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Contribution of Human Resources Managers on Health and Wellbeing of Workers in Industrial Sectors in Ilorin Metropolis, Kwara State

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ABSTRACT

The health and wellbeing of industrial workers is a significant public health concern that is shaped by workplace safety management. In Nigeria's non-oil industrial sector, encompassing food and beverages, pharmaceuticals, chemicals, wire and cable, and general manufacturing, the contribution of Human Resources (HR) managers to occupational health through enforcement of Personal Protective Equipment (PPE) use and consistent health risk assessment remains inadequately documented, particularly within Ilorin Metropolis. This study examined, as perceived by workers, whether (i) enforcement of PPE use and (ii) consistent health risk assessment by HR managers contribute to the health and wellbeing of workers in industrial establishments in Ilorin Metropolis, Kwara State.

A descriptive survey design was adopted. Using the Taro Yamane formula with a finite population of 2,820 workers in eight industrial establishments (margin of error 0.05), a sample of 350 workers was selected by stratified, purposive, proportionate and simple random sampling. A researcher-structured four-point Likert questionnaire (SA = 4, A = 3, D = 2, SD = 1), validated by three experts and with a split-half (Spearman-Brown) reliability coefficient of r = 0.82, was used. Responses were summarised as percentages of positive (SA + A) and negative (D + SD) responses, and each of the two null hypotheses was tested with item-level chi-square goodness-of-fit tests (df = 1; expected 50:50; α = 0.05).

Findings revealed that:

(i) positive responses on enforcement of PPE use ranged from 83.7% to 87.1% across items and exceeded negative responses significantly ($\chi^2(1) = 159.13$ to 193.14, all $p < .001$); and

(ii) positive responses on consistent health risk assessment ranged from 81.4% to 84.0% and exceeded negative responses significantly ($\chi^2(1) = 138.29$ to 161.84, all $p < .001$).

It was concluded that workers perceive both PPE enforcement and consistent health risk assessment by HR managers as contributing to their health and wellbeing; the findings reflect perceptions and do not establish causation. It was recommended that industrial establishments institutionalise enforcement of PPE compliance and regularly conduct systematic health risk assessments as core HR responsibilities.

KEYWORDS: Human Resource Management; Occupational Health and Safety; Workers' Health and Wellbeing; Personal Protective Equipment (PPE); Health Risk Assessment; Industrial Workers; Ilorin Metropolis.

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Introduction

Work is central to economic survival and social identity, yet for many industrial workers the workplace is also a source of health risk. Workers in manufacturing, pharmaceutical and chemical plants are exposed to

hazards such as chemicals, machinery, noise, heat and psychosocial stressors. The International Labour Organization (ILO, 2019) estimates that 2.78 million workers die each year from occupational accidents and work-related diseases, and that poor occupational safety and health costs nearly 4% of global gross domestic product.

Occupational health aims to prevent work-related injury and disease and to protect workers from physical, chemical, biological and psychosocial hazards. Workplace environmental risks contribute to the global burden of disease (Prüss-Ustün et al., 2017). Management commitment to safety is a well-established correlate of safer behaviour and fewer injuries (Christian et al., 2009; Zohar, 2010), and safety management practices influence safety behaviour through workers' safety knowledge and motivation (Vinodkumar & Bhasi, 2010). Dollard and Bakker (2010) showed that management priority for psychological health at work was related to workers' psychological health problems and engagement.

Nigeria has legislation on workplace safety and compensation, including the Factories Act (Cap. F1, Laws of the Federation of Nigeria, 2004) and the Employees' Compensation Act, 2010. Where external inspection is infrequent, workers' protection depends largely on internal management arrangements, including the HR function, so it is useful to examine how workers in Ilorin Metropolis perceive the role of HR managers.

Worker health and wellbeing covers physical, mental and social dimensions shaped by the work environment, occupational exposures and management practices. In this study it is assessed through workers' perceptions of how HR managers' practices have affected their safety and health.

