Through the convenience sampling technique, a cross-sectional sample of 376 teachers was recruited to respond to a questionnaire. Correlation and multiple regression analyses were used in analyzing the data. It was revealed that COVID-19 risk perception was positively correlated with active coping strategy and negatively associated with emotional support. Further, results showed that with the a high level of COVID-19 risk perception, teachers with a high level of knowledge are less likely to adopt emotional support coping. In contrast, teachers with low knowledge levels will exhibit a higher probability of adopting emotional support coping. The study projects the need for enhancing the knowledge of teachers while conscientizing them on the risky nature of COVID-19 through health education and promotion.

**Keywords:** coping mechanism; coronavirus; knowledge; risk perception; teachers

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## 1. Introduction

The epidemic of COVID-19 has led to disruptions to daily life and several sectors of the economy, including education. During the pandemic, teachers experienced unprecedented and sudden changes in their workplace. The emergence of the disease resulted in abrupt disruptions in teaching and learning activities, such as the unexpected change from traditional instructional delivery modes to online platforms or emergency remote learning, which caused teachers and students to experience varying levels of discomfort, fear, anxiety, depression, stress, and insecurity [1–5]. Despite teachers returning to work after the decline in COVID-19 fatality rates across many societies as a result of various preventive measures, including the introduction of vaccination roll-out programs, individual perceptions of safety or threat of potential exposure to the virus have remained across the general populations [6–10].

Previous studies have suggested that teachers are at higher risk of infection when handling students [11,12]. For example, the general public, including teachers in the UK, believe that they are at risk of becoming infected with COVID-19 because of an unsafe working environment [13]. Additionally, in Germany, the majority of respondents feared contracting SARS-CoV-2 at school, with teachers and students posing the greatest risk [11,14]. This concern is not different from other jurisdictions like Ghana. To ease teachers' fear, the threat of the disease and the psychological consequences, their adherence to non-medical preventive measures, and the adoption of appropriate coping strategies play critical roles [15–17]. Conversely, previous studies have indicated that teachers' coping strategies are situation and context-specific [18]. This implies that the degree of teachers' adoption of disease coping mechanisms is highly contingent on their COVID-19 risk perceptions and the level of COVID-19-related knowledge/awareness [19–22].

Generally, healthy behavior theories are useful in determining the factors influencing protective behaviors among teachers during this pandemic to plan health promotion programs. From the Protection–Motivation Theory (PMT) perspective, adopting a protective behavior against health threats such as the COVID-19 crisis is dependent on personal motivation for self-protection [23]. Consequently, individuals are more likely to safeguard themselves following the perceptions of severity, vulnerability, and self-efficacy linked to upcoming threat events [23–26]. According to the PMT, fear is appraised to predict and encourage protective behaviors and explain the cognitive processes involved in threat and coping appraisals. COVID-19 pandemic risk or threat and coping appraisals can lead to adaptive and maladaptive responses from teachers, which are considered a threat to their health [23–29]. Thus, individual teachers evaluate the costs and benefits of preventive actions (e.g., cognitive-behavioral coping) according to perceived risk during pandemics such as COVID-19 [15,20,27–29].

Risk perception, which refers to people's intuitive evaluation of threats to an outcome, is a significant determinant of one's willingness to engage in health-promoting behaviors [30,31]. A plethora of investigations has been conducted to examine the associations between teachers' COVID-19 risk perceptions and the adoption of coping behaviors. For example, in Europe (e.g., the UK and The Netherlands), a positive significant causal effect of residents' risk perceptions and fear of COVID-19 on coping strategies was discovered [16,19,29,32]. Similarly, in the US, it was established that residents' (including teachers) high level of risk perception positively influenced their adoption of higher functional and problem-focused coping strategies during COVID-19 pandemic [13,20]. Similar findings were reported in Asian countries like China [33–35] and sub-Saharan African nations like Nigeria [36] and Ethiopia [37]. However, in both European (e.g., Albania) and Asian (e.g., Malaysia) countries, poor coping strategies were reported among participants as a result of low risk perception [38]. High risk and the severity of the COVID-19 epidemic are factors most likely to cause populations to adopt disease coping strategies and take precautionary action, while populations with low risk perceptions of COVID-19 (i.e., ignoring the potential harm of risk) are less likely to employ active and problem-focused coping mechanisms to minimize the disease's effects [20,39,40].

