



# Police Mental Health in Ghana: Examining the Effects of Personality and Police Rank

Adote Anum<sup>1</sup> · Bright Acquah<sup>2</sup> · Annabella Osei-Tutu<sup>1</sup>

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## Abstract

The effect of the stress on the mental health of the police is frequently reported in the psychological literature. In this research, we examined mental health among police officers in a metropolitan city in Ghana. We also examined the moderating effect of personality on the relation between police rank (status) and mental health. We studied police officers ( $N=173$ , males=76.3%, mean age=35.6 years;  $SD=7.52$ ) who have served for at least 2 years and were between the police ranks of Constable and Chief Inspector. We administered the Depression Anxiety Stress Scale and the Neuroticism Extraversion Openness Personality Inventory. We found that between 50 and 70% had normal scores and between 1 and 4% had scores in the severe and extremely severe range on the mental health measures. We also found that neuroticism and conscientiousness strengthened the relation between police rank and mental health among sergeants and inspectors but not among lower ranked officers. Individuals with high conscientiousness and low neuroticism had better mental health outcomes on depression and stress. Implications for recruitment into the police services have been discussed.

**Keywords** Anxiety · Depression · Mental health · Personality · Police · Stress

## Introduction

The stress associated with police work and its effect on mental health is a global phenomenon. Reported stress among the police causes high rate of absenteeism, errors, work strain, and physical illnesses (Violanti et al., 2016). It is also associated with long hours of work, inadequate resources, and negative interaction with the public. Police officers are exposed to traumatic events such as gruesome traffic accidents,

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✉ Adote Anum  
aanum@ug.edu.gh

<sup>1</sup> Department of Psychology, University of Ghana, PO Box LG84, Legon, Accra, Ghana

<sup>2</sup> Jirapa District Police, Ghana Police Service, Jirapa, Ghana

assaults, and dead bodies (Hartley et al., 2013). Frequent exposure to these stressors is associated with elevated risks of development of mental health problems, such as anxiety, depression, somatization, and posttraumatic stress disorder (Chopko, 2010; Hartley et al., 2013).

The mental health of police officers is important to researchers for several reasons. First, police officers, like all others, are human beings and it is ethical that researchers and policymakers be interested in their mental health. Second, it is important to researchers because the nature of police work is stressful enough to cause posttraumatic disorder (Martinussen et al., 2007). When individuals are unable to cope effectively with stressful events, it results in undesirable outcomes such as burnout, somatic illness, distress, and mental health problems (Anshel, 2000). This has led to an increasing interest in research in the mental health and psychological well-being among the police. Research outcomes tend to emphasize the negative impact of police stress, conditions under which they work, adequacy of psychosocial support, mental health interventions (Deschênes et al., 2018; Hansson et al., 2017; Syed et al., 2020), and posttraumatic stress disorder (Maia et al. 2015).

Research on police mental health in low- and middle-income countries is low, typically limited to police structures and systems. Therefore, very little is known about prevalence of common mental problems or the characteristics that explain individual differences in mental health problems among the police. In this study, we examined the extent to which personality dimensions influence the relationship between police rank and their mental health. We used scores on depression, anxiety, and stress as proxy for mental health. We examined three specific goals. First, we examined the levels or severity of depression, anxiety, and stress. Second, we examined the relationship between rank and depression, anxiety, and stress, and finally, we examined the moderating role of personality on the relationship between rank and mental health.

## Police Work and Mental Health

There are several stressors in police work. The most commonly reported are experiencing or witnessing traumatic events, attacks on the police, poor or inadequate remuneration, and perceived organizational injustice (Regehr et al., 2021; Reynolds et al., 2018; Soomro & Yanos, 2019). Research in Western contexts place stress of police work into organizational or administrative stresses and stresses of routine work (Purba & Demou, 2019). A systematic review by Purba and Demou (2019) showed that there was evidence that supported associations between organizational stressors and the outcomes of occupational stress, psychiatric symptoms/psychological distress, emotional exhaustion, and personal accomplishment. The authors found that organizational stressors such as lack of support, job pressure, administrative or organizational pressure, and long working hours were consistently linked to poor mental health outcomes.

Another common but less frequently reported stressor among the police in non-Western literature is the issue of distrust of the police. Distrust is centered around corrupt police practices and the public perception that they are easily influenced to subvert justice (Tankebe, 2010a). Corruption among the police has created a

negative attitude towards the police and in Ghana the police are perceived as one of the most corrupt institutions (Addo, 2023; Tankebe, 2010a). This perception has a negative impact on the police and consequently affects public cooperation making police work more difficult. Finally, issues of remuneration, promotion, and organizational injustice are also considered major sources of stress (e.g., Masilamani et al., 2013; Pienaar & Rothmann, 2006).

