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Work burnout and organisational commitment of medical professionals

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Abstract

While psychological, emotional, and physical exhaustion has contributed to unproductivity across various dimensions of work life, how work burnout has shaped the organisational commitment of medical professionals who are at the forefront of health and well-being remains underexplored and less understood. This study offers new and insightful perspectives on work burnout and variations in the commitment of medical professionals in Ogun State, Nigeria. This study evaluated the correlation and relative effect between work burnout, family commitment, and organisational commitment and optimal productivity using the product moment correlation and analysis of variance (ANOVA) estimation procedures. Items in the questionnaire were developed in line with the Maslach Burnout Inventory-General Survey, organisational commitment questionnaire, family commitment inventory questionnaire, Work Productivity and Activity Impairment, Employment Absence and Productivity Scale, and employee performance questionnaire. Findings revealed that handling multiple tasks simultaneously, shortage of staff, inadequate facilities or equipment, poor appraisal, lack of recognition and autonomy, and work overload are the most prevalent stressors to medical professionals (medical laboratory scientists, nurses, pharmacists, and technicians). The result further revealed that the effects include fatigue, frequent headache, sleeplessness and the lingering cold, low motivation, anxiety, and decreased output, among other symptoms. This study suggests that work burnout and work–family conflict are positively associated with high productivity at work and increased organisational commitment. The gender dimensions of the result revealed that females experience more work burnout and work–family conflict than males. Thus, policies and management practices should be implemented to mitigate their effects in the health sector for efficient patient care.

Keywords Work burnout, Organisational commitment, Family commitment, Optimal productivity

Introduction

Organisations highly depend on employees to successfully utilise medical facilities and inadequate healthcare staff to operate both efficiently and effectively produces many challenges for healthcare organisations. The growing workforce shortage is a significant challenge

facing the healthcare industry, and it seems intractable at the moment due to the established order that needs to change. The World Health Organisation (WHO 2013) reported that the world is currently short of 7.2 million healthcare workers, and it is predicted that by the year 2035, this shortage is expected to grow to a deficit of 12.9 million healthcare workers. In Nigeria, the workforce shortages among healthcare workers are only expected to worsen in the years to come. Inadequate staffing can potentially harm current employees as well as patient care. Many employees are leaving their current positions as a contributing factor to the current healthcare workforce shortage [27]. Being understaffed can put a lot of work-related stress and pressure on the remaining

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employees and can have many adverse effects. Some of these negative effects could include stressful working environments, possible restrictions on taking time off due to staffing shortages, and/or employees having to work overtime to fill in where needed. Therefore, knowing how medical professionals' staffing ratio to patient care has increased/decreased work burnout propensity and the overriding consequences for commitment amidst heterogenous priorities are essential in rejuvenating dwindling healthcare delivery in Africa's most populous black nation, Nigeria.

The clinical laboratory provides approximately 80% of the information that healthcare practitioners use to make decisions regarding patient care and treatment [43]. The shortage of workers in the clinical laboratory department affects not only those working within these departments but also those working in other departments within healthcare, which has potentially fatal effects. According to Wu [43], "a shortage of labour affects a laboratory's ability to meet physician demands for accurate test results, which can affect patient safety and, in turn, result in an increased length of stay-all to the detriment of a hospital's bottom line". The medical laboratory has been referred to as a hidden profession because laboratory employees often work behind the scene in healthcare with little to no patient contact and thus are not commonly viewed by the public [10]. Medical laboratory scientists are highly skilled individuals who have received specialised academic and clinical training in laboratory science and play vital roles in healthcare delivery at the laboratories found in healthcare facilities by assisting the doctors in making accurate diagnoses of diseases and infections. After collecting samples from patients in different units (ward, outpatient clinic, intensive care unit, medical theatre, accident and emergency unit, among others), they perform several tests by using equipment ranging from Acucheck (for measuring blood glucose level) to complex machines in the likes of Autoanalysers that can carry out full blood counts, biochemical and molecular analyses such as polymerase chain reaction [43]. These individuals provide critical information to medical staff needed for diagnosis, prognosis, and disease management.

Medical laboratory directors and supervisors play a crucial role in providing leadership, strategic direction, and monitoring and controlling the daily operations of laboratory departments [9]. In performing their duties, they are exposed to several types of hazards, ranging from needle prick to death following contact with patients suffering from infectious diseases. It is pertinent to say that their work is unit interdependent, and thus, they can be exposed to disturbing behaviours from co-workers and patients [30]. Long working hours, a

two-shift work system, poor salaries, and a lack of welfare facilities compound their problems [1]. Therefore, the issue of shortages in clinical laboratories is significant as it uncovered unobserved factors that could lead to work burnout and their corresponding reaction in terms of commitment and optimal healthcare service delivery, thus in need of study.

Even the work–family conflict is also another complex construct which can take many forms, namely time-based conflict, strain-based conflict, and behaviour-based conflict and affect the two domains at once, i.e. the work and the family domain [3]. Even more daunting are the challenges facing female medical professionals who have to find the best ways to match family and work expectations. Women hold two main tasks as a wife and a mother, meaning they have greater household responsibilities and roles in the family [2]. Women serve as the leading doers for most activities at home such as taking care of the house and the children, and at the same time, they also become employees [40]. Even when perceived, the lack of documented empirical evidence on the magnitude of changes in reactions of medical professionals to varying degrees of work burnout experienced in discharging their duties accentuates the need for this study.

