RESEARCH ARTICLE

# Determinants of burnout among nurses and midwives at a tertiary hospital in Ghana: A cross-sectional study

Douglas Aninng Opoku[1,2] | Nana Kwame Ayisi-Boateng[3,4] | Aliyu Mohammed[5] | Alhassan Sulemana[6] | Abigail Owusuwaa Gyamfi[1] | Dominic Kwabena Owusu[1] | Dorothy Yeboah[7] | Kathryn Spangenberg[8] | Hilda Maria Ofosu[1] | Anthony Kwaku Edusei[9]

[1]Department of Occupational and Environmental Health, School of Public Health, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

[2]Allen Clinic, Family Healthcare Services, Kumasi, Ghana

[3]Department of Medicine, School of Medicine and Dentistry, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

[4]University Hospital, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

[5]Department of Epidemiology and Biostatistics, School of Public Health, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

[6]Department of Environmental Science, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

[7]Obstetrics and Gynaecology Directorate, Komfo Anokye Teaching Hospital, Kumasi, Ghana

[8]Family Medicine Directorate, Komfo Anokye Teaching Hospital, Kumasi, Ghana

[9]Department of Health Promotion and Education, School of Public Health, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

**Correspondence**
Douglas Aninng Opoku, Department of Occupational and Environmental Health, School of Public Health, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana.
Email: douglasopokuaninng@gmail.com

## Abstract

**Aim:** This study determined the prevalence and key determinants of burnout among nurses and midwives in Kumasi, Ghana.

**Design:** Hospital-based cross-sectional study.

**Method:** A questionnaire was used to obtain data from 391 nurses and midwives at a tertiary hospital in Kumasi, Ghana using simple random sampling.

**Results:** About 84.4% of the participants were females. The majority of the study participants experienced low burnout for all dimensions (58% in emotional exhaustion, 55.5% poor personal accomplishment and 38.3% depersonalization). Multiple regression analysis revealed that high emotional exhaustion was independently predicted by post-graduate education ($\beta = 6.42$, $p = .003$), lack of support from management ($\beta = 2.07$, $p = .024$), dislike for leadership style, ($\beta = 3.54$, $p < .001$) and inadequate number of staff ($\beta = 2.93$, $p = .005$). Age ($\beta = 0.35$, $p = .004$), lack of support from management ($\beta = 1.60$, $p = .012$), and inadequate number of staff ($\beta = 1.49$, $p = .034$) independently predicted high depersonalisation. Female sex ($\beta = 4.36$, $p < .001$) and years of practice ($\beta = -0.26$, $p < .001$) independently predicted low personal accomplishment.

**KEYWORDS**
burnout, depersonalisation, emotional exhaustion, midwives, nurses, personal accomplishment

# 1 | INTRODUCTION

Burnout among healthcare workers (HCWs) is a problem of public health concern and its prevalence is reported to be as high as 51% in a study among 60 countries (Morgantini et al., 2020). A person is said to experience burnout when he/she continues to react to long-lasting sensitive and social stressors on the job (Maslach & Leiter, 2016). It also includes feelings of emotional exhaustion, depersonalization and reduced personal achievement at the workplace (Montero-Marín et al., 2009). The variations in the practice and the health care industry have raised concerns about burnout among nurses and other HCWs. Burnout and occupational stress among HCWs pose a significant threat to patient safety, quality of care (Dyrbye et al., 2017; Shorofi et al., 2016) and adverse health effects like depression and anxiety on the professional (Duarte et al., 2020).

# 2 | BACKGROUND

Nurses and midwives form a significant proportion of the hospital workforce and spend a considerable amount of time with patients compared with other HCWs (Townsend et al., 2011).

Studies have shown that there has been an increase in the prevalence of burnout among HCWs (Dyrbye et al., 2017; Lasebikan & Oyetunde, 2012; Torre et al., 2019). In a systematic review, a pooled global prevalence of burnout among nurses was estimated at 11.23% (Woo et al., 2020). The findings of the study indicated that nurses globally are experiencing high burnout at the workplace. In sub-Saharan Africa, the situation is not different. In a study among physicians and nurses in Egypt, 46.9% of the respondents experienced high emotional exhaustion, 44.9% of the respondents had a moderate level of depersonalization and 99.7% of the respondents recorded reduced personal achievement (Abdo et al., 2016). In a similar study that was carried out in Senegal among midwives, 80% of the respondents recorded high emotional exhaustion, 57.8% recorded high depersonalization and 12.4% of the respondents recorded low personal accomplishment (Rouleau et al., 2012). This is likely to escalate especially in the era of the 2019 coronavirus disease (COVID-19) pandemic where nurses and other HCWs in a majority of the health settings experience a high workload.

Burnout rates among healthcare professionals such as nurses and midwives do not only affect them but also have an effect on patient care and safety (West et al., 2018). Healthcare workers that experience burnout in the workplace may detach themselves from their core duty of providing quality healthcare service to patients. A nurse or midwife who experiences burnout can be prone to making mistakes in the workplace. The confidence and work output of the nurse or midwife can be greatly affected if he or she continues to make mistakes. Reducing the rates of burnout at the workplace is critical for nurses' and midwives' retention as burnout has been associated with high turnover rates (Scanlan & Still, 2019).

In Ghana, little has been documented to assess the extent of burnout and its determinants among nurses and midwives (Nimako, 2021). Odonkor and Frimpong (2020) evaluated burnout among all HCWs at 12 Ghanaian health facilities and found that nurses experienced more burnout compared to other HCWs. Ayisi-Boateng, Bankah, et al. (2020) in their study among a sample of physicians also found that the majority of respondents reported low levels of burnout for all three dimensions. However, this study did not include nurses and midwives. In the Sunyani Municipality of Ghana, a similar study recorded that the majority of nurses suffered moderate to high emotional exhaustion (Nimako, 2021). This study only considered the emotional exhaustion dimension of burnout. Notably, all these studies were conducted before the COVID-19 pandemic in Ghana.

