Modelling safety behaviour from safety climate among healthcare workers in Benin City

Abstract

It is counter-intuitive that the healthcare industry, whose mission is the care of the sick, is itself a “high-hazard” industry for the workers it employs. Injuries at the workplace are related to unsafe work behaviour and unsafe work procedures. This research work concerns modelling safety behaviour from safety climate among healthcare workers in Benin city. The model incorporates safety climate constructs as independent variables and safety behaviour as the dependent variable. A questionnaire survey obtained 277 responses from multiple healthcare facilities in Benin City.A purposive/judgmental sampling approach was adopted to get respondents that fit the study. Multiple regression analysis was appropriate in building the model. 10 variables were originally collated but only 7 variables with factor loadings greater than 0.6 were retained after principal component analysis, and only 5 variables were statistically significant for the model development. The beta coefficients were used to study the impact of each construct on the safety behaviour of employees. As a result, safety climate constructs like management commitment, supervisory environment, workers’ involvement, personal appreciation of risk, and supportive environment, were substantially correlated with the safety behaviour of employees with 15.13, -10.309, 5.647, 1.649, -12.288 beta coefficients respectively. The overall R^2 determination coefficient was 0.897 which depicts the model explains 89.7% of the variance in safety behaviour. This model has enormous potential to inspire healthcare management to facilitate safety behaviour and to successfully monitor the safety of healthcare sector workers. This research reveals that slips, trips, falls, needle prick injuries, cross-contamination, infections and diseases, mental stress, exposure to x-ray radiation, direct contact with contaminated specimen, musculoskeletal disorder as the most recurring accidents/near misses experienced as a result of unsafe behaviour of healthcare workers in their organizations. This research also reveals unsafe behaviours such as improper use of PPE, no use of PPE, taking shortcuts, verbal abuse, unsafe injection practice, working long hours, negligence and carelessness as some of the unsafe behaviours of healthcare workers in their organizations. Findings from this research reveals shortage of staff, fines and associated legal fees, retraining of new staff as some of the cost and consequences of unsafe work behaviour by healthcare workers to their organizations.

Keywords: Healthcare workers, safety behaviour, safety climate

1. Introduction

Workplace deaths are triggered every year either by unsafe workers' acts or unsafe working conditions or their experiences, resulting in thousands of injuries and fatalities worldwide. Workplace injuries arising from unsafe working conditions, technological setbacks, and/or human error have undesirable effects and expenses for both labour unions and staff. Brown et al. [1] suggested that injuries at the workplace are related to unsafe work behaviour and unsafe work procedures. According to Garavan and O’Brien [2], the causes behind the majority of occupational injuries are the unsafe behaviour of workers rather than unsafe working environments. Chen and Tian [3] suggested that promoting good behaviour is a fundamental component of enhancing safety behaviour. Most behaviour-based safety scientists rely primarily on employee attitudes, according to Hermann et al. [4], which can prevent occupational accidents directly and improve the safety of employees. Nevertheless, it is not necessary to zero in only on human actions on the ground that organizational conditions lead to unsafe behaviour and errors, and once and then directly to injuries [5].

