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HEALTHCARE IN CRISIS: THE INTERSECTION OF RISK COMMUNICATION, SOCIAL MEDIA, AND NURSING DURING COVID-19

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Abstract

The study assessed the effect of effective risk communication on nursing performance while evaluating the moderating role of social media usage on the risk communication-performance relationship. The study was cross-sectional. Three purposefully selected public hospitals' 371 nurses in Ghana were surveyed online. The findings revealed that effective risk communication positively influenced nursing performance. An analysis of social media usage as a moderator revealed that the use of social media positively moderated the risk communication performance relationship. The study adds to the literature on nursing performance modeling by introducing novel antecedents to improve nursing performance. It offers nursing managers knowledge on alternative ways to improve nurses' performance. It provides nurses and nursing managers with insight into the positive effects of incorporating social media usage into their daily routine to improve the dissemination of risk information, as well as nursing performance.

Keywords: COVID-19 Scare, CAUSE model, Confidence, Nursing Performance, WhatsApp usage.

INTRODUCTION

Globally, the emergence of disease outbreaks continues to remain a major public health problem, especially when the outbreak transcends into a pandemic. In December 2019, an infectious disease outbreak of novel coronavirus pneumonia (COVID-19) was first reported in Wuhan in the Hubei Province, China, and consequently spread worldwide (Chen et al., 2020). This newly emerged COVID-19 infection usually presents a fever, dry cough, and fatigue. In addition, more severe symptoms including diarrhea, dyspnea, and pneumonia, among others have been reported (Buheji & Buhaid, 2020). As of July 31, 2020, the number of global confirmed infections and deaths had reached 17,064,064 and 668,073 respectively (World Health Organization, 2020a). Since then, the estimated number of confirmed infections and deaths has surpassed 300 million and 5 million (World Health Organization, 2022). Though several interventions such as contact tracing, testing, treating infected persons, quarantine, self-isolation, and vaccination have been implemented in the management of the COVID-19 pandemic, risk communication is critical in preventing and controlling this pandemic (Faour-Klingbeil et al., 2021; Heydari et al., 2021; Wang et al., 2020). Risk communication refers to "the real-time exchange of information, advice, and

opinions between experts or officials and people who face threat to their survival, health or economic or social well-being" (Wang et al., 2020, p.911). Risk communication is also considered as the effective and accurate exchange of health risks and hazards related information that creates awareness and understanding of risks, as well as encourages health-protective behaviors among risk assessors, risk managers, and other concerned parties (National Academies of Sciences & Medicine, 2017; World Health Organization, 2020b). In the context of this current study, risk communication is considered as the accurate exchange of information about health risks associated with the COVID-19 pandemic between government/health authorities on one hand and nurses and midwives on the other. It is a necessity for risk communicators in health facilities to know how to communicate information about health risks around them so that lay people such as nurses can play suitable roles in the decision-making process. Researchers ascertained that risk communication should be prompt, encouraging, and unambiguous, inclusive of all stakeholders, cautious of perpetuating stigma, and employ suitable sources and ways to communicate risk information (Regan et al., 2016). There is a large body of research on COVID-19 risk communication (Faour-Klingbeil et al., 2021; Heydari et al., 2021; Wang et al., 2020). As an instance, Porat et al. (2020) noted that risk communication promotes effective and sustainable behavior change during pandemics such as COVID-19. Thanh and Tung (2021) also ascertained that exposure to risk communication facilitates people's understanding and risk perception of COVID-19 as well as their compliance with health preventive measures. In like manner, other researchers have also examined the role of COVID-19 risk communication among nurses (Lord et al., 2021; Nelson et al., 2021; Salwa et al., 2020). For instance, Lord et al. (2021) investigated effective communication as a key to intensive care nurses' willingness to provide nursing care amidst the COVID-19 pandemic and reported that during a public health emergency such as the COVID-19 pandemic, the importance of effective communication cannot be overstated. It plays a crucial role in fostering nurses' willingness to provide care for patients in the intensive care unit (ICU). In as much as some studies have been conducted on COVID-19 risk communication among nurses, only a small portion of these studies has focused on COVID-19 risk communication and nursing performance though research postulates that performance of nurses' roles at work is negatively affected by disease outbreaks (Jonas-Simpson, 2003). Nursing performance refers to a set of nursing activities or behaviors that are performed by nurses and directed toward the recovery and well-being of the patients assigned to their care. The main objective is to meet the needs and expectations of the patients through this set of activities (Sagherian et al., 2018). Nursing performance is considered a fundamental component in quality health care provision. Nurses are tasked with several clinical responsibilities like communicating to patients the procedures the nurses need to take them through, helping doctors to maintain patient safety, and representing the hospital positively to persons outside the hospital. Specifically, nursing performance can be categorized into task and contextual performance (Greenslade & Jimmieson, 2007). Task performance in nurses involves duties such as creating a plan of nursing care for patients, caring and showing concern for patients, and taking patients' observations-blood pressure, pulse, and temperature, whereas contextual performance involves

