Psychological Thought
psyct.swu.bg | 2193-7281
South-West University "Neofit Rilski"

Research Article

Emotional Intelligence and Resilience as Predictors of Work-Related Stress among Health Professionals in Sub-Saharan Africa

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Abstract

The health profession has been characterized as consisting of high stressors and this is more pervasive in sub-Saharan Africa. Although various interventions aimed at managing stress have been investigated, little attention has been devoted to the contribution of emotional intelligence (EI) and resilience. The present study sought to examine the role of EI and resilience in the perception of stress among health professionals in Ghana. A convenient sample of 150 health workers domiciled in Ghana participated in the study by completing various questionnaires on EI, resilience, and stress. The results showed that while EI and resilience were positively related, both EI and resilience were negatively associated with work-related stress. Regression analysis further showed that EI was a significant negative predictor of stress. These findings have important implications for stress management among health professionals.

Keywords: stress; emotional intelligence; resilience; health workers; Ghana; sub-Saharan Africa.

Table of Contents

Psychological Thought, 2024, Vol. 17(1), 200-219, https://doi.org/10.37708/psyct.v17i1.870
Received: 2023-07-17. Accepted: 2024-02-24. Published (VoR): 2024-04-30.
Handling Editor: Natasha Angelova, South-West University "Neofit Rilski", Blagoevgrad, Bulgaria.
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Health workers in Ghana generally have been overburdened across all categories. Indeed, a recent study showed that the level of stress experienced among health professionals in Ghana is quite high, and this prevalence is higher among females (Odonkor & Adams, 2021). The ratio of health workers to the population is below the UN-acceptable level characterized by uneven distributions (Ahmat et al., 2022; Asamani et al., 2020; GHWO, 2011). According to the Ghana Statistical Services (2018), the Doctor-Patient ratio stands at 1: 9455 whereas the Nurses-Patient ratio stands at 1:1800, and the Midwives-Patient ratio is 1:7600. Geographically, it is even far worse in the northern part of the country. As a result of the prevailing inadequate staff, existing health workers are made to serve a large number of patients per their schedule which results in a heightened level of stress among these professionals. For instance, nursing has been considered a highly stressed profession characterized by emotional burnout and physical exhaustion (Hersch et al., 2016). Although efforts have been made to improve the ratio, it is not clear how other psychological factors could help health workers deal with the level of stress experienced at the workplace. Specifically, these include the role of factors such as emotional intelligence (EI) and resilience in better stress outcomes. For these reasons, the study aims to investigate the role of EI and resilience in stress management among health professionals in Ghana.

Stress has been defined as the experience of event(s) that endangers one's physical and psychological wellbeing (Nolen-Hoeksema et al., 2009). Sources of stress within the work environment include poor working conditions (e.g., low salaries), excessive workloads, few opportunities for growth or advancement, work that is not engaging or challenging, lack of social support, conflicting demands or unclear performance expectations, and not having enough control over job-related decisions (Cooper & Marshall, 2013; Ledikwe et al., 2018; Sharma et

al., 2014). The negative impact of stress on both physical and mental wellbeing is well documented (McEwen, 2008; Stults-Kolehmainen & Sinha, 2014). The WHO and recent studies have classified workplace stress as the global epidemic of the 21st century and that workplace stress is even more pronounced in healthcare settings (Dagget et al., 2016; Odonkor & Adams, 2021; Ofei et al., 2020).

Excessive exposure to stress has been associated with psychophysiological disorders (Delahanty et al., 1998; Gu et al., 2016; Kang et al., 2020), coronary heart disease (De Hert et al., 2018; Rosengren et al., 2004), the inability of the immune system to defend the body (Alesci et al., 2022; Schneiderman et al., 2005; Seiler et al., 2020), and health-related behaviours (Choi et al., 2019; Schneiderman et al., 2005; Steptoe et al., 1996).

The literature on the perception of stress suggests a number of psychological variables that could help mitigate the experience of stress. These include EI and resilience.

EI and Stress

EI refers to the outcome of an adaptive interaction between emotion and cognition, which includes the capacity to perceive, assimilate, understand, and manage one's own emotions as well as the ability to recognize and interpret others' emotions (Salovey and Mayer, 1990). Based on the model advanced by Salovey and Mayer (1990), four main components of EI constitute overall EI, namely emotion perception, emotion understanding, emotion facilitation and emotion management (Mayer & Salovey, 1997). Emotion perception includes the capacity to perceive and express affective state whereas emotion understanding includes the comprehension and appropriate labelling of affective states. Emotion facilitation is using emotions to support cognitive activities whereas emotion management is the ability to control one's emotions. A high level of EI is important for more stable moods, and psychological wellbeing (Houben et al., 2015; Lyusin & Mohammed, 2020). According to the Salovey and Mayer (1990) model of EI, EI is considered an ability and a trait since this construct is reflected as both a personality trait and a cognitive skill that one possesses.