High job pressures and long working hours are examples of organizational factors; various studies have found that long working hours are linked to higher accident rates in the working environment and lower productivity and well-being of employees [6]. According to Li et al. [7] and Karanikas et al. [8], increased work demands are correlated with more regular risky actions and can lead to accidents by draining the psychological and physical energy of workers. Nivolianitou et al. [9] stated that a heavy emphasis on analysing the short-term causes of accidents can sadly distort the connection of operational influences to casualties and dangerous incidents (in the period before they occur). The healthcare workforce is one of the world's largest workforces, accounting for more than 12 percent of the world's working population. Nigeria has one of Africa's biggest pools of healthcare workers and makes up around one-third of Nigeria's overall population. You might think of sectors like mining, oil and gas, or manufacturing when you think of security threats, but healthcare workers are still injured. Hospitals offer care ranging from reasonably routine to very complex therapies. Support services provide cleaning, housekeeping, and food delivery, in addition to medical treatment. Therefore, as a result of many threats, workers of healthcare facilities face possible accidents. Like many other job environments, hospital staff face more risks than employees of other work settings. In the healthcare industry, occupational safety is critical when the lives of people are at stake if safety is overlooked or forgotten. Nurses work with patients regularly and so healthy behaviour among nurses is important to the general public. Healthcare workers (HCWs) live in an atmosphere that is one of the most hazardous workplace conditions. It is counter-intuitive that the health care industry, whose mission is the care of the sick, is itself a "high-hazard" industry for the workers it employs. Hospital work can be shockingly risky. According to the Bureau of Labour Statistics, the likelihood of injury or illness resulting in days away from work is higher in hospitals than in construction and manufacturing—two industries that are traditionally thought to be relatively hazardous. Healthcare employees face a wide variety of workplace dangers, including sharp cuts, adverse exposure to chemicals and toxic drugs, back injury, latex allergies, abuse, and tension, according to the National Institute for Occupational Safety and Health (NIOSH). While the vulnerability of healthcare employees to these risks can be avoided or minimized, healthcare workers continue to suffer accidents and illnesses in the workplace. Cases of non-fatal workplace injuries and sickness in health employees are among the largest of any field of the industry. A cross-sectional survey of healthcare employees in a teaching hospital in southwestern Nigeria found work-related stress (83.3 percent), needle-stick accidents (76 percent), skin blood stains (73.1 percent), sleep disorders, and hepatitis (8.9 percent) to be some of the workplace health hazards typically observed [10].

The healthcare industry has one of the highest rates of occupational injuries and illnesses [11]. Medical professionals encounter numerous hazards on the job, including infections, exposure to chemicals, workplace violence, and work-related injuries. Healthcare workers are also on the frontlines of pandemics, exposing themselves and their families to the risk of contracting deadly viruses. As many hospitals have a critical shortage of staff, medical professionals can become overworked due to understaffing and longer work shifts. This, in turn, increases the risk of workplace accidents for healthcare workers. Statistically speaking, hospitals are one of the most hazardous places to work. On average, hospitals across the United States record over 250,000 work-related injuries and illnesses every year, which equals to about 6.8 occupational injuries for every 100 full-time employees, according to Occupational Safety and Health Administration (OSHA). That's nearly twice the rate for private industry as a whole and is also higher than the rate of occupational injuries in the construction and manufacturing industries. Also, the healthcare industry has more cases of work-related injuries and illnesses that result in days away from work, according to OSHA's detailed report.

Unsafe behaviours are blamed for the majority of workplace accidents and fatalities. A predictive model for safety behaviour has been developed by many studies from other workplace environments without any impact on healthcare facilities, probably. There seems to be a void in studies undertaken to forecast healthcare employee safety behaviour, thus the need to model safety behaviour from safety climate among healthcare workers.This research therefore selects healthcare facilities as the most important location for modifying the study, as there may not be an established paradigm for predicting safety behaviours.

