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# Understanding well-being and learning of Nigerian nurses: a job demand control support model approach

YVONNE VAN DOORN MSc<sup>1</sup>, JORIS VAN RUYSEVELDT MSc, PhD<sup>2</sup>, KAREN VAN DAM MSc, PhD<sup>3</sup>, WILHELM MISTIAEN MSc, PhD<sup>4</sup> and IRINA NIKOLOVA MSc, PhD<sup>5</sup>

<sup>1</sup>Doctoral Candidate, <sup>2</sup>Associate Professor, <sup>3</sup>Full Professor, Faculty of Psychology and Educational Sciences at the Open University of the Netherlands, Heerlen, the Netherlands, <sup>4</sup>Lecturer, Faculty of Medicine and Health Sciences, of the University of Antwerp, Antwerp, Belgium and <sup>5</sup>Lecturer, East Anglia University, Norwich, UK

## Correspondence

Joris van Ruyseveldt  
Faculty of Psychology and  
Educational Sciences  
Open University of the  
Netherlands  
Valkenburgerweg 177  
6419 AT Heerlen  
the Netherlands  
E-mail: [joris.vanruyseveldt@ou.nl](mailto:joris.vanruyseveldt@ou.nl)

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## Understanding well-being and learning of Nigerian nurses: a job demand control support model approach

**Aim** This study investigated whether Nigerian nurses' emotional exhaustion and active learning were predicted by job demands, control and social support.

**Background** Limited research has been conducted concerning nurses' work stress in developing countries, such as Nigeria. Accordingly, it is not clear whether work interventions for improving nurses' well-being in these countries can be based on work stress models that are developed in Western countries, such as the job demand control support model, as well as on empirical findings of job demand control support research.

**Method** Nurses from Nurses Across the Borders Nigeria were invited to complete an online questionnaire containing validated scales; 210 questionnaires were fully completed and analysed. Multiple regression analysis was used to test the hypotheses.

**Results** Emotional exhaustion was higher for nurses who experienced high demands and low supervisor support. Active learning occurred when nurses worked under conditions of high control and high supervisor support.

**Conclusion** The findings suggest that the job demand control support model is applicable in a Nigerian nursing situation; the model indicates which occupational stressors contribute to poor well-being in Nigerian nurses and which work characteristics may boost nurses' active learning.

**Implications for nursing management** Job (re)design interventions can enhance nurses' well-being and learning by guarding nurses' job demands, and stimulating job control and supervisor support.

**Keywords:** active learning, emotional exhaustion, job demand control support-model, Nigeria, nurses

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## Introduction

Nursing is considered to be a stressful profession, as 'the nature and organisation of the job makes nursing inherently difficult' (Pisanti 2012, p. 467). Despite

increased globalisation, nurses' well-being and professional development are extensively researched in Western countries, but scarcely in developing countries. Research in Western societies indicates that well-being not only stimulates job performance and motivation

(Awosusi & Jegede 2011), but also has an important effect on reducing sick leave and turnover (Josephson *et al.* 2008). Regrettably, only limited research has been conducted concerning nurses' work stress and professional development outside Western societies. As a consequence, developing countries have no option other than to base their human resource interventions on Western theories and research findings. This raises the question of whether the current foundation for interventions qualifies as evidence-based, since their validity is not firmly established in developing societies. Especially, high potential developing countries such as Nigeria (Sanusi 2010, Mazen 2011) are in need of solid, evidence-based interventions.

Hence, the aim of this study was to examine which job characteristics influence emotional exhaustion and individual development among Nigerian nurses. More specifically, we investigated whether the job demand control support (JDSC) model (Karasek 1979, 1998) can be applied to the work situation of Nigerian nurses. The JDSC model has received extensive empirical evidence when applied to Western work situations, but has hardly been tested in a nursing context in developing countries (Hausser *et al.* 2010). Moreover, most studies, Western and non-Western alike, have used the JDSC model to predict negative outcomes (i.e. poor well-being) (Hausser *et al.* 2010). In contrast, this study also tackles potential positive outcomes of work, specifically how demands, control and support promote active learning at work and as such contribute to personal and professional development (Van Ruyseveldt & Van Dijke 2011).

