A Behavioural Intervention To Reduce Burnout Among Staff Of An Urban Tertiary Hospital In North Central Nigeria

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Abstract

Background: Inadequate human resources for health in West Africa is worsened by burnout, identified by WHO as one of the occupational harms that prompt health workers to leave their workplace. Burnout is defined as physical, emotional and mental exhaustion that results from long-term, emotionally demanding work situations.

Objectives: This study compared BREATHE, a structured combination (organizational and individual) approach, with standard care in reducing burnout among health workers in an urban hospital.

Methods: An initial survey was done to determine the levels of burnout among hospital staff using the OLBI questionnaire. From the 154 hospital staff who scored in the burnout range using the OLBI, 64 were randomly allocated to either intervention or control groups. A single blinded randomized controlled trial was carried out comparing BREATHE intervention and standard care. Burnout scores were measured before the intervention and six weeks after the study. Analysis was done using means, rates, graphs, tables, chi-square and student-t tests with Epi Info version 6 and Microsoft Excel software.

Results: A total of 60 participants completed the study, 29 in the intervention and 31 in the control group. There was a four-fold decrease in Burnout score of the intervention group compared to the control group but the difference was not statistically significant (0.14 vs 0.03, p=0.18).

Conclusions: The BREATHE intervention was not significantly different from standard care in reducing burnout among urban Hospital staff.

INTRODUCTION

Healthcare delivery in sub-Saharan Africa is a great challenge. The high infant mortality, increased risk of dying during pregnancy, and high mortality from HIV/AIDS in the region constitute a significant burden.1 This is worsened by a high proportion of urban slum dwellers which greatly increases the incidence of diseases related to poor access to sanitation services, unsafe drinking water, outdoor pollution and droughts.2 All these factors increase the burden on already poorly funded healthcare services in the region.

Years of neglect and poor investment has led to a crisis in human resources for health in developing countries.3 Africa is the worst hit in this global crisis because, of the 57 countries that reported shortages of adequately trained and supported health personnel, 36 are in Africa.3,4 In addition, Africa has about 2.3 health workers for every 1000

individuals compared to 18.9 healthcare workers in Europe and 24.8 healthcare workers in the Americas per 1000 individuals.3 Over 5000 sub-Saharan African (SSA) - trained physicians have emigrated and are practicing in the USA, a number representing about 6% of the total number of physicians in SSA.5 This unregulated large-scale migration is having a devastating impact on the health systems of developing countries, many of which failed to meet the health targets of the Millennium Development Goals (MDGs).6

The "African Brain Drain", as some have referred to it,5 has placed the remaining health workers under increasing exposure from psychosocial harms like work-related stress and burnout thereby reducing their productivity and effectiveness.4 Burnout has been defined as a state of physical, emotional and mental exhaustion that results from

long-term involvement in work situations that are emotionally demanding.7 Burnout has been identified by the World Health Organization (WHO) as one of the occupational harms that may prompt health workers to leave their workplace and subsequently worsen the picture of inadequate human resources for health.3 Practical experience of the authors working in the staff clinic of an urban hospital in West Africa, seemed to suggest a high prevalence of conditions related to burnout. This, in addition to inadequate intervention strategies (e.g. granting sick leave), further worsened the mental health and productivity of an already overburdened workforce.

Burnout is a significant problem with major impact on workers physical and mental well-being, but can be ameliorated with the appropriate interventions.

This study hopes to show that primary care behavioural interventions have potential to reduce burnout, by determining whether the level of burnout among health workers in an urban hospital was significantly reduced when a behavioural intervention was compared with standard care.

MATERIAL AND METHODS

The study design was a single blind randomized controlled behavioural intervention conducted at an urban, faith-based, tertiary hospital located in North-central Nigeria.

The Staff Clinic, from which the study was conducted runs daily out-patient consultations for members of staff and their immediate family members.

Unpublished administrative records in March 2012 revealed that the total workforce of the hospital was 364. Clinic records showed about 3-7 staff consultations at the clinic per day. The study population was the proportion of staff members who were deemed to have burnout due to their high OLBI score. Those with low OLBI scores were excluded from the study. The study questionnaire consisted of 1. Demographic information and 2. The Oldenburg Burnout Inventory (OLBI) which consisted of a 16-item instrument based on two equally weighted core dimensions of burnout, namely, exhaustion and disengagement. The 16 items with its two subscales have an equal number of positively and negatively framed items to reduce the likelihood of having artificial factor solutions. The mean of all 16 items gives the burnout score, while the means of the exhaustion and disengagement subscales gives the exhaustion and disengagement scores respectively. The

OLBI, since introduction, has been validated against the more popular Maslach Burnout Inventory, and has the added advantages of positively and negatively worded questions, and is freely available.8

A total of 135 hospital staff with high burnout score (OLBI >2) constituted the study population. Previous publications indicated that based on the Job Demands-Resources model, burnout syndrome is a state where exhaustion and disengagement are simultaneously present, hence burnout is better conceptualised as a dichotomous rather than continuous trait.9 The OLBI scores for this study were therefore dichotomised.