A large body of research showed that a higher level of EI is associated with reduced perception of stress across different groups (Austin et al., 2010; Cejudo et al., 2018; Jung et al., 2016; Nyarko et al., 2020; Sarrionandia et al., 2018; Triquroes et al., 2020; Zysberg et al., 2017). The study by Nyarko et al. (2020) among Ghanaian high school students assessed a host of other variables including EI and stress. Their results showed a significant negative correlation

between EI and psychological distress on the one hand, and EI and stressful life events on the other hand (Nyarko et al., 2020). A cross-country study carried out in Spain and the United States among undergraduate students on the association between EI and perceived stress including resilience showed that both EI and resilience negatively predicted perceived stress (Sarrionandia et al., 2018). The study by Triquroes et al. (2020) among university students in Spain showed a negative relationship between EI and academic stress. In two surveys carried out among primary school teachers and daycare-centre employees in Israel, the findings from both studies showed a negative correlation between EI and stress (Zysberg et al., 2017). A study by Birks et al. (2009) on first-year students of healthcare programmes in the United Kingdom also showed a negative correlation between EI and perceived stress. The induction of stress in the laboratory setting with indices such as acute stress and perceived chronic stress level showed that both indices were negatively associated with EI (Singh & Sharma, 2012). Among a sample of Chinese medical students, it was also found that EI was negatively associated with perceived stress (Shi et al., 2022). A longitudinal study also showed EI negatively predicted stress outcomes among medical students (Gupta et al., 2017).

A number of other studies have also reported mixed findings between EI and stress especially when EI is analyzed at the subcomponent level. In a study by Landa et al. (2008) specific components of EI had a different association with stress. While higher scores in emotional clarity and emotional repair are associated with reduced reported stress, participants with higher scores in attention also reported higher experiences of stress (Landa et al., 2008).

A related construct, emotional exhaustion which is referred to as the feeling of being "emotionally worn-out" due to accumulated stress has been investigated in relation to EI. In a previous study among nurses and midwives in Ghana, it was found that EI was not associated with emotional exhaustion (Lartey et al., 2021).

A few other studies also reported no association between EI and stress (e.g., Aghdasi et al., 2011; Thomas & Zolkoski, 2020). In the study by Thomas and Zolkoski (2020) among university undergraduate students in the southern United States, the results showed that the association between EI and perceived stress was statistically not significant. The study by Aghdasi et al. (2011) among employees in an Iranian state organization found no association between EI and stress. It can be observed that these studies have largely been carried out in a population of students (both high school and tertiary students) who may sometimes be susceptible to demand characteristics. Again, the majority of the studies were conducted in European countries which

are often characterized by individualistic cultures compared to sub-Saharan Africa which is dominated by collectivistic culture. Hence it is not clear how these findings relate to the population of work employees especially that of health workers considering the heightened level of stress they experience at work.

Resilience and Stress

Resilience refers to the internal capacity to adapt well and an improvement in wellbeing as one is confronted with stress, adversity, or trauma (Connor & Davidson, 2003; Grant & Kinman, 2014). Highly resilient individuals have been shown to have a higher level of tolerance to stressors (Connor & Davidson, 2003; Smith & Emerson, 2017). Richardson (2002) and Richardson et al. (1990), model of resilience posited that an individual in a comfort zone is characterized by a biopsychosocial homeostasis where there is an optimal state of physical, mental, and spiritual balance. When an individual has inadequate resources (i.e., protective factors) to buffer them against adversaries or stressors would lead to the disruption of the homeostatic state. Hence, the disruption caused would lead the individual to adjust and start the reintegration process which might lead to any of the four outcomes: resilient reintegration, homeostatic reintegration, reintegration with loss, and dysfunctional reintegration (Fletcher & Sakar, 2013; Richardson, 2002; Richardson et al., 1990). This means that individuals who have encountered significant stressors and due to the weak buffers they possess are more likely to be negatively impacted by the stressor. So, a higher level of resilience should be associated with less perception of stress. This proposition has indeed been supported by numerous studies across different groups (Bacchi & Licinio, 2017; Emerson et al., 2022; Li & Wang, 2016; McCraty & Atkinson, 2012; Orkaizagirre-Gómara et al., 2020; Smith & Yang, 2017; Yörük & Güler, 2021).