### The job demands control support (JDSC) model

The JDSC model explains employee well-being and active learning on the basis of three job characteristics: job demands, job control and social support (Karasek 1979, 1998). Job demands are defined as psychological (not physical) stress factors present in the work environment, such as workload, time pressure and role conflict. Job control relates to the autonomy that workers have to make job-related decisions and to control their work activities (Karasek 1979). Social support has been defined as the overall level of helpful social interaction available on the job from co-workers and supervisors (Karasek 1998), that makes people feel valued and enmeshed in a network of communication and mutual obligation (De Witte *et al.* 2007).

The JDSC model proposes two different processes to occur as a result of these job characteristics.

First, the model predicts that employee well-being is threatened and job strain occurs when demands are high and when control and social support are low. This has been called the strain hypothesis. Extent evidence has supported the strain hypothesis, showing that demands, control and support each affect employee well-being in general, and emotional exhaustion specifically (Hausser *et al.* 2010, Taris *et al.* 2010). Emotional exhaustion refers to the emotional fatigue and weariness that result from the gradual depletion over time of individuals' energetic resources that occurs at work (Maslach *et al.* 2001). As one of the core dimensions of burnout, emotional exhaustion is used widely as a negative well-being indicator. Besides the main effects, the model also predicts buffering (or interactive) effects such that the negative effect of high demands might be mitigated by high control or high social support. Research, however, does not generally support these buffer effects (Taris *et al.* 2003, Hausser *et al.* 2010).

The strain hypothesis has also been investigated in nursing/health-care settings (Hausser *et al.* 2010), showing general support for the impact of high job demands, low control, and low support for health-care workers' emotional exhaustion. For instance, Pisanti *et al.* (2011) found in two samples (Italian and Dutch nurses) that demands, control and social supervisor support were consistent predictors of occupational and general strain. One year later, Pisanti (2012) demonstrated that demand, control and support predicted emotional exhaustion among Italian nurses.

Studies in non-Western settings similarly support the JDSC model. In a Malaysian study among lecturers, Huda *et al.* (2004) concluded that high demands and lack of control were associated with high job dissatisfaction. Shimazu *et al.* (2004), however, found no support for the direct effects of demands and control on job satisfaction among the employees of a Japanese manufacturing plant. In a more recent study among Chinese workers in small- and medium-sized enterprises, Zeng *et al.* (2014) concluded that higher demands and lower job autonomy were related to lowered psychological well-being.

Based on this theoretical and empirical evidence, and in line with the strain hypothesis, we expect that Nigerian nurses will experience more emotional exhaustion when they face high demands, low control and low support.

**Hypothesis 1:** Emotional exhaustion is positively predicted by job demands (H1a), and negatively predicted by job control (H1b) and social support (H1c).

Second, the JDGS model predicts that active learning occurs when job demands, job control and social support are high; which has been labelled the active learning hypothesis. In the literature, active learning has been defined in different ways, including enhanced learning processes, and increased learning outcomes (Taris *et al.* 2010). In our study, we focus on the outcomes of active learning, that is the acquisition of new, work related competencies that is the acquisition of new knowledge and new patterns of behaviours and skills (Van Ruyseveldt & Taverniers 2010, Nikolova *et al.* 2014). According to the JDGS model, an active job (i.e. the combination of high demands and high control) increases active learning, work motivation and job performance (Karasek 1998). Research has confirmed these assumptions (Taris *et al.* 2003), showing that active learning is indeed enhanced when demands, control and support are high, while learning is impeded when demands, control and support are low (De Witte *et al.* 2007, Wielenga-Meijer *et al.* 2010). The active learning hypothesis also predicts interaction effects in which control as well as support are expected to moderate the relationship between demands and active learning; these effects, however, are seldom found (Taris & Kompier 2005). It should be noted that the active learning hypothesis has received considerably less research attention than the strain hypothesis (Taris *et al.* 2010), also in studies that are conducted in non-Western settings.

Based on this theoretical and empirical evidence, we expect that Nigerian nurses will show more active learning when they face high demands, high control and high social support.

Hypothesis 2: Active learning is positively predicted by job demands (H2a), job control (H2b) and social support (H2c).