Teachers' COVID-19 risk perceptions are usually shaped by their level of knowledge of the disease [27]. Teachers' knowledge enables the proper self-assessment of the risk of an event and its associated consequences [27,41]. Thus, teachers' adequate knowledge will assist in an optimistic disposition and appropriate practices at work, which will help deter the risk of infection. Individuals who are more knowledgeable about the etiology of the disease tend to worry more about being infected, suggesting an association between knowledge and risk perception [23]. Extant researchers have found a positive and significant relationship between people's knowledge and risk perceptions [23,42,43]. For example, in both Europe (e.g., Italy) and the USA, COVID-19-related knowledge was found to increase or decrease fear and risk perception [23]. In China, a mediation relationship was found between COVID-19-related risk perception and active-response behavior through

positive cognition emotions [35]. Additionally, in Africa, knowledge of COVID-19 was associated with a high risk perception of contracting the disease [44].

Teachers' adherence to disease control measures and adoption of disease coping strategies are affected by their knowledge of the disease [19–22]. Teachers who are more aware of the nature of COVID-19 and prevention strategies are more likely to adopt adaptive or active coping mechanisms to reduce their psychological consequences or mental health illness (e.g., anxiety, depression, fear, stress) and vice versa [17]. Hence, a low knowledge level of the pandemic could be a significant hindrance to community compliance with crisis reaction measures [17,19,20]. Earlier studies have produced contradictory findings on the influence of COVID-19-related knowledge and the adoption of disease coping strategies. For example, in Europe, a significant positive effect of COVID-19-related knowledge on the coping strategies of individuals was established [32]. Similar findings were reported in some Asian countries like China [33,45] and India [2,46], as well as Africa (e.g., Nigeria) [36]. In India, COVID-19-related knowledge was positively correlated with coping strategies (e.g., mindfulness, cognitive emotion regulation strategies, psychological flexibility, talking to friends/family, and 'taking care of diet') [2,46]. In Nigeria, Lorfa et al. [36] found that risk perception mediates the relationship between knowledge of COVID-19 and precautionary behaviors and disease coping behaviors. The inconsistencies could have come from the type of sample, type of measured variable, and other methodological limitations [16,19,21,22,45].

Despite several studies showing an association between knowledge of COVID-19 and preventive or coping behaviors [19–22,27], only a few have shown that the pathway from COVID-19-related knowledge to coping behaviors is often moderated by other factors such as risk perception [47–49]. It is assumed that although teachers in Ghana may have high COVID-19 knowledge due to a wide range of information channels available to them, there is the likelihood that context-specific myths and indigenous narratives might modulate their engagement in subsequent coping behaviors [36,50]. This is supported by the Health Belief Model (HBM), which suggests that threat perceptions (i.e., perceived susceptibility and severity of the disease) are important drivers that may predict teachers' health-related behaviors in the country [51–53]. The HBM is a model that focuses on individual beliefs about health conditions. According to this model, teachers participate in healthy behaviours based on their beliefs; and thus, the probability of adopting recommended COVID-19 prevention behaviors can be increased by changing their perceptions and knowledge [51–53]. Based on this model, teachers will adopt preventive health behaviors when they feel threatened by the COVID-19 crisis (perceived susceptibility) or consider that the disease can have serious ramifications on their health (perceived severity). Similarly, with the COVID-19 knowledge (information) and awareness campaigns or guidance that teachers might receive from their immediate environment, they may believe in the usefulness of preventive behaviors and the perception of negative aspects of their given behavior. This study seeks to provide answers to two questions that guided the conduct of the entire research: (1) To what extent does COVID-19 risk perception predict coping strategies of senior high school teachers, and (2) What is the role of knowledge in the relationship between COVID-19 risk perception and coping strategies of senior high school teachers. Providing answers to these questions would enable stakeholders to implement adequate risk communication response measures and increase public awareness of the pandemic. Based on the foregoing literature, a conceptual model was developed for the study (see Figure 1).
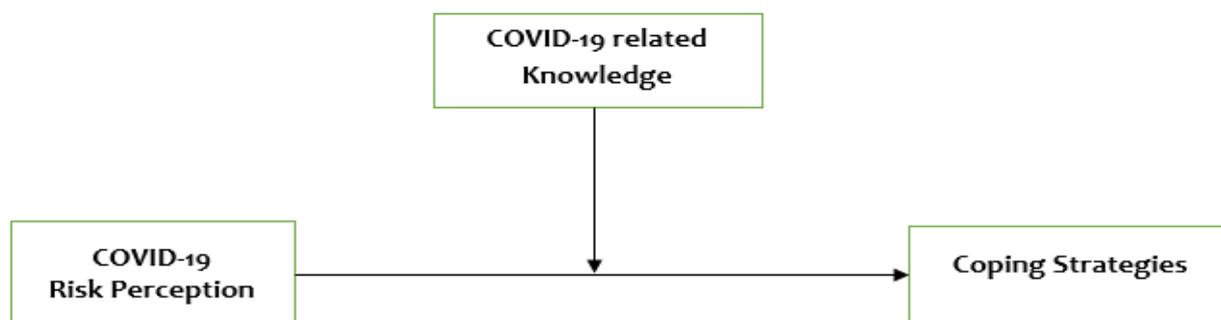
**Figure 1.** Conceptual framework on the moderating role of knowledge in the link between COVID-19 risk perception and coping strategy.