The research on police mental health in Africa is scarce (apart from South Africa). In Ghana, prior research on police have focused largely on police effectiveness or performance (Boateng, 2014, 2018; Quartey & Attiogbe, 2013; Tankebe, 2011), organizational commitment (Tankebe, 2010b), public cooperation and fairness (Boateng, 2020; Boateng & Darko, 2021), and police systems and management (Aning, 2006). There are very few publications on police mental health. Notable studies are on suicidal behavior (Quarshie et al., 2020) and job stress (Gyamfi, 2014). There is limited research in this area because mental health research in general remains largely unfunded compared to research in other health domains. The situation in Ghana is not unique, especially when compared to research from other low- and middle-income countries in Africa (Anum et al., 2020).

Recently, in Ghana, three police officers committed suicide within a short span of 3 weeks (Myjoyonline, 2021). These incidents brought into sharp focus the mental health needs of the police and the circumstances that may be associated with police mental health. Prior to these events, interest in police mental health has been limited. Apart from provision for treatment of mental health related problems, there are no known interventions or structures that directly or indirectly address mental health of police officers in spite of knowledge about stress and trauma associated with police work.

Job demands and responsibilities increase as police officers rise in rank (which naturally occurs with number of years served). Higher ranked officers are therefore more likely to suffer and/or report mental health challenges because of exposure to stressful work demands. In Malaysia for example, it was found that officers with Inspector level ranks are more likely to suffer stress than lower ranked officers (Masilamani et al., 2013). When there are no mental health resources or support, the impact of chronic work stress on mental health is usually dire. To cope with these mental health problems, police officers may rely on intrapersonal characteristics such as personality to cope with stress or work.

The research that associates personality and mental health is extensive. For example, high neuroticism and low conscientiousness are associated with depressive symptoms (Sadeq & Molinari, 2018). In some studies, it is noted that there are links between neuroticism/negative emotionality, extraversion/positive emotionality, and conscientiousness and depression (Allen et al., 2018). In yet other studies, it is shown that neuroticism scores predict life stress, psychological distress, emotional disorders, psychotic symptoms, substance abuse, physical tension-related symptoms, negative affect, and health care utilization (Jacobs et al., 2011; Javaras et al., 2012; Mars et al., 2021; Ormel et al., 2004). Although personality is considered in police recruitment in some jurisdictions, it is mainly for evaluation to do police work (e.g., Newman & Lyon, 2009). Research that examines the role of personality in mental health outcomes among police officers is limited, creating a gap in how personality can minimize the

effect of work strain on mental health. It is therefore important to examine and understand individual differences in mental health of police officers and how individual factors such as personality influence their likelihood to develop mental illness.

Research has not explored this relationship especially in developing countries where research on police mental health has been limited. Knowledge about how individual characteristics such as personality are associated with development of mental health problems will have implications for police selection and recruitment and provide a basis for the provision of intervention and support systems among the police in Ghana and in other low- and middle-income countries where there is little or no effort in considering these in police selection. In this study, we aimed to:

- 1) Examine levels and severity of mental health indicators (depression, anxiety and stress)
- 2) Examine the relationship between number of years served and rank on mental health indicators.
  - a. We hypothesized that longer serving and higher ranked police officers will have higher levels of depression, anxiety, and stress.
- 3) Examine the moderating role of selected personality dimensions on the relationship between rank and the mental health indicators.
  - a. We hypothesized that personality dimensions (neuroticism, conscientiousness, and agreeableness) will moderate the relationship between police rank and depression.
  - b. We hypothesized that personality dimensions (neuroticism, conscientiousness, and agreeableness) will moderate the relationship between police rank and mental anxiety.
  - c. We hypothesized that personality dimensions (neuroticism, conscientiousness, and agreeableness) will moderate the relationship between police rank and the stress.

## Methods

### Participants

The research focused on junior police officers who have been employed for a minimum of 2 years and working in Accra. We selected participants from two units of the Motor Transport and Traffic Directorate (MTTD) in Accra. This is the capital city of the country and therefore the participants operate from a very typical urban location. We used purposive sampling method to select 175 respondents from the Ghana Police Services in Greater Accra. All selected police officers were involved in the routine police work such as management of traffic and desk duties that include investigation of crime, traffic offenses, and prosecution of cases. The average age of participants was 35.76 years ( $SD=7.52$ ). More than 76% of the respondents are

males, majority of the sample are married (68.8%), and 64.2% of them have completed a minimum of secondary education. The sample is made up of constables (15.6%), corporals (40.5%), Sergeants (24.9%), and Inspectors and Chief Inspectors (19.1%). The details of these statistics are presented in Table 1.

## Measures

The major data collection instrument was a questionnaire made up of two major scales, Neuroticism Extraversion Openness (NEO-PI-R) and the Depression Anxiety Stress Scale (DASS) (Lovibond & Lovibond, 1995).

**Neuroticism Extraversion Openness** The NEO-PI-R is a 50-item questionnaire measuring the FFM that defines the five factors or domains: Neuroticism (N), Extraversion (E), Openness to Experience (O), Agreeableness (A), and Conscientiousness (C). The items are measured on a 5-point Likert-scale, with responses from strongly disagree to strongly agree. Based on reported associations between personality and mental health, we used three of the dimensions: conscientiousness, neuroticism, and agreeableness (Lamers et al., 2012; Strickhouser et al., 2017; Widiger & Oltmanns, 2017).