Enforcement of Personal Protective Equipment (PPE) use refers to the role of HR managers in ensuring that workers consistently use appropriate protective gear, including helmets, gloves, goggles, earplugs, respiratory masks and safety boots, during hazardous work, for example through provision, monitoring and discipline for non-compliance. PPE places a barrier between workers and hazards, but it is generally regarded as the last line of defence after elimination, substitution and engineering controls.

Consistent health risk assessment (HRA) refers to the periodic, systematic identification, evaluation and prioritisation of occupational health hazards, leading to documented action plans for hazard control. HRA provides the evidence for other safety measures, such as PPE specifications and environmental improvements, and its value depends on findings being acted on.

To our knowledge, no published study has examined workers' perceptions of PPE enforcement and consistent health risk assessment by HR managers in the industrial sector of Ilorin Metropolis. This study addresses that gap, with findings relevant to HR departments, industrial management and regulators in Kwara State.

Statement of the Problem

Visits by the researcher to two manufacturing establishments in the Ilorin industrial zone suggested inconsistent use of protective equipment (for example, workers operating machinery without helmets, gloves or protective footwear) and deteriorated hazard signage. These informal observations were not systematically recorded and are reported only as the motivation for the study. They suggest that enforcement of PPE use and routine assessment of health risks by HR management may be weak in some establishments.

Safety failures are often attributed to individual worker error, whereas the safety literature emphasises organisational and management failures (Reason, 1990). Whether workers in Ilorin's industrial establishments perceive that HR managers enforce PPE use and assess health risks consistently, and whether they see these practices as contributing to their health, has not been documented.

The study therefore examined workers' perceptions of the contribution of two HR management practices, enforcement of PPE use and consistent health risk assessment, to their health and wellbeing.

Research Questions

The study provided answers to the following research questions:

1. Will enforcement of PPE use by HR managers contribute to the health and wellbeing of workers in industrial sectors in Ilorin Metropolis, Kwara State?

2. Will consistent health risk assessment by HR managers contribute to the health and wellbeing of workers in industrial sectors in Ilorin Metropolis, Kwara State?

Research Hypotheses

The following null hypotheses were formulated to guide the study:

1. Workers' perception that enforcement of PPE use by HR managers contributes to their health and wellbeing in industrial sectors in Ilorin Metropolis, Kwara State is not significant.
2. Workers' perception that consistent health risk assessment by HR managers contributes to their health and wellbeing in industrial sectors in Ilorin Metropolis, Kwara State is not significant.

Purpose of the Study

Generally, the study examined the contribution of Human Resources managers on the health and wellbeing of workers in industrial sectors in Ilorin Metropolis, Kwara State. Specifically, the study examined:

i. enforcement of PPE use by HR managers as a contribution to the health and wellbeing of workers in industrial sectors in Ilorin Metropolis, Kwara State;
ii. consistent health risk assessment by HR managers as a contribution to the health and wellbeing of workers in industrial sectors in Ilorin Metropolis, Kwara State.

Methodology

A descriptive survey design was adopted. It allowed the current state of HR managerial contributions to worker health and wellbeing to be described across several industrial establishments without manipulation of variables. The population comprised 2,820 workers employed in eight selected manufacturing and processing establishments in Ilorin Metropolis, Kwara State: Seven Up Bottling Company, Olam Nigeria Limited, Beverage Company ASA Dam, Tuyil Pharmaceutical Company, Peace Drug Distributors, Kam Wire Industries, Lubcom Nigeria and Uniform Manufacturing Company. The sample size was determined with the Taro Yamane (1967) formula, $n = N/(1 + Ne^2)$, where N is the population and e the margin of error. With N = 2,820 and e = 0.05, $n = 2{,}820/(1 + 2{,}820 \times 0.0025) = 350.3$, rounded to 350.