## 2. Materials and Methods

### 2.1. Participants

This study was carried out using a quantitative research approach. The descriptive cross-sectional survey design was employed to conveniently sample three hundred and seventy-six ($n$ = 376) secondary school teachers in the Cape Coast Metropolis. The majority of the participants were males, 66% ($n$ = 248), while 34% were females ($n$ = 128). Participants had their ages in five different classifications: 20–24 (5.6%, $n$ = 21); 25–29 (25%, $n$ = 94); 30–34 (22.1%, $n$ = 83); 35–39 (18.4%, $n$ = 69); and 40 and above (29%, $n$ = 109). Christians constituted about 87.8% ($n$ = 330), whereas Muslims formed 12.2% ($n$ = 46) of the total sample. Moreover, participants' educational level consisted of the following: Certificates ($n$ = 22, 5.9%), Diplomas ($n$ = 93, 24.7%), Master's degrees ($n$ = 65, 17.3%), while those having Bachelor degrees ($n$ = 196, 52.1%) constituted the majority. Regarding study participants' working experience, four (4) different categories were derived: less than 1 year ($n$ = 43, 11.4%); 1–2 years ($n$ = 76, 20.2%); 3–4 years ($n$ = 88, 23.4%); the majority of participants ($n$ = 169, 44.9%) had worked for more than five years. Teachers from secondary schools who were available at the time of data collection were recruited to participate in the study. Informed consent forms were given to all available participants to show their willingness or otherwise to participate in the survey.

### 2.2. Variable Measurements

#### 2.2.1. COVID-19 Risk Perception

COVID-19 risk perception, in this research, is operationalized as the degree to which teachers perceive the teaching and learning environment as safe or unsafe. Items from the brief COVID-19 risk perception (CoRP) scale [54] were adapted and used as proxies for the measurement of COVID-19 risk perception. The modification of the items was necessary since the instrument was developed based on the general population in Italy from age 18 to 80, whereas this study was targeted at senior high school teachers. Finally, 5 items were generated, being guided by the CoRP scale and other studies [9,55]. The following were the items: "I am at a high possibility of contracting the virus within the teaching environment", "I fear discussing issues with colleagues teachers because I am likely to be infected", "I am uncertain about the safety of the teaching environment", "I'm worried that colleagues teachers who have contracted the virus will transmit the virus to me", and "It is very easy to contract COVID-19 virus within the teaching environment". The 'yes' or 'no' response format was adopted, with a score of 1 assigned to 'yes' and a score of 0 being assigned to a 'no' response. This response format has been supported by psychological and educational measurement literature [56–58]. The scale was scored out of 5, with higher scores depicting high COVID-19 risk perception and low scores reflecting low COVID-19 risk perception. Aside from the sound psychometric properties of the items/scale, this study obtained a reliability estimate of 0.79 using the Kuder–Richardson (KR) 21 reliability estimate [59], which was appropriate to attain accurate measurement [60].

The KR estimation procedure was employed because it is the most appropriate approach for measures that have dichotomous responses [59,60].

### 2.2.2. Knowledge

Knowledge of COVID-19 was measured in this study using 6 questions that were adopted from and supported by previous studies [61–63]. For two of the questions, participants were required to identify the modes of COVID-19 infections and transmissions, as well as the symptoms associated with COVID-19. Four of the items required that the participants respond with either a True or False answer based on the question. The questions include: "Measures such as early detection, isolation, contact tracing, social distancing and wearing of face masks help keep infections and transmission COVID-19 at a minimal", "COVID-19 can spread through persons with asymptomatic carriers", "Keeping away from crowded areas helps prevent reduce the rate of COVID-19 infections and transmissions" and "Though COVID-19 has no absolute treatment, the symptoms can be managed very well". Right answers were scored as 1, whereas wrong responses were assigned as 0. The scores for COVID-19 knowledge ranged from 0 to 6; higher scores depict a higher level of knowledge, whereas low scores represent a low knowledge level. The items were validated to ensure accurate measurement. The reliability estimates of 0.781 through the Kuder–Richardson 21 reliability estimation procedure. This reliability estimation method is preferred because it is the recommended approach to estimating reliability when the measure has dichotomous outcomes [59,60].