**Depression Anxiety Stress Scale** The DASS (Lovibond & Lovibond, 1995) is originally a 42-item self-report measure that has three sub-scales: Depression, Anxiety, and Stress. The items are scored on a 4-point scale (0 to 3). A short version, the DASS–21, has 21 items with 7 items each measuring the subscales. The short version is usually preferred because of brevity and convenience (Antony et al., 1998). We measured the reliability of the measures using Cronbach alpha. Internal consistency on DASS–21 was high, ranging from 0.83 to 0.86. Internal consistency was moderate on the personality inventory, ranging from 0.54 for neuroticism to 0.67 for agreeableness (Table 1). In addition to these scales, we asked questions that cover demographic and background characteristics.

**Table 1** Means, standard deviations, and normality coefficients

Variables	Mean	SD	Min	Max	Kurtosis	Skewness	Cronbach alpha
Age	35.76	7.52	23	56	-.44	.51	–
Number of years served	12.40	6.67	2	32	-.13	.64	–
<i>DASS</i>							
Depression	7.94	8.90	0	42	.46	1.06	0.86
Anxiety	8.24	8.75	0	40	.72	1.08	0.83
Stress	8.00	8.83	0	42	.47	1.06	0.86
<i>Personality</i>							
Neuroticism	25.16	4.51	12	36	-.12	-.07	0.54
Consciousness	31.91	5.53	16	40	-.52	-.51	0.62
Agreeableness	19.20	4.13	7	25	-.41	-.43	0.67

## Procedure

The study was granted ethical clearance by an ethics committee attached to a local university in Ghana (Protocol Number: DREC/020/19–20). We also obtained permission from the MTTD for the study. The study was conducted in accordance with ethical guidelines in Ghana endorsed by the Ghana Psychological Council. All respondents gave verbal consent before participating in the study. Potential participants were recruited in their respective stations/offices and after consenting, selected respondents were given 3 to 4 days to complete the questionnaire. The questionnaire was completed by the participants in English.

## Data Screening

We screened the data for missing values, normality of scores, and outliers. Analyses of the missing data showed that except for gender, missing data fell within 1 to 2%. Skewness and Kurtosis tests indicated that all scales were normally distributed. Skewness values for the mental health variables ranged from 1.06 to 1.08 and for the personality variables it ranged from -0.07 to -0.51. Kurtosis values ranged from 0.46 to 0.72 for the mental health variables and for personality, it ranged from -0.12 to -0.52 (Table 1). These values are acceptable indicators of normality (George & Mallery, 2019).

## Data Analyses

We used SPSS version 23 to analyze the data. We used descriptive statistics—frequencies, means, and standard deviations to describe the study sample and key variables in the study. We tested the assumptions about predictors and moderators using the Hayes Process Macro 4. The predictors are number of years served and rank in the police service. The moderators in the study are three personality dimensions: neuroticism, conscientiousness, and agreeableness. The interaction terms in the moderator analyses are interaction between rank and the three personality dimensions. Statistical significance of a test was set at  $p < 0.05$  for all analyses.

## Results

We examined three major goals in this study. First, we explored the mental health status of urban police by examining stress, anxiety, and depression levels. Second, we tested the effect of personality on the mental health of the police and finally we tested the moderation effect of personality on the relationship between demographic characteristics and the mental health indicators.

### Police Mental Health Status

With no prior benchmarks for evaluating mental health status using the DASS, we used the cutoffs suggested in the DASS manual (Lovibond & Lovibond, 1995)

**Table 2** Summary statistics for the DASS-21 ( $n = 173$ )

Subscales	Percentage in each DASS category							
	Mean	SD	Range	Normal	Mild	Moderate	Severe	Extremely severe
Depression	7.94	8.89	0–42	60.10	13.90	15.00	6.90	4.00
Anxiety	8.24	8.75	0–40	50.90	9.80	20.20	5.80	13.30
Stress	8.00	8.83	0–42	71.10	13.90	12.70	1.70	0.60

**Table 3** Correlation among key variables in the study

		2	3	4	5	6	7	8	9
1	Age	.92**	.81**	-.02	-.04	-.02	-.09	-.02	.01
2	Number of years in service		.76**	-.04	-.05	-.01	.12	.17	.07
3	Rank in police service <sup>a</sup>			.03	.04	.10	.07	.13	.09
4	Depression			.04	.81**	.77**	.31**	-.41**	-.38**
5	Anxiety					.80**	.30**	-.45**	-.38**
6	stress						.20**	-.40*	-.40**
7	Neuroticism							-.21**	-.27**
8	Conscientiousness								.47**
9	Agreeableness								

<sup>a</sup>A categorical value (1 = sergeant and inspector) \* = .05, \*\* = .001

to assess extent and severity of stress, anxiety, and depression levels in this study. We found that about 60% of the respondents had scores that placed them in the normal range for depression, 13.9% and 15% were classified as mild and moderate depression respectively, and almost 11% fell within the severe to extreme range. About half of the respondents fell within the normal range and one-fifth fell within the moderate range of anxiety. 13.3% of respondents obtained scores that placed them in the extremely severe anxiety range. With respect to stress, majority of respondents (71.1%) obtained scores that placed them in the normal range. A little over 2% placed in the severe to extremely severe range and 13.9% and 12.7% had scores that placed them in mild and moderate range respectively. The detailed results are reported in Table 2.