This line of research is promising because;

- i. It offers new and insightful perspectives on how stakeholders (the government, healthcare users, and healthcare professionals) can advance optimum policy and best practices to halt poor healthcare service delivery. With work stress becoming increasingly recognised as one of the most serious occupational health hazards reducing workers' satisfaction and productivity, and increasing absenteeism and turnover, there is a need to complement a growing body of research with varied perspectives on work burnout and the associative consequences for medical professional commitment. This will be useful in drawing healthcare policies most inclined to each nation's development objective.
- ii. The healthcare sector in Nigeria also presents an exciting platform to offer varying perspectives on how work burnout influences healthcare service delivery among healthcare professionals. The healthcare sector in Nigeria is characterised by sub-standard healthcare practices such as long-standing and bending before the microscope, poor handling of infectious patients, inadequate healthcare worker's remuneration, congested office spaces, poor scheduling, the large turnout of patients needing medical attention, brain drain causing worsened healthcare worker-patient ratio, and so on. These realities are less observed in

developed and emerging economies, thus making the result of work burnout–performance relations regional specific. This study attempts to offer diversified results on the subject that explains Nigeria's trajectory and presents an avenue to develop data-driven policies that could rejuvenate the undesirable effects of work burnout among medical professionals.

Having introduced the study, the following sections are as follows: 2.0 presents the literature review; 3.0 presents the materials and methods; 4.0 presents the result, interpretations, discussion of findings and implications, and 5.0 concludes and offers suggestions for further research.

Literature review

This review began by offering a theoretical lens that explains work burnout and its associative consequences for organisational commitment. The theory of burnout offered by Freudenberger [18] summarises work burnout and the characteristic outcome of being worked out. The review further offers conceptual clarification on essential themes on the subject to show a clear line of thought. The review covered concepts like organisational commitment, productivity, and work–life balance. This clarification is essential to show a working definition vis-à-vis conceptual issues offered by the literature on burnout and organisational performance.

Freudenberger's burnout theory

For over four decades, interest in burnout has dramatically increased as we have begun to better understand the concept of burnout and its negative effects on employees [42]. Freudenberger [18] first used the word burnout following a feeling of emotional depletion along with other symptoms after working at a clinic and thus outlined the physical and behavioural aspects of burnout [39]. The physical signs of burnout are “a feeling of exhaustion and fatigue, being unable to shake a lingering cold, suffering from frequent headaches and gastrointestinal disturbances, sleeplessness, and shortness of breath” [21]. The behavioural signs of burnout include becoming angry and irritated easily, crying easily, and developing a suspicious attitude, along with the feeling that they are victimised [13].

Organisational commitment

When the goals of an individual and an organisation become integrated, this is known as commitment. Commitment is also viewed as a psychological state which binds an individual and an organisation together. Commitment seeks to explain consistencies related to attitudes, beliefs, and behaviour [33]. Organisational

commitment is a very important variable in organisational theory that has been widely reviewed throughout the literature, and research regarding organisational commitment has been of interest for over 60 years [6]. Organisational commitment is also defined as an attitude or orientation towards the organisation that links or attaches the person's identity to the organisation. In other words, organisational commitment is an affective orientation and is a positive evaluation of the organisation and having intentions to achieve its goals. In essence, commitment relates to an affective attachment to the organisation's goals and values.

Organisational commitment is a very complex concept, and though many models of organisational commitment have been developed throughout the years, Meyer and Allen's model has received the most support among researchers as it divides organisational commitment into different types: normative commitment, continuance commitment, and affective commitment [19].

Productivity

According to Dixit and Bhati [14], organisational commitment plays a vital role in sustained productivity. The five most widely used productivity concepts are labour productivity based on the gross output, which traces the labour required per unit of output. Labour productivity is based on value added, which is useful for the analysis of micro–macro links, such as an individual industry's contribution to economy-wide labour productivity and economic growth, Capital-labour Multi-Function Product (MFP), is based on value added, which is useful for the analysis of micro–macro links, such as the industry contribution to economy-wide MFP growth and living standards, as well as, for analysis of structural change, Capital productivity, based on value-added which denotes the degree to which output growth can be achieved with lower welfare costs in the form of foregone consumption. It is the most appropriate tool to measure technical change by industry because it fully acknowledges the role of intermediate inputs in production. Its main advantage as a productivity measure is its ease of readability, but capital productivity suffers the same limitations as other partial productivity measurements and KLEMS Multi-factor productivity which is used in the analysis of industry-level and sectoral technical change.

Productivity is a crucial aspect of organisational success and employee well-being. This critical review explores the impact of presenteeism on individual quality of life and the potential development of serious illnesses due to repeated postponement of sickness leave [31]. Additionally, it examines the role of organisational commitment in sustaining productivity [14]. Furthermore, the review highlights five widely used

productivity concepts and identifies fifteen (15) categories of factors that can influence productivity among medical laboratory scientists.