A number of studies carried out in Turkey in a sample of nurses and midwives (Yörük & Güler, 2021), in relation to the COVID-19 pandemic (Yıldırım & Solmaz, 2022), and across the general public (Peker & Cengiz, 2022) all showed a negative correlation between resilience and stress. This pattern was also reported among nursing students in Spain as well (Orkaizagirre-Gómara et al., 2020). In Asia, the studies specifically among Chinese final-year students (Smith & Yang, 2017), older adults (Li & Wang, 2016), immigrant workers in Taiwan (Chen et al., 2022), and Bangladeshi Physicians (Khan et al., 2022) all reported that higher level of resilience was associated with the reduced perceived stress among the respondents.

A resilience intervention program carried out among Police Officers in the United States showed a significant reduction in reported physiological and psychological stress among the officers (McCraty & Atkinson, 2012). In another large study involving University students in the United States, it was found that not only was resilience negatively associated with stress, but resilience also failed to moderate the relationship between stress and academic burnout (Emerson et al., 2022). In a sample of medical and psychology students in Australia, it was also found that there was a negative association between resilience and stress (Bacchi & Licinio, 2017).

The present study

It has been observed that some attempts were made in recent times to investigate the relationship between EI and stress on the one hand and resilience and stress on the other hand. The majority of these studies were carried out among the student population and in other western cultures. It is therefore important to examine the extent to which the reported findings could be replicated in other settings. Moreover, previous studies largely focused on the individual relationships between EI and stress on the one hand, and between resilience and stress on the other hand. Hence the present study sought to examine how both EI and resilience could contribute to the perception of stress especially in a sample of health professionals who are considered among the highly stressful professions. Based on previous studies it was hypothesized that EI would be negatively associated with the perception of work-related stress. Again, it was expected that a higher level of resilience should relate to a lower perception of stress among the participants. Finally, both EI and resilience should significantly predict a lower perception of work-related stress among health professionals.

Method

Participants

One hundred and fifty (N = 150) health professionals (male = 59%) across Ghana were recruited for the study. The sample size for the present study was determined apriori (Faul et al., 2007; 2009). To determine the required sample size for the study, the G-Power was used. Since multiple analyses were to be carried out, including bivariate correlations, multiple regressions and ANOVAs, using a power of 80%, two-tailed test and medium effect sizes, the minimum sample size reached was 120.The convenience sampling method was adopted for the study. The characteristics of the participants are reported in Table 1. The study was carried out in accordance with the Helsinki declaration on data collection among human participants and

was approved by the Department of Social and Behavioural Change, University for Development Studies research ethics committee (with approval number S-9/22). Each participant consented to participation in the research.

Table 1.
Demographic characteristics of the participants

Variable	*n*	%
Age		
18-24	4	2.67
25-34	102	68.00
35-44	40	26.67
45-54	4	2.67
Sex		
Anonymous	1	0.67
Female	60	40.00
Male	89	59.33
Academic qualification		
Certificate	14	9.33
Degree	71	47.34
Diploma	43	28.67
Higher National Diploma	3	2.00
Master	18	12.00
PhD	1	0.67
Marital Status		
Married	95	63.33
Separated	1	0.67
Single	53	35.33
Widow	1	0.67
Employment type		
Full-time	137	91.33
Part-time	4	2.67
Voluntary service	9	6.00
Profession		
Laboratory Officer	2	1.33
Midwife	8	5.33
Nurse	103	68.67
Nutrition Officer	11	7.33
Physician	7	4.67
Physician Assistant	3	2.00
Public Health Officer	7	4.67
Others*	9	6.00

* These include 1 each of Pharmacist, Dental Technician, Regulatory Officer, Technical Officer, Social Worker, Field Supervisor, Anaesthetist, Health Information Officer, and Health Service Administrator.

Study Design

A cross-sectional survey design was adopted for the study. In this design, participants were asked to rate the extent to which each statement in the questionnaire was applicable to them. They include emotional intelligence, resilience, and stress. The questionnaires were presented to the participants via a secured Google link. The first section elicited demographic responses. This was followed by the main scales measuring EI, resilience, and stress.

Measures

To assess EI, the Trait Emotional Intelligence Questionnaire (TEIQue) was used (Petrides & Furnham, 2001). This questionnaire is a 30-item scale that is widely used in the literature to assess EI. Each item is a statement requiring the participant to respond on a 7-point Likert scale by selecting from 1 representing strongly disagree to 7 being strongly agree. The scale consists of 15 subdomains and four subscales. It has good psychometric properties as reported in previous studies ranging from .76 to .90 (see Zuanazzi et al., 2022). The Chronbach's α for EI scale in the present study was .843.