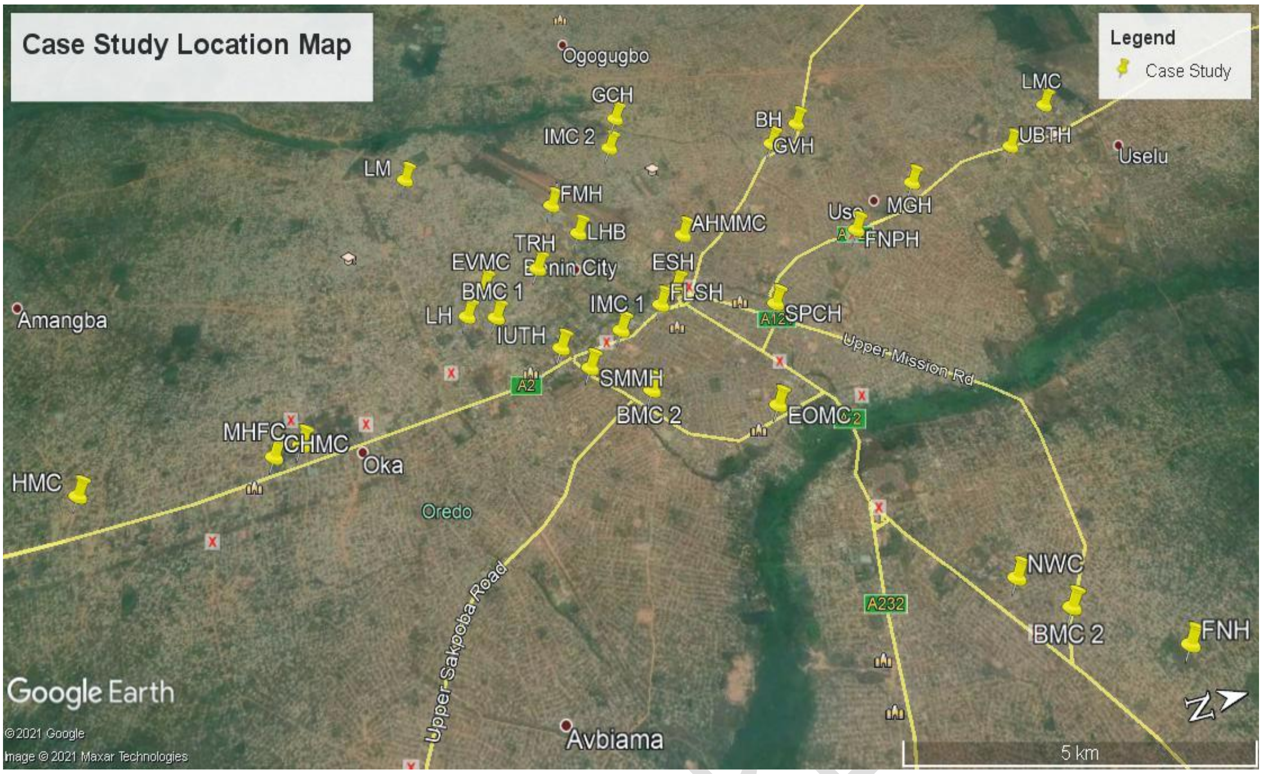
This research aims to model safety behaviour from safety climate among healthcare workers in Benin city.

2. Methodology

2.1 Study Area

The capital of the Edo State, Benin City, is situated in the southern part of Nigeria. The history of the city dates back to the 12th century when, according to the 2006 National Population Census, it was the seat of the King in the ancient Kingdom of Benin, the seat of the Portuguese Diplomatic Mission, the hub of slave trading, the object of international trade and now the capital of the state of Edo with a population of 1,147,188. Four local government areas makeup the metropolis: Egor, Oredo, Ovia North-East, and Ikpoba-Okha. The city has remained a major commercial centre connecting Nigeria's western, eastern, northern, and southern regions.

There are many hospitals, clinics, and health centers which residents and visitors go to for treatment. They include the University of Benin Teaching Hospital (UBTH), Federal Neuro-Psychiatric Hospital,Faith Mediplex Hospital, Benin Medical Centre, Edi International Hospital, Central Hospital Benin, Children Medical Centre, St Philomena Catholic Hospital, Family Solution Medical, Benoni Hospital, Mount Gilead Hospital, Thenyen Medical, Lella Specialist Hospital, St. Margaret Hospital, The Hope Valley Clinic, Gilgal Dental Clinic.



KEY

- EVMC - Eagle View Medical Center
- SMMH - St. Mary Magdalene Hospital
- LH - Life Hospital
- FNPH - Federal Neuro-Psychiatric Hospital
- IMC 1 - Iyowa Medical Centre
- BMC 1 - Benin Medical Care
- SPCH - St. Philomena's Catholic Hospital
- MGH - Mount Gilead Hospital
- LMC - Lutron Medical Center
- FMH - Faith Mediplex Hospital
- CHMC - City of Hope Medical Centre
- ESH - Edo Specialist Hospital
- UBTH - University of Benin Teaching Hospital
- TRH - The Rock Hospital
- GVH - Gods Victory Hospital
- FLSH - Fountain of Life Specialist Hospital
- GCH - Gods Care Hospital
- IMC 2 - Ihenyen Medical Centre
- BMC 2 - Berta Medical Center
- NWC - Narrow Way Clinic
- FNH - Federal Neuropsychiatric Hospital
- EOMC - Ehiabhi Odiase Medical Centre
- BMC 2 - Benin Medical Centre
- BH - Bambi Hospital
- MHFC - Maviscope Hospital and Fertility Centre
- HMC - Hope Medical Centre
- LHB - Lily Hospitals
- AHMMC - Avon Healthcare Modic Medical Centre
- IUTH - Igbinedion University Teaching Hospital
- LM - Life Medical

Figure 1: Study Location Map

2.2 Population of Study

The research population was drawn from thirty healthcare facilities in Benin city.