Simple correlations among the variables showed that the highest correlations were among the variables that measured mental health, ranging between 0.31 and 0.81. The correlations among the personality variables and the mental health variables were low to moderate and ranged between 0.20 and 0.47. The correlations are reported in Table 3.

### Relationship among Police Rank, Personality, and Mental Health

We conducted three hierarchical regression analyses for depression, anxiety, and stress. For all regression analyses, we report the coefficients obtained at the point of

first entry. For each analysis, sex, educational background, and marital status were used as control variables and entered at the first step. We entered number of years in service and rank in the police at the second step. To reduce the complexity of interpreting a variable with multiple subgroups, we re-categorized rank into 2 levels: constable and corporal (0) and sergeant and inspector (1). We entered the personality dimensions (neuroticism, conscientiousness, and agreeableness) at the third step. Initial analysis showed there was a high correlation between age and number of years served ( $r=0.92$ ) causing collinearity. Age was therefore excluded from all regression analyses. The summary of the regression results is reported on Table 4.

We did not find significant effect for the control variables or the predictors on depression. However, we found that all three personality measures were significantly associated with depression: neuroticism [ $B = -0.39$ , 95% C.I. (0.12, 0.66)], conscientiousness [ $B = -0.54$ , 95% C.I. (-0.78, -0.30)], and agreeableness [ $B = -0.34$ , 95% C.I. (-0.66, -0.01)].

We found a small but significant effect for sex [ $B = -3.75$ , 95% C.I. (-7.50, -0.64)] on anxiety but not marital status and education. Females, on average, scored higher on anxiety than males. We also found a small effect for number of years served [ $B = -0.49$ , 95% C.I. (-0.93, -0.06)]. We again found significant effects for neuroticism [ $B = -0.29$ , 95% C.I. (0.02, 0.56)], conscientiousness [ $B = -0.51$ , 95% C.I. (-0.76, -0.27)], and agreeableness [ $B = -0.34$ , 95% C.I. (-0.67, -0.02)].

**Table 4** Summary of regression results—explaining effects of rank and personality on depression, anxiety, and stress

	Depression			Anxiety			Stress		
	B weight	SE	Beta	B weight	SE	Beta	B weight	SE	Beta
Sex (male=1)	-2.223	1.74	-.107*	-4.091	1.749	-.198*	-2.125	1.720	-.103
Education (Up to tertiary=1)	.852	1.476	.046	2.162	1.458	.118	.743	1.444	.040
Marital status (Married/ cohabiting=1)	1.643	1.597	.086	2.554	1.583	.136	1.702	1.562	.090
Number of years served	-.492	.22	-.32	-.492	.29	-.377*	-.437	.218	-.330*
Rank in the Police (Ser- geant/Inspec- tor=1)	2.48	1.46	.25	2.460	1.489	.276	2.476	1.467	.273
Neuroticism	.391	.138	-.200**	.291	.138	.150*	.372	.136	.190*
Conscientious- ness	-.540	.123	-.335**	-.511	.124	-.321**	-.537	.120	-.336**
Agreeableness	-.335	.165	-.157*	-.342	.164	-.164*	-.348	.163	-.163*
$R^2$	.293			.299			.292		
$F$ (df)	(8, 168)	8.283		(8, 163)	8.283		(8, 172)	8.457	



In testing for the effects on stress, we did not find significant effect for sex, educational background, and marital status. We found significant effect for number of years in service [ $B = -0.44$ , 95% C.I. ( $-0.87 - 0.01$ )] but not for rank in the police service. We found that all three personality dimensions significantly predicted stress: neuroticism [ $B = 0.37$ , 95% C.I. ( $0.10 - 0.64$ )], conscientiousness [ $B = -0.54$ , 95% C.I. ( $-0.77$  to  $-0.30$ )], and agreeableness [ $B = -0.35$ , 95% C.I. ( $0.67$  to  $-0.03$ )].

### **Moderating Effect of Personality on Police Rank and Mental Health Indicators**

We assessed the moderating role of each personality dimension—neuroticism, conscientiousness, and extraversion—on the relationship between police rank and the mental health indicators—depression, anxiety, and stress. The first analysis revealed a positive and significant moderating impact of neuroticism on the relationship between police rank and depression ( $B = 0.63$ ,  $t = 2.23$ ,  $p = 0.027$ ). There were no significant moderator effects for conscientiousness and agreeableness. The analyses therefore only support the hypothesis about the moderating effect of neuroticism on the relationship between police rank and depression.