Our study, therefore sought to provide key information on the prevalence and key determinants of burnout among nurses and midwives during the COVID-19 pandemic in Ghana. This information will enable management and other stakeholders to set up strategies to reduce its incidence and possible escalation among nurses and midwives especially during the COVID-19 pandemic where their services are greatly needed. It also serves as reference data for future studies among nurses and midwives during the COVID-19 pandemic in Kumasi, Ghana.

The research questions that guided this study were;

1. What is the prevalence of burnout among nurses and midwives during the COVID-19 pandemic in Ghana in terms of
   a. Emotional exhaustion?
   b. Depersonalization?
   c. Personal achievement?
2. What are the key determinants of burnout among nurses and midwives during the COVID-19 pandemic in Kumasi, Ghana?

# 3 | MATERIALS AND METHODS

## 3.1 | Study design

This was a hospital-based cross-sectional study that involved a self-administered questionnaire evaluating demographic variables, work characteristics and Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981) among nurses and midwives at a tertiary hospital in Kumasi.

## 3.2 | Study site

The study was conducted at six (Anaesthesia and Intensive Care, Child Health, Emergency Medicine, Internal Medicine, Obstetrics and Gynaecology, and Oral Health) out of the 13 clinical departments at a teaching hospital in Kumasi, Ghana. The hospital is the only tertiary hospital in Ashanti Region and serves as a key referral point for health facilities in the Ashanti Region, the middle and northern belt of the country together with some portions of the south and western areas. It was established in 1955 and attained the status of a

teaching hospital in 1975. The hospital has about 1,200 bed capacity and is endowed with an extensive collection of health professionals with various clinical specialties and skills. The hospital is situated at Bantama, a densely-populated area, near the Kumasi City Centre. It has a staff strength of over 1,500 health professionals.

## 3.3 | Study population

The study participants consisted of all registered permanent nurses and midwives at the hospital.

### 3.3.1 | Inclusion criteria

1. All registered permanent nurses and midwives.
2. Participants should have practised for at least 1 year.
3. Study participants had to agree to participate in the study by signing an informed consent form.

### 3.3.2 | Exclusion criteria

1. All students (nursing students that were on clinical attachment) were excluded from the study.
2. All nurses and midwives in training (nurses and midwives that had completed school and are undergoing their mandatory 1 year service before acquiring a licence to practice as a nurse or midwife) were also excluded from the study.

## 3.4 | Sampling

### 3.4.1 | Sampling method

The simple random sampling technique was used to select participants for the study. First, six clinical departments were selected at random from 13 clinical departments at the hospital. Study participants were randomly selected from each department. The number of participants in each department was determined using probability proportional to size. At each department, the staff list was retrieved from the Nurse Managers. All the nurses and midwives were assigned codes and entered into a balloting box to select the number of nurses and midwives allocated for each department. The balloting was done to ensure that all the nurses and midwives at each department had an equal chance of being selected for the study.

### 3.4.2 | Sample size estimation

Charan and Biswas (2013) equation ($n = Z^2 (P) (1-P)/E^2$) for estimating sample size was used; where $n$ is a sample size, $Z$ is the number relating to the degree of confidence, $E$ is allowable margin of error

and $P$ is an estimate of the proportion of the population. Based on a 95% confidence interval, a 5% allowable margin of error and a proportion of 48.77% of Registered Nurses in the Greater Accra Region, Ghana who experienced burnout (Odonkor & Frimpong, 2020), a sample size of 384 was obtained. The sample size was overestimated to recruit a total number of 400 nurses and midwives into the study. This was done to cater for attrition.

## 3.5 | Data collection tools, techniques and training

Data collection was conducted from July to September 2020 using a structured questionnaire incorporating the MBI. This was conducted after the COVID-19 pandemic lockdown in Ghana. The questionnaire was self-administered by participants (pen-and-paper manner) at work. A 3-day training was organized for six data collectors, one supervisor and two data entry officers.

The MBI is the most widely accepted tool used to assess the risk of burnout (Maslach & Jackson, 1981). The MBI consists of three main burnout sub-items: emotional exhaustion (7 items), depersonalization (7 items) and personal achievement (8 items). Each sub-item was rated on a 7-point Likert scale (0–6). The total score for each burnout dimension was calculated for each study respondent. For the emotional exhaustion subscale, scores ≥30 were considered as high burnout, 18–29 were considered as moderate burnout and scores ≤17 were considered as low burnout. For the depersonalization subscale, scores ≥12 were considered as high burnout, 6–11 were considered as moderate burnout and scores <6 were considered as low burnout. For the personal accomplishment subscale, scores ≤33 were considered as high burnout, 34–39 were considered as moderate burnout and scores ≥40 were considered as low burnout. The Cronbach's coefficient (internal consistency) in this study for emotional exhaustion, depersonalization and personal achievement dimensions were 0.771, 0.638 and 0.783 respectively.

## 3.6 | Pre-test

To ensure that data collection tools were clear and simple with no ambiguity, the tools were pre-tested among 40 nurses and midwives in another health facility. Tools for the pre-test included; the MBI, socio-demographic and work-related characteristics.

## 3.7 | Analysis

Quantitative data were analyzed descriptively and inferentially using STATA® version 14. Percentages, ratios and frequencies were used to describe ages, sex, marital status, number of dependents and the number of years of practice. Inferential statistics were employed to determine the association between dependent and independent variables using correlation. Linear regression analysis was employed to assess variables (demographic and work characteristics) that were

significant determinants of the dimensions of burnout. Model 1 indicates the unadjusted association between demographic and work characteristics and the dimensions of burnout. In Model 2, we adjusted for all the variables that were significant in Model 1. Only values that had $p \leq .05$ were considered statistically significant at a 95% confidence interval (CI).