### 2.2.3. Coping Strategies

The study measured coping mechanisms by adapting the coping inventory developed by Quansah et al. [64]. The coping inventory has 4 dimensions that include: religious coping, active coping, behavior disengagement, and emotional support strategies. For each of the sub-scales, 4 items were used as the indicators. The following are some of the items under (a) religious coping: "I seek help from my object of worship" and "I try to find comfort in my object of worship"; (b) active coping: "I take direct action to get around the stressor" and "I concentrate my effort on doing something about it"; (c) behavior disengagement: "I just give up trying to reach my goal because of the stressor" and "I reduce the amount of effort I'm putting into solving the problem"; and (d) emotional support: "I discuss how I feel about the stressor with someone" and "I get sympathy and understanding from someone to reduce my fears about the problem". The Omega $\omega$ reliability estimates reported by the original developers were 0.823, 0.869, 0.812, and 0.826 for active coping, behavior disengagement, religious coping, and emotional support, respectively. The Omega $\omega$ reliability method was utilized due to its superiority over the Cronbach alpha method: the latter is based on the tau-variance estimates of items, whereas the former relies on the item factor loadings [60].

### 2.3. Procedure

The Institutional Review Board of the University of Cape Coast formally approved this study's survey procedure (identification number UCCIRB/EXT/2020/25). Further, approval was sought from the Regional Director of Education in the Cape Coast Municipality, after which the researchers officially visited the headmasters of all the selected secondary schools at their schools' premises for familiarization and also to discuss the study rationale. The researchers were grouped into three clusters to collect data from different schools in order to make good use of time during the data collection period. Teachers who consented to participate in the study after establishing a rapport with the researchers through the headmasters were assembled in the assembly halls with tables and chairs that were well arranged to ensure social distancing. Each item on the questionnaire was discussed thoroughly with the teachers until they all understood how to respond to the questionnaires without any difficulties. Additionally, all participants were informed not to write their names on the survey instruments for the sake of anonymity. The confidentiality

of their responses, staying in or withdrawing from the study without any penalties, and keeping the information they would provide safe from the public domain were all assured. Nose masks, hand sanitizers, hand washing bowls, and tissue paper were provided to all participants before data collection began. Participants were also encouraged to strictly observe all the COVID-19 safety protocols to ensure the safety of all participants from the potential spread of the COVID-19 virus. Each study participant was given a survey instrument to respond to and to either submit on the spot or later. The researchers used two consecutive days for collecting data in each school, as agreed by the headmasters of the schools. Data collection began from around 8:00 in the morning and ended around 2:00 in the afternoon daily. Even though the majority of the participants responded to the survey items and returned their surveys on the same day, others submitted theirs the following day before 2:00 pm. The data collection process lasted for approximately 3 months. Data retrieved were kept in a safe place and locked.

*2.4. Data Analysis*

The collected data were processed using SPSS (version 25, International Business Machines (IBM) Incorporation, New York) with the PROCESS add-on package. The data were described to present the state of the variables. The mean and standard deviation of all the key variables in this study were presented. Further, the relationships among the variables were also explored. Multivariate regression analysis was performed to examine the extent to which COVID-19 risk perception predicts coping mechanisms among teachers. Prior to the multivariate analysis, multivariate outliers, normality, and singularity assumptions were tested and satisfied. A Bonferroni adjustment was used to interpret the multivariate test to adjust the alpha level of 0.05 to 0.013; *p*-values less than or equal to 0.013 were deemed significant. The moderation analysis was also performed to examine the role of COVID-19 knowledge in the relationship between risk perception and coping mechanisms. The moderation analysis was carried out using the bootstrap approach with 5000 bootstrap samples. The moderation analysis was conducted with Model 1 of the Hayes PROCESS SPSS macro [65] using risk perception as the predictor variable, knowledge as the moderator variable, and coping strategy as the criterion variable. Because the criterion variables had four sub-dimensions, four separate models were fitted. It is important to indicate that seeding the random number generator with the same seed for bootstrapping produces the same results as performing the analysis simultaneously in structural equation modeling framework [65]. This explains the reason why the Hayes PROCESS macro does not have the option for fitting all the models simultaneously.