## Methods

### Sample and procedure

This study was conducted among nurses in Nigeria. Nigeria is located in Western Africa and has an emergent economy partly owing to its oil reserves. Nigeria has been undergoing an explosive population growth (60% from 1990 to 2008) and is the most populated country in Africa, with over 160 million people. Despite economic growth and improvements in health and health care, general living conditions in Nigeria are still poor (Sanusi 2010, Mazen 2011). There are over 250 ethnic groups in Nigeria, of which the three largest are the Yoruba, Igbo and Hausa.

For this study, we approached Nurses Across the Borders (NAB) Nigeria, an international charitable non-government, not-for-profit health organisation with its headquarters in Lagos. Upon agreement, all NAB nurses with e-mail addresses (1655) were invited to complete an online questionnaire; 363 were returned (214 fully completed; overall-response 22%, net-response 13%). Age ranged from 20 to 64 years (mean = 31; SD = 8.5); 74% of the respondents were female. Only respondents with an appropriate nursing education level, that is university (74%) and higher education (23%), were included in the analyses. Respondents originated from different tribes: Yoruba tribe (47%), Igbo tribe (29%), Hausa tribe (4%) and other tribes (20%).

### Survey instruments

An online questionnaire was used to collect the data. All items were presented in English, because this is the primary language that is taught in Nigerian schools, and the only language that is well understood by nurses from different tribes.

Karasek *et al.*'s (1998) job content questionnaire (JCQ), a widely validated and reliable measure, was used to measure demands, control and social support. Demand was assessed with five items (Cronbach's  $\alpha = 0.70$ ). Control was measured with nine items; however, owing to low internal reliability, two items had to be deleted. Cronbach's  $\alpha$  of the seven-item scale was 0.73. For social support two indicators, with each four items, were used referring to both supervisor support ( $\alpha = 0.87$ ) and colleague support ( $\alpha = 0.71$ ), respectively. These measures have shown validity and reliability in previous studies (Van der Heijden *et al.* 2009, Van Dam *et al.* 2013). Emotional exhaustion was assessed with the five-item emotional exhaustion scale ( $\alpha = 0.86$ ) of the Maslach burnout inventory (Maslach *et al.* 1996). Active learning was assessed with a four-item scale ( $\alpha = 0.92$ ) that measures learning outcomes as the extent to which nurses have acquired new work related competences in the past 6 months (Van Ruyseveldt & Taverniers 2010). In previous studies (e.g. Nikolova *et al.* 2014), this scale has shown good validity and reliability. Finally, several demographics were included: age, gender, education and tribe.

### Data analyses

Descriptive statistics (mean, standard deviation and correlations) were calculated. Prior to testing the

hypotheses, we investigated a possible impact of tribe by conducting an ANOVA. Next, the hypotheses were tested using hierarchical multiple regression analyses (SPSS, version 22, IBM SPSS Statistics for Windows, Armonk, NY, USA), one for each of the dependent variables, and following the procedure of Aiken and West (1991). We entered the independent/theoretical variables all together in the regression analysis because this is in line with the JDSC model – the model predicts a main effect of one of the independent variables in addition to the main effects of the other independent variables (= additive effects; see Hausser *et al.* 2010). In a first step of the regression analysis, we entered the demographics to rule out alternative explanations. In a second step, we included job demands, control, social supervisor support and social colleague support. In a third step, as an exploration, interaction effects were examined. The independent variables were centralised and multiplied; the resulting three interaction terms (demands × control, demands × supervisor support and demands × colleague support) were added to the analyses.

## Ethical considerations

Participation in this study was entirely voluntary with personal information collected during the course of the study kept strictly confidential. This study was granted ethics approval by the Open University Ethical research board (cETO) (number U2016/02426/HVM).

## Results

Table 1 presents the mean, standard deviation and correlations of the study variables. Emotional exhaustion as reported by the Nigerian NAB nurses was medium to high, and related positively to demands and negatively to social supervisor and colleague support. Active learning was positively associated with control, social supervisor and colleague support. The

ANOVA showed no significant differences between tribes in either exhaustion ( $F(3, 205) = 1.97, P = 0.12$ ) or active learning ( $F(3, 205) = 1.15, P = 0.33$ ).

The outcomes of the multiple regression analyses are presented in Table 2. The results of step 1 of the regression analysis revealed significant relationships of gender ( $\beta = 0.19, P < 0.01$ ) and age ( $\beta = 0.16, P < 0.05$ ) with emotional exhaustion, indicating that exhaustion was somewhat higher among female nurses and older nurses. Age, gender and education showed no significant relationship with active learning.