## 3.8 | Ethics

Research Ethics Committee approval was granted by the Komfo Anokye Teaching Hospital Institutional Review Board (Reference number: KATH-IRB/AP/040/20) on 15th June 2020. All the nurses and midwives who were screened and qualified to take part in the study were engaged individually by the researchers. The aim of the study was explained to them in English. Each participant signed an informed consent form.

## 4 | RESULTS

### 4.1 | Socio-demographic characteristics of study participants

A total number of 400 participants were recruited for the study, out of which 391 (response rate of 97.8%) participants returned their filled questionnaires. About 84.4% ($n = 330$) of the participants were females and majority (56.0%, $n = 219$) of the participants were married.

The mean age of participants was 31.4 (SD ± 5.0) with a minimum age of 21 years and a maximum age of 57 years. Approximately 55.2% ($n = 216$) had a diploma as their highest level of education. Majority (72.6%, $n = 284$) of the participants were nurses (Table 1).

### 4.2 | Work characteristics of study participants

Table 2 indicates the work characteristics of study participants. The mean duration a participant had practised was 5.8 (SD ± 5.1) years with a minimum duration of 1 year and a maximum duration of 30 years. About 29.2% ($n = 114$) of the participants were in the Department of Obstetrics and Gynaecology. Approximately 47.1% ($n = 184$) of the study participants worked between 31–40 hours per week with a mean hour per week of 41.9 (SD ± 8.6) hours.

Over 51.2% ($n = 200$) of the participants indicated they received support from management with their work. Greater proportions (58.1%, $n = 227$) of the study participants indicated they liked the leadership style of management at their wards.

The average number of patients seen in a day by a participant was 12.3 (SD ± 9.2) patients, with a minimum number of one patient and a maximum number of 60 patients. The majority (71.6%, $n = 280$) of participants indicated that the number of staff on duty per shift was inadequate in their units (Table 2).

**TABLE 1** Socio-demographic characteristics of study participants

| Variable | Frequency (n = 391) | Percentage, % [Range] |
|---|---|---|
| Sex | | |
| Male | 61 | 15.6 |
| Female | 330 | 84.4 |
| Age (years) | | |
| 21–31 | 231 | 59.1 |
| 32–42 | 146 | 37.3 |
| ≥43 | 14 | 3.6 |
| Mean age (±SD) | 31.4 (±5.0) | [21–57] |
| Relationship status | | |
| Married | 219 | 56.0 |
| Single | 166 | 42.5 |
| Divorced | 3 | 0.8 |
| Co-habiting | 3 | 0.8 |
| Level of education | | |
| Diploma | 216 | 55.2 |
| Graduate | 155 | 39.6 |
| Post-graduate | 20 | 5.1 |
| Number of dependents | | |
| 0 | 63 | 16.1 |
| 1–2 | 123 | 32.2 |
| 3–4 | 124 | 31.7 |
| ≥5 | 42 | 10.7 |
| Not indicated | 39 | 10.0 |
| Category of staff | | |
| Nurses | 284 | 72.6 |
| Midwives | 107 | 27.4 |

Abbreviations: Not indicated, missing values; SD, standard deviation.

### 4.3 | Prevalence of burnout among study participants

Table 3 represents the distribution of the mean and standard deviation of the dimensions of burnout. The majority of the participants experienced low burnout for the three dimensions of burnout. About 58.8% ($n = 230$) experienced low burnout for emotional exhaustion while 38.4% ($n = 150$) of the participants experienced low burnout for depersonalization. Approximately 55.5% ($n = 217$) of the participants experienced low burnout for personal accomplishment (Table 3).

### 4.4 | Determinants of burnout among study participants

Participant's age showed a positive correlation with depersonalization ($r = .161$, $p = .001$) and a negative correlation with personal

**TABLE 2** Work characteristics of study participants

| Variable | Frequency (n = 391) | Percentage, % [Range] |
|---|---|---|
| Years of practise | | |
| 1–5 | 233 | 59.6 |
| 6–10 | 101 | 25.8 |
| 11–15 | 39 | 10.0 |
| ≥16 | 18 | 4.6 |
| Mean age (±SD) | 5.8 (±5.1) | [1–30] |
| Department | | |
| Anaesthesia and intensive care | 43 | 11.0 |
| Child health | 40 | 10.2 |
| Emergency medicine | 90 | 23.0 |
| Internal medicine | 86 | 22.0 |
| Obstetrics and gynaecology | 114 | 29.2 |
| Oral health | 18 | 4.6 |
| Working hours per week (hours) | | |
| 20–30 | 28 | 7.2 |
| 31–40 | 184 | 47.1 |
| 41–50 | 159 | 40.7 |
| ≥51 | 20 | 5.1 |
| Mean hours per week (±SD) | 41.9 (±8.6) | [20–96] |
| Support from management | | |
| Yes | 200 | 51.2 |
| No | 185 | 47.3 |
| Sometimes | 6 | 1.5 |
| Leadership style of management at the ward | | |
| Like | 227 | 58.1 |
| Dislike | 164 | 41.9 |
| Number of patients seen per day | | |
| 1–10 | 234 | 59.8 |
| 11–20 | 120 | 30.7 |
| 21–30 | 18 | 4.6 |
| ≥31 | 19 | 4.9 |
| Average number of patients seen per day (±SD) | 12.3 (±9.2) | [1–60] |
| Number of staff on duty per a shift | | |
| Adequate | 111 | 28.4 |
| Inadequate | 280 | 71.6 |

Abbreviation: SD, standard deviation.

accomplishment ($r = -1.55$, $p = .002$). There was an association between sex and personal accomplishment ($r = .235$, $p < .001$). The educational level of a participant showed a positive correlation with emotional exhaustion ($r = .105$, $p = .039$).