A multistage procedure was used. First, establishments were stratified by industrial type (food and beverages, pharmaceuticals, chemicals and wire, and general manufacturing). Second, within each stratum, establishments were purposively selected on size, accessibility and the documented presence of an HR department with occupational health responsibilities, giving eight establishments. Third, the 350 respondents were allocated to establishments in proportion to workforce size, a sampling fraction of 350/2,820 = 12.4% (Table 1; fractions for individual establishments range from 12.3% to 12.6% because of rounding to whole workers). Fourth, respondents were selected from each establishment's workers' register by simple random sampling (balloting). Respondents were required to be 18 years or older, employed in the facility for at least six months, and willing to provide informed consent. Each establishment technical staff population was gotten from each establishment administrative unit. The population are for the year 2025/2026.

Table 1: Sample Distribution of Respondents across Selected Industrial Establishments in Ilorin Metropolis

S/N	Sector	Establishment	Total Workers	Sampling Fraction (%)	Sample
1	Food & Beverages	Seven Up Bottling Company	480	12.5%	60
2	Food & Beverages	Olam Nigeria Limited	420	12.4%	52
3	Food & Beverages	Beverage Company ASA Dam	350	12.6%	44
4	Pharmaceuticals	Tuyil Pharmaceutical Company	380	12.4%	47
5	Pharmaceuticals	Peace Drug Distributors	240	12.5%	30
6	Chemicals &	Kam Wire Industries	310	12.3%	38

	Wire				
7	Chemicals & Wire	Lubcom Nigeria	200	12.5%	25
8	General Mfg.	Uniform Manufacturing Company	440	12.3%	54
Total		**8 Establishments**	**2,820**	**12.4%**	**350**

Note. Sampling fraction = sample/total workers × 100 (overall 350/2,820 = 12.4%).

The main instrument was a researcher-structured questionnaire titled the 'HR Management Contributions to Worker Health and Wellbeing Questionnaire' (HRMCWHWQ), with two sections: Section A elicited demographic information, and Section B contained items on the two variables analysed in this paper, enforcement of PPE use (four items) and consistent health risk assessment (four items). Items used a four-point Likert scale: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2 and Strongly Disagree (SD) = 1. Face and content validity were established by three experts from the Department of Health Promotion and Environmental Health Education, University of Ilorin. Reliability was assessed by the split-half method, with the correlation between the two halves corrected by the Spearman-Brown prophecy formula, giving r = 0.82. Questionnaires were administered during shift breaks and retrieved on the spot. All 350 administered questionnaires were returned and used for the analysis.

Demographic data were summarised using frequencies and percentages. For each item, SA and A were combined as the positive response and D and SD as the negative response, and results are reported as the number and percentage of positive and negative responses (Tables 2 and 3). The null hypotheses were tested with a Pearson chi-square goodness-of-fit test for each item, $\chi^2 = \Sigma(O - E)^2/E$, comparing the observed positive and negative frequencies with the frequencies expected if responses were equally likely to be positive or negative (E = 175 each, N = 350); with two categories, df = k − 1 = 1. This test was chosen because each item is a single categorical response from the same 350 respondents, so items cannot be pooled into one test without treating repeated responses as independent, and because the data contain no separate health-outcome variable that would allow a test of independence. The four items of each hypothesis were tested separately at the Bonferroni-adjusted level $\alpha = 0.05/4 = 0.0125$ (critical $\chi^2(1) = 6.24$), and a null hypothesis was rejected when all four items were significant. Because the data are workers' perceptions and the design is cross-sectional, the tests show agreement that HR practices contribute to health, not that they cause better health.

Results

Answer to Research Questions

Research Question 1: Will enforcement of PPE use by HR managers contribute to the health and wellbeing of workers in industrial sectors in Ilorin Metropolis, Kwara State?