The strain hypothesis holds that emotional exhaustion is positively predicted by demands, and negatively predicted by control and support. As expected,

**Table 2**

Multiple regression coefficients ( $\beta$ ) for emotional exhaustion and active learning

	Emotional exhaustion	Active learning
Step 1		
Age	0.16*	-0.01
Gender	0.19**	0.01
Education	0.03	0.02
$R^2$ adjusted	0.04*	0.01
Step 2		
Age	0.18**	-0.03
Gender	0.22***	-0.01
Education	0.01	0.02
Demands	0.21**	-0.04
Control	0.02	0.24***
Supervisor support	-0.30***	0.24*
Colleague support	-0.04	0.02
$R^2$ adjusted	0.22***	0.10***
Step 3		
Age	0.18**	-0.03
Gender	0.22***	-0.01
Education	0.01	-0.01
Demands	0.19**	-0.05
Control	0.03	0.26***
Supervisor support	-0.34***	0.17*
Colleague support	-0.05	0.01
Demands × Control	-0.09	-0.09
Demands × Supervisor support	0.08	0.03
Demands × Colleague support	-0.04	0.02
$R^2$ adjusted	0.22***	0.09***

\* $P < 0.05$ , \*\* $P < 0.01$ , \*\*\* $P < 0.001$ .

	Mean	SD	1	2	3	4	5
1 Emotional exhaustion	4.78	1.56	–				
2 Active learning	3.39	1.14	0.17*	–			
3 Demands	3.02	0.51	0.34**	-0.08	–		
4 Control	2.99	0.53	-0.04	0.28***	0.13	–	
5 Supervisor support	2.53	0.72	-0.36***	0.26***	-0.36***	0.22**	–
6 Colleague support	2.88	0.48	-0.18*	0.18**	-0.16*	-0.22**	0.48

\* $P < 0.05$ , \*\* $P < 0.01$ , \*\*\* $P < 0.001$ .

**Table 1**  
Means, standard deviations and intercorrelations of the study variables

demands were positively related to emotional exhaustion ( $\beta = 0.21, P < 0.01$ ). The predicted negative relationship between control and emotional exhaustion was not found ( $\beta = 0.02, \text{ns}$ ). Concerning social support, emotional exhaustion was negatively related to social supervisor support ( $\beta = -0.30, P < 0.001$ ), but unrelated to social colleague support ( $\beta = -0.04, \text{ns}$ ).

The active learning hypothesis states that active learning is positively predicted by demands, control and support. In step 2 of the regression analyses, the predicted positive association between demands and active learning was not found ( $\beta = -0.04, \text{ns}$ ). A positive relationship existed between control and active learning ( $\beta = 0.24, P < 0.01$ ). Concerning social support, there was a significant, positive relationship between social supervisor support and active learning ( $\beta = 0.19, P < 0.05$ ), but social colleague support was unrelated to active learning ( $\beta = 0.02, \text{ns}$ ).

As an exploration, in a third step, the interactions of demands with control, supervisor support and colleague support were added to the regression equation. However, none of the interaction effects were significant, implying that there were no buffering effects in this study.

## Discussion

This study investigated whether Nigerian nurses' emotional exhaustion and active learning were predicted by job demands, control and social support. Concurrently, we tested the core assumptions of the JDSC model, regarding the strain hypothesis and the active learning hypothesis (Karasek 1979, 1998), among Nigerian nurses. Concerning the strain hypothesis, our findings showed that a more demanding work situation increases emotional exhaustion. This finding has been found in many studies among Western and non-Western populations (Taris *et al.* 2010, Zeng *et al.* 2014). Apparently, Nigerian nurses, like nurses in other parts of the world (see also Hausser *et al.* 2010), are at risk of emotionally exhausting themselves when work demands are too high. Job demands such as workload, time pressure, physical demands and emotional demands have all been found to affect nurses' well-being (e.g. Van Dam *et al.* 2013).