Various studies had shown the prevalence of burnout among hospital workers to be between 39 to 75%.10,11 Using the formula to determine the difference between two sample means,12 assuming the smaller of two variances (standard deviation of the exhaustion subscale of the OLBI set at 0.58 versus the disengagement subscale with standard deviation of 0.68) based on the study by Demerouti et al,13 a minimum significant change in mean scores between the two groups set at 0.30, corresponding to an effect size of 10%, ☐ set at 0.05 and ☐ set at 0.80, the sample size was determined to be 32 in each group including 10% attrition. The total for both groups was 64 hospital staff.

The two groups were randomly sampled from the high burnout population by simple random sampling, and allocated to two study arms. Participants were included if they were full time employees throughout the duration of the study, with an OLBI score of >2, and gave consent. They were excluded if they had a diagnosis of a major medical or psychiatric illness during the course of the study or prior to it, or were due for leave during the period of the study.

The entire study population was numbered serially with each number written on a piece of paper, sealed, dropped in a ballot box and shuffled. A blinded investigator randomly drew numbers with alternate assignment to the intervention group and the control group until the sample size was completed. This technique is limited by the occasional sample selection bias which must be considered in view of the response rate for the initial survey phase.

One group received usual care, which was defined as a walk-in consultation with the staff physician on duty at the staff clinic i.e. history, examination, investigation, treatments and often sick leave for a few days. The second group received BREATHE (an acronym for Burnout Reduction, Enhanced

Awareness, Tools, Handouts and Education), a structured behavioural intervention to reduce burnout.14 This consisted of experiential exercises and skill building in contemplative acts like mindfulness (meditation and prayer), social life skills, physical assessments and other self-care activities; using a toolkit to encourage participation in the burnout workshop, handouts as take home memory aids and education i.e. information on burnout presented in a lecture format. The study was a single-blinded design in which the participants were not aware of treatment group but the researchers were aware. This had the advantage of reducing potentially biased responses from the participants, but is not as good as a double-blinded design which would have been technically difficult to design.

Using SPSS version 21, rates and means were calculated and comparisons made between various variables. Multinomial regression and Kruskal wallis test were carried out to determine any multivariate relationships.

Ethical clearance for research on human subjects was obtained from the Hospital Health Research Ethics Committee (HREC). Informed consent was obtained from each participant by having them read and endorse the consent form only if they understood the consent information and free consented to participate in the study. Permission was sought from each participant to publish the results of the study in a reputable journal. Confidentiality and anonymization of data was ensured for the study.

RESULTS

A total of 60 participants completed the study, 29 in the intervention and 31 in the control group. Characteristics of the participants had been earlier published indicating they were mostly young with mean age of 40.2±10.1 years, 57.8% were female, 78.6% were married, 45.6% had served <5 years in the organization and 56.5% were Health Management Support workers.15

Pre-intervention baseline data indicated the control group had significantly more married staff (p=0.04), Health service providers (p=0.002), older (mean age 44.4years vs 36.8years, p=0.003), and had served longer (mean duration 14.4 vs 9.2, p= 0.03). The pre-intervention distribution of burnout scores for the intervention and control groups however showed that the intervention group had a higher mean burnout score {2.56±0.32 vs 2.42±0.23, p=0.0458). Other details are in Table 1.

Table 1

Pre-intervention comparison of study population

Characteristic	Intervention (n=29) n (%)	Control (n=31) n (%)	P-value
Sex:			0.1105*
Female	15 (51.7)	21 (67.7)	
Male	14 (48.3)	10 (32.3)	
Marital Status:			0.0402*
Single	7 (24.1)	1 (3.2)	
Widowed	2 (6.9)	1 (3.2)	
Married	20 (68.9)	29 (93.5)	
Occupation:			0.0022*
Health Service Provider	7 (20.7%)	19 (58.1)	
Health Management Support	22 (79.3)	12 (41.9)	
Characteristic	**Intervention (n=29)**	**Control (n=31)**	**P-value**
Mean Age (SD)	36.8 (9.4)	44.4 (9.6)	0.0029**
Mean Burnout Score (SD)	2.56(0.32)	2.42(0.23)	0.0458**
Mean Years Worked (SD)	9.2 (8.1)	14.4 (10.3)	0.0337**

*CHI square, **Student t test

There was a greater reduction in the post-intervention burnout score of the intervention group compared to the control group but this difference was not statistically significant. See Table 2. The mean change in OLBI was 0.14±0.31 in the intervention group vs 0.03±0.30 in the control group and the difference was not statistically significant (p=0.868)

Table 2

Post-intervention comparison of reductions in burnout score of study population

	Burnout Score		
	Intervention (BREATHE)	Control	
Pre-intervention	2.56 (0.32)	2.42 (0.23)	P = 0.18*
Post-intervention	2.43 (0.37)	2.39 (0.25)	
Mean Change	0.14 (0.31)	0.03 (0.30)	

*Student t test

Tests for bivariate relationships did not reveal any statistically significant relationship between burnout category and sex (p=0.212), age group (p=0.447), marital status (p=0.632), years of employment (p=0.414) and occupational group (p=0.569).