There was no moderator effects for all three personality dimensions on the relationship between police rank and anxiety. The results from the final set of analyses showed that there was a positive and significant moderating effect of neuroticism on the relationship between police rank and stress ( $B = 0.675$ ,  $t = 2.51$ ,  $p = 0.012$ ). There was no significant moderator effect for conscientiousness and agreeableness on police rank and stress. The moderator effect of the personality variables was therefore only partially supported, significant effect for neuroticism between on police rank and depression, and between police rank and stress.

## **Discussion**

We examined three major goals in this study: the mental health status of police officers, the effect of number of years served and rank in the police service, and the moderating role of personality on the relationship between rank and mental health. Almost 90% of respondents in this study had scores that placed them in subclinical levels of symptoms of depression, anxiety, and stress. There was no significant association between number of years in the police service and any of the mental health indicators; however, the results for rank were mixed, being significant for depression but not stress and anxiety. The moderating role of personality was also mixed for both types of personality and mental health measure.

### **Mental Health Among the Police**

This is the first study in Ghana that examined mental health of police officers assessing depression, anxiety, and stress. In previous studies on mental health, researchers examined job stress and suicidality. We found that between 1 and 4% of the respondents reported symptoms of depression and anxiety significant enough to meet

clinical thresholds. The causes of high stress are not difficult to identify; increased workload, inadequate support from colleagues, and inadequate resources at work can all lead to increased work-related stress (Gyamfi, 2014). Higher levels of depression are also attributed to job demands (high workload and assaults by citizens). High job demands predicted higher levels of depression and anxiety among police officers, mediated through emotional exhaustion (Gershon et al., 2009; Santa Maria et al., 2018). In a more recent review of global prevalence and risk factors for mental health problems among the police, it was reported that prevalence of mental health problems in general is twice as high as other first responders (Syed et al., 2020).

Depression levels in our study are slightly lower than global prevalence of depression (De Aquino et al., 2018; Lim et al., 2018). Among urban police in Texas, for example, a significant number of respondents reported symptoms of depression or sought mental health care within the year (Jetelina et al., 2020). A study of special police forces in Italy also revealed similar prevalence rates (Garbarino et al., 2013). Also in South Africa, similar rates have been reported for lifetime and for 12 months (Tomlinson et al., 2009). The association between police work/high workload and burnout, and increased risk of posttraumatic stress reactions, suicidality, and increased levels of stress and depression is frequently reported in the literature (Chopko, 2010; Hartley et al., 2013; Stuart, 2008). We interpret the finding about low levels of depression cautiously because there are no benchmarks that guide prevalence and incidence of mental health indicators in the Ghana police service.

### **Rank and Mental Health**

The data from this study did not support our hypotheses about rank and poorer mental status. Although work stress is higher among higher ranked police officers because of increased workload, previous research on the association between police rank and mental health have produced mixed results. For example, among Spanish police officers, it has been reported that officers of lower ranks reported more stress than those of higher ranks (Luceño-Moreno et al., 2016). In another study that demonstrated positive association between hours worked and occupational stress, it was found that senior officers worked more hours than junior officers and were therefore more likely to suffer higher levels of stress than their junior colleagues (Houdmont & Randall, 2016). In Ghana for example, Inspectors and Chief Inspectors are responsible for managing personnel at local police stations and responsible for day to day to police administration and held accountable for acts of commissions and omissions by subordinates they supervise.

### **Does Personality Moderate Relationship Between Police Rank and Mental Health?**

The moderating effect of personality on depression and stress was the most significant finding in this study. We also found direct effects for all three personality dimensions on depression, anxiety, and stress. However, we did not find support for the hypotheses that conscientiousness and agreeableness moderate the

relationship between police rank and anxiety and stress. Neuroticism has been shown to increase the risk of experiencing symptoms of anxiety and depression (Angst & Clayton, 1986). Other evidence also suggest that neuroticism is linked to traits such as negative emotionality (Allen et al., 2018) and predict life stress, psychological distress, emotional disorders, and psychotic symptoms (Jacobs et al., 2011; Mars et al., 2021). The research on personality also show that desirable traits like conscientiousness are associated with psychopathology such as recovery from negative emotions (Javaras et al., 2012).

The direct effects of conscientiousness and the mental health indicators are consistent with current literature (Mars et al., 2021; Sadeq & Molinari, 2018). Conscientiousness is characterized by carefulness, diligence, and the desire to be dutiful and take obligations seriously. What this means is that high conscientious police officers will do their best under difficult conditions to perform their duties and in the circumstance are likely to suffer some level of adverse mental health outcomes. These characteristics seem to be more important in how individuals cope with the challenges and strain of police work and therefore likely to be important predictors of mental health outcomes than years served or rank in the police service.

The findings from this study have direct implications for police selection and recruitment. Currently, the criteria for selection into the Ghana Police Service does not include screening for personality or personal traits that have relation to the mental health of the individual. As the responsibility of the police increase, the tendency to develop distress under the workload increases. Recent reported suicides in the police service revealed that there are no programs that directly provide mental health support for police officers despite the difficult conditions under which police work is done.