The prediction concerning the positive impact of control on nurses' well-being was not supported. Other studies among nurses also failed to find a significant effect of control on nurses' strain (Proost *et al.* 2004, Escribà-Agüir & Pérez-Hoyos 2007, Pisanti *et al.* 2011). For example, Escribà-Agüir and Pérez-Hoyos (2007) found a significant relationship between

control and strain for doctors, but not for nurses. Investigating two different aspects of control, Pisanti *et al.* (2011) noticed that nurses' emotional exhaustion was significantly predicted by skill discretion, but not by decision latitude. This indicates that different aspects of control might be exerting different or even opposing effects. On the one hand, a lack of freedom in, for instance, the range of authorised activities might restrict nurses solving unexpected problems in an adequate manner, thus increasing nurses' distress. On the other hand, the presence of clear treatment guidelines might be highly appreciated and therefore may reduce work stress even though they restrict nurses' autonomy and decision latitude. It is possible that these effects have cancelled each other out in this study. More research is needed to investigate the impact of different aspects of control in nurses' work situation.

The findings additionally showed the importance of supervisor support for nurses' emotional exhaustion. Supervisors are generally considered a crucial source of support since they can provide nurses with direct help, feedback, information and emotional support (Van der Heijden *et al.* 2009). Previous studies have similarly found an impact of supervisor support on nurses' well-being (Proost *et al.* 2004, Pisanti *et al.* 2011). Research also indicates that the quality of head nurses' leadership is an important predictor of nurses' well-being and job satisfaction (e.g. Van der Heijden *et al.* 2009).

The findings did not support our prediction concerning the role of colleague support. Despite a significant correlation, colleague support did not show a unique contribution to the prediction of emotional exhaustion. The findings of other studies are mixed. Whereas some studies observed significant effects of both supervisor and colleague support (e.g. Van der Heijden *et al.* 2009), other studies did not (e.g. Zeng *et al.* 2014). For example, in a study among Italian and Dutch nurses (Pisanti *et al.* 2011), supervisor support but not colleague support was related to nurses' well-being. In Nigeria, the relationships between supervisors and subordinates are quite hierarchical; accordingly, supervisors appear more important for nurses' work climate and work processes than colleague nurses. This dominance of supervisors over colleagues might explain why supervisor support did, and colleague support did not significantly relate to nurses' emotional exhaustion.

Finally, it should be noted that the level of exhaustion among Nigerian nurses was high compared with nurses in, for example, Germany (Kowalski *et al.*

2010) and Italy (Renzi *et al.* 2012), despite the fact that the population in the current study was relatively young. A recent study among Nigerian nurses also found elevated levels of emotional exhaustion (Lasebikan & Oyetunde 2012). One possible explanation for this situation might be the fact that the relationships between doctors and nurses in Nigeria is often poor, and has been found to increase emotional exhaustion (Gandi *et al.* 2011). Another explanatory factor entails the staffing ratio. In the United States and Europe, the staffing ratio varies between 5 and 13 patients per nurse (Akande & Kuranga 2013). The ratio at Nurses Across the Borders is at least 20 patients to 1 nurse (NAB personal communication 2013). Moreover, female nurses reported significantly more exhaustion than their male colleagues. Previous research has similarly revealed that emotional exhaustion prevails more among females (Dickinson-Bannack *et al.* 2007, Losa-Iglesias *et al.* 2010). A lack of adequate childcare provisions and an overload of household duties, might serve as important factors outside the workplace that would explain the high level of emotional exhaustion among female Nigerian nurses.

Regarding the active learning hypothesis, our study underlined the pivotal role of job control in advancing active development among Nigerian nurses. As such, our findings supported the results of previous research (Holman & Wall 2002, Van Ruysseveldt & Van Dijke 2011). Jobs with high job control are thought to possess learning potential because they offer more challenge, and provide employees with more opportunities for exploration and feedback seeking (Taris *et al.* 2003). Since we focused on learning outcomes, our findings indicate that jobs with high control actually stimulate learning and increase nurses' competencies.

Contrary to the assumptions of the JDSC model, job demands did not contribute to active learning. In the literature, findings are mixed (Holman & Wall 2002). Reviewing 18 studies, Taris and Kompier (2005) found no clear-cut empirical indications that workload stimulates active learning; while some studies revealed positive effects of workload on learning-related outcomes (e.g. Rau 2006), others found no effects (e.g. Morrison *et al.* 2005) and some studies even showed negative effects (e.g. Parker & Sprigg 1999). A possible explanation for these mixed findings is that this relationship is non-linear in nature, implying that at a certain (too) high level of workload, the learning effect of job demands decreases (Van Ruysseveldt & Van Dijke 2011). As Karasek (1998) noted, high, but not overwhelmingly high job demands will stimulate active learning.