**3. Results**

*3.1. Descriptive Analyses of Participants' Risk Perception, Knowledge, and Coping Mechanisms*

The study explored the nature of the variables. The mean, standard deviation, and how the variables are correlated are presented in Table 1.

The COVID-19 risk perception of participants had a mean of 4.53 and a standard deviation of 1.58. Among the dimensions of the coping strategy, religious coping (*M* = 3.21, *SD* = 0.78) was reported to be highly adopted, followed by emotional support (*M* = 2.67, *SD* = 0.69) and active coping (*M* = 2.53, *SD* = 0.64). Behavior disengagement was the least utilized coping mechanism (*M* = 1.75, *SD* = 0.72). Within a score range of 0 to 6, the participants reported a mean COVID-19-related knowledge level of 4.84 and a standard deviation of 1.03. COVID-19 risk perception was found to be positively correlated with active coping strategy (*r* = 0.254) and negatively correlated with emotional support (*r* = −0.306). Similarly, COVID-19-related knowledge was found to be negatively correlated with religious coping (*r* = −0.264).

**Table 1.** Mean, standard deviation, and correlation among the study variables.

| Variables | Score Range | M | SD | RP | AC | RC | BD | ES |
|---|---|---|---|---|---|---|---|---|
| COVID-19 Risk Perception (RP) | 1–5 | 4.53 | 1.58 | 1 | | | | |
| Active Coping (AC) | 1–4 | 2.53 | 0.64 | 0.254 ** | 1 | | | |
| Religious Coping (RC) | 1–4 | 3.21 | 0.78 | −0.143 ** | −0.034 | 1 | | |
| Behavior Disengagement (BD) | 1–4 | 1.75 | 0.72 | 0.088 | 0.231 ** | −0.090 | 1 | |
| Emotional Support (ES) | 1–4 | 2.67 | 0.69 | −0.306 ** | −0.062 | 0.290 ** | 0.295 ** | 1 |
| COVID-19 Knowledge (KN) | 0–6 | 4.84 | 1.03 | 0.030 | 0.083 | −0.264 ** | 0.047 | −0.035 |

** Correlation is significant at the 0.01 level (2-tailed); M—mean; SD—standard deviation.

### 3.2. To What Extent COVID-19 Risk Perception Predicts Coping Mechanisms of Senior High School Teachers

The extent to which COVID-19 risk perception predicted coping mechanisms of senior high school teachers was examined in this study. The outcome of the multivariate linear regression analysis is presented in Table 2. As earlier indicated in the analysis section, Bronferroni's adjustment correction was used (0.05/4 = 0.013) to avoid type 1 errors due to multiple testing.

**Table 2.** Regression estimation on the prediction of COVID-19 Risk perception on coping mechanisms.

| Dependent Variable | Parameter | *B* | Std. Error | *t* | *p* | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound |
| Active Coping | Intercept | 2.059 | 0.097 | 21.148 | 0.000 | 1.868 | 2.251 |
| | Risk perception | 0.103 | 0.020 | 5.085 | 0.000 * | 0.063 | 0.143 |
| Religious Coping | Intercept | 3.526 | 0.120 | 29.313 | 0.000 | 3.289 | 3.762 |
| | Risk perception | −0.070 | 0.025 | −2.802 | 0.005 * | −0.120 | −0.021 |
| Behavior disengagement coping | Intercept | 1.568 | 0.113 | 13.895 | 0.000 | 1.346 | 1.790 |
| | Risk perception | 0.040 | 0.024 | 1.699 | 0.090 | −0.006 | 0.086 |
| Emotional Support | Intercept | 3.276 | 0.103 | 31.864 | 0.000 | 3.074 | 3.478 |
| | Risk perception | −0.133 | 0.021 | −6.207 | 0.000 * | −0.175 | −0.091 |

* Significant at $p \leq 0.013$.