Organisational commitment plays a vital role in maintaining productivity levels among employees [14]. Employees who are dedicated and engaged with their organisations are more likely to exhibit higher levels of productivity. Factors such as job satisfaction, loyalty, and a sense of belonging contribute to greater commitment and, subsequently, sustained productivity.

Five productivity concepts are commonly employed for analysing productivity levels:

- Labour productivity based on gross output: This concept measures the labour required per unit of output and facilitates the analysis of specific industry labour requirements. It is an easily measurable and readable productivity indicator but does not account for other factors that influence output.
- Labour productivity based on value added: This concept enables the analysis of an individual industry's contribution to economy-wide labour productivity and economic growth. It serves as a reference statistic in wage bargaining. While it is easy to measure and readable, it requires price indices on intermediate inputs and gross output data. Limitations include potential double counting and double deflation.
- Capital-labour MFP (Multi-Factor Productivity) based on value-added: This concept analyses the industry's contribution to economy-wide MFP growth, living standards, and structural change. It offers ease of aggregation across industries, but it is not a suitable measure of technology shifts at the industry or firm level. It shares the disadvantages of other value-added measures with fixed-weight Laspeyres quantity indices.
- Capital productivity based on value added: Changes in capital productivity reflect the extent to which output growth can be achieved with lower welfare costs. It is easily readable but suffers from the same limitations as other partial productivity measurements.
- KLEMS multi-factor productivity: KLEMS-MFP is a suitable tool for analysing industry-level and sectoral technical change. It acknowledges the role of intermediate inputs in production and provides an accurate assessment of industry contributions to aggregate MFP change. However, it requires significant data requirements, including the timely availability of input-output tables consistent with national accounts. Communicating inter-industry links and aggregation is more challenging compared to value-added-based MFP measures [7].

The construction industry, for instance, has identified fifteen (15) categories of factors that influence labour productivity, including design factors, execution plan factors, material factors, equipment factors, labour factors, health and safety factors, supervision factors, working time factors, project factors, quality factors, financial factors, leadership and coordination factors, organisation factors, owner/consultant factors, and external factors [7]. Similar factors can also impact the productivity of medical laboratory scientists.

Family-work conflict

Some researchers note that the relationship between work and family is a topic that is increasingly attracting attention within the last 20 years in relation to the significant changes that occur in the workforce resulting in changes in family structure and the nature of the work [20]. Changes to the family and the working environment are caused by both the increasing participation of women in the workforce and the growing number of married couples having dual incomes [13].

Hypothesis development

H_{01} There is no significant correlation between work burnout and optimal productivity

Inconclusiveness in evidence in the existing literature regarding the correlation between work burnout and productivity highlights the need for further investigation to establish a clearer understanding of the correlation on the subject matter. Previous studies (see [17, 26, 29, 45] for some examples) examining the correlations between work burnout and productivity have been done across borders (those studies do not take cognisance of structural heterogeneity), and these studies have certain limitations in terms of sample size, measurement instruments, and research design. Addressing these methodological issues through sample-specific research can help strengthen the validity and reliability of the findings and offers new and insightful evidence that is most inclined to the development of policy and best practices for medical professionals in Nigeria.

H_{02} There is no significant correlation between Family commitment and Organisational Commitment

Establishing the correlation between family commitment and organisational has produced mixed results. This study considers whether family commitment influences organisational commitment, or if it is the other way around. The anticipated finding is expected to complement available studies on the subject and offers regional

and sectoral perspectives on the correlation between family commitment and organisational commitment literature.

H_{03} Work burnout has no significant relationship with optimal productivity

Burnout is a complex phenomenon that involves emotional exhaustion, depersonalisation, and reduced personal accomplishment, and as such its impact on organisational performance will most likely vary across a number of subjects [32]. While burnout and organisation performance have been studied in various sectors across geography and time, very few studies have illuminated sector and regional-specific characteristics of work burnout of medical professionals in Nigeria. Medical professionals in Nigeria have distinctive characteristics such as poor wage structure, uncondusive working environment, inappropriate staff-to-patience ratio, non-prompt payment of salaries, unavailability of social support, rising responsibilities of existing medical professionals amidst mass resignations etc. [38] that make a unique examination of work burnt impact on organisational performance relevant and apt. Behavioural inclinations in the reporting of burnout could also explain why a unique examination of work burnout of medical professionals in Nigeria is required. Burnout is often assessed through self-report questionnaires, which can be susceptible to subjective interpretation and reporting bias [23]. Individuals may underreport or overreport their burnout symptoms, affecting the accuracy of research findings. Combining self-report measures with objective indicators (e.g. physiological markers) can help enhance the validity of the results. Assessing the long-term impact of work burnout on medical professionals for organisational performance could be a useful intervention required in identifying the most effective strategies that are crucial for improving employee well-being and productivity.

H_{04} Family commitment has no significant relationship with organisational commitment

Organisational commitment is a multidimensional construct that can have affective, normative, and continuance components [16]. While previous studies (see [4, 5, 16, 24, 37] for some examples) have offered mere structural examination, this study felt the essential need to examine each dimension separately when investigating the relationship between family commitment and organisational commitment. Focusing on specific dimensions can provide more nuanced insights into the potential correlation or lack thereof. Assessing commitment relative to organisational commitment often relies on self-report

measures, which can be prone to biases and social desirability effects. This paper considered additional objective measures through its survey scales to mitigate these biases and enhance the validity of the findings.