The Brief Resilience Scale (BRS; Smith et al., 2008) was used to measure resilience in the present study. This questionnaire consists of six items where the participant is expected to respond to each statement using a 5-point Likert scale, with 1 representing strongly disagree and 5 representing strongly agree. The reported Chronbach α in previous studies ranged from .80 to .91 (Soer et al., 2019). In the present study, the Chronbach α was .74.

The Job Stress Index (JSI) was used to measure work-related stress. This questionnaire is made up of 12 items on a 5-point Likert scale, with 1 representing strongly disagree and 5 representing strongly agree. The scale has good psychometric properties as reported in a previous study (Chronbach α = .95; Bernas & Major, 2000). The results of the reliability test in the present study showed a Chronbach α = .92

Data analysis

The data analysis was carried out using JASP version 0.16.3.0. (JASP Team, 2022). Means and standard deviations were computed for all the scales which were used as the outcome variables. To test the relationships among the study variables, the Pearson product-moment correlation was used. To assess the contribution of the independent variables on the perception

of stress, multiple linear regression using the backward method was carried out. Corrections for multiple tests including post hoc tests were carried out using Holm's method.

Results

The means, standard deviations and bivariate correlations are presented in Table 2. The results showed the existence of a positive correlation between EI and resilience (r (150) = .699, p < .001). There was a significant negative correlation between EI and stress on the one hand (r (150) = -.436, p < .001), and between resilience and stress on the other hand (r (150) = -.352, p < .001). This means that higher levels of EI and resilience were associated with the reduced reported perception of stress.

Table 2.

Means, standard deviations, and Bivariate correlations among the study variables

Variable	*M*	*SD*	1	2	3
1. EI	153.94	21.403	—		
2. Resilience	17.707	4.087	.699***	—	
3. Stress	38.327	11.55	-.436***	-.352***	—

Note: *** p < 0.001

The regression analysis carried out generated two models as illustrated in Table 3. Model 1 which contained both EI and resilience as predictors showed the overall prediction as statistically significant $F(2, 150) = 17.76$, p <.001 and accounted for about 43.6% of the variance on stress R^2 = .195, R^2 adj = .184. The specific contribution of the individual predictors showed that EI significantly contributed to the model β = -.373, p < .001 when compared to resilience β = -.091, p = .381. Model 2 which had EI as the sole predictor of stress was statistically significant $F(1, 150) = 34.815$, p < .001 and accounted for 43.6% of the variance on stress R^2 = .19, R^2 adj = .185. The model further showed that higher levels of EI significantly predicted reported lower levels of stress β = -.436, p < .001. It is evident from both models that EI only but not EI and resilience is a better predictor of stress.

Table 3.

Summary of the results of simultaneous multiple regression on stress

Variable		*B*	SE B	*ß*	*t*	*p*
Model 1 (EI and resilience)						
EI		-0.201	0.056	-.373	-3.6	<.001
Resilience		-0.257	0.293	-.091	-0.878	.381
R	0.441					
R^2	0.195					
Adj. R^2	0.184					
F	17.766					<.001
Model 2 (EI only)						
EI		-0.235	0.04	-.436	-5.9	<.001
R	0.436					
R^2	0.190					
Adj. R^2	0.185					
F	34.815					<.001

Additional analysis on the role of the socio-demographic factors showed that the academic qualification of the respondents had no influence on EI $F_(4, 144) = 1.319$, $p = 0.266$, resilience ($F(4, 144) = 0.949$, $p = .438$, and stress levels $F(4, 144) = 0.602$, $p = .662$. As age had no influence on EI $F(3, 145) = 0.925$, $p = .431$, resilience $F(3, 145) = 0.476$, $p = .7$, and stress $F(3, 145) = 1.319$, $p = .416$, same applied to marital status (i.e., single or married) on EI $t(146) = 1.86$, $p = .065$, resilience $t(146) = 0.117$, $p = .907$, and stress $t(146) = 0.072$, $p = .943$. There were no sex differences on EI $t(147) = 0.948$, $p = .345$ and stress $t(147) = 0.273$, $p = .785$, but males reported higher levels of resilience than females $t(147) = 1.996$, $p = .048$. On the type of employment (i.e., part-time, full-time or voluntary service), there was no significant effect on EI $F(2, 147) = 0.262$, $p = .77$, resilience $F(2, 147) = 0.207$, $p = .813$, and stress $F(2, 147) = 0.506$, $p = .604$. The ANOVA on profession focused on nurses, midwives, nutrition officers, laboratory officers, physician assistants and public health officers. The results showed a significant effect on stress $F(6, 134) = 3.559$, $p = .003$ but not EI $F(6, 134) = 0.29$, $p = .941$ and resilience $F(6, 134) = 0.679$, $p = .667$. A post hoc test showed that nurses reported a significant higher level of stress compared to nutrition officers $t = 4.339$, $p < .001$. Moreover, physician assistants also reported a significant higher level of stress compared to nutrition officers $t = 3.133$, $p = .043$.