The outcome of the analysis showed that COVID-19 risk perception positively predicted the adoption of active coping ($B = 0.103$, $t = 5.085$, $p < 0.001$), suggesting that teachers with high risk perceptions were more likely to utilize active coping compared to those with low risk perceptions. Further, it was revealed that COVID-19 risk perception negatively predicted the adoption of religious coping strategies ($B = −0.070$, $t = −2.802$, $p = 0.005$). Similarly, COVID-19 risk perception was negatively predicted by the utilization of emotional risk perception ($B = −0.133$, $t = −6.207$, $p < 0.001$). For both religious coping and emotional support coping strategies, a high level of adoption occurs when teachers exhibit lower levels of COVID-19 risk perception.

### 3.3. The Role of Knowledge in the Relationship between COVID-19 Risk Perception and Coping Strategies

Moderation analysis using bootstrapping (i.e., 5000 bootstrap samples) was used to assess whether COVID-19 knowledge strengthened the association between COVID-19 risk perception and coping strategies among teachers. The analysis resulted in four regression models with the same predictor (i.e., risk perception) and moderator (i.e., knowledge) but different criterion variables: Model 1 had active coping, Model 2 had religious coping, Model 3 had behavior disengagement, and Model 4 had emotional support as the criterion variables. First, the model fit indicators for the models are presented, followed by the main results.

Model fit: Because the separate models were fitted by seeding the random number generator with a common seed for bootstrapping, each model has its fit index. The following are the model fit indices for each model: Model 1= $F(3, 372)$= 10.645, $p < 0.001$, mean square error (MSE) = 0.383; Model 2 = $F(3, 372)$ = 11.967, $p < 0.001$, MSE = 0.502; Model 3 = $F(3, 372)$ = 2.340, $p = 0.073$, MSE = 0.517; Model 4 = $F(3, 372)$ = 15.222, $p < 0.001$, MSE = 0.259. With the exception of Model 3, which had a poor fit, the other three models (Models 1, 2, and 4) had a relatively good model fit, with Model 4 having the best fit. The three models that had good fit showed $p$-values less than 0.05, with lower MSEs, closer to zero. Table 3 presents the details of the analysis.

**Table 3.** Moderation effect of knowledge in the relationship between COVID-19 risk perception and coping strategies.

| Criterion Variables | Predictors | *B* | *SE* | *t* | *LLCI* | *ULCI* |
|---|---|---|---|---|---|---|
| Model 1: Active coping | Constant | 2.629 | 0.458 | 5.740 | 1.728 | 3.529 |
| | Risk perception | −0.075 | 0.097 | −0.777 | −0.265 | −0.115 |
| | Knowledge | −0.114 | 0.091 | −1.249 | −0.293 | −0.065 |
| | Int_1 | 0.036 | 0.019 | 1.876 | −0.002 | 0.074 |
| Model 2: Religious coping | Constant | 4.473 | 0.550 | 8.130 | 3.391 | 5.555 |
| | Risk perception | −0.071 | 0.116 | −0.608 | −0.299 | −0.158 |
| | Knowledge | −0.199 | 0.110 | −1.817 | −0.415 | −0.016 |
| | Int_1 | 0.001 | 0.023 | −0.037 | −0.044 | 0.046 |
| Model 3: Behavior disengagement | Constant | 2.319 | 0.532 | 4.359 | 1.273 | 3.365 |
| | Risk perception | −0.162 | 0.112 | −1.442 | −0.383 | −0.059 |
| | Knowledge | −0.151 | 0.106 | −1.428 | −0.360 | −0.057 |
| | Int_1 | 0.041 | 0.022 | 1.833 | −0.003 | 0.085 |
| Model 4: Emotional support | Constant | 2.233 | 0.483 | 4.622 | 1.283 | 3.183 |
| | Risk perception | −0.119 | 0.102 | 1.169 | −0.081 | −0.320 |
| | Knowledge | −0.211 | 0.096 | 2.194 | −0.022 | −0.400 |
| | Int_1 | −0.051 | 0.020 | −2.525 | −0.091 | −0.011 |

Int_1—Interaction between COVID-19 risk perception and knowledge; *B*—Unstandardized regression weight; *SE*—Standard Error; *t*—Critical Ratio; *LLCI*—Lower Limit Confidence Interval; *ULCI*—Upper Limit Confidence Interval.

In Model 1, knowledge failed to moderate the relationship between COVID-19 risk perception and active coping mechanism ($B = 0.036$, $SE = 0.091$, Boot*CI* (−0.002, 0.074)) (see Table 3). A similar result was found in Models 2 and 3, where knowledge was found as a non-significant moderator in the link between (a) COVID-19 risk perception and an active coping mechanism ($B = 0.001$, $SE = 0.023$, Boot*CI* (−0.044, 0.046)) and (b) COVID-19 risk perception and behavior disengagement coping ($B = 0.041$, $SE = 0.022$, Boot*CI* (−0.003, 0.085)), respectively.