Participant's department showed an inverse relationship with emotional exhaustion ($r = -.099$, $p = .050$). The number of years of practice showed a positive correlation with emotional exhaustion ($r = .112$, $p = .026$), depersonalization ($r = .104$, $p = .040$) and inverse correlation with personal accomplishment ($r = -.147$, $p = .004$). Support from management showed a positive correlation with emotional exhaustion ($r = .157$, $p = .002$), depersonalization ($r = .126$, $p = .012$) and inverse correlation with personal accomplishment ($r = -.243$, $p < .001$). The leadership style of management at the ward showed a positive correlation with emotional exhaustion ($r = .270$, $p < .001$), depersonalization ($r = .155$, $p = .002$) and inverse correlation with personal accomplishment ($r = -.174$, $p = .001$). The number of staff on duty per a shift showed a positive correlation with emotional exhaustion ($r = .209$, $p < .001$), depersonalization ($r = .132$, $p = .009$) and inverse correlation with personal accomplishment ($r = -.138$, $p = .006$; Table 4).

Bivariate and multivariate linear regression analyses were employed to find the variables that significantly predicted all the dimensions of burnout. Table 5 shows the relationship between demographic characteristics, work characteristics and dimensions of burnout. After adjusting for all the variables in Model 2, the variables that independently predicted high level of emotional exhaustion included: post-graduate education ($\beta = 6.42$, $p = .003$), no support from management ($\beta = 2.07$, $p = .024$), dislike for leadership style of management ($\beta = 3.54$, $p < .001$) and inadequate number of staff on duty ($\beta = 2.93$, $p = .005$). The unadjusted $R^2$ was .154 indicating that these variables explained 15.4% of the variations in emotional exhaustion. Variables that predicted a high level of depersonalization were age ($\beta = 0.35$, $p = .004$), no support from management ($\beta = 1.60$, $p = .012$), and inadequate staff ($\beta = 1.49$, $p = .034$). The unadjusted $R^2$ was .077 indicating that these variables explained 7.7% of the variations in depersonalization. Variables that predicted low level of personal accomplishment were female nurses ($\beta = 4.36$, $p < .001$) and years of practice ($\beta = -0.26$, $p < .001$). The unadjusted $R^2$ was .144 indicating that these variables explained 14.4% of the variations in the personal accomplishment (Table 5).

## 5 | DISCUSSION

In general, respondents in this study reported low burnout for all three dimensions. The presence of burnout recorded in this study is in agreement with a report that burnout is prevalent among healthcare workers in low and middle-income countries (Dugani et al., 2018). This is also in support of the findings of a study in Ghana among a sample of physicians that reported low burnout for all three dimensions of burnout (Ayisi-Boateng, Bankah, et al., 2020). This is also similar to the conclusion of a previous study in Ghana that reported that the majority of nurses had low burnout from emotional exhaustion and depersonalization (Nkyi & Blay, 2020). However, this finding contradicts another study among Lebanese nurses (Sabbah et al., 2012) which reported that the majority of the nurses experienced high burnout for all dimensions. The difference in study design, instruments for measuring burnout, sample size, nature of the

**TABLE 3** Distribution of the mean and standard deviation of the dimensions of burnout

| Subscale | Mean | SD | Low burnout, n (%) | Moderate burnout, n (%) | High burnout, n (%) |
|---|---|---|---|---|---|
| Emotional exhaustion | 16.5 | ±9.1 | 230 (58.8) | 122 (31.2) | 39 (10.0) |
| Depersonalization | 8.2 | ±6.2 | 150 (38.4) | 146 (37.3) | 95 (24.3) |
| Personal accomplishment | 38.3 | ±8.4 | 217 (55.5) | 88 (2.5) | 86 (22.0) |

Abbreviation: SD, standard deviation.

**TABLE 4** Correlation of demographic, work characteristics and dimensions of burnout

| | Emotional exhaustion | | Depersonalization | | Personal accomplishment | |
|---|---|---|---|---|---|---|
| Variables | r | p – Value | r | p – Value | r | p – Value |
| Age | .096 | .057 | .161 | .001** | −1.55 | .002** |
| Sex | .001 | .981 | −.048 | .341 | .235 | <.001** |
| Educational level | .105 | .039* | .093 | .068 | −.055 | .276 |
| Relationship status | .022 | .664 | −.090 | .075 | .020 | .687 |
| Number of dependents | .053 | .299 | .072 | .154 | .001 | .994 |
| Department | −.099 | .050* | −.031 | .537 | .017 | .742 |
| Years of practice | .112 | .026* | .104 | .040* | −.147 | .004** |
| Working hours per week | −.019 | .707 | .065 | .202 | −.009 | .858 |
| Support from management | .157 | .002** | .126 | .012* | −.243 | <.001** |
| Leadership style of management at the ward | .270 | <.001** | .155 | .002** | −.174 | .001** |
| Number of patients seen per day | .089 | .078 | −.001 | .980 | .031 | .547 |
| Number of staff on duty | .209 | <.001** | .132 | .009** | −.138 | .006** |

Abbreviation: r, correlation coefficient.

*Correlation is significant at the .05 level (two-tailed). **Correlation is significant at the .01 level (two-tailed).

healthcare system and differences in study period could account for the varying prevalence rates.