## Limitations

This study has two key limitations. First, we focus primarily on police officers in a typically urban setting and selected from only two divisions. Second, there is no benchmark to determine different mental health categories based on the local context and therefore we used recommendations published in the test manual. There are obvious difficulties with this and therefore we interpret these categories cautiously. It will be important to conduct studies to establish clinical and subclinical levels of these mental health indicators to set the benchmarks for the local population. Finally, the sample size is not optimal. It is relatively small, and selection was not based on probability method and the study focused on junior ranks, excluding all categories of personnel classified as senior police officers. We recommend that future studies should consider examining multiple categories of police ranks. Again, we recommend that future studies should focus on police who work in less urban communities where causes of stress are different. This we believe will provide a more complete picture of police stress and mental health.

## Conclusion

In this study, we found that the incidence of mild to moderate levels of depression and stress among police officers in Ghana in an urban location is quite high. We also found that personality dimensions moderate the effect of rank on mental health. These provide a strong basis to suggest there is need for the provision of interventions and/or psychosocial support to promote mental health among the police across the country. Formal personality assessment is not typically part of police recruitment in Ghana. These data make it imperative that police recruitment processes should incorporate assessment of personality. Additionally, the provision of stress management and coping skills will help the police deal with work demands and work stress. The study findings also provide the opportunity for more in-depth study of police mental health in Ghana. Finally, we did not measure coping in this research, a construct that can influence stress and its impact on mental health. We are also mindful that personality is a stable trait and therefore misinterpretation of findings from this study has the potential to lead to dire or untended consequences. Findings from this research therefore must be interpreted cautiously, mindful of the limitations of the study.

**Author Contribution** All authors contributed to the study conception and design. Material preparation, data collection, and analysis were performed by Adote Anum and Bright Acquah. The first draft of the manuscript was written by Adote Anum and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

**Data Availability** The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

### Declarations

The study was approved by the Department of Psychology Research and Ethics Committee (DREC), University of Ghana (Protocol Number: DREC/020/19–20). The research complied with the standards and requirements stipulated by the Ghana Psychological Council.

**Informed Consent** Verbal informed consent was obtained from all individual participants included in the study.

**Competing Interests** The authors declare no competing interests.

## References

- Addo, K. O. (2023). An exploratory study of police corruption in Ghana: Why does it exist? *Int Criminol*, 3, 52–62. <https://doi.org/10.1007/s43576-022-00078-7>
- Allen, T. A., Carey, B. E., McBride, C., Bagby, R. M., DeYoung, C. G., & Quilty, L. C. (2018). Big Five aspects of personality interact to predict depression. *Journal of Personality*, 86(4), 714–725. <https://doi.org/10.1111/jopy.12352>
- Angst, J., & Clayton, P. (1986). Premorbid personality of depressive, bipolar and schizophrenic patients with special reference to suicidal issues. *Comprehensive Psychiatry*, 27, 511–532.
- Aning, E. K. (2006). An overview of the Ghana police service. *Journal of Security Sector Management*, 4(2), 1–37. <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=e89ebdda3712ba590361645e2e592322c6cc6c90>. Accessed 23 May 2023.