Materials and methods

This study adopted the survey research design to determine the relationship between (a) work burnout and optimal productivity; (b) family commitment and organisational commitment. It was hypothesised that optimal productivity and organisational commitment would have a significant relationship with work burnout and family commitment and that demographic variables would influence work burnout, organisational commitment, family commitment and optimal productivity among medical laboratory employees. This study used a non-experimental, quantitative, correlational, cross-sectional, descriptive-questionnaire-based approach to demonstrate the hypothesised relationship. In this study, the regressors were work burnout and family commitment, and the response terms were optimal productivity and organisational commitment. The functional forms of these relationships are summarised in Eq. (1) and Eq. (2)

$$\text{Opt}_{\text{Prod}} = f(\text{Work}_{\text{Burn}}) \quad (1)$$

$$\text{Org}_{\text{Commit}} = f(\text{Fam}_{\text{Com}}) \quad (2)$$

where Opt_{Prod} is optimal productivity; $\text{Work}_{\text{Burn}}$ is work burnout; $\text{Org}_{\text{Commit}}$ is organisational commitment and Fam_{Com} is family commitment.

Geographical coverage and sample recruitment

This study was conducted in primary and tertiary healthcare facilities in Abeokuta, (latitude 07° 03' N and longitude 03° 19' E), Ilishan (latitude 06° 53' N and longitude 03° 42' E), Ijebu Ode (latitude 06° 49' N and longitude 03054' E) and Shagamu (latitude 06° 85' N and longitude 03° 65' E) in Ogun state (Latitude 07° 00' N and lon 3° 35' E), Nigeria (Worldatlas, 2015). Ogun State has over a hundred and twenty (120) hospitals (Ratenigerianhospitals, 2017), out of which 12 were randomly selected for the study (four hospitals from each selected area; $n=100$). A total of 365 licensed medical laboratory scientists ($n=96$), pharmacists ($n=88$), nurses ($n=91$), and technicians ($n=90$) occupy the positions of scientist II, scientist I, principal scientist, assistant chief scientist, chief scientist, assistant director and directors in healthcare facilities across Ogun State hospitals were randomly selected for this study. To participate in this research study, these individuals were required to have licenses that were in active status at the time of the study. From each selected ten (10) hospitals, ten (10)

medical laboratory scientists, pharmacists, nurses, and technicians were randomly selected. The exploratory study, which involved the stratified sampling technique, employed the correlation and regression design because it determined the association (strength and direction) between the target variables (Crawford, 2006). Survey research was used to gather data in this study. The summary of the respondent based on categorisation is given in Table 1;

Approval/ethical considerations

Approval for the study was sought from the respective study hospitals. This study involved the voluntary participation of medical laboratory scientists, pharmacists, nurses, and technicians in Ogun State who anonymously responded to the questionnaire. The included medical professionals in each participating city or location were briefed and given appropriate orientation on their participation. All data collected using the cross-sectional method were grouped based on the four vital factors considered in this study. The factors include sample size (the number of participants needed to achieve the desired power of the study), effect size (0.15), a measure of how variables are associated or the magnitude of the association between variables [12], statistical power the probability of committing a type II error [12]; A type II error is failure to reject a false null hypothesis [34], and significance level ($\alpha[0.05]$): the probability of committing a type I error [12]; type I error is rejecting a correct null hypothesis [34]. The minimum sample size required for this study was 129 using GPower3.1.9.2 software [15]. A list of the targeted licensed medical professionals was obtained from the human resource department of each of the selected hospitals in Ogun. Consent forms were attached to the administered questionnaires.

Identifications and data

This study collected data from self-administered surveys (survey item in Appendixes) that measured work burnout, organisational commitment, optimal productivity, and family commitment. To carry out this study, four instruments were utilised with the inclusion of a demographic questionnaire. Work burnout was measured

using the Maslach Burnout Inventory-General Survey. The organisational commitment was measured using the Organisational Commitment Questionnaire developed by Mowday et al. [28]. Productivity was measured using the Work Productivity and Activity Impairment (WPAI,GH V2.0) and Employment Absence and Productivity Scale (LEAPS) Questionnaire described by Lam et al. [22] and Employee performance questionnaire (EPQ) described by Sigler and Pearson [35]. Family commitment was measured by the Commitment inventory questionnaire (CIQ) developed by Stanley and Markman [36]. A demographic questionnaire was also included to collect general information about the sample population. In the demographic questionnaire, participants were asked to provide information regarding their gender, age, education level, position occupied, years of service at the current organisation, current work shift, and years of experience working.