The low burnout rate among the nurses and midwives in this study could be attributed to the very young age of the nurses/midwives and relatively few years of employment. Another explanation could be the closure of all outpatient departments and specialized clinics at the hospital during the COVID-19 outbreak in Ghana. During the outbreak of COVID-19 in Ghana, the management of the hospital closed down all outpatient departments and specialized clinics in order to reduce the rate of infection at the hospital and also to enable the hospital to adhere to the social distancing preventive strategy. Again, during the COVID-19 pandemic in Ghana, hospital attendance was reduced drastically (Ayisi-Boateng, Bankah, et al., 2020; Ayisi-Boateng, Singh, et al., 2020). This helped to reduce the burden of workload on the nurses and midwives at the hospital. The nurses and midwives were given more days off from duty which afforded them more time to rest and recover for the next day's activities.

In this study, demographic and work characteristics explained 15.4% variance in emotional exhaustion, 7.7% variance in depersonalization and 14.4% variance in personal accomplishment. These small variations mean that the three dimensions of burnout could

be affected by other factors that were not explored in this study. It was observed in the current study that age, sex, level of education, support from management at the ward, years of practice, the leadership style of management, and number of staff on duty were associated with all the dimensions of burnout. The influence of age, sex, management support, and years of practice on burnout among HCWs have been discussed extensively in the literature (Balogun et al., 2002; Chayu & Kreitler, 2011; Erickson & Grove, 2008; Hayes et al., 2015).

The outcome of this study shows that lack of support from management independently predicted high emotional exhaustion and depersonalization. This is in line with previous studies that reported that management support at the workplace is critical in preventing burnout (Meng et al., 2015; Spence Laschinger et al., 2009). When workers receive support from their leadership, they do not have a feeling of exclusion and loneliness. Working under supportive conditions can free the mind from emotional stresses (Michie, 2002). Hence, there is a need to prioritize appointing qualified nurse managers with exceptional leadership skills.

In our study, it was observed that inadequate number of staff was a key determinant of high emotional exhaustion and personal accomplishment. After adjusting for all the variables in the

**TABLE 5** Relationship between demographic characteristics, work characteristics and dimensions of burnout

| Determinants | MODEL 1 | | | | MODEL 2 | | | |
|---|---|---|---|---|---|---|---|---|
| | β | t – value | p – value | 95%CI | β | t – value | p – value | 95%CI |
| **Emotional exhaustion** | | | | | | | | |
| Years of practice | 0.20 | 2.23 | .026 | 0.02, 0.37 | 0.09 | 1.00 | .317 | −0.09, 0.27 |
| **Educational level** | | | | | | | | |
| Diploma | 1.00 | | | | 1.00 | | | |
| Graduate | 0.26 | 0.28 | .780 | −1.60, 2.12 | −0.16 | −0.17 | .866 | −1.98, 1.67 |
| Post-graduate | 6.62 | 3.16 | .002 | 2.50, 10.75 | 6.42 | 3.01 | .003 | 2.23, 10.60 |
| **Department** | | | | | | | | |
| Anaesthesia and intensive care | 1.00 | | | | 1.00 | | | |
| Child health | 4.11 | 2.09 | .037 | 0.25, 7.98 | 3.49 | 1.86 | .064 | −0.20, 7.18 |
| Emergency medicine | 3.74 | 2.25 | .025 | 0.48, 7.00 | 2.12 | 1.32 | .188 | −1.04, 5.29 |
| Internal medicine | 0.60 | 0.36 | .718 | −2.68, 3.89 | 0.81 | 0.51 | .613 | −2.35, 3.98 |
| Obstetrics and gynaecology | 0.03 | 0.02 | .986 | −3.12, 3.18 | 0.53 | 0.35 | .727 | −2.47, 3.53 |
| Oral health | −0.97 | −0.39 | .699 | −5.91, 3.97 | 0.43 | 0.18 | .860 | −4.32, 5.17 |
| **Support from management** | | | | | | | | |
| Yes | 1.00 | | | | 1.00 | | | |
| No | 3.09 | 3.38 | .001 | 1.29, 4.89 | 2.07 | 2.27 | .024 | 0.28, 3.86 |
| Sometimes | 1.30 | 0.35 | .727 | −6.00, 8.60 | −0.36 | −0.10 | .919 | −7.35, 6.63 |
| **Leadership style of management at the ward** | | | | | | | | |
| Like | 1.00 | | | | 1.00 | | | |
| Dislike | 4.95 | 5.52 | <.001 | 3.19, 6.71 | 3.54 | 3.67 | <.001 | 1.64, 5.44 |
| **Number of staff on duty** | | | | | | | | |
| Adequate | 1.00 | | | | 1.00 | | | |
| Inadequate | 4.19 | 16.03 | <.001 | 2.24, 6.15 | 2.93 | 2.84 | .005 | 0.90, 4.96 |
| Unadjusted $R^2$ | | | | | 0.154 | | | |
| Adjusted $R^2$ | | | | | 0.127 | | | |
| Prob>F | | | | | <0.001 | | | |
| **Depersonalization** | | | | | | | | |
| Age | 0.20 | 3.21 | .001 | 0.07, 0.32 | 0.35 | 2.86 | .004 | 0.11, 0.59 |
| Years of practice | 0.13 | 2.06 | .040 | 0.01, 0.25 | −0.18 | −1.49 | .138 | −0.41, 0.06 |
| **Support from management** | | | | | | | | |
| Yes | 1.00 | | | | 1.00 | | | |
| No | 1.84 | 2.92 | .004 | 0.60, 3.07 | 1.60 | 2.51 | .012 | 0.35, 2.85 |
| Sometimes | −0.68 | −0.27 | .791 | −5.70, 4.34 | −1.36 | −0.54 | .588 | −6.30, 3.58 |
| **Leadership style of management at the ward** | | | | | | | | |
| Like | 1.00 | | | | 1.00 | | | |
| Dislike | 1.95 | 3.09 | .002 | 0.71, 3.19 | 1.07 | 1.61 | .108 | −0.24, 2.37 |
| **Number of staff on duty** | | | | | | | | |
| Adequate | 1.00 | | | | 1.00 | | | |
| Inadequate | 1.82 | 2.63 | .009 | 0.46, 3.18 | 1.49 | 2.13 | .034 | 0.11, 2.87 |
| Unadjusted $R^2$ | | | | | 0.077 | | | |
| Adjusted $R^2$ | | | | | 0.063 | | | |
| Prob>F | | | | | <0.001 | | | |