Table 2: Percentile Analysis on Enforcement of PPE Use by HR Managers as a Contribution to Worker Health and Wellbeing

S/N	ITEMS	SA	A	Positive Response	D	SD	Negative Response
1	HR managers' enforcement of PPE use has reduced my exposure to chemical and mechanical hazards in the workplace.	152 (43.4%)	141 (40.3%)	293 (83.7%)	40 (11.4%)	17 (4.9%)	57 (16.3%)
2	Consistent enforcement of PPE compliance by HR management has led to a noticeable reduction in occupational injuries in my establishment.	157 (44.9%)	148 (42.3%)	305 (87.1%)	31 (8.9%)	14 (4.0%)	45 (12.9%)
3	The availability and enforcement of appropriate PPE by HR managers has significantly improved my physical health and safety at work.	160 (45.7%)	144 (41.1%)	304 (86.9%)	33 (9.4%)	13 (3.7%)	46 (13.1%)
4	HR management's discipline of workers who violate PPE policies has	153 (43.7%)	143 (40.9%)	296 (84.6%)	38 (10.9%)	16 (4.6%)	54 (15.4%)

	improved overall safety culture and worker wellbeing in my workplace.						
Mean				**300 (85.6%)**			**50 (14.4%)**

Table 2 shows that the mean positive response to items on PPE enforcement is 300 (85.6%), which is greater than the mean negative response of 50 (14.4%). This implies that most workers perceive that enforcement of PPE use by HR managers contributes to their health and wellbeing in industrial sectors in Ilorin Metropolis, Kwara State.

Research Question 2: Will consistent health risk assessment by HR managers contribute to the health and wellbeing of workers in industrial sectors in Ilorin Metropolis, Kwara State?

Table 3: Percentile Analysis on Consistent Health Risk Assessment by HR Managers as a Contribution to Worker Health and Wellbeing.

S/N	ITEMS	SA	A	Positive Response	D	SD	Negative Response
1	Regular health risk assessments conducted by HR management have helped identify and eliminate hazards that would have harmed my health.	148 (42.3%)	137 (39.1%)	285 (81.4%)	44 (12.6%)	21 (6.0%)	65 (18.6%)
2	The findings of HR-conducted health risk assessments in my workplace have been used to introduce protective measures that improve worker wellbeing.	153 (43.7%)	141 (40.3%)	294 (84.0%)	38 (10.9%)	18 (5.1%)	56 (16.0%)
3	Consistent health risk assessments have made me more aware of the specific hazards in my work area and how to protect myself.	150 (42.9%)	143 (40.9%)	293 (83.7%)	40 (11.4%)	17 (4.9%)	57 (16.3%)
4	HR management's periodic review of health risks in my establishment has contributed to reduced rates of work-related illness and injury.	154 (44.0%)	140 (40.0%)	294 (84.0%)	39 (11.1%)	17 (4.9%)	56 (16.0%)
Mean				**292 (83.3%)**			**58 (16.7%)**

Table 3 shows that the mean positive response to items on consistent health risk assessment is 292 (83.3%), which is greater than the mean negative response of 58 (16.7%). This implies that most workers perceive that consistent health risk assessment by HR managers contributes to their health and wellbeing in industrial sectors in Ilorin Metropolis, Kwara State.

Test of Hypotheses

$H0_1$: Workers' perception that enforcement of PPE use by HR managers contributes to their health and wellbeing in industrial sectors in Ilorin Metropolis, Kwara State is not significant.