duties such as taking additional time to respond to the needs of families, ensuring that equipment and materials are not misused, and supporting nurses in resolving work problems in the unit. Nursing performance plays a central role in achieving the goals and objectives of every hospital. However, the nursing performance may be threatened despite the nurses' expertise and competence when the hospital lacks a healthy or safe atmosphere for nurses to complete their work. Hospitals rely on safety procedures and practices to protect nurses against occupational safety mishaps such as infections. However, given the fact that hospital duties are characterized by uncertainty and the need for flexibility (Barrett et al., 2020), such safety policies may not always be effective in protecting the health and safety of nurses in all circumstances. Therefore, to effectively accomplish their work roles amidst hazards such as pandemics, nurses rely on effective risk communication (James et al., 2019). Furthermore, an interest in risk communication unavoidably draws attention to the use of social media. Social media is "a group of 'Internet-based applications' that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of usergenerated content" (Kaplan & Haenlein, 2012, p.101). On a wider spectrum, social media is broadly comprehended as a group of online activities that facilitate the sharing of information, collaboration, or crowdsourcing among online users, and interpersonal communication. Social media increasingly enhances the circulation of health risk information and interventions to promote health policies and healthy lifestyles. A review of the literature explained several ways in which social media can enhance risk communication. First, social media can circulate risk information very quickly among actors. Second, due to its popularity and accessibility, social media enables emergency services to extend their reach when circulating risk information or warning. Finally, social media offers a collaborative and participatory communication of risk information (Song et al., 2019). Social media plays a crucial role in health care as a means to enhance the creation of ideas, exchange of professional ideas, and dissemination of knowledge (Schmitt & Lilly, 2012). Healthcare associations such as Nurses' Associations have recognized social media as a practical and permanent medium for disseminating health information (Bourgault et al., 2022). Notably, nurses continue to explore and use it in new and innovative ways such as soliciting and delivering timely and current health messages, looking for employment, carrying out, and collaborating on research. Additionally, social media enables nurses to build legitimate professional groups that can communicate (Murray, 2011). Social media is not just for communication, but also a means for promoting business. As technology grows, social media has moved rapidly into a wider spectrum, penetrating organizations. Though the use of social media is finding its way into organizations, some organizations are a bit skeptical about its adoption. Employees' excessive usage of social media has raised concerns. Nonetheless, social media is used by the majority of organizations to encourage and promote better performance at work (Pavithra & Deepak, 2020). Casella et al. (2014) recommend the integration of social media usage into the performance of nursing practice. Henderson and Dahnke (2015) propose that proper use of social media enables nurses to accomplish their roles at work, which include providing patients with appropriate care and connecting and meeting with patients for continued meaningful relationships. Though these

studies have shown the importance of social media usage in relation to the performance of nursing roles, studies to assess nursing performance based on task and contextual performance in relation to social media usage are yet to be examined. Thus, this paper adds to existing knowledge on the link between social media usage and nursing performance (task and contextual performance). By evaluating the link that could exist among effective risk communication, social media usage, task performance, and contextual performance, the present study will not only provide a recommendation for policy and guidelines for effective risk communication but will also enlighten stakeholders on the implications that may arise from effective risk communication as well as the appropriate use of social media and their effects on nurses' performance of roles at work. Nurses are the key active partners in any primary and secondary infectious disease prevention efforts. Regardless of their socio-economic development, every country considers nursing to be the top first-line devoted profession in the prevention and control of diseases and alleviation of suffering during and after a treatment of any disease, including COVID-19 (Buheji & Buhaid, 2020). There is a need to work on improving their performance at work to enhance their response to the fear and agitations that normally arise from severe pandemics. In fact, research (James et al., 2019) postulates that these nurses partially rely on effective risk communication to accomplish their work roles. Nonetheless, research on the link between effective risk communication and nursing performance has remained on the fringes of current literature. Thus, the study aims to assess effective risk communication in nurses amidst the COVID-19 pandemic and assess the influence of effective risk communication on the nurses' performance at work amidst the COVID-19 pandemic. The study further evaluates whether social media usage can enhance the link between risk communication and performance by examining the moderating role of social media usage on the risk communication-performance link.

Theoretical Background

Prior studies make it clear that there are connections between risk communication and social media as well as social media and nursing performance. To explore these connections, the present study applied Rowan et al.'s (2010) CAUSE model to evaluate the effective risk communication of COVID-19 among a sample of Ghanaian nurses. Earlier research on risk communication reported problems with its effectiveness, such as limitations of government officials, and other spokespersons in communicating information about risks (Alexander, 2018; Covello, 1988; Nelkin, 1989). To overcome these kinds of challenges, Rowan et al.'s (2010) propounded the CAUSE model to check effective risk communication. The model describes five goals that depict effective risk communication. These goals include building the people's confidence in the communicator; creating awareness of potential risks; increasing understanding of the potential risks; gaining audiences' satisfaction with information, and motivating the enactment of solutions among the audience. Each of these steps forms the acronym. Thus, the CAUSE model brings forth the fact that effective handling of each of these factors can lead to more effective risk and crisis resolutions. Prior work used this model to provide a deeper description of how groundwater district officials communicated risk information (VanDyke & King, 2018), and to provide training