Contrary to the first three models, knowledge was found as a significant moderator in the relationship between COVID-19 risk perception and emotional support coping ($B = −0.051$, $SE = 0.020$, Boot*CI* (−0.091, −0.011)) (see Table 3). The significant moderation effect of knowledge in this relationship necessitated a probing analysis. Conditional effect analysis normatively classifies the moderator variable (i.e., knowledge) into three levels: low, moderate, and high knowledge levels. The result of the probing analysis is presented in Table 4.

**Table 4.** Post-hoc analysis for the moderating role of knowledge in the relationship between COVID-19 risk perception and emotional support coping.

| Designation | Values | *B* | *SE* | *t* | *LLCI* | *ULCI* |
|---|---|---|---|---|---|---|
| Low | 3.810 | −0.075 | 0.031 | −2.413 | −0.137 | −0.014 |
| Moderate | 4.840 | −0.128 | 0.021 | −5.976 | −0.170 | −0.086 |
| High | 5.871 | −0.181 | 0.029 | −6.333 | −0.237 | −0.124 |

The analysis presented in Table 4 shows that high levels of COVID-19 knowledge yield the highest effect on the relationship between COVID-19 risk perception and emotional support strategy ($B = -1.181$, $SE = 0.029$, $t = -6.333$, Boot$CI$ ($-0.237$, $-0.124$)). This suggests that with the presence of a high level of COVID-19 risk perception, teachers with a high level of knowledge are less likely to adopt emotional support coping. Meanwhile, teachers with low knowledge levels will exhibit a higher probability of adopting emotional support coping ($B = 3.810$, $SE = -0.075$, $t = -2.413$, Boot$CI$ ($-0.137$, $-0.014$)).

## 4. Discussion

The study examines the extent to which COVID-19 risk perception predicts the coping mechanisms of senior high school teachers and the role of knowledge in the relationship between COVID-19 risk perception and their coping strategies. The study found that COVID-19 risk perception is positively correlated with active coping strategies and negatively correlated with emotional support. Even though the study noted a positive correlation between the teacher's COVID-19 risk perception and their coping strategies and a negative correlation between the teachers' COVID-19 risk perception and emotional support, it is important to stress that these correlations were weak. Previous studies conducted in Europe (e.g., the UK and The Netherlands) [16,19,29,32], Asia (e.g., China) [33–35], sub-Saharan Africa (e.g., Nigeria) [36], and Ethiopia [37] also found significant associations between COVID-19 risk perceptions and coping strategies. However, these findings contradict the finding of a previous research, which found that poor coping strategies were reported among participants as a result of low risk perception [38]. This finding was not surprising since it is logical to argue that teachers with a heightened risk of contracting COVID-19 are more likely to put in personal efforts of prevention (e.g., wearing a mask, regular hand washing, COVID-19 vaccination) that may offer protection against disease instead venting emotions as a protective mechanism [19–22,47–49].

Akin to previous studies [20,39,40,66], this study found that COVID-19 risk perception positively predicted the adoption of active coping, suggesting that teachers with high risk perception were more likely to utilize active coping compared to those with low risk perception. The positive linkage between having a high risk perception of COVID-19 and psychological complexities such as anxiety, depression, and stress could cause people to take precautionary measures against the possible contraction of the disease [20,39,40]. Further, it was found that COVID-19 risk perception negatively predicted the adoption of religious coping strategies. Similarly, COVID-19 risk perception negatively predicted the utilization of emotional support coping strategies. Individuals perceived to be at a high risk of contracting COVID-19 may prefer preventable or functional strategies compared to the use of transcendental means, such as coping options, against the disease. In principle, people with higher risk perceptions of contracting COVID-19 will adhere to preventable and/or management protocols instead of getting people's sympathy to cope with the disease. These findings support the Health Belief Model, which proposes that teachers' risk perception (including perceived susceptibility and perceived severity of a disease) is a key determinant in explaining their propensity of behavioral responses and coping/adapting behaviors amid global pandemics (COVID-19) and threats [15,20,27,29]. Therefore, increasing teachers' COVID-19 risk awareness using campaigns could elicit more personal precautionary actions against the disease. Practically, this finding implies that teachers' risk perception is a key determinant that influences the adoption of appropriate precautionary behaviors to possibly avert an infectious disease such as COVID-19 [36]. Therefore, there is a need for continuous risk communication messaging on the nature of COVID-19 to teachers through awareness campaigns in order for them to use functional coping strategies to prevent and/or manage the disease. Similarly, COVID-19-related knowledge was found to be negatively correlated with religious coping. This finding is aligned with other studies [67,68]. A possible explanation for this finding could be that being knowledgeable about COVID-19 increases one's level of stress and anxiety, which requires the adoption of more pragmatic preventive behaviors compared to the use of transcendental means such as religious coping [67–69].