(Continues)

**TABLE 5** (Continued)

| Determinants | MODEL 1 | | | | MODEL 2 | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | β | t – value | p – value | 95%CI | β | t – value | p – value | 95%CI |
| Age | −0.26 | −3.09 | .002 | −0.43, −0.09 | | | | |
| Personal accomplishment | | | | | | | | |
| Years of practice | −0.24 | −2.94 | .004 | −0.40, −0.08 | −0.26 | −3.31 | .001 | −0.41, −0.10 |
| Sex | | | | | | | | |
| Male | 1.00 | | | | 1.00 | | | |
| Female | 5.42 | 4.77 | <.001 | 3.18, 7.65 | 4.36 | 3.87 | <.001 | 2.15, 6.57 |
| Support from management | | | | | | | | |
| Yes | 1.00 | | | | 1.00 | | | |
| No | −4.34 | −5.25 | <.001 | −5.96, −2.71 | −3.48 | −4.18 | <.001 | −5.12, −1.84 |
| Sometimes | −2.42 | −0.72 | .472 | −9.02, 4.19 | −1.04 | −0.32 | .750 | −7.46, 5.38 |
| Leadership style of management at the ward | | | | | | | | |
| Like | 1.00 | | | | 1.00 | | | |
| Dislike | −2.94 | −3.48 | <.001 | −4.61, −1.28 | −1.08 | −1.25 | .212 | −2.77, 0.62 |
| Number of staff on duty | | | | | | | | |
| Adequate | 1.00 | | | | 1.00 | | | |
| Inadequate | −2.57 | −2.76 | .006 | −4.39, −0.74 | −1.59 | −1.74 | .082 | −3.39, 0.20 |
| Unadjusted $R^2$ | | | | | 0.144 | | | |
| Adjusted $R^2$ | | | | | 0.130 | | | |
| Prob>F | | | | | <0.001 | | | |

Abbreviations: CI, confidence interval; β, regression coefficient.

multiple linear regression analysis, inadequate staff was a key predictor of high emotional exhaustion and depersonalization. This means that burnout levels will reduce if there is adequate staff at the workplace. It is even more problematic during this time of the COVID-19 outbreak where even though patient attendance declined (Ayisi-Boateng, Singh, et al., 2020), the increased precautionary measures at work and not knowing which patient may be a source of infection increased health workers' burden at work, making the work more stressful. The fear of contracting the COVID-19 may also lead to nurses detaching themselves from their job (Elhadi et al., 2020).

It was found that post-graduate education independently predicted high emotional exhaustion. Post-graduates are the ones that usually take up leadership roles which increases their burden. High workload has been associated with burnout (Meng et al., 2015; Spence Laschinger et al., 2009). It was revealed in this study that sex was significantly related to personal accomplishment. Females were found to be associated with low personal accomplishment compared to males. In Ghana, males find themselves in leadership positions more often than their female counterparts (Segkulu & Gyimah, 2016), which would explain this situation affecting more female nurses. This finding contradicts the findings of a study in Hungary (Adam et al., 2018) that reported that the male sex was a strong predictor of low personal accomplishment.

Age was a key determinant of high depersonalization. After adjusting for all the variables in the multiple linear regression analysis, increasing age was significantly associated with high depersonalization. This is consistent with a study conducted in Ethiopia (Taju et al., 2018) that also reported age as the main predictor of depersonalization. It was also observed that an increase in the years of practice decreases personal accomplishment. This could be due to the fact that with their years of experience, they have given up challenging the status quo. They possibly believe that due to the headship style in place no matter how hard they try to change the system, it will not work. So, they have resigned themselves to stewardship with limited satisfaction. This is in agreement with a study that reported that HCWs with longer years of work reported low personal accomplishment (Elhadi et al., 2020).

The outcome of this study would be helpful for hospital administrators and nurse managers to control the incidence of burnout in the workplace. It is important that hospital administrators identify nurses and midwives that are experiencing burnout in the workplace and give them professional coaching and the necessary support to prevent worsening and recurrence. Lack of management support and leadership style have a significant influence on burnout among nurses and midwives as reported in this study. This calls for the need to provide nurses and midwives with all the necessary support at the workplace to enable them to discharge their duties, especially during

the COVID-19 pandemic. It is also important to regularly organize seminars and training on leadership for all ward in-charges and nurse managers. The hospital management should engage the services of more nurses and midwives and ensure equitable distribution of them to all the departments, identify what makes the nurses depersonalize and support their career progression especially for the female nurses.

## 6 | LIMITATIONS AND STRENGTHS

This study adopted a cross-sectional study design which limits our ability to draw a causal effect between the determinants identified and burnout. We could only draw relationships between these determinants and burnout. Again, this study was conducted in only one hospital which limits our power to generalize the outcome of this study to the general population of nurses and midwives in Kumasi, Ghana.