Maslach burnout inventory

The Maslach Burnout Inventory-General Survey (MBI-GS) was used to measure burnout syndrome among some medical professionals. The MBI-GS contains a total of 16 items and consists of three subscales. Each of the 16 items is measured on a 7-point frequency rating scale from 0 to 6 in which 0=never, 1=a few times a year or less, 2=once a month or less, 3=a few times a month, 4=once a week, 5=a few times a week, and 6=every day. A sample item from the MBI is “I feel burnout from my work” [25]. The three subscales are Exhaustion, Cynicism, and Professional Efficacy. The Exhaustion subscale consists of 5 items and describes feeling exhausted and fatigued from one’s work. The Cynicism subscale consists of 5 items which describe indifference or a distant attitude regarding one’s work [25]. The Professional Efficacy subscale contains 6 items that describe general feelings of success, accomplishment, and competence in one’s work. The three subscale scores on the MBI are separate and distinct from one another and cannot be added to form an overall burnout score. Therefore, each participant had three scores, one for each of the three subscales. Lower Professional Efficacy scores and high Exhaustion and Cynicism scores indicate higher degrees of burnout (Amigo et al. 2014). Low scores on Exhaustion and Cynicism along with higher Professional Efficacy scores indicate lower degrees of burnout.

Organisational commitment questionnaire

The Organisational Commitment Questionnaire (OCQ) developed by Mowday et al. [28] was used to measure organisational commitment among some medical employees in Ogun State. The design of this questionnaire focused on assessing and measuring three aspects

Table 1 Sample recruitment. *Source:* Authors Compilations

S/N	Participant category (N = 365)	Numerics
1	Medical doctors	90
2	Medical laboratory scientist	96
3	Pharmacist	88
4	Nurses	91
Total	365	

of organisational commitment, including (1) accepting and believing in the goals of the organisation, (2) employee's willingness to put in the work and effort in support of the organisation, and (3) the employee's desire to remain with the organisation. The OCQ was developed to measure attitudinal commitment. "Attitudinal commitment is a state in which an individual identifies with a particular organisation and its goals and wishes to maintain membership to facilitate these goals [28]."

The OCQ scale consists of fifteen (15) items that are used to measure how attached, and committed employees are to their current organisation. These fifteen (15) items evaluate two dimensions of organisational commitment. The two dimensions are continuance commitment and affective commitment. Of the fifteen (15) items on the OCQ, 9 items (Items 1, 2, 4, 5, 6, 8, 10, 13, & 14) are used to measure affective commitment and 6 items (Items 3, 7, 9, 11, 12, & 15) are used to measure continuance commitment [41]. Employees rate each item on the survey based on a 7-point Likert scale from (1) strongly agree to (7) strongly disagree. There are several items (Items 3, 7, 9, 11, & 12) that are negatively phrased and these items are reverse-coded for analysis. These items are intentionally phrased negatively by the investigators to reduce response bias [28]. A sample OCQ item is "I am extremely glad that I chose this organisation to work for over others I was considering at the time I joined" [28]. The fifteen (15) items will be summed to receive a total score representing the level or degree of organisational commitment for that employee. This instrument is appropriate for this study because it focuses on determining whether a relationship exists between employee organisational commitment and turnover. This instrument can be used to assess how committed an employee is to their current organisation.

Work productivity and activity impairment (WPAI)

The WPAI-GH outcomes are expressed as impairment percentages, with higher numbers indicating greater impairment and less productivity, i.e. worse outcomes. The WPAIGH contains the following six questions with a recall period of the last week: Q_1 = currently employed; Q_2 = hours missed due to health problems; Q_3 = hours missed due to other reasons; Q_4 = hours actually worked; Q_5 = degree health affected productivity while working, and Q_6 = degree health affected regular activities.

Family commitment inventory (FCI)

Stanley and Markman [36], based on their review of relevant literature, developed 10 commitment subscales consisting of three factors: personal (deals with six subscales of identity and attraction), moral (deals with two subscales involving satisfaction, sacrifice and morality of

divorce) and structural (deals with two subscales of social pressure and structural investments) commitment.

Inclusion and exclusion criteria

This study included qualified medical laboratory scientists with a Bachelor of Medical Laboratory Science (B.MLS; a 5 years course) or the phased-out associate member of the Institute of Medical Laboratory Technology (AIMLT; a 3-year programme), licensed pharmacists, and nurses. Serving Youth corps members and interns (medical apprentices) were excluded from this study.

Model and empirical strategy

Before the linear regression was performed, the product moment correlational analysis of the variables was carried out to establish the collinearity status of the variables. Descriptive statistics were used to draw up a respondent profile by comparing mean scores, analysing mean differences and defining the extent to which mean scores either fall below or exceed the Likert scale's midpoint. One-sample t-tests are conducted. To test the effect of the six factors on stress, a bivariate linear regression analysis was carried out using the following model.

$$y_v = \alpha + \varphi_w \sum X_z z; \quad w; \quad v = 1, 2, 3, 4, \dots n$$

where y_v summarise the response terms, which are optimal productivity and organisational commitment; α is the origin of the regression line or the intercept; φ_w is the output elasticities of the regressors X_z which are work burnout and family commitment.

ANOVA tests are executed to test whether there are significant differences between groups such as general nurses, pharmacists, medical laboratory scientists, and laboratory technicians. Post hoc tests, based on the Scheffe procedure, are conducted to see where the significance lies. For each specific cause of stress, we created a composited score by summing up all the scores for the set of questions under the dimension for each respondent. The linear regression models used the composite scores as dependent variables. In separate multivariate regression models, we treated each dimension as the outcome of interest and the three other dimensions as covariates. All analyses were carried out using SPSS version 21.