This study found that COVID-19 knowledge was a significant moderator in the relationship between COVID-19 risk perception and emotional support coping. Generally, this finding is similar to the observations of other investigations [19–22]. After probing further, a high level of COVID-19 knowledge yielded the greatest effect on the relationship between COVID-19 risk perception and emotional support strategies. This suggests that with the presence of a high level of COVID-19 risk perception, teachers with a high level of knowledge are less likely to adopt emotional support coping. Meanwhile, teachers with low knowledge levels will exhibit a higher probability of adopting emotional support coping. These findings are possible, perhaps due to people's increased compliance with COVID-19 protocols as a result of being educated on the possibly fatal effects of the disease as opposed to emotional support from close friends or relatives [19–22]. This finding underscores that increasing teachers' knowledge regarding COVID-19 when they perceive that they are at a higher risk of contracting the disease reduces their use of emotional support coping. Hence, more concerted efforts should be directed at raising teachers' knowledge of COVID-19-related risks.

Interestingly, COVID-19 knowledge failed to moderate the relationships between risk perception and (a) active coping, (b) religious coping, and (c) behavior disengagement. The result suggests that knowledge had no role to play in these relationships. For example, the knowledge one possesses of COVID-19 does not have much effect on whether the level of risk perception will influence the use of active coping. It must be emphasized that COVID-19 resulted in heightened risk perceptions among students and teachers in Ghana, and this perceived risk influenced the way in which they coped [9,17,66], regardless of their level of knowledge. This result is explained by the way the pandemic was handled. According to Thompson and colleagues [70], who analyzed communication awareness from various media platforms in Ghana, much communication on COVID-19 centered on issues relating to religion (i.e., God can bring divine healing or protect one from getting infected) and on diffusing fear and misinformation (i.e., offering information in the hope that they could survive even when they contract the virus, COVID-19 is not a hoax but real). This also explains why knowledge failed to moderate the link between risk perception and religious coping, especially when people believed that God could protect them despite their efforts to protect themselves [71,72]. Similarly, individuals do not need knowledge of COVID-19 for them to utilize behavior disengagement coping. This is probably because the individual's knowledge might not be needed in order to adopt behavior disengagement coping regardless of the risk perception level [5].

*Strengths and Limitations*

This study used rigorous statistical procedures that could be verified with statistical analysis. Additionally, the study provides important and interesting findings that could direct policies, contribute to knowledge, and serve as a reference for future investigations. This notwithstanding, the study acknowledges certain limitations. First, the use of a descriptive cross-sectional study made it impossible to draw cause-and-effect inferences among the study variables. Additionally, the use of a sample of 376 participants did not make it possible to extrapolate the findings to the entire population of teachers in the Cape Coast metropolis. Moreover, since males dominated the study, the findings may be misleading to readers. Again, the use of self-report items might cause the teachers to be biased (e.g., under-or over-reported) in their responses. It was also impossible to use other designs, such as longitudinal prospective design, to trace the teachers who answered the survey questions for any further analysis due to adherence to the anonymity and confidentiality clauses of the research protocol. Hence, further studies addressing these issues could yield different findings.

## 5. Conclusions

This study underscored the roles of COVID-19 risk perception and knowledge in determining teachers' variability in the utilization of coping strategies. It was revealed

that teachers who reported high COVID-19 risk perceptions were found to adopt a high level of active coping and lower levels of religious coping and emotional support coping strategies. This notwithstanding, teachers with high levels of COVID-19 knowledge, compared to those with low knowledge, significantly utilized less emotional support coping strategies in the presence of high risk perception levels. The study projects the need for enhancing the knowledge of teachers via the implementation of adequate risk communication response measures by the government and its agencies and conscientizing them on the risky nature of COVID-19. Informed by the outcome of the study, teachers who have a better understanding of COVID-19 infections, transmissions, and the evolving nature of the virus will be more cautious in their actions and take practical steps to be safe from contracting the virus through active or functional coping strategies.

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