- Anshel, M. H. (2000). A conceptual model and implications for coping with stressful events in police work. *Criminal Justice and Behavior*, 27(3), 375–400.
- Antony, M. M., Bieling, P. J., Cox, B. J., Enns, M. W., & Swinson, R. P. (1998). Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical groups and a community sample. *Psychological Assessment*, 10(2), 176–181. <https://doi.org/10.1037/1040-3590.10.2.176>
- Anum, A., Washington-Nortey, M., & Dzokoto, V. (2020). Strategic planning in LAMIC mental health research: A Ghana case study. *International Journal of Mental Health*, 49(2), 128–156. <https://doi.org/10.1080/00207411.2020.1719621>
- Boateng, F. D. (2014). Perceived organizational support and police officer effectiveness: Testing the organizational support theory in Ghana. *International Criminal Justice Review*, 24(2), 134–150.
- Boateng, F. D. (2018). Institutional trust and performance: A study of the police in Ghana. *Australian & New Zealand Journal of Criminology*, 51(2), 164–182.
- Boateng, F. D. (2020). Perceived police fairness: Exploring the determinants of citizens' perceptions of procedural fairness in Ghana. *Policing and Society*, 30(9), 985–997.
- Boateng, F. D., & Darko, I. N. (2021). Perceived police legitimacy in Ghana: The role of procedural fairness and contacts with the police. *International Journal of Law, Crime and Justice*, 65, 100458.
- Chopko, B. A. (2010). Posttraumatic distress and growth: An empirical study of police officers. *American Journal of Psychotherapy*, 64(1), 55–72.
- De Aquino, J. P., Londono, A., & Carvalho, A. F. (2018). An update on the epidemiology of major depressive disorder across cultures. In Y. K. Kim (Ed.), *Understanding Depression* (pp. 309–315). Springer. [https://doi.org/10.1007/978-981-10-6580-4\\_25](https://doi.org/10.1007/978-981-10-6580-4_25)
- Deschênes, A.-A., Desjardins, C., & Dussault, M. (2018). Psychosocial factors linked to the occupational psychological health of police officers: Preliminary study. *Cogent Psychology*, 5(1), 1426271. <https://doi.org/10.1080/23311908.2018.1426271>
- Garbarino, S., Cuomo, G., Chiorri, C., & Magnavita, N. (2013). Association of work-related stress with mental health problems in a special police force unit. *BMJ Open*, 3(7). <https://doi.org/10.1136/bmjopen-2013-002791>
- George, D., & Mallery, P. (2019). *IBM SPSS statistics 26 step by step: A simple guide and reference*. Routledge.
- Gershon, R. R., Barocas, B., Canton, A. N., Li, X., & Vlahov, D. (2009). Mental, physical, and behavioral outcomes associated with perceived work stress in police officers. *Criminal Justice and Behavior*, 36(3), 275–289.
- Gyamfi, G. D. (2014). Influence of job stress on job satisfaction: Empirical evidence from Ghana police service. *International Business Research*, 7(9), 108.
- Hansson, J., Hurtig, A.-K., Lauritz, L.-E., & Padyab, M. (2017). Swedish Police Officers' Job Strain, Work-Related Social Support and General Mental Health. *Journal of Police and Criminal Psychology*, 32(2), 128–137. <https://doi.org/10.1007/s11896-016-9202-0>
- Hartley, T. A., Sarkisian, K., Violanti, J. M., Andrew, M. E., & Burchfiel, C. M. (2013). PTSD symptoms among police officers: Associations with frequency, recency, and types of traumatic events. *International Journal of Emergency Mental Health*, 15(4), 241.
- Houdmont, J., & Randall, R. (2016). Working hours and common mental disorders in English police officers. *Occupational Medicine*, 66(9), 713–718. <https://doi.org/10.1093/occmed/kqw166>
- Jacobs, N., van Os, J., Derom, C., Thiery, E., Delespaul, P., & Wichers, M. (2011). Neuroticism explained? From a non-informative vulnerability marker to informative person-context interactions in the realm of daily life. *British Journal of Clinical Psychology*, 50(1), 19–32. <https://doi.org/10.1348/014466510X491397>
- Javaras, K. N., Schaefer, S. M., van Reekum, C. M., Lapate, R. C., Greischar, L. L., Bachhuber, D. R., Love, G. D., Ryff, C. D., & Davidson, R. J. (2012). Conscientiousness predicts greater recovery from negative emotion. *Emotion*, 12(5), 875–881. <https://doi.org/10.1037/a0028105>
- Jetelina, K. K., Molsberry, R. J., Gonzalez, J. R., Beauchamp, A. M., & Hall, T. (2020). Prevalence of mental illness and mental health care use among police officers. *JAMA Network Open*, 3(10), e2019658–e2019658.
- Lamers, S. M. A., Westerhof, G. J., Kovács, V., & Bohlmeijer, E. T. (2012). Differential relationships in the association of the Big Five personality traits with positive mental health and psychopathology. *Journal of Research in Personality*, 46(5), 517–524. <https://doi.org/10.1016/j.jrp.2012.05.012>
- Lim, G. Y., Tam, W. W., Lu, Y., Ho, C. S., Zhang, M. W., & Ho, R. C. (2018). Prevalence of depression in the community from 30 countries between 1994 and 2014. *Scientific Reports*, 8(1), 1–10.