Table 4: Chi-Square Goodness-of-Fit Tests of Positive versus Negative Responses on Enforcement of PPE Use by HR Managers

Item	Positive (SA + A) n (%)	Negative (D + SD) n (%)	Expected (each)	χ^2 (df = 1)	p	95% CI, % positive
HR managers' enforcement of PPE use has reduced my exposure to chemical and	293 (83.7%)	57 (16.3%)	175	159.13	< .001	79.5–87.2

mechanical hazards						
Consistent enforcement of PPE compliance has led to a noticeable reduction in occupational injuries	305 (87.1%)	45 (12.9%)	175	193.14	< .001	83.2–90.3
Availability and enforcement of appropriate PPE has improved my physical health and safety	304 (86.9%)	46 (13.1%)	175	190.18	< .001	82.9–90.0
Discipline of workers who violate PPE policies has improved safety culture and wellbeing	296 (84.6%)	54 (15.4%)	175	167.33	< .001	80.4–88.0

Note. Observed frequencies by response category for each item are in Table 2. Positive = SA + A; Negative = D + SD. Expected frequency = N/2 = 175 for each category under the null hypothesis of equal positive and negative responses; df = 2 − 1 = 1. Bonferroni-adjusted α = 0.05/4 = 0.0125 (critical $\chi^2(1) = 6.24$). CI = 95% Wilson confidence interval.

Table 4 shows that, for each of the four items, positive responses (83.7% to 87.1%) were significantly more frequent than negative responses ($\chi^2(1) = 159.13$ to 193.14, all $p < .001$, well above the critical value of 6.24). The null hypothesis was rejected. This implies that workers significantly agree that enforcement of PPE use by HR managers contributes to their health and wellbeing.

$H0_2$: Workers' perception that consistent health risk assessment by HR managers contributes to their health and wellbeing in industrial sectors in Ilorin Metropolis, Kwara State is not significant.

Table 5: Chi-Square Goodness-of-Fit Tests of Positive versus Negative Responses on Consistent Health Risk Assessment by HR Managers

Item	Positive (SA + A) n (%)	Negative (D + SD) n (%)	Expected (each)	χ^2 (df = 1)	p	95% CI, % positive
Regular health risk assessments have helped identify and eliminate hazards	285 (81.4%)	65 (18.6%)	175	138.29	< .001	77.0–85.2
Findings of HR-conducted assessments have been used to introduce protective measures	294 (84.0%)	56 (16.0%)	175	161.84	< .001	79.8–87.5
Consistent assessments have made me more aware of hazards in my work area	293 (83.7%)	57 (16.3%)	175	159.13	< .001	79.5–87.2
Periodic review of health risks has contributed to reduced work-related illness and injury	294 (84.0%)	56 (16.0%)	175	161.84	< .001	79.8–87.5

Note. Observed frequencies by response category for each item are in Table 3. Positive = SA + A; Negative = D + SD. Expected frequency = N/2 = 175 for each category under the null hypothesis of equal positive and negative responses; df = 2 − 1 = 1. Bonferroni-adjusted α = 0.05/4 = 0.0125 (critical $\chi^2(1) = 6.24$). CI = 95% Wilson confidence interval.

Table 5 shows that, for each of the four items, positive responses (81.4% to 84.0%) were significantly more frequent than negative responses ($\chi^2(1) = 138.29$ to 161.84, all $p < .001$, well above the critical value of 6.24). The null hypothesis was rejected. This implies that workers significantly agree that consistent health risk assessment by HR managers contributes to their health and wellbeing.

Discussion of Findings

The first null hypothesis was rejected: positive responses on PPE enforcement (83.7% to 87.1% across

items) were significantly more frequent than negative responses, so workers perceive that HR managers' enforcement of PPE use contributes to their health and wellbeing. This agrees with safety climate evidence that management commitment to safety is associated with safer behaviour (Christian et al., 2009; Zohar, 2010) and with Vinodkumar and Bhasi (2010), who found in a chemical industry that safety management practices, including management commitment and safety training, were related to safety behaviour through safety knowledge and motivation. These comparisons concern perceived management commitment and safety behaviour in other settings, not PPE enforcement as such, and the present results reflect workers' perceptions and not measured injury or illness rates. PPE is generally regarded as the last line of defence after elimination, substitution and engineering controls, so enforcement should complement and not replace higher-level hazard controls.