in communicating risk information among emergency managers (Rowan et al., 2010). Using this model as an organizing framework, the present study assessed how health authorities responsible for communicating risk information can earn nurses' confidence, create the nurses' awareness and comprehension of COVID-19 information, create satisfaction and motivate the enactment of solutions to the COVID-19 pandemic among nurses. This study also applied Borman and Motowidlo's (1993) Performance Theory to provide a strong theoretical basis for evaluating nursing performance during this period of the COVID19 pandemic. This theory establishes the job performance domain entails the behaviors that can be categorized into task and contextual performance. Task performance refers to the efficiency with which workers perform mandatory duties that contribute to the organization's technical core, either directly by implementing a part of its technological process, or indirectly by providing the organization with needed materials or services (Borman & Motowidlo, 1997). Contextual performance involves those behaviors that maintain the broader social environment in which the technical core must function (Borman & Motowidlo, 1993). These behaviors are not mandatory. Drawing evidence from this theory, prior research (Greenslade & Jimmieson, 2007) recommended that in evaluating nursing performance, it is appropriate to assess both task and contextual performance. In nursing performance, whereas task performance encompasses duties such as creating a plan of nursing care for patients, caring and showing concern for patients, and taking patients' observations-blood pressure, pulse, and temperature, contextual performance involves duties such as taking additional time to respond to the needs of families, ensuring that equipment and materials are not misused, and supporting nurses in resolving work problems in the unit (Greenslade & Jimmieson, 2007). Furthermore, this study assessed social media usage by exploring its usefulness, perceived ease of use, and trustworthiness in nurses. Past work (Ogbonnaya, 2019) proposed that individuals are more likely to use technology such as social media if they perceive technology to be useful and easy to use. Likewise, it is essential to have trust in social media while seeking information (Rauniar et al., 2014). Hence, the present study assessed the perceived usefulness (PU), perceived ease of use (PEU), and trustworthiness (TW) of social media. PU is the degree to which an individual perceives that social media usage helps to meet his or her related goaldriven needs, whereas PEU is the degree to which social media usage is free of effort (Rauniar et al., 2014). Trustworthiness, on the other hand, is the extent to which social media users perceive social media platforms to be credible. Prior research noted that trustworthiness enhances the acceptance and usage of social media (Masele, 2017).

Hypotheses Development

Several researchers have examined the association between communication and nursing performance (Kang & Yoon, 2019; Song et al., 2020). For instance, a study among 331 nurses from Indonesia revealed that interpersonal communication has a connection with nursing performance (Ibrahim & Ahamat, 2020). Another study conducted among psychiatric nurses indicated a relationship between communication ability and nursing performance (Son & Kim, 2020). In like manner, James et al. (2019) suggested that nurses rely on effective risk communication to

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accomplish their work roles, yet to date, the extent to which nursing performance is affected by risk communication remains on the fringes of current literature. For the present study, as illustrated in Figure 1, it is proposed that:

Hypothesis 1: Effective risk communication positively influences task performance (H1a) and contextual performance (H1b) among nurses amidst the COVID-19 pandemic. Similarly, previous work indicated that social media usage can positively moderate the relationship between communication and performance at work (Goris et al., 2000). Besides, the majority of studies on social media as a moderator, including studies on the communicationperformance relationship, have been conducted in the context of business management (Goris et al., 2000; Khan et al., 2019; Shujaat et al., 2019). This study offers a different perspective. It assesses communication, social media usage, and performance in the context of pandemic risk among nurses, specifically in the control of the COVID-19 pandemic. Therefore, the following hypotheses are proposed:

Hypothesis 2: The relationship of effective risk communication to task (H2a) and contextual (H2b) performance is positively moderated by social media usage.

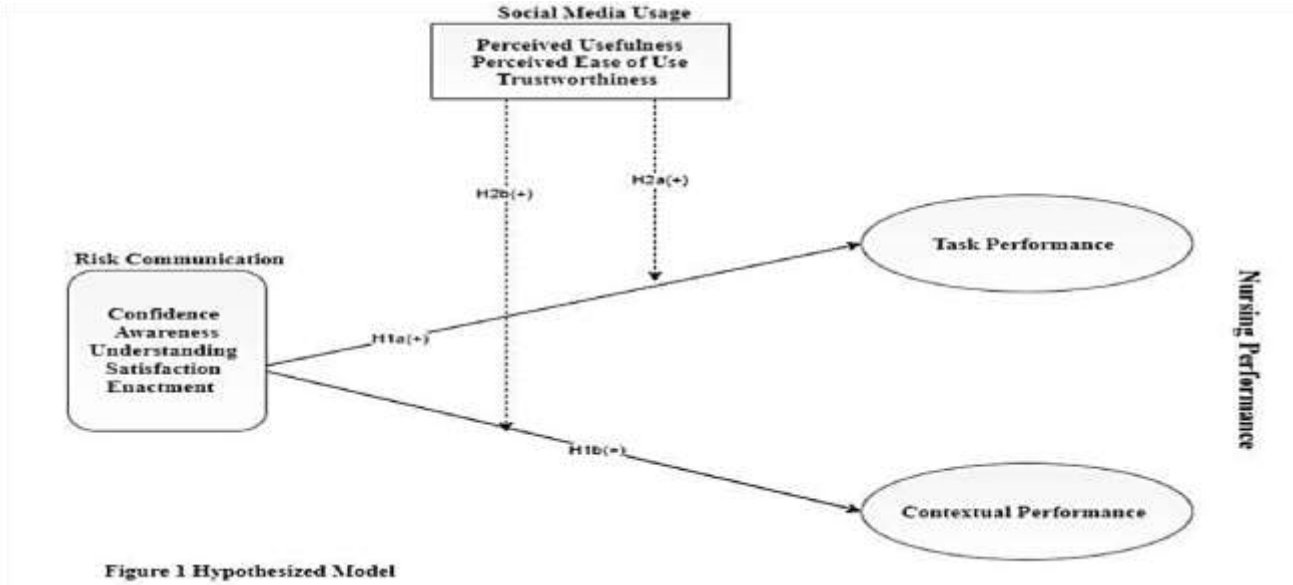

Figure 1 Hypothesized Model

METHODS

Design, Population and Sampling

The study employed a cross-sectional quantitative design. The sample was drawn from three purposely selected hospitals in Ghana. These hospitals were selected due to their appropriate location and the existence of relevant