Discussion

The study aimed at examining the contribution of EI and resilience on the perception of work-related stress among healthcare workers in Ghana. The results showed that both EI and resilience were negatively associated with stress. This means that individuals who are high in EI are more likely to process stressors as having less or no impact on them both physically and psychologically. This is also the case with resilience and stress. Highly resilient people are able to bounce back quickly and much stronger when they come into contact with stressors. This makes them able to adapt better and for that matter would process stressful situations as less stressful to them. This is consistent with the model of resilience proposed by Richardson (2002) and Richardson et al. (1990). The present findings support the first two hypotheses that both EI and resilience would be negatively associated with stress. The present findings are consistent with previous studies which reported a negative association between EI and stress (Austin et al., 2011; Cejudo et al., 2018; Jung et al., 2016; Nyarko et al., 2020; Sarrionandia et al., 2018; Triquroes et al., 2020; Zysberg et al., 2017). This is however inconsistent with the study by Lartey et al. (2021) which did not find an association between EI and emotional burnout. The negative correlation found between resilience and stress has been supported by previous studies (Bacchi & Licinio, 2017; Emerson et al., 2022; Li & Wang, 2016; McCraty & Atkinson, 2012; Orkaizagirre-Gómara et al., 2020; Smith & Yang, 2017; Yörük & Güler, 2021).

Although both EI and resilience negatively contribute to reported stress, EI was significantly better at predicting stress since the inclusion of resilience in the model did not statistically improve upon the model. This means that the third hypothesis on the contribution of both EI and resilience on stress management was partially supported. There is limited research that attempted to predict stress from both EI and resilience. The present finding is inconsistent with the only study by Sarrionandia et al. (2018) which reported an indirect effect of EI on stress through resilience. Moreover, the present finding on the prediction of stress by EI and resilience has partially received support from a previous study that found that stress was predicted by EI and resilience (Thomas & Zolkoski, 2020), although that study focused on undergraduate students.

A further explanation of the regression results is that the concept of resilience can be largely subserved by EI and this is why resilience failed to add a significant contribution. This means that the concept of EI also encapsulates resilience. The present findings have important implications for practice. When healthcare workers and other employees are equipped with EI

skills, it will go a long way to minimize their perception of stress in the workplace which would result in greater psychosocial wellbeing. Indeed, a recent randomized control trial showed that adequate training in EI helps in the reduction of reported stress among nurses (Mao et al., 2021). Another experiment also reported a similar pattern of results in a sample of police personnel (Romosiou et al., 2019). As key stakeholders make efforts to improve the work environment of the employees, their mental health could also be improved when the perception of work-related stress is minimized. This can be achieved by giving attention to EI and resilience as well.

Although the present study focused on the specific contributions of EI and resilience on the perception of stress, another important variable that would be of great attention in the experience of stress is coping. Coping is important in the examination of the effect of stress because the severity of the impact of stress could be impacted by coping skills. So, a future study should consider examining coping as an additional variable on how it relates to stress experience.

Limitations of the study

This study was a cross-sectional survey design which lacks internal validity in the sense that we are not able to establish that levels of EI and resilience indeed caused the reported low stress among the participants. Even though the study targeted health professionals, the majority of the respondents were nurses (73%), hence the generalizability of the findings to other healthcare workers should be approached with caution in the sense that there are variations in the work schedule and load among health workers in general.

Conclusion

The present study made an important attempt in examining the contribution of EI and resilience in stress management among health professionals in Ghana. To the best of our knowledge, this is the first study that predicted the perception of stress among health professionals in Ghana based on their level of EI and resilience. It was found that as both EI and resilience are negatively associated with stress, EI was an important predictor of stress compared to both EI and resilience.

Funding/Financial Support

The authors have no funding to report.

Other Support/Acknowledgement

The authors have no support to report.

Competing Interests

The authors have declared that no competing interests exist.

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