A strength of this study is the high response rate among study participants. This may be explained by the temporarily reduced burden of work at some departments. The low patient attendance afforded the nurses and midwives at the hospital time to respond to the questionnaire. The higher response rate in this study has a positive influence on the quality and accuracy of study data. Again, the outcome of this study provides data on the prevalence and key determinants of burnout among nurses and midwives during the COVID-19 outbreak in Kumasi, Ghana for hospital management teams to consider improving upon their leadership style and future studies to build on.

## 7 | CONCLUSION

Prevalence of burnout among nurses and midwives in Kumasi, Ghana during the COVID-19 pandemic is rife. The key determinants of burnout in this study were increasing age, female sex, longer duration of practice, dislike for leadership style, lack of management support, and an inadequate number of staff. Burnout has a negative effect on both the quality of care of the patient and the health of the professional. We recommend that health administrators and key stakeholders prioritize strategies and policies like managing staff workload and ensuring an engaging governance style that will mitigate the occurrence of burnout among nurses and midwives at the workplace.

## AUTHOR CONTRIBUTIONS
DAO, NKAB and AKE were involved in the conceptualization and study design. DAO, NKAB, AS, KS, and AKE supervised the work. DAO, NKAB, AG, DKO, DY, AS, AM, HMO were involved in the data collection, screening and validity. DAO and AM were in charge of the data analysis and presentation. All authors were involved in the writing, review and finalization of the manuscript.

All authors have agreed on the final version and meet at least one of the following criteria [recommended by the ICMJE (http://www.icmje.org/recommendations/)]:

• substantial contributions to conception and design, acquisition of data or analysis and interpretation of data;

• drafting the article or revising it critically for important intellectual content.

## ORCID
*Douglas Aninng Opoku* https://orcid.org/0000-0003-2321-387X

## REFERENCES
Abdo, S. A. M., El-Sallamy, R. M., El-Sherbiny, A. A. M., & Kabbash, I. A. (2016). Burnout among physicians and nursing staff working in the emergency hospital of Tanta University, Egypt. *Eastern Mediterranean Health Journal*, *21*(12), 906–915. https://doi.org/10.26719/2015.21.12.906

Adam, S., Mohos, A., Kalabay, L., & Torzsa, P. (2018). Potential correlates of burnout among general practitioners and residents in Hungary: The significant role of gender, age, dependant care and experience. *BMC Family Practice*, *19*(1), 1–10. https://doi.org/10.1186/s12875-018-0886-3

Ayisi-Boateng, N. K., Bankah, E. M., Ofori-Amankwah, G. K., Egblewogbe, D. A., Ati, E., Opoku, D. A., Appiah-Brempong, E., & Spangenberg, K. (2020). A cross-sectional self-assessment of burnout amongst a sample of doctors in Ghana. *African Journal of Primary Health Care and Family Medicine*, *12*, 1–7. https://doi.org/10.4102/phcfm.v12i1.2336

Ayisi-Boateng, N. K., Singh, A., Abu-Sakyi, J., Tawiah, P., Darkwa, I., & Wusu-Ansah, O. K. (2020). Fighting the COVID-19 pandemic in Ghana: A report from the University Hospital, Kwame Nkrumah University of Science and Technology, Kumasi. *Pan African Medical Journal*, *37*(Supp 1), 1–5. https://doi.org/10.11604/pamj.supp.2020.37.1.25749

Balogun, J. A., Titiloye, V., Balogun, A., Oyeyemi, A., & Katz, J. (2002). Prevalence and determinants of burnout among physical and occupational therapists. *Journal of Allied Health*, *31*(3), 131–139.

Charan, J., & Biswas, T. (2013). How to calculate sample size for different study designs in medical research. *Indian Journal of Psychological Medicine*, *35*(2), 121–126. https://doi.org/10.4103/0253-7176.116232

Chayu, T., & Kreitler, S. (2011). Burnout in nephrology nurses in Israel. *Nephrology Nursing Journal: Journal of the American Nephrology Nurses' Association*, 38(1), 65–79.

Duarte, I., Teixeira, A., Castro, L., Marina, S., Ribeiro, C., Jácome, C., Martins, V., Ribeiro-Vaz, I., Pinheiro, H. C., Silva, A. R., Ricou, M., Sousa, B., Alves, C., Oliveira, A., Silva, P., Nunes, R., & Serrão, C. (2020). Burnout among Portuguese healthcare workers during the COVID-19 pandemic. *BMC Public Health*, 20(1), 1–10. https://doi.org/10.1186/s12889-020-09980-z

Dugani, S., Afari, H., Hirschhorn, L. R., Ratcliffe, H., Veillard, J., Martin, G., Lagomarsino, G., Basu, L., & Bitton, A. (2018). Prevalence and factors associated with burnout among frontline primary health care providers in low- and middle-income countries: A systematic review. *Gates Open Research*, 2, 4. https://doi.org/10.12688/gatesopenres.12779.1

Dyrbye, L. N., Shanafelt, T. D., Sinsky, C. A., Cipriano, P. F., Bhatt, J., Ommaya, A., West, C. P., & Meyers, D. (2017). *Burnout among health care professionals a call to explore and address this underrecognized threat to safe, high-quality care. NAM perspectives.*

Elhadi, M., Msherghi, A., Elgzairi, M., & Alhashimi, A. (2020). Burnout syndrome among hospital healthcare workers during the COVID-19 pandemic and civil war: A cross-sectional study. *Frontiers in Psychiatry*, 11, 1–11. https://doi.org/10.3389/fpsyt.2020.579563

Erickson, R. J., & Grove, W. J. C. (2008). Why emotions matter: Age, agitation, and burnout among registered nurses. *The Online Journal of Issues in Nursing*, 13, 1–11. https://doi.org/10.3912/OJIN.Vol13No01PPT01

Hayes, B., Douglas, C., & Bonner, A. (2015). Work environment, job satisfaction, stress and burnout among haemodialysis nurses. *Journal of Nursing Management*, 23(5), 588–598. https://doi.org/10.1111/jonm.12184