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and sophisticated facilities needed for the care of potential COVID-19 cases. The data were obtained from nurses employed in those three hospitals. This is because nurses are exposed to a significantly elevated risk of encountering workplace hazards as compared to their counterparts in the healthcare profession (Monthly Labor Review, 2018). Eligible participants were professional nurses, both males and females, who were registered with the Nursing and Midwifery Council (NMC) of Ghana, who were in active service in these hospitals, and who were social media users. The target population in the three hospitals was 2303. The target population was stratified into two strata based on the job type: Nurses and midwives. A stratified random sample technique was employed to select sample sizes from each stratum of each hospital based on their target population. Stratified random sampling was used because the researchers wanted to evaluate data from different subgroups. This will enable researchers to obtain a sample population that best represents the entire target population. As illustrated in Table 1, the target population from Hospital A for each stratum was 1188 and 136 respectively; Hospital B was 402 and 47 respectively, and Hospital C was 462 and 68 respectively. Using the total population in these hospitals as the available population, the researchers applied Yamane's formula to the random sample size of a known population (Yamane, 1967) to obtain the sample size for the study. According to Yamane, for a confidence level of 95% and an error margin of 0.05, the sample size should be: $n = \frac{N}{1+N(e^2)}$, where n = the sample size, N = the population size, and e = error margin of 0.05, the sample size should be 341. Yet, considering the possibility of non-response, the study included 20% of the sample size, making an overall sample of 409, which is above the recommended sample size of 100 or 200 for studies that employ structural equation modeling (Boomsma, 1982; RVSPK et al., 2020). The proportionate allocation formula (Wu & Thompson, 2020): $nh = n \times \frac{Nh}{N}$, where nh = sample size for a stratum, n = calculated sample size, Nh = target population for a stratum, N = the overall population size, was applied to select the sample size from each stratum. Random sampling was then used to select the sample sizes from each stratum. Table 1 illustrates the breakdown of the target population and sample sizes from each hospital and occupational group.

Table 1: Target Population and Sample Sizes of the Strata from each Hospital

	Hospitals	General Nurses		Midwives	
		Target Population	Sample Size	Target Population	Sample Size
1	Hospital A	1188 (51.5%)	211	136 (5.9%)	24
2	Hospital B	462 (20.0%)	82	68 (2.9%)	12

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3	Hospital C	402 (17.5%)	71	47 (2.0%)	9
Total		2052	364	251	45

Data Collection

Having decided on the appropriate sample size, the researchers sought permission to collect data from the participants. eSurveyCreator, an anonymous online survey tool, was employed in developing an online structured questionnaire to collect the data. The questionnaire items were closed-ended to eliminate the possibility of response biases. Apart from the questions on the questionnaire, the questionnaire also involved an introduction outlining the details of the study and the protection of the human subjects. The questionnaires were administered via social media platforms.

Ethical Considerations

Participants were informed that completing and submitting the questionnaire was considered informed consent for participation in the study. Participants were not allowed to disclose any form of identity that could be connected to them on the questionnaire. They also had the right to terminate the survey at any time with no penalty. Contact information of researchers was made available to enable the participants to freely get in touch with researchers in case they have further questions.

Data Analysis

Descriptive and correlation analyses were performed with Statistical Package for Social Sciences (SPSS) v. 23 (IBM Corp, 2016). Structural equation modeling (SEM) using STATA
13 (LP StataCorp, 2015) was employed in testing the proposed model. Data analysis using SEM involves two steps: the analysis of the measurement model and the analysis of the hypothesized model. Confirmatory factor analysis (CFA) was used to analyze the measurement model. To analyze the measurement model in CFA, factor analysis was performed. (See Appendix Figure 1). The goodness of fit of the measurement model as well as the reliability and validity of the constructs were also examined. To evaluate the goodness-of-fit of the proposed model, researchers adopted the following fit indices: χ^2, degree of freedom [df], χ^2/df, comparative fit index (CFI), normed fit index (NFI), incremental fit index (IFI), Tucker-Lewis index (TLI) standardized root mean square residual (SRMR) and root mean square error of approximation (RMSEA). The acceptable goodness of fit of the data to test the model was based on the values of χ^2/df below the threshold of 5; CFI, TLI, NFI, and IFI over a threshold of 0.90, RMSEA below 0.06, and SRMR below 0.08 (Cho et al., 2020).

Validity, Reliability, and Rigor

To ensure validity, content and face validity were employed in this study. Content validity was ensured by conducting a thorough review of the literature to identify items needed to measure the constructs. The questionnaire was given to some professors and experts who reviewed it to ensure face validity. Reliability was

ensured by determining Cronbach's alpha coefficient. The questionnaires for both studies had a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The wording of the items was modified to suit the purpose of this study.