Results and discussions

The analysis of the respondents' profiles and results of various regression, correlation, and ANOVA results is presented in the subsequent sections. A total of 400 questionnaires were distributed, but only 365 (91.3%) returned questionnaires were completely filled and subsequently analysed.

Table 2 Pearson product moment of correlation (PPMC) test among medical professionals. *Source:* Authors Computations

Variables	R-value	P-value	Remark
Work burnout and Optimal productivity	0.053**	0.000	Significant
Family commitment and Organisational commitment	0.177**	0.000	Significant

* $P < 0.05$

Results presented in Table 2 show that hypothesis 1 is tested using the Pearson product-moment of correlation (PPMC). The result revealed that the coefficient of the correlation, 0.053, is significant at $P < 0.05$ which implies that there is a significant correlation between work burnout and optimal productivity.

Hypothesis 2 says there is no significant correlation between family commitment and organisational commitment. However, it was also tested using Pearson Product Moment of Correlation (PPMC). The result revealed that the coefficient of the correlation, 0.177, is significant at $P < 0.05$, which deduced that there is a significant correlation between family commitment and organisational commitment.

Hypothesis three, which states that work burnout, as measured by the MBI-GS, will not affect optimal productivity, reveals a simple regression result of the effect of the independent variable on the dependent variable in Table 3. The t-statistics revealed that the individual parameter estimates are significant at 0.000 ($P < 0.05$). The R reveals the correlational value of 0.359(35.9%), and the R- the Square of 0.129 reveals the explanatory power of the independent variable on optimal productivity. The result shows that a 12.9% variation in optimal productivity is explained by the stated independent variable, work burnout. The F-statistic reveals that the model's parameter was significant ($P < 0.05$). This means that the parameter estimates as a whole are statistically significant in explaining optimal productivity. Hence, the null hypothesis is rejected. The statistical result shows that work burnout significantly has an effect on optimal productivity among medical professionals, which aligns with studies by Calnan et al. [11] and Barling et al. [8].

Hypothesis four which states that family commitment will have no significant relationship with organisational commitment as measured by the demographic survey carried out by medical professionals also reveals

Table 3 Relationship between work burnout and optimal productivity

Model		Unstandardised coefficients		Standardised coefficients	t	Sig
		B	Std. Error			
1	(Constant)	6.075	1.556	0.359	3.905	0.000
	Burnout	0.079	0.011		7.265	0.000
R						0.359
R square						0.129
F-Statistics						52.787
F-Prob						0.000

a. Dependent Variable: Optimal Productivity

Table 4 Relationship between family commitment and organisational commitment

Model		Unstandardised coefficients		Standardised coefficients	T	Sig
		B	Std. Error			
1	(Constant)	55.525	.908	.177	61.169	.000
	Family commitment	.095	.028		3.353	.001
R						0.177
R Square						0.031
F-Statistics						11.240
F-Prob						0.001

a. Dependent Variable: Organisational Commitment

a simple regression result of the effect of the independent variable on the dependent variable in Table 4. The t-statistics revealed that the individual parameter estimates are significant at 0.001 ($P < 0.05$). The R reveals the correlational value of 0.177 (17.7%) and the R-Square of 0.031 reveals the explanatory power of the independent variable on organisational commitment, the result shows that a 3.1% variation in organisational commitment is explained by family commitment. The F-statistic reveals that the parameter of the model was significant ($P < 0.05$). This means that the parameter estimates, as a whole, are statistically significant in explaining organisational commitment. Hence, the null hypothesis is rejected. The statistical result shows that family commitment will significantly affect organisational commitment, which corroborates Yeboah et al. [44] study.

Conclusion and recommendations

This study suggests that work burnout and work–family conflict are positively associated with high productivity at work and increased organisational commitment. Thus, policies and management practices should be put in place to mitigate their effects in the health sector for efficient patient care. A key source of competitive advantage for an organisation is the quality and strength of its human resources. Hospitals, as modern organisations, must do everything possible to ensure that employee related stress that has an impact on employee productivity and others is eliminated. Thus, particular attention should be paid in the future to a public health policy that would enhance, as far as possible, a healthy work–life balance. Specifically, managers at the Health Ministry and Human resource departments in teaching hospitals in Nigeria are responsible for undertaking and implementing recommendations for risk assessments within their areas.

Organisational management practices should be developed to enable job control and provide employees with resources to mitigate the risk of burnout. Reducing workers’ workload when job resources are limited can pose major challenges to healthcare managers. However, when it is difficult to hire new employees due to economic and regulatory constraints, managers can provisionally reduce the workload by providing employees with a flexible schedule, such as a floating workforce. Healthcare managers may improve workers’ sense of control by promoting their autonomy in the workplace.