Multinomial regression did not reveal any significant predictors of high burnout category. (Table 3)

Table 3

Multinomial logistic regression of factors predicting high burnout in study participants.

Variables	Adjusted Odds ratio (95%CI)	P Value
Occupation (HSP)	1.10 (0.36-3.39)	0.87
Gender (female)	0.60 (0.18-1.84)	0.37
Marital status (married)	1.11 (0.29-4.15)	0.88
Duration of employment (<10years)	1.67 (0.41-6.73)	0.47
Age (<44 years)	0.53 (0.12-2.32)	0.40

Further non-parametric analysis (Kruskall-wallis test) did not show any significant between-group relationship (intervention vs control) between age, sex, marital status, years of employment or occupational category with OLBI scores. There was however a within group difference for females and males in the control group (Chi square =4.782, p= 0.029; OLBI Score rank Female - 18.45, Male - 10.45). Other details are in Table 4.

However, there was no relationship between any of the variables and change in OLBI score. Other details are in Table 5.

Table 4

Relationship between variables and post intervention OLBI score

Variable	Intervention Chi square, P value	Control Chi square, P value	Mean rank score
Age group (<44years)	0.018, 0.892	0.309, 0.508	
Sex (Female)	0.031, 0.861	4.782, 0.029	Female - 18.45 Male - 10.45
Marital status (married)	0.005, 0.945	0.104, 0.747	
Years of employment (<10 years)	0.257, 0.692	0.841, 0.359	
Occupational category (HMSW)	0.010, 0.918	1.495, 0.221	

- Kruskall wallis test

Table 5

Relationship between variables and post intervention change in OLBI score

Variable	Intervention Chi square, p value	Control Chi square, p value
Age group (<44years)	0.748, 0.387	1.236, 0.266
Sex (Female)	3.631, 0.057	0.433, 0.511
Marital status (married)	1.027, 0.311	1.567, 0.211
Years of employment (<10 years)	0.104, 0.747	0.020, 0.887
Occupational category (HMSW)	1.100, 0.294	0.599, 0.439

- Kruskal wallis test

DISCUSSION

In the comparison of baseline characteristics of the study groups after random allocation, statistically significant differences were found in the comparisons of age, occupation and years worked. This limitation was factored in the interpretation of the outcomes post intervention. A similar randomized controlled trial using Qigong to reduce burnout had almost identical intervention and control group but had a major drawback since no statistical testing was done to check for significant differences at baseline.16

The mean change in burnout score of the BREATHE intervention group was 0.14 versus 0.03 in the control group. This was a four-fold difference in effect even though it was less than the predicted 0.30 on which the sample size was calculated. Comparison of the mean change in burnout score revealed that the difference was not statistically significant (p=0.18). In comparison, burnout levels were significantly reduced in a controlled trial of a counselling session for burnt-out doctors in Norway but its validity was limited by the opportunistic sampling design and self-allocation.17 Another non-randomized, controlled trial of combination individual-workplace approach for burnout carried out in Europe found an increased return-to-work rate (RTW), an objective measure of psychosocial risk, in the intervention group compared to the control even though the study did not indicate its direct effect on burnout levels.18

This study was able to introduce a randomly allocated control group for the BREATHE intervention, which had been a limitation in a previously-employed quasi-experimental design.14 A reproducible methodology was employed, using an objective burnout measure, namely the OLBI even though several limitations were observed e.g. the lack of validation of the OLBI for the Nigerian populace and contamination between the intervention and control groups

at the trial phase.

Other limitations observed included the single centre study design format, limiting generalizability, a relatively short follow-up period of eight weeks, the use of unmatched groups and possible investigator bias as the investigator was not blinded to the study groups.

CONCLUSION

The BREATHE intervention resulted in a 4.7 fold reduction in burnout but this difference was not statistically significant. The BREATHE intervention was not different from standard care in reducing burnout. These findings call for more rigorously designed comparisons of burnout interventions that can be carried out in primary care.

AUTHORS' CONTRIBUTIONS

APO conceived the study, participated in the study design, carried out the intervention, collected data, participated in statistical analysis and interpretation of data, and drafted the manuscript.

DM participated in the study design, statistical analysis and interpretation of data and revised the manuscript.

Both authors read and approved the final manuscript.

Both authors agreed to be accountable for all aspects of the work.

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