2.3 Sample and Sampling Techniques

In choosing the sample on which the questionnaireswere administered to, the purposive/judgmental sampling approach has been adopted. A sample of 277 healthcare staff for the analysis was determined using the Taro Yamane Equation (Yamane, 1967) asshown:

$$\left(n = \frac{N}{1+N(e)^2}\right) \qquad \text{Equation (1)}$$

Where n = Sample size

N = Population under study

e = Margin error

Questionnaire copies were administered electronically to respondents' emails and social media sites using Google Forms. For a person to qualify as a respondent, he or she must be a healthcare worker.

2.4 Nature/Sources of Data

The research made use of both primary and secondary data sources. Primary data from individuals working within the chosen health care facilities were obtained.Secondary data were obtained from electronic copies of books, scholarly journal articles, abstracts from websites etc.

2.5 Methods of Data Collection/Instrumentation

To gather data, a close-ended questionnaire structuredto generate relevant information about the research goals, was used.The questionnaire had twenty-nine (29) questions. The time taken to fill in the questionnaire was approximately eight (8) minutes. The period for copies of the questionnaire to be administered, filled in, and submitted was one (1) week. Analysis was made based on the information obtained, and conclusions were drawn.

2.6 Validity/Reliability of Instruments

Easy-to-understand questions were formulated in the questionnaires to ensure the validity of the data collection tools, and their answers had a crucial impact on the variables under investigation to guide the study to achieve its purpose. Cronbach alpha test was done to ensure the reliability of the data collection tool and was found to be reliable at 0.902.

2.7 Methods of Data Analysis

The research analysis was carried out using the SPSS 25 software package to perform descriptive statistical analysis, principal component analysis, reliability analysis, as well as multiple regression analysis for the development of the model. Results were presented in tables and the results obtained were interpreted based on assumptions taken on the research objectives.

2.8 Model Development

This research proposed a multiple linear regression model to simulate safety behaviour from safety climate. The predictor variables were defined among all the primary variables obtained after filtering out certain variables that did not correspond substantially ($p \geq 0.05$) to the level of safety behaviour reported by the employees using the principal component analysis.

2.8.1 Model Concept

The safety climate constructs were measured on a 5-point Likert scale, where 1= undecided, 2= strongly disagree, 3= disagree, 4= agree and 5= strongly agree.

The calculation of the predicted safety behaviour (SB) for any case was written as:

$$SB = b_0 + (b_1 * MC) + (b_2 * CO) + (b_3 * SP) + (b_4 * STE) + (b_5 * SE) + (b_6 * WI) + (b_7 * AP) + (b_8 * WP) + (b_9 * C) + (b_{10} * PR) \quad \text{Equation (2)}$$

Where the intercept (constant) is b_0 and the slope coefficients (one for each variable) is b_1 through b_{10}, MC is management commitment, CO is communication, SP is safety rules and procedures, STE is supportive environment, SE is supervisory environment, WI is workers involvement, WP is work pressure, C is competence, PR is personal appraisal of risk, and AP is appraisal ofthe physical work environment and work hazards.

2.8.2Model Validation

The model's prediction (Equation 2) was validated using the coefficients of determination R^2. The ideal model was selected through approved regression modelling practices that include; optimizing the adjusted R^2, reducing model variances, and using only variables that are statistically significant through F-test ($p< 0.05$) procedures.