- Lovibond, S. H., & Lovibond, P. F. (1995). *Manual for the Depression Anxiety Stress Scale* (2nd ed.). Psychology Foundation.
- Luceño-Moreno, L., García-Albuerno, Y., Talavera-Velasco, B., & Martín-García, J. (2016). Stress in Spanish police force depending on occupational rank, sex, age and work-shift. *Psicothema*, 28(4), 389–393.
- Maia, D. B., Marmar, C. R., Metzler, T., Nóbrega, A., Berger, W., Mendlowicz, M. V., Coutinho, E. S., & Figueira, I. (2007). Post-traumatic stress symptoms in an elite unit of Brazilian police officers: Prevalence and impact on psychosocial functioning and on physical and mental health. *Journal of Affective Disorders*, 97(1–3), 241–245. <https://doi.org/10.1016/j.jad.2006.06.004>
- Mars, B., Gibson, J., Dunn, B. D., Gordon, C., Heron, J., Kessler, D., Wiles, N., & Moran, P. (2021). Personality difficulties and response to community-based psychological treatment for anxiety and depression. *Journal of Affective Disorders*, 279, 266–273. <https://doi.org/10.1016/j.jad.2020.09.115>
- Martinussen, M., Richardsen, A. M., & Burke, R. J. (2007). Job demands, job resources, and burnout among police officers. *Journal of Criminal Justice*, 35, 239–249.
- Masilamani, R., Bulgiba, A., Chinna, K., Darus, A., Isahak, M., Kandiben, S., & Koh, D. (2013). Prevalence and associated factors of stress in the Malaysian Police Force. *Preventive Medicine*, 57, S57–S59. <https://doi.org/10.1016/j.ypmed.2013.01.008>
- Myjoyonline. (2021). *3rd police officer commits suicide in less than 3 weeks*. <https://www.myjoyonline.com/3rd-police-officer-commits-suicide-in-less-than-3-weeks/>
- Newman, D. A., & Lyon, J. S. (2009). Recruitment efforts to reduce adverse impact: Targeted recruiting for personality, cognitive ability, and diversity. *Journal of Applied Psychology*, 94(2), 298–317. <https://doi.org/10.1037/a0013472>
- Ormel, J., Rosmalen, J., & Farmer, A. (2004). Neuroticism: A non-informative marker of vulnerability to psychopathology. *Social Psychiatry and Psychiatric Epidemiology*, 39(11), 906–912. <https://doi.org/10.1007/s00127-004-0873-y>
- Pienaar, J., & Rothmann, S. (2006). Occupational stress in the South African police service. *South African Journal of Industrial Psychology Journal of Industrial Psychology*, 32(3), 72–78.
- Purba, A., & Demou, E. (2019). The relationship between organisational stressors and mental wellbeing within police officers: A systematic review. *BMC Public Health*, 19(1), 1–21.
- Quarshie, E. N. B., Odame, S. K., & Annor, F. (2020). Suicidal behaviors in the Ghana Police Service. *Crisis*. <https://doi.org/10.1027/0227-5910/a000707>
- Quartey, S. H., & Attiogbe, E. J. (2013). Is there a link between compensation packages and job performance in the Ghana police service? *African Journal of Business Management*, 7(44), 4398–4406.
- Regehr, C., Carey, M. G., Wagner, S., Alden, L. E., Buys, N., Corneil, W., Fyfe, T., Matthews, L., Randall, C., White, M., Fraess-Phillips, A., Krutop, E., White, N., & Fleischmann, M. (2021). A systematic review of mental health symptoms in police officers following extreme traumatic exposures. *Police Practice and Research*, 22(1), 225–239. <https://doi.org/10.1080/15614263.2019.1689129>
- Reynolds, P. D., Fitzgerald, B. A., & Hicks, J. (2018). The expendables: A qualitative study of police officers' responses to organizational injustice. *Police Quarterly*, 21(1), 3–29. <https://doi.org/10.1177/1098611117731558>
- Sadeq, N. A., & Molinari, V. (2018). Personality and its relationship to depression and cognition in older adults: Implications for practice. *Clinical Gerontologist*, 41(5), 385–398. <https://doi.org/10.1080/07317115.2017.1407981>
- Santa Maria, A., Wörfel, F., Wolter, C., Gusy, B., Rotter, M., & Stark, S., ... & Renneberg, B. (2018). The role of job demands and job resources in the development of emotional exhaustion, depression, and anxiety among police officers. *Police Quarterly*, 21(1), 109–134. <https://doi.org/10.1177/1098611117743957>
- Soomro, S., & Yanos, P. T. (2019). Predictors of mental health stigma among police officers: The role of trauma and PTSD. *Journal of Police and Criminal Psychology*, 34(2), 175–183. <https://doi.org/10.1007/s11896-018-9285-x>
- Strickhouser, J. E., Zell, E., & Krizan, Z. (2017). Does personality predict health and well-being? *A Metasynthesis. Health Psychology*, 36(8), 797–810. <https://doi.org/10.1037/hea0000475>
- Stuart, H. (2008). Suicidality among police. *Current Opinion in Psychiatry*, 21(5), 505–509.
- Syed, S., Ashwick, R., Schlosser, M., Jones, R., Rowe, S., & Billings, J. (2020). Global prevalence and risk factors for mental health problems in police personnel: A systematic review and meta-analysis. *Occupational and Environmental Medicine*, 77(11), 737–747.
- Tankebe, J. (2009). Public cooperation with the police in Ghana: Does procedural fairness matter? *Criminology*, 47(4), 1265–1293.

- Tankebe, J. (2010a). Public confidence in the police: Testing the effects of public experiences of police corruption in Ghana. *The British Journal of Criminology*, *50*(2), 296–319.
- Tankebe, J. (2010b). Identifying the correlates of police organizational commitment in Ghana. *Police Quarterly*, *13*(1), 73–91.
- Tankebe, J. (2011). Explaining police support for the use of force and vigilante violence in Ghana. *Policing and Society*, *21*(2), 129–149.
- Tomlinson, M., Grimsrud, A. T., Stein, D. J., Williams, D. R., & Myer, L. (2009). The epidemiology of major depression in South Africa: Results from the South African stress and health study. *South African Medical Journal*, *99*(5), 368–373.
- Violanti, J. M., Fekedulegn, D., & Hartley, T. A. (2016). Highly rated and most frequent stressors among police officers: Gender differences. *American Journal of Criminal Justice*, *41*(4), 43–62. <https://doi.org/10.1007/s12103-016-9342-x>
- Widiger, T. A., & Oltmanns, J. R. (2017). Neuroticism is a fundamental domain of personality with enormous public health implications. *World Psychiatry*, *16*(2), 144–145. <https://doi.org/10.1002/wps.20411>

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