Risk Communication Scale

In this study, Rowan et al.'s (2003) constructs: confidence, awareness, understanding, satisfaction, and enactment formed the constructs for effective risk communication. Confidence was measured using a 6-item scale adapted from the work of van der Weerd et al. (2011). Awareness was measured using a 20-item scale adapted from Acharya et al. (2020). The measures of Understanding were developed within the scale of Giao et al. (2020). This scale was a 10-item scale but one "Knowledge toward COVID-19" was substituted for a selfdeveloped item, as Understanding in this study is not aimed at measuring the level of knowledge but the comprehension of it. This item was thus replaced with "Information provided on COVID-19 in the hospital comes with illustrations and images so it is easier to understand". The scale for satisfaction of COVID-19 information was a 6-item scale developed from (Cassista et al., 2014). Enactment was measured using a 2-item scale. This scale was developed for the present study. A sample item is "I will adhere to the precautionary measures to prevent and control COVID-19 in order to improve how I perform my nursing roles". Overall, the risk communication scale demonstrated an appropriate measure of reliability (Cronbach's $\alpha = 0.932$).

Task Performance Scale

The constructs of task performance (technical care, emotional support, and coordination of care among key members) were measured using a 3-item scale based on the work of Greenslade and Jimmieson (2007). Sample questions were "I can administer medications, treatments and assist suspected and confirmed cases of the Covid-19 pandemic" and "I can show care and concern to patients". The scale showed appropriate reliability with a Cronbach's α of 0.937.

Contextual Performance Scale

The constructs of contextual performance (job-task support, interpersonal support, and organizational support) were measured using a 3-item scale based on the work of Greenslade and Jimmieson (2007). Sample questions were "I can raise the morale of other nurses in the unit in this pandemic season" and "I can assist nurses in the unit to resolve complex work problems related to Covid-19". The scale showed appropriate reliability with a Cronbach's α of 0.909.

Social Media Usage Scale

To measure the constructs of social media usage (perceived usefulness, perceived ease of use, and trustworthiness), a 3-item scale, based on the work of Rauniar et al. (2014) was used. Sample questions included "Using social media is useful in helping to communicate about the Covid-19 pandemic, which in turn enhances my performance at work" and "I trust social media to facilitate communication of the Covid-19 pandemic among nurses to improve performance at work". In terms of the measure of reliability, Cronbach's α was 0.913.

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Socio-demographic Variables

In the present study, demographic profile included Gender (1 = Male, 2 = Female), Age (1 = 20 to 3 = Above 50), Education (1 = Secondary /Technical/ Vocational Certificate to 5 = Bachelor's Degree), and Duration of Work (1 = Less than 1 year to 4 = Above 10 years), while social media usage profile included frequently utilized Social media Platform(s) (1 = Facebook to 6 = Skype), Priority (ies) for utilizing Social media (1 = Networking with others to 4 = Work), Frequency of utilization (1 = Not every day to 5 = 10 times +) and Duration of utilization per Day (1 = Less than 1 hour to 7 = 6 hours+). These were included in the study to characterize the sample. They were not incorporated into the model since they may affect the dependent and independent variables (Aquino et al., 2004).

RESULTS

3.1 Respondents' Socio-demographic Characteristics

The result of the socio-demographic characteristics of the participants is presented in Table 2.

Table 2: Respondents' Socio-demographic Characteristics

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Variable	Characteristics	Frequency (*f*)	Percentage (%)
Gender	Male	87	23.5
	Female	284	76.5
Age	20-30	112	30.2
	31-50	230	62.0
	Above 50	29	7.8
Education	Secondary/Technical/Vocational Certificate	22	5.9
	Private Nursing Certificate	27	7.3
	Community Health Nursing Certificate	39	10.5
	Nursing Training Certificate	63	17.0
	Bachelor's Degree	220	59.3
Working Experience	Less than 1	44	11.8
	5-Jan	165	44.5
	10-Jun	86	23.2
	Above 10	76	20.5
Frequently utilized social media platform(s)	Facebook	311	83.81
	YouTube	293	78.98
	WhatsApp	365	98.38
	Instagram	231	56.87
	Twitter	231	62.26
	Skype	49	13.21
Priority (ies) for utilizing social media	Networking with others	349	94.07
	Information seeking	368	99.19
	News	319	85.98
	Work	281	75.74
Frequency of utilization	Not every day	14	3.77
	Once a day	4	1.08
	2-5 times a day	101	27.22
	5-10 times a day	71	19.14
	10 times +	181	48.79
Duration of utilization per Day	Less than I hour	21	5.66
	1-2 hours	134	36.12
	2-3 hours	74	19.95
	3-4 hours	25	6.74
	4-5 hours	21	5.66

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5-6 hours	25	6.74
6 hours +	71	19.13

Out of the four hundred and nine nurses who formed the sample size, 375 (91.5%) completed and submitted the questionnaires. Four questionnaires were excluded due to incomplete responses. In total, 371 questionnaires were used for the data analysis. Table 2 presents results on the socio-demographic characteristics of the respondents. Respondents were mainly females. Moreover, the majority of the respondents were between the ages of 31-50. Additionally, a predominant number of the respondents had attained a bachelor's degree while most of these respondents had worked between 1-5 years. With regards to social media usage, respondents were permitted to select more than one social media platform. In like manner, they were permitted to select more than one priority for using the social media platforms. Out of the various social media platforms, WhatsApp (98.38%) was the most frequently used social networking site. The results also indicated that the majority of the respondents used social media for information seeking. Regarding the frequency of social media usage, almost half of the respondents accessed social media more than ten times a day, whereas, in terms of duration, more than a quarter of the respondents used social media platforms for approximately 1-2 hours.