2.8.3 Principal Component Analysis

A principal components analysis (PCA) was run on a 20-question questionnaire that measured safety climate on 277 healthcare workers. The suitability of PCA was assessed before analysis. Correlation matrix inspection shows that all variables had at least one coefficient of correlation greater than 0.3. The overall Kaiser-Meyer-Olkin (KMO) measure for safety climate was 0.725. Bartlett's test of sphericity was statistically significant ($p < 0.05$), indicating that the data was likely factorizable.

PCA revealed three components for safety climate that had eigenvalues greater than one and which explained 58.6%, 17.8%, 5.6% of the total variance, respectively. Component 1 indicated safety behaviour and had the largest eigenvalues and largest variation (looking at the questions that loaded heavily), component 2 indicated safe work procedures and component 3 indicated safety communication. Component 1 was retained for the safety climate construct [12].

The component solution explained 59.9% of the total variance. A Varimax orthogonal rotation was employed to aid interpretability. The rotated solution exhibited a 'simple structure' [13]. The interpretation of the data was consistent with the personality characteristics the questionnaire was designed to measure with strong loadings of management commitment, communication, safety rules and procedures, supportive environment, supervisory environment, workers involvement, personal appreciation of risk and competence items on Component 1. The scale items that did not factor into reliable scales were eliminated from additional analyses.

3. Results

3.1 Demographic Information of the Respondents.

Table 1 addresses the demographic information of the respondents.From Table 1, preponderance of respondent was female (61%), while male constitute 39%. The majority of healthcare staff (34.7%) are aged 25-39 years of age, and those aged between 40-45 years 17.3% were the least population.

The study revealed that the bulk of the respondents have worked in the range of 1-5yrs with 19.1% worked between the range of 21yrs and above (the least).

Table 1: Demographic information

Variables		Frequency	Percentage (%)
Gender	Male	108	39
	Female	169	61
Age	18-24yrs	71	25.6
	25-39yrs	96	34.7
	40-54yrs	48	17.3
	55yrs and above	62	22.4
Work Experience	1-5yrs	104	37.5
	6-10yrs	62	22.4
	11-20yrs	58	20.9
	21yrs and above	53	19.1

3.2 How Safety Climate Affects Safety Behaviours of Healthcare Workers

Table 2 addresses how the various safety climate constructs affect the safety behaviour of healthcare workers. Question 1-3 answered questions on management commitment. The communication construct was answered in Questions 4 and 5. Question 6 covered the safety rules and procedures construct.Questions 7 and 8 addressed the supportive environment construct.Question 9 tackled the supervisory environment construct. Questions 10, 11, and 12 discussed the worker’s involvement construct. Questions 13 and 14 addressed personal appreciation of risk construct.Question 15 and 16 addressed appraisal of physical work environment and work hazards construct. Question 17, 18, and 19 addressed the work pressure construct. Question 20 addressed the competence construct. Questions 21, 22, and 23 addressed safety behaviour.

Table 2: Safety Climate Constructs and Safety behaviour responses

Questions	1	2	3	4	5	Mean
Management commitment						
Q1. In the organization, management sets a high priority on safety activities.	21 (7.6%)	27(9.7%)	43 (15.5%)	42(15.2%)	144 (52.0%)	3.94
Q2. Formal safety inspections are regularly conducted in my workplace.	9 (3.2%)	28 (10.1%)	32 (11.6%)	107 (38.6%)	101 (36.5%)	3.95
Q3. Workers are regularly asked about their safety concerns.	54 (19.5%)	30 (10.8%)	32 (11.6%)	67 (24.2%)	94 (33.9%)	3.42
Communication						
Q4. Management addresses safety considerations to all levels.	50 (18.1%)	18 (6.5%)	33 (11.9%)	82 (29.6%)	94 (33.9%)	3.55
Q5. To encourage healthy work conditions, management undertakes campaigns.	51 (18.4%)	16 (5.8%)	81 (29.2%)	35 (12.6%)	94 (33.9%)	3.38
Safety Rules and Procedures						
Q6. My organization has in place a written policy on Health and Safety.	9 (3.2%)	17 (6.1%)	43 (15.5%)	45 (16.2%)	163 (58.8%)	4.21
Supportive Environment						
Q7. We assume, as a team, that it is our business to maintain a safe atmosphere in the workplace.	9 (3.2%)	32 (11.6%)	13 (4.7%)	96 (34.7%)	127 (45.8%)	4.08