Lasebikan, V. O., & Oyetunde, M. O. (2012). Burnout among nurses in a Nigerian General Hospital: Prevalence and associated factors. *ISRN Nursing*, 2012, 1–6. https://doi.org/10.5402/2012/402157

Maslach, C., & Leiter, M. P. (2016). Burnout. In *Stress: Concepts, Cognition, Emotion, and Behavior: Handbook of Stress* (pp. 351–357). Academic Press. https://doi.org/10.1016/B978-0-12-800951-2.00044-3

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior*, 2(2), 99–113. https://doi.org/10.1002/job.4030020205

Meng, L., Liu, Y., Liu, H., Hu, Y., Yang, J., & Liu, J. (2015). Relationships among structural empowerment, psychological empowerment, intent to stay and burnout in nursing field in mainland China-based on a cross-sectional questionnaire research. *International Journal of Nursing Practice*, 21(3), 303–312. https://doi.org/10.1111/ijn.12279

Michie, S. (2002). Causes and management of stress at work. *Occupational and Environmental Medicine*, 59(1), 67–72. https://doi.org/10.1136/oem.59.1.67

Montero-Marín, J., García-Campayo, J., Mera, D. M., & Del Hoyo, Y. L. (2009). A new definition of burnout syndrome based on Farber's proposal. *Journal of Occupational Medicine and Toxicology*, 4(1), 1–17. https://doi.org/10.1186/1745-6673-4-31

Morgantini, L. A., Naha, U., Wang, H., Francavilla, S., Acar, Ö., Flores, J. M., Crivellaro, S., Moreira, D., Abern, M., Eklund, M., & Vigneswaran, H. (2020). Factors contributing to healthcare professional burnout during the COVID-19 pandemic: A rapid turnaround global survey. *PLoS ONE*, 15(9), 1–11. https://doi.org/10.1371/journal.pone.0238217

Nimako, B. P. (2021). Resilience and burnout among registered nurses in Ghana during Covid-19 pandemic. *International Journal of Nursing Science*, 11(1), 20–30. https://doi.org/10.5923/j.nursing.20211101.03

Nkyi, A. K., & Blay, M. (2020). Occupational burnout among nurses working in Cape Coast Metropolitan Hospital Ghana. *Indian Journal of Health and Wellbeing*, 11(10–12), 459–465. https://doi.org/10.1177/017084068800900203

Odonkor, S. T., & Frimpong, K. (2020). Burnout among healthcare professionals in Ghana: A critical assessment. *BioMed Research International*, 2020, 1614968. https://doi.org/10.1155/2020/1614968

Rouleau, D., Fournier, P., Philibert, A., Mbengue, B., & Dumont, A. (2012). The effects of midwives' job satisfaction on burnout, intention to quit and turnover: a longitudinal study in Senegal. *Human Resources for Health*, 10, 1–14. https://doi.org/10.1186/1478-4491-10-9

Sabbah, I., Sabbah, H., Sabbah, S., Akoum, H., & Droubi, N. (2012). Burnout among Lebanese nurses: Psychometric properties of the Maslach Burnout Inventory-Human Services Survey (MBI-HSS). *Health*, 4(9), 644–652. https://doi.org/10.4236/health.2012.49101

Scanlan, J. N., & Still, M. (2019). Relationships between burnout, turnover intention, job satisfaction, job demands and job resources for mental health personnel in an Australian mental health service. *BMC Health Services Research*, 19(1), 1–11. https://doi.org/10.1007/s00115-020-00910-3

Segkulu, L., & Gyimah, K. (2016). Women in educational leadership within the Tamale Metropolis. *Journal of Education and Practice*, 7(19), 63–69. www.iiste.org

Shorofi, A., Jafari, H., Azimi Lolaty, H., Yazdani Cherati, J., & Karimzadeh, M. (2016). Nurse burnout and patient satisfaction with nursing care at dialysis and cardiac care units. *Journal of Critical Care Nursing*, 9(1), 1–7. https://doi.org/10.17795/ccn-5102

Spence Laschinger, H. K., Leiter, M., Day, A., & Gilin, D. (2009). Workplace empowerment, incivility, and burnout: Impact on staff nurse recruitment and retention outcomes. *Journal of Nursing Management*, 17(3), 302–311. https://doi.org/10.1111/j.1365-2834.2009.00999.x

Taju, L., Lrago, T., Asefa, F., & Yitbarek, K. (2018). Physicians' burnout and factors in Southern Ethiopia affecting it. *Ethiopian Journal of Health Sciences*, 28(5), 589–598. https://doi.org/10.4314/ejhs.v28i5.10

Torre, M., Santos Popper, M. C., & Bergesio, A. (2019). Burnout prevalence in intensive care nurses in Argentina. *Enfermeria Intensiva*, 30(3), 108–115. https://doi.org/10.1016/j.enfi.2018.04.005

Townsend, K., Wilkinson, A., & Bartram, T. (2011). Guest editors' note: Lifting the standards of practice and research – Hospitals and HRM. *Asia Pacific Journal of Human Resources*, 49(2), 131–137. https://doi.org/10.1177/1038411111401512

West, C. P., Dyrbye, L. N., & Shanafelt, T. D. (2018). Physician burnout: contributors, consequences and solutions. *Journal of Internal Medicine*, 283(6), 516–529. https://doi.org/10.1111/joim.12752

Woo, T., Ho, R., Tang, A., & Tam, W. (2020). Global prevalence of burnout symptoms among nurses: A systematic review and meta-analysis. *Journal of Psychiatric Research*, 123, 9–20. https://doi.org/10.1016/j.jpsychires.2019.12.015