Appendix

Q2: Dependent variables of organisation commitment among medical professionals

	Weighted mean	Std. D
I am willing to put in a great deal of effort beyond what is normally expected to help this organisation be successful	4.3949	1.07829
I talk up this organisation to my friends as a great organisation to work for	3.7841	1.28723
I feel very little loyalty to this organisation	1.2784	1.74329
I would accept almost any type of job assignment to keep working for this organisation	2.5455	1.84844
I find that my values and the organisation’s values are similar	3.3722	1.49286
I am proud to tell others that I am part of this organisation	4.1648	1.12779
I could just as well be working for a different organisation as long as the type of work was similar	2.9205	1.76849
This organisation inspires the very best in me in the way of job performance	3.1960	1.50732
It would take very little change in my present circumstances to cause me to leave this organisation	2.4688	1.73916
I am extremely glad that I chose this organisation to work for over others I was considering at the time I joined	3.4233	1.55060
There’s not too much to be gained by sticking with this organisation indefinitely	1.8466	1.67410
Often I find it difficult to agree with this organisation’s policies on important matters relating to its employees	2.8381	1.80831
I really care about the fate of this organisation	4.4631	4.87201
For me this is the best of all possible organisations for which to work	2.4119	1.80161
Deciding to work for this organisation was a definite mistake on my part	1.0028	1.52939

Q3: Organisation related stressors among medical professionals

Stressors	Weighted Mean	Std. D
Unfair performance appraisal, promotion and increment policy of organisation	1.9631	1.13544
Uncertainty about the degree or area of the responsibility	1.2273	0.94856
Inadequate cooperation and conflict among inter-departmental and other departmental staffs	1.5767	1.02938
Poor communication channel to communicate Medical laboratory Scientist, doctors, Pharmacists and administrative personnel (encircle your chosen option)	1.7131	1.09391
Insufficient welfare facilities such as rest room, drinking water, insurance, transport and canteen facilities	2.0824	1.01920

Stressors	Weighted Mean	Std. D
Lack of recognition and autonomy	1.9176	1.08159
Lack of opportunity in decision making process of the department	1.8068	1.12832
Job insecurity and undervaluation by the department	1.3551	1.03584

Q4: Work burnout among medical professionals

Variables	Weighted Mean	Std. D
<i>Physical demands</i>		
My job required that I should be fast in my clerking of patients, laboratory investigations, dispensary, etc	4.6364	2.10782
My job enquires hard work	5.4176	1.38532
I am busy at work	5.4091	1.13365
My job requires intense work concentration	5.5824	1.22836
WFC: The demands of my work interfere with my home family life	3.2642	2.23952
FWC: My home life interferes with my responsibilities at work	1.8864	2.05720
I leave work late in order to complete my daily tasks	3.3778	2.06776
<i>Stress symptoms</i>		
Work fatigue	3.6023	1.89490
Lingering cold	1.7159	1.92863
Frequent headache	1.9091	1.87280
Gastrointestinal disturbances	1.6080	3.33756
Sleeplessness	1.8438	1.91887
Shortness of breath	0.8665	1.57321
Angry/Hostile	1.2386	1.50588
Easily irritated	1.1847	1.58069
Suspicious	0.7159	1.31352
Feeling victimised	1.1932	1.66997
Dizziness	1.1818	1.62982
Anxiety	1.1193	1.54236
Obsessive-compulsion	0.7244	1.37361
Depression	0.5710	1.15498
Alcoholism	0.2898	0.97904

Likert scale 0 = never, 1 = a few times a year or less, 2 = once a month, 3 = a few times a month, 4 = once a week, 5 = a few times a week or 6 = everyday

Q5: Work shift and working hour related stressors among medical professionals

Variables	Weighted Mean	Std. D
My establishment operates on a two shift-work system	1.3977	1.12511
Long and unsociable working hours	1.3580	0.97971
In equity in the work shift	1.1847	0.96225
Time pressure and dead lines	1.4801	0.93349

Variables	Weighted Mean	Std. D
Unable to leave the duty in time	1.5852	0.95100
Request of the seniors for change of shift	1.2216	0.94991
Unexpected changes in the work schedule	1.2813	0.92320
Seniors seek no consent when scheduling duty shift	1.3097	1.00035
Long term standing, and bending activities in front of the computer and microscope/ during ward rounds	1.6591	0.98578
Fear of committing mistakes in the investigation report/ clinical report/laboratory result/prescription	1.4432	0.90088
Fear of getting infected while handling infectious patients/infected patients' samples	1.7926	0.96352
Handling multiple work at the same time e.g. Outpatients, in patients, emergency and operation theatre patients, carrying out preparation of the report	1.8040	0.96591
Frequent interruption and hurry by nurses/ doctors/other healthcare professionals over phone for the investigation report/ laboratory results	1.6193	0.91051
Fear of needle stick injuries	1.6449	0.95573
Difficulty of coping with new technology (due to lack of in service training)	1.4233	0.83705
Stressed due to visiting outside (e.g. patient's and VIP's house) for blood collection/treatment	1.2017	1.25482

Q7: Patients and resources related stressors among medical professionals

Stressors	Weighted Mean	Std. D
Shortage of Laboratory Technicians/ supportive staff/Nurses/Pharmacists/Medical officers thereby increasing the work load	2.2131	0.91056
Inadequate equipment (e.g. computer, microscope, stethoscope) to meet over the volume of the patients	2.1989	0.90280
Poor working conditions of the equipment such as auto analyser, computer and printer during emergency situations	2.0653	0.93293
Encountering urgency and patient less patients thereby developing fear of committing mistakes	1.6932	0.85546
Uncooperative patients for blood collection/ body assessment/prescription form submission	1.7869	0.94435
Inadequate facilities in the department, e.g. chair, rest room, waiting hall for the patients	2.1364	0.92674
Inadequate supply of resources in time in accordance with the volume of the patients	2.0966	0.84178
Patients demand credit facility for hospital cards/laboratory investigation/drugs	1.7045	0.91408