Q8. We maintain positive working relationships as a team.	9 (3.2%)	16 (5.8%)	16 (5.8%)	78 (28.2%)	158 (57%)	4.30
Supervisory Environment						
Q9. My supervisor/safety manager usually engages in regular safety talks.	23 (8.3%)	32 (11.6%)	27 (9.7%)	71 (25.6%)	124 (44.8%)	3.87
Workers Involvement						
Q10. I report near misses/accidents that I experience or witness.	20 (7.2%)	39 (14.1%)	27(9.7%)	56 (20.2%)	135 (48.7%)	3.89
Q11. I wear proper PPE when working.	10 (3.6%)	16 (5.8%)	43(15.5%)	85(31 %)	123(44 %)	4.06
Q12. I work clear of the influence of drugs and alcohol.	10 (3.6 %)	32(12 %)	23 (8.3%)	77(28 %)	135(48.7%)	4.06
Personal Appreciation of Risks						
Q13. I know what my duty for safety is.	21 (7.6%)	16(5.8 %)	33(12 %)	101(37%)	106(38 %)	3.92
Q14. I am compliant with the written policy on Health and Safety.	10 (3.6 %)	59(21 %)	16(5.8 %)	99(36 %)	93(34 %)	3.74
Physical Work Environment and Work Hazards						
Q15. Work conditions can impede one's ability to work safely.	23 (8.3%)	45(16%)	52(19 %)	63(23 %)	94(34 %)	3.58
Q16. Accidents and near misses occur regularly in my organization?	42(15 %)	45(16%)	67(24%)	29(11%)	94(33.9%)	3.32
Work Pressure						
Q17. Work is given higher priority than safety.	10 (3.6%)	57 (21 %)	84 (30 %)	38 (14 %)	88 (32 %)	3.49
Q18. I take shortcuts when I need to get the job done promptly.	20 (7.2%)	74(27 %)	86 (31%)	30 (11 %)	67 (24 %)	3.18
Q19. There is a lot of pressure to complete jobs quickly.	24 (8.7 %)	52(19 %)	21(7.6%)	57(21 %)	123(44 %)	3.73
Competence						
Q20. I have undergone sufficient preparation to do my job safely.	21 (7.6%)	13(4.7 %)	3212 %)	55(20%)	156(56%)	4.13

Table 3: Safe work behaviour responses

Question	100%	75%	50%	25%	0%	Mean
Q21. For the jobs I do, I obey all of the safety protocols.	146 (52.7 %)	48 (17.3%)	42 (15.2 %)	32 (11.6 %)	9 (3.2 %)	48
Q22. I assist others to make sure they perform their work safely.	63 (22.7 %)	63 (22.7 %)	46 (16.6 %)	70 (25.3 %)	35 (12.6 %)	42
Q23. I change the way the work is done to make it safer.	70 (25.3 %)	38 (13.7 %)	88 (31.8 %)	42 (15.2 %)	39 (14.1 %)	32

3.3 Multiple Regression Analysis

The dependent variable (safety behaviour) was regressed on predicting variables of management commitment (MC), supportive environment (STE), supervisory environment (SE), workers involvement (WI), and personal appreciation of risk (PR). The independent variables significantly predict safety behaviour, $F(10, 266) = 232.701$, $p < 0.05$, which indicates that the 5 constructs of safety climate under study have a significant impact on safety behaviour. Moreover, the $R^2 = 0.897$ depicts the model explains 89.7% of the variance in safety behaviour. Table 4 shows the summary of the findings.

3.4 Research Hypothesis

H_1: There is a significant impact of management commitment on the safety behaviour of healthcare workers.