Social support, in particular from the supervisor, appeared beneficial for active learning among Nigerian nurses. As previous research has shown, supervisors are important forces in supporting and stimulating employee development (Bezuijen *et al.* 2010). Moreover, previous research in the field of workplace learning has extensively demonstrated the importance of social support for workplace learning (Coetzer 2007, Choi & Jacobs 2011). Still, our findings did not confirm the expected impact of colleague support on active learning. Again, it is possible that the dominance of the Nigerian supervisors might have overruled the influence of nurses' colleague support. More research is needed to better understand the impact of different support factors for Nigerian nurses' active development.

Overall, the findings suggest that the JDSC model is applicable in a Nigerian nursing situation; the model reveals important occupational stressors (high demands and lack of supervisor support) that contribute to poor well-being in Nigerian nurses and also points to work characteristics (high control and high supervisor support) that boost nurses' active learning. The similarity of Nigerian nurses to more Western samples may allow for similar applicability of potential solutions to work issues. As such, our study provides a solid starting point for developing and implementing evidence-based interventions targeted at well-being and personal and professional development. At the same time, it should be noted that the predictors in our research model explained almost a quarter of variance in emotional exhaustion, but only one-tenth of the variance in active learning. This indicates that other factors that are unique for the Nigerian nursing situation might also be involved in nurses' well-being and professional development. Future studies of the Nigerian nursing context might therefore include other work characteristics, such as development opportunities, physical overload, poor working conditions with regard to safety and health, work-home interference, and relationships with doctors and supervisors (Proost *et al.* 2004, Bezuijen *et al.* 2010).

## **Study limitations and recommendations**

Several limitations warrant our attention. First, the cross-sectional design of our study does not allow conclusions to be drawn about causality. Although, cross sectional and longitudinal studies of the assumptions of the JDSC model have shown similar outcomes (Hausser *et al.* 2010), future studies should use longitudinal designs when investigating the Nigerian

nursing context. Second, self-reported data were used, allowing for common method variance to occur. Future studies might expand data collection through the inclusion of other-reported data such as observations by colleagues or supervisors (or other significant others) and the use of administrative records (e.g. sickness absence records or individual nurse staffing ratio). Finally, the data were provided by only 13% of the nurses working in just one Nigerian nursing organisation, which limits the generalisability of our study results. It is recommended that future research includes a larger range of nursing staff from various health-care organisations across Nigeria.

## Implications for nursing management

Our study has several practical implications. As levels of emotional exhaustion among Nigerian nurses proved to be high, especially among female nurses, the well-being of Nigerian nurses should be given a prominent place on political and organisational agendas. In order to limit nurses' emotional exhaustion and to promote well-being, interventions in job demands are necessary (Hausser *et al.* 2010). Interventions might include adapting individual nurses' job demands to the capacities of the nurse, and developing a more effective registration and administration of the actual nurse staffing ratio. These interventions might eventually lead to a better management of nurses' work load (Pisanti 2012).

Our results underpin the pivotal role of job control in achieving and maintaining high levels of active learning (Van Ruyseveldt & Van Dijke 2011). Advancing job control might require job redesign policies empowering nurses to deal autonomously and effectively with problems at work and give them space for manoeuvre, exploration and experimentation with more effective working methods. Opportunities for continuous learning in the workplace are essential for sustainable personal growth and development of Nigerian nurses, but at the same time will largely benefit Nigerian organisations and society at large. Active learning at work contributes, among other factors, to organisational performance, economic growth and innovativeness (Holman & Wall 2002, Taris & Kompier 2005).

Finally, our research underlines the important role of supervisor support for nurses' well-being as well as their personal growth and development. Health-care organisations might want to invest in enhancing supervisory support and quality (Van der Heijden *et al.* 2009), for instance through leadership development and training (Bezuijen *et al.* 2010). Management

practices should be promoted that aim for a more supportive and participative work environment for nurses, that is compatible with the Nigerian culture and its subcultures.

## Ethical approval

Ethical approval was obtained from Open University Ethical research board (cETO): number U2016/02426/HVM.

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