Q8: Job performance among medical professionals

Duties and responsibilities	Weighted mean	Std. D
Adheres to all good laboratory of good clinical guidelines stipulated by the MDCN, MLSCN, Nursing Council, or other regulatory agencies when performing laboratory test/tasks/during patient care/handling	3.2955	1.85306
Performs daily, weekly and monthly maintenance on all equipment according to manufactures guidelines including temp readings and light departmental cleaning	2.9034	1.78847
Completes competency assignments yearly as required by regulatory standards	3.1080	1.86732
Works with other staff to complete Proficiency Testing samples quarterly	2.9659	1.81289
Helps with review of policy and procedure manual for the department	2.7756	1.84072
Maintains Clinical/Laboratory's Standard Work for filing and record keeping of charts, graphs, patient results	3.0085	1.85437
Restocks work areas, including ER and Floor including light cleaning when needed	2.7784	1.81848
Performs daily tasks without supervision (i.e. sample collection, processing, testing and reporting of ALL normal/critical results	3.1506	1.88941
Helps maintain the weekly drug-stock/ laboratory inventory	2.9063	1.78623
Helps with the completion of 1 Quality Control Process/Reports for the department	2.8324	1.77118
Participates in at least 1 community awareness/service event	2.6903	1.77289
Attends 75% of all departmental meetings	3.2017	1.92204
Presents at least 1 educational case study or informational report to the rest of the department to increase knowledge and improve job performance	2.7017	1.73754
Attend a Board, Hospital Committee or other Department Staff meeting annually	2.9517	2.04381
Assists in training of new personnel and assists in developing students skills through clinical rotations	3.3239	1.85598

Q9: Presenteeism among medical professionals

Work experience	Weighted mean	Std. D
Because of my (health problem)*, the stresses of my job were much harder to handle	0.5483	0.90453
Despite having my (health problem)*, I was able to finish hard tasks in my work	1.4688	1.34149
My (health problem)* distracted me from taking pleasure in my work	0.5369	0.90191
I felt hopeless about finishing certain work tasks, due to my (health problem)*	0.5142	0.89304
At work, I was able to focus on achieving my goals despite my (health problem)*	1.8608	1.29229
Despite having my (health problem)*, I felt energetic enough to complete all my work	1.6875	1.28505

Q10: Lam Employment Absence and Productivity Scale among medical professionals

Work productivity and activity impairment (WPAI)	Weighted Mean	Std. D
During the past seven days, how many percent of your work hours did you miss from work because of your child's health problems? Include hours you missed on sick days, times you went in late, left early, etc., because of your child's or relative health pro	0.2756	0.64554
During the past seven days, how many percent of your work hours did you miss from work because of any other reason, such as vacation, holidays, time off	0.3324	0.61350
During the past seven days, how many percent of your work hours did you actually work?	2.9716	1.39567
During the past seven days, how much did your child's or relative health problems affect your productivity while you were working?	0.1705	0.51133
During the past seven days, how much did your child's or relative health problems affect your ability to do your regular daily activities, other than work at a job?	0.1903	0.59973
<i>Employment Absence and Productivity Scale</i>		
Low energy or motivation	1.1023	1.24301
Poor concentration or memory	0.9233	1.07673
Anxiety or irritability	0.9574	1.09695
Getting less work done	0.9460	1.08075
Doing poor quality work	0.7736	0.88590
Making more mistakes	0.8052	0.91405
Having trouble getting along with people, or avoiding them	0.8153	0.85234

Q11a: Family commitment among medical professionals

Family commitment variables	Weighted Mean	Std. D
Family needs make me take my work less seriously	0.7955	1.18787
Family needs encourage extra source of income during work hours	0.9261	1.14240
I leave work earlier than the closing hours to attend to my family needs	0.7472	0.81036
I come to work late due to school-runs/ family needs	0.8551	0.89889
Family issues affects my concentration/ focus at work	0.7642	0.81200
Work prevents me from spending quality time with my family	1.3040	1.40864

Q11b: Specific family commitment among medical professionals

Family commitment issues	Weighted mean	Std. D
My work prevents me spending sufficient quality time with my family	2.0430	2.44852

Family commitment issues	Weighted mean	Std. D
By the time I leave my work place, there is no time left at the end of the day to do the things I would like at home (e.g., chores and leisure activities)	2.0057	2.40014
My family misses out because of my work commitments	1.7585	2.25603
My work has a negative impact on my family life	1.3324	1.77680
Working often makes me irritable or short tempered at home	1.2017	1.56955
My work performance suffers because of my personal and family commitment	0.9943	1.34608
Family related concerns or responsibilities often distract me at work	1.0057	1.26444
If I did not have a family I would be a better employee	0.9801	1.48195
My family has a negative impact on my day to day work duties	1.0029	1.53698
It is difficult to concentrate at work because I am so exhausted by family responsibility	0.9885	1.49516
I place high priority on work related issues than that of my family	1.5085	2.02687
Overall, I am satisfied with my work–life balance	2.2869	2.61053

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