Table 4: Impact of management commitment on safety behaviour

Hypothesis	Regression Weights	B	T	p-value	Hypothesis supported
H1	MC → SB	15.13	8.535	0.000	Yes

Table 5: Analysis of variance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	222329.294	10	22232.929	232.701	.000[b]
	Residual	25414.389	266	95.543		
	Total	247743.682	276			

Table 6: Regression Model Summary

Model	R	R^2	Adjusted R	Std. Error of the Estimate	Durbin Watson
1	0.947	0.897	0.894	9.77460%	0.192

Table 7: Regression analysis coefficients

Model	Unstandardized coefficients		standardized coefficients			collinearity statistics	
	B	Std Error	Beta	T	sig	Tolerance	VIF
(CONSTANT)	-31.555	3.377		-9.345	.000		
MC	15.13	1.764	0.578	8.535	.000	0.152	13.928
SE	-10.309	1.466	-0.454	-7.033	.000	0.092	10.823
WI	1.694	1.264	0.064	1.816	.002	0.165	6.474
PR	5.647	1.776	0.239	4.153	.000	0.077	`13.359
STE	-12.288	1.203	-0.460	-10.218	.000	0.190	5.254

The regression equation for the current model can be expressed in the following form:

Predicted safety behaviour = b0 + (b1 x MC) + (b2 x STE) + (b3 x SE) + (b4 x WI) + (b5 x PR) (Equation 4).

Where b0 is the intercept (constant) and b1 through b5 are the slope coefficients (one for each variable). By substituting the values for b0 through b5 you will be able to predict safety behaviour given any values you enter for the 5 constructs of safety climate.

Predicted safety behaviour = -31.555 + (15.13 x MC) + (-12.288 x STE) + (-10.309 x SE) + (1.694 x WI) + (5.647 x PR).

Using this model, given values for all the predictor variables, the user can come up with a prediction for the safety behaviour.

3.5 Recurring Accidents/Near-Misses in The Healthcare Facilities

Table 8 addresses some of the most recurring accidents in healthcare facilities in Benin city.From the table, majority (29.24%) indicated musculoskeletal disorders as the most recurring accidents/near misses experienced as a result of unsafe behaviour of healthcare workers in their organization, while indicated direct contact with contaminated specimen, was the least (1.81%) indicated.

Table 8: Recurring accidents/near misses

Accidents/Near misses	Frequency	Percentage
Slips, trips, falls	43	15.52%
Needle prick injuries	59	21.3%
Cross contamination	28	10.11%
Infections and diseases	20	7.22%
Mental stress	21	7.58%
Exposure to x-ray radiation	20	7.22%
Direct contact with contaminated specimen	5	1.81%
Musculoskeletal disorder	81	29.24%
Total	277	100%

3.6 The Unsafe Behaviours of Healthcare Workers

Table 9 addresses some of the unsafe behaviours of healthcare workers.Majority of the respondent(48.74%) indicated improper use of PPE, while indicated negligence and carelessness and Use of defective equipment, where the least reported unsafe behaviours of healthcare workers in the workplace.

Table 9: Unsafe behaviours of healthcare workers

Unsafe behaviours	Frequency	Percentage
Improper use of PPE	135	48.74%
No use of PPE	44	15.89%
Taking shortcuts	24	8.66%
Verbal abuse	22	7.94%
Unsafe injection Practice	27	9.75%
Unauthorized use of equipment	13	4.69%
Working long hours	8	2.89%
Use of defective equipment	1	0.36%
Working without adequate lighting	2	0.72%
Negligence and carelessness	1	0.36%
Total	277	100%

3.7 Effects of Unsafe Behaviour of Healthcare Workers in The Workplace

Table10 addresses the cost and consequences of unsafe work behaviour by healthcare workers to the organization. Preponderance(26.72%) of the respondents indicated a shortage of staff, while the cost of repairing or replacing damaged equipment was the least(3.60%) indicated cost and consequences of unsafe work behaviour by healthcare workers to the organization.