3.2 Evaluation of Measurement Model

Before testing the hypotheses, an analysis of the goodness of fit of the data to the model was performed. The model indicated a good fit to the data: **($\chi 2 = 462.233$, df = 144, $\chi 2/df = 3.209$, $p < 0.001$, CFI = 0.972, TLI = 0.967, NFI = 0.901, IFI = 0.912, RMSEA = 0.05, SRMR = 0.06)** Construct validity was assessed by convergent validity and discriminant validity. Convergent validity is the degree to which different measures of the same construct converge or strongly correlate with one another, while discriminant validity is the degree to which measures of different constructs diverge or minimally correlate with one another (Firdaus et al., 2021). Factor loading parameters, the average variance extracted (AVE), and composite reliability (CR) have to be put into consideration to establish convergent validity. As indicated in Table 3, the factor loadings were higher than the recommended value of ≥ 0.50 (Shah, 2019); the composite reliability ranged from **0.659 to 0.917**, above the threshold of 0.60 and the values of the average variance extracted (AVE) were all above the recommended value of 0.50 (Hair Jr et al., 2019). The results, thus, indicated adequate convergent validity.

Table 3: Measurement Model

			Convergent validity	
Construct	Indicators	Loadings	AVE	CR
	ex1……Confidence	0.850		
	ex2……. Awareness	0.845		
Risk Communication	ex3…….Understanding	0.892		
	ex4……. Satisfaction	0.851		

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	ex5…….. Enactment	0.943		
			0.769	0.659
Task Performance	gz1…... Technical care	0.878		
	gz2…... Emotional support	0.836		
	gz3…. Coordination of care among key members	0.869		
			0.742	0.864
Contextual Performance	fq1……. Job-task support	0.957		
	fq1……. Interpersonal support	0.943		
	fq3……. Organizational support	0.821		
			0.818	0.917
Social Media Usage	Sm1…. Perceived Usefulness	0.877		
	Sm2… Perceived ease of use	0.911		
	Sm3…. Trustworthiness	0.829		
			0.821	0.881

Discriminant validity was assessed using the Fornell and Larcker (1981) criterion. This technique was done by calculating the square roots of the AVE values and then checking whether they were consistently greater than all the corresponding correlations of the latent constructs. Thus, the values of the square root of the AVEs for each construct should be greater than the correlation values of the constructs. As shown in Table 4, the square roots of the AVE values were higher than correlations with other constructs, indicating acceptable discriminant validity.

Table 4: Correlation Matrix and the Square Root of AVE

Variables	Risk Communication	Task Performance	Contextual Performance	Social Media Usage
Risk Communication	(0.877)			
Task Performance	0.5689	(0.861)		
Contextual Performance	0.4873	0.6374	(0.901)	
Social Media Usage	0.601	0.523	0.611	(0.906)

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Correlation is significant at *** p < 0.001, ** p < 0.01, * p < 0.05. *** represents a significant level of 0.001; ** represents a significant level of 0.01; * represents a significant level of 0.05. Diagonal elements (in bold and parentheses) are the square roots of the Average Variance Extracted (AVE).

Hypotheses Testing

Direct Effect

In hypothesis 1, risk communication was expected to positively influence task (H1a) and contextual (H1b) performance. As shown in Tables 5, risk communication positively influenced task (β = 0.645; p < 0.001) and contextual (β = 0.549; p < 0.001) performance respectively, providing support for H1ab.

Table 5: Direct Effect Model

Hypotheses	Standard estimate (β)	t values	p values
H1a: Risk communication -> Task Performance	0.645	13.823	***
H1b: Risk Communication -> Contextual performance	0.545	11.434	***

Moderation Effect

Testing the moderation effects was derived from the interaction effects of the independent variable with the moderating variable. The following test results present the moderating variable.