The second null hypothesis was also rejected (positive responses 81.4% to 84.0%). The slightly lower positive responses than for PPE enforcement (grand mean 83.3% versus 85.6%) may reflect limited awareness of HR risk-assessment activities, which are less visible to workers than PPE, although this was not tested. Reason (1990) argued that accidents arise from latent organisational failures as well as individual error, so assessment findings that are not acted on may leave hazards uncontrolled. HR managers should therefore communicate assessment findings and resulting actions to workers. Few verifiable studies of HR-led risk assessment among Nigerian industrial workers could be identified for this revision, which limits direct comparison.

Conclusion

Based on the findings of the study, the following conclusions were drawn:

1. Workers perceive that enforcement of PPE use by HR managers contributes to their health and wellbeing in industrial sectors in Ilorin Metropolis, Kwara State: positive responses significantly exceeded negative responses on all four items ($\chi^2(1) = 159.13$ to 193.14, $p < .001$).
2. Workers perceive that consistent health risk assessment by HR managers contributes to their health and wellbeing in industrial sectors in Ilorin Metropolis, Kwara State: positive responses significantly exceeded negative responses on all four items ($\chi^2(1) = 138.29$ to 161.84, $p < .001$).

Recommendations

Based on the findings, the following recommendations were made:

1. HR departments should implement robust PPE enforcement systems that include provision of appropriate, high-quality PPE to all workers at no personal cost, documented PPE compliance monitoring programmes, and disciplinary frameworks that address non-compliance consistently.
2. Industrial establishments should institutionalise consistent, periodic health risk assessments conducted by qualified occupational health specialists engaged by HR departments, with findings documented in accessible reports and communicated transparently to workers.

Limitations of the Study

The study measured workers' perceptions of the contribution of HR practices and did not measure objective health outcomes such as injury or illness rates, so it does not show that PPE enforcement or health risk assessment improves health. The cross-sectional design does not permit causal inference, and there was no comparison group. Workers rating their own employers may give socially desirable responses. Establishments were purposively selected, so the findings may not generalise to all industrial establishments in Ilorin Metropolis. The items were tested one at a time against an equal-split null hypothesis, which shows agreement but not its strength relative to other factors, and respondent-level scores were not used to test associations between the two practices.

References

Christian, M. S., Bradley, J. C., Wallace, J. C., & Burke, M. J. (2009). Workplace safety: A meta-analysis of the roles of person and situation factors. Journal of Applied Psychology, 94(5), 1103–1127. https://doi.org/10.1037/a0016172

Dollard, M. F., & Bakker, A. B. (2010). Psychosocial safety climate as a precursor to conducive work

environments, psychological health problems, and employee engagement. Journal of Occupational and Organizational Psychology, 83(3), 579–599.

Employees' Compensation Act, 2010 (Nigeria).

Factories Act, Cap. F1, Laws of the Federation of Nigeria (2004).

International Labour Organization. (2019). Safety and health at the heart of the future of work: Building on 100 years of experience. ILO.

Prüss-Ustün, A., Wolf, J., Corvalán, C., Neville, T., Bos, R., & Neira, M. (2017). Diseases due to unhealthy environments: An updated estimate of the global burden of disease attributable to environmental determinants of health. Journal of Public Health, 39(3), 464–475. https://doi.org/10.1093/pubmed/fdw085

Reason, J. (1990). Human error. Cambridge University Press.

Vinodkumar, M. N., & Bhasi, M. (2010). Safety management practices and safety behaviour: Assessing the mediating role of safety knowledge and motivation. Accident Analysis & Prevention, 42(6), 2082–2093. https://doi.org/10.1016/j.aap.2010.06.021

Yamane, T. (1967). Statistics: An introductory analysis (2nd ed.). Harper & Row.

Zohar, D. (2010). Thirty years of safety climate research: Reflections and future directions. Accident Analysis & Prevention, 42(5), 1517–1522. https://doi.org/10.1016/j.aap.2009.12.019