Table 10: Cost and consequences of unsafe work behaviour

Cost/Consequences	Frequency	Percentage
Shortage of staff	74	26.72%
Fines and associated legal fees	34	12.27%
Retraining of new staff	26	9.39%
Loss of reputation	26	9.39%
Workers' compensation	50	18.05%
Loss of expertise	37	13.36%
Lost morale	20	7.22%
Cost of repairing or replacing damaged equipment	10	3.60%
Total	277	100%

4. Discussion

The outcome of the analysis of research question one shows that the mean scores of the respondents on the impact of safety climate on the safety behaviour of healthcare workers were greater than the criterion mean score of 3.0. This means that a safety climate enables an employee to mitigate breaches of safety laws and regulations, thus improving the safety behaviour of healthcare employees. This finding is consistent with Neal and Griffin [14], who supported that safety climate can have a lasting positive impact on the safety behaviour of healthcare workers. From Table 3, the hypothesis that there is a significant impact of management commitment on the safety behaviour of healthcare workers shows that p-value < 0.005 which is statistically significant and as a result is accepted. This finding is consistent with Garavan and O'Brien [2] who concluded that a major impact on safety behaviour was discovered by the safety climate in the form of ownership and involvement in safety as well as management commitment to safety.

To predict safety behaviour among health workers, a multiple linear regression analysis was carried out to develop a model. The model was suitable for predicting the outcome ($F(10, 266) = 232.701$, $p < 0.005$). The coefficients for the explanatory variables are presented in Table 6.

The statistically significant independent variables after the PCA include: management commitment (MC), supportive environment (STE), supervisory environment (SE), workers involvement (WI), personal appreciation of risk (PR). Among the independent variables, management commitment (15.13) had the highest positive β coefficient value. This supports Fang et al. [15] and Teo and Fang [16] claim that management's commitment in the whole organization to health and safety concerns is considered the key determinant of the safety climate and as such improves the safety behaviour of workers. The supervisory environment (SE) led to a negative β coefficient of -10.309 to the result of the model. According to Mohamed [17] and Fang et al. [15], a stable supervisory climate allows staff to comply with safety laws. Worker's involvement (WI) contributed a positive β coefficient of 1.694 to the outcome of the model and this value increased the dependent variable. A safer safety climate according to [15,17-19], is promoted by a higher number of staff and personnel engaged in safety matters this will in turn improve. Personal appreciation of risk (PR) contributed a positive β coefficient of 5.647 to the outcome of the model. The propensity to take or avoid risks has a direct effect on safety [20]. Supportive environment (STE) contributed a negative β coefficient of -12.288 to the result of the model. The higher the amount of help offered by colleagues, the more optimistic the dominant safety environment would be [15,17,21,22].

The analysis from Table 7 reveals that the factors indicated such as Slips, trips, falls, needle prick injuries, cross-contamination, infections and diseases, mental stress, exposure to x-ray radiation, direct contact with contaminated specimen, musculoskeletal disorder are the most recurring accidents/near misses experienced as a result of unsafe behaviour of healthcare workers in their organization.

The findings emanating from Table 8 indicated that unsafe behaviours, improper use of PPE, no use of PPE, taking shortcuts, verbal abuse, unsafe injection practice, unauthorized use of equipment, working long hours, use of defective equipment, working without adequate lighting, and negligence and carelessness are some of the unsafe behaviours of healthcare workers in their organizations.

Findings from Table 9 indicates that Shortage of staff, Fines and associated legal fees, retraining of new staff, Loss of reputation, Workers' compensation, Loss of expertise, Lost morale, Cost of repairing or replacing damaged equipment are the cost and consequences of unsafe work behaviour by healthcare workers to the organization.

Conclusion

The results of the research indicate that the 10 climate constructs are significant predictors in determining the safe work behaviour of employees. The findings presented in this research should be viewed with caution. The beta coefficient gives only the individual impact of independent variables while keeping the others constant; thus, the combined effect of selected safety climate constructs cannot be investigated by carrying out such a limited analysis. The combined effect among safety climate constructs and their influence on safe work behaviour cannot be overlooked in this research. In summary, the study showed that, when employees perceive the general safety climate of their organization to be positive, they will be more likely to engage in positive safety behaviours.

The researcher intends to widen the scope of the study by interviewing workers in the healthcare facilities to establish beyond doubt how safety climate influences safety behaviour. However, due to lack of ample time and financial constraints, and most importantly Covid-19 restrictions this research was restricted to google form survey.

It can be concluded that if the healthcare organizations' safety climate is favourable, the healthcare workers' safety behaviour will be increased, thereby decreasing the number of repeated accidents/near misses to a low degree, which will in turn minimize the expense of the organization's consequences of unsafe work behaviour.

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