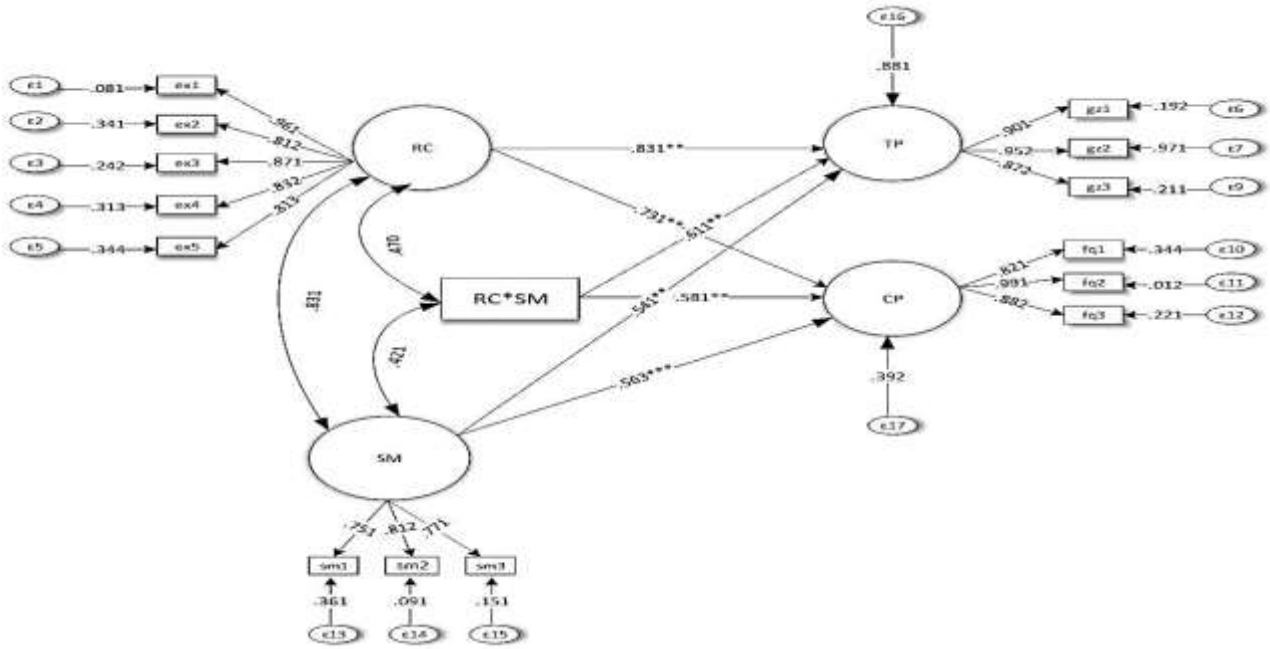

Figure 2: Moderation model

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Note: , **gz1** = Technical care, **gz2** = Emotional support, **gz3** = Coordination of care among key members, **fq1**= Job- task support, **fq2** = Interpersonal support, **fq3** = Organizational support, **ex1** = Confidence, **ex2** = Awareness, **ex3** = Understanding, **ex4** = Satisfaction, **ex5** = Enactment, , **sm1** = Perceived usefulness, **sm2** = Perceived ease of use, **sm3** = Trustworthiness. *** represents significant level at $p < 0.001$; ** represents significant level at $p < 0.01$, * represents significant level at $p < 0.05$ The results of the interaction coefficient of $\beta = 0.611$; $p < 0.01$ and $\beta = 0.581$; $p < 0.001$ indicate that social media usage plays a positive moderating role on the risk communication-task performance and risk communication-contextual performance relationships, respectively.

DISCUSSION

This study provides evidence of the interrelationships among effective risk communication, social media usage, task performance, and contextual performance. First, in assessing effective risk communication in nurses, the findings revealed that there is effective risk communication among the nurses in Ghana amidst this COVID-19 era. The findings revealed that risk communication as employed among the nurses built the nurses' confidence in the health authorities. It further indicated that the nurses were aware of the risks associated with COVID19 as well as the precautionary measures needed to prevent and control the pandemic. The nurses also exhibited understanding and satisfaction with the COVID-19 risk information and preventive measures. Due to these, the findings indicated that the nurses acted upon the laid down directives to prevent and control the COVID-19 pandemic. The interesting thing about the results is that the nurses' confidence in the health authorities was the strongest contributing factor to effective risk communication of the COVID-19 pandemic. This could be attributed to the fact that the nurses' belief and trust in the competence of the authorities responsible for communicating information about the COVID-19 pandemic contributed to building their confidence in the authorities. Indeed, prior research asserts that trust plays a crucial role in building the lay people's confidence in the health authorities during pandemic control (Driedger et al., 2021). The results further revealed that the nurses' awareness was the least contributing factor to effective risk communication. Apparently, COVID-19 risk information with its precautionary measures was inadequate. Notwithstanding, even with that inadequate level of information they were exposed to, there was a high level of understanding of the knowledge acquired. These findings indicate that Ghana's health authorities are working hard to create an understanding of the COVID-19 risk information they provide for the nurses, yet they need to put in more effort to create enough awareness of the pandemic. Besides, previous studies have established that awareness of COVID-19 risk information promotes knowledge which in turn helps individuals to act to and positively combat the outbreak (Li et al., 2020). Furthermore, the findings revealed that there was a significant positive association between effective risk communication and task performance as well as contextual performance. This is similar to prior studies that have shown that communication has a positive and significant association with employee performance (Abu Bakar & Connaughton, 2019; Goris et al., 2000; Liu et al., 2020). Though prior studies that have explored the effect of communication on nursing performance reported a positive effect, studies to show the individual contributing

effect of the dimensions of nursing performance remain scarce. Therefore, by providing empirical support for task and contextual performance of nurses in the context of controlling the COVID-19 pandemic, this study contributes significantly to the literature on nursing performance. The findings further revealed that effective risk communication has more impact on task performance than contextual performance. This unique finding could be due to how the Ghanaian nurses perform their work roles. Apparently, the nurses are obligated to interact and communicate more with patients and coworkers while performing their task performance. On the contrary, contextual performance is discretionary; thus, the nurses' use of communication is less. This is aligned with previous studies conducted in Ghana that have disclosed that task performance accounts for a higher percentage of variance in employee performance as compared to contextual performance (Ahadzie et al., 2008). An analysis of social media usage revealed that most of the nurses used mainly WhatsApp and Facebook platforms to seek information on the Covid-19 pandemic. This outcome supports the literature that provided evidence that WhatsApp and Facebook serve as major social media tools in natural disaster management (Bhuvana & Aram, 2019). Seemingly, in Ghana, the nurses' dependence on WhatsApp and Facebook may be due to easy accessibility and ease of use of WhatsApp and Facebook, as well as the relatively moderate cost of the internet for WhatsApp and Facebook usage; however, this needs specific exploration. It is also worth noting that few of the nurses used Skype. Yet, there is literature that supports the view that skype plays an essential role in managing the COVID-19 pandemic (Mheidly & Fares, 2020). Therefore, further exploration is needed to assess the reasons for the low usage of skype among these nurses. Moreover, an analysis of social media usage as a moderator revealed that social media usage positively moderated the impacts of risk communication on task and contextual performance. Though the majority of previous studies have examined the moderating role of social media usage (Abbas et al., 2019; Kim et al., 2020), literature to assess the moderating role of social media usage between risk communication and performance remains unexamined. Therefore, this present study adds to extant literature that supports the positive role of social media in the communication-performance relationship (Chen & Wei, 2020). Generally, social media usage improves the generation of ideas, professional dialogue among nurses as well as enables nurses to seek and disseminate updated health risk information irrespective of the time or distance (Murray, 2011). Though inappropriate use of social media has been found to trigger task distractions among nurses (Majid et al., 2019), in the present study, social media usage enhanced communication of risk information more appropriately among nurses. Consequently, this enhanced their task and contextual performance. In furtherance to this, the findings revealed that the impact of social media usage on the risk communication-task performance relationship was high as compared to that of the risk communication-contextual performance relationship. This opens up an interesting issue of how the nurses use social media when performing either their task or contextual roles. Though extant literature has proven that social media usage plays a significant role in performing roles at work (Garcia-Morales et al., 2018; Giermindl et al., 2018), the present study could be one of the few studies yet, if not a novel study, to assess social media usage in connection with the concurrent link of task and contextual performance.

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IMPLICATIONS

These results have some practical implications. In the context of communicating information about COVID-19 with the nurses in Ghana, the health authorities must earn the nurses' confidence, by portraying that they are experts who have adequate and credible information about COVID-19. The nurses are exposed to COVID-19, which can affect their lives, properties, and the things they value. Therefore, the authorities should accept and involve them early as legitimate partners in making decisions related to the pandemic. They should also be honest and open. This will help to bring out the genuineness of the authorities' efforts to show respect towards the nurses; thereby earning the nurses' confidence. Moreover, the authorities must generate awareness to make the risk information about COVID-19 available and visible to the nurses. Information should be provided about the risk of the pandemic. It is worth noting that an increase in the number of infected nurses during a pandemic may be attributed to a lack of knowledge and recognition of individual relevance (Ghosh et al., 2020; Sharma et al., 2020). Nonetheless, making the information available may not necessarily make the information beneficial to the nurses. As noted by Rowan et al. (2003), good risk information is not only visible but also understandable by the intended audience. Thus, beyond awareness, the authorities must promote the understanding of the messages on the risks, such as the immediacy of effects, the controllability, and avoidability of COVID-19. The risk information should be unambiguous. After understanding is confirmed, risk communicators should suggest strategies through which a particularly positive outcome to a health risk situation could be achieved. They should also anticipate challenges to that recommended solution. Satisfactionoriented information should be created to prevent misunderstanding. The information on the pandemic should be satisfactory enough to encourage nurses to act. The final goal in effective risk communication is the enactment of a solution. Enactment refers to how well the recipients of the risk messages are adhering to the targeted behavior (Ledford & Anderson, 2013). Enactment is related to an action step as well as an evaluation step. In a situation whereby the preceding steps in the model were not successful, it will become obvious in this step. Moreover, nursing management, including nursing directors, unit managers, could incorporate guidelines on effective risk communication for outbreak and pandemic control in Ghana into their communication plan. This could be a beneficial step to educate nurses on the appropriate ways to achieve effective communication of health risks, which will, in turn, improve their performance in work roles. Furthermore, there should be adequate information to create more awareness about the COVID-19 pandemic. Moving forward, nursing management could organize sessions to obtain an insight into the usefulness of social media usage among nurses. Management could then encourage the use of social media at work to aid in disseminating risk information as well as enhancing the performance of task and contextual duties.

LIMITATIONS AND FUTURE RESEARCH

The present study has some limitations. First, the study employed a cross-sectional approach by which data were collected at one point in time during the research period. Using such an approach does not allow researchers to establish strong causal associations among study variables. Therefore, to confirm these findings, future studies

can adopt a longitudinal approach. Second, the study employed a non-probability approach, which limits the generalizability of the findings. To reduce this effect, three of the biggest and leading hospitals in Ghana were selected. Nonetheless, future studies can employ both private and government hospitals for the generalizability of the findings. Third, the sample entailed only nurses in government hospitals. Future research can explore a larger sample from a range of clinical staff. Again, the sample size was drawn from a single country, and considering the role of cultural diversity, it is necessary to replicate the findings in different cultural settings. Finally, future studies can investigate the underlying cause of high social media usage for task performance as compared to contextual performance.

CONCLUSION

The focus of the present study was to explore effective risk communication in nurses, and its effect on the nurses' performance at work amidst the COVID-19 pandemic. It further examined the moderation effect of social media usage on the risk communication-performance relationship. Two dimensions of performance: task and contextual performance were employed in assessing nursing performance. The findings revealed that the nurses' confidence in the authorities was the strongest indicator of effective risk communication of Covid-19 in nurses. The findings also revealed that effective risk communication positively influenced the nurses' task and contextual performance. Moreover, assessing social media usage revealed that social media usage positively and significantly moderated the risk communication-performance relationship. Finally, it was revealed that high usage of social media was needed for better task performance as compared to contextual performance among Ghanaian nurses.

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