Frontiers
2025, Vol. 5, No. 4, pp. 183–192
https://doi.org/10.11648/j.frontiers.20250504.14

Research Article

Work-Related Health Problems and Health Seeking Behaviour of Battery Technicians and Office Workers in Western Nigeria: A Comparative Study

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Abstract

Battery technicians are exposed to work-related health risks, and their health-seeking behavior plays a critical role in determining health outcomes. This study assessed work-related health problems and health-seeking behaviors among battery technicians and office workers in Lagos State. A cross-sectional design was employed using multi-stage sampling and interviewer-administered questionnaires. Data were analyzed with SPSS version 20, and results were presented in tables. Chi-square and Fisher's exact tests were used to determine significance at $p \leq 0.05$. Battery technicians reported significantly higher rates of memory loss, drowsiness, limb numbness, constipation, and easy fatigability, as well as skin itching, breathing difficulty, sneezing, and runny nose, compared to office workers. Conversely, cough was more common among office workers. Health-seeking behaviors also differed: battery technicians were more likely to rely on chemist shops and self-medication than formal health facilities, a difference that was statistically significant. Memory loss was positively associated with years of work among technicians, while limb numbness was negatively associated with daily working hours of office workers. Easy fatigability was inversely related to technicians' monthly income, and skin redness was negatively associated with years of work. Sneezing showed mixed associations, being negatively related to technicians' income and office workers' years of service but positively associated with technicians' years of work. These findings underscore the need for targeted occupational health education, regular training, and improved access to qualified healthcare services for battery technicians. Strengthening workplace safety and promoting healthier health-seeking behaviors are essential for safeguarding this vulnerable workforce.

Keywords

Battery Technicians, Occupational Health, Health-seeking Behavior, Work-related Problems

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Received: 5 November 2025; **Accepted:** 19 November 2025; **Published:** 17 December 2025

1. Introduction

Health problems are strongly associated with lead battery repair and recycling in Nigeria. Lead is a highly toxic metal with multi-systemic effects, even at very low levels of exposure, and is recognized as one of the most significant occupational hazards in developing countries. Its toxicity spans multiple organ systems, affecting the cardiovascular, nervous, urinary, gastrointestinal, reproductive, and hematopoietic systems. [1, 2] Documented symptoms and complications include abdominal colic, anemia, seizures, encephalopathy, impaired balance, dementia, hypertension, stroke, nephropathy, hyperuricemia, and gout. Reproductive effects such as reduced sperm count and increased abnormalities in sperm morphology have also been linked to elevated blood lead levels. [2-7] For battery technicians, chronic exposure to lead poses substantial risks of multi-systemic disease, resulting not only in ill-health but also in frequent sickness absence, reduced productivity, financial losses from treatment costs, and diminished overall quality of life. [8] Health-seeking behavior plays a crucial role in how these health risks are managed.

The Health Belief Model (HBM), a widely applied framework for predicting health-seeking behavior, emphasized that an individual's health actions are influenced by the perception of severity and susceptibility to a health outcome, availability of intervention, the benefits of taking action outweighs the barriers and self-efficacy (ability to carry out such interventions) [8] In essence, individuals weigh alternative choices and are more likely to adopt behaviors they believe will produce beneficial health outcomes. In Nigeria, a previous study showed that artisans demonstrated poor health-seeking behavior due to distantly located health facilities (except for injury cases), with majority turning to pharmacies or patent medicine vendors instead of hospitals or qualified health professionals [9]. Another study revealed that majority attended health facilities though located within walking distance. [10] The major difference between these study populations being the level of education directly associated with hospital visitation. [9, 10] Another study also revealed that delay in access health care contributed towards artisans poor health seeking behaviour. [11] Against this backdrop, this study was designed to assess and compare work-related health problems and health-seeking behavior among battery technicians and office workers in Lagos, Nigeria. The findings aim to provide insights into occupational health risks, behavioral determinants of healthcare utilization, and policy directions to improve workplace safety and health outcomes for vulnerable worker populations.

2. Methodology

2.1. Study Setting and Design

This study was conducted in Lagos State, Nigeria, which lies approximately between longitudes 2°42′E and 3°42′E and latitudes 6°22′N and 6°52′N. [12] Battery technicians in Lagos typically operate in informal roadside workshops, with more than 5,000 registered members under the Nigerian Association of Battery Technicians. A descriptive cross-sectional study design was adopted to assess and compare work-related health problems and health-seeking behavior among battery technicians and local government office workers in Lagos State. The study population comprised battery technicians registered with the association and local government office workers. Eligible participants were those who had been engaged in their current occupation for at least one year. Workers who were acutely ill, absent at the time of the study, or female (as the battery technician workforce was overwhelmingly male) were excluded from participation.

2.2. Sampling Methodology

The sample size was calculated using the formula for comparing two proportions in two equally sized groups, with the level of significance (α) set at 5% and power (1 − β) at 80%: $n = (Z\alpha + Z\beta)^2 [P_1(100 - P_1) + P_2(100 - P_2)] / (P_1 - P_2)^2$. [13, 14] This yielded a minimum sample size of 103 participants per group. To account for potential non-response, a 20% adjustment was applied, resulting in a revised minimum of 124 participants per group. Ultimately, 150 battery technicians and 150 office workers were recruited to ensure adequate power. A multistage sampling technique was used. First, two areas (each comprising clusters of local government areas where battery technicians were concentrated) were selected from the nine designated operational zones of the Nigerian Association of Battery Technicians using simple random sampling (balloting). Second, within each selected area, branches of technician workshops were randomly chosen. Eligible technicians within the selected branches were then recruited consecutively until the required sample size was obtained. For the comparison group, an equal number of office workers were enrolled from local government secretariats located within the same selected areas. Eligible office workers who met the inclusion criteria were recruited using simple random sampling to ensure comparability between both groups.

2.3. Data Collection and Analysis

Data were collected from each respondent using interviewer-administered questionnaires, facilitated by four trained research assistants. The questionnaires were adopted from previous studies [1, 7, 15] and pretested among a similar population in another local government area to ensure clarity and validity. Data analysis was conducted using SPSS version 20. Continuous variables were presented as means with standard deviations, while categorical variables were summarized as frequencies and proportions. Bivariate analysis to compare proportions was performed using Pearson's

Chi-square test and Fisher's exact test, with the level of statistical significance set at $p \leq 0.05$. Confounding was minimized at the design stage by restricting the sample to male battery technicians, thereby reducing gender-related variability in occupational exposures. At the analysis stage, multivariable statistical methods were used to adjust for key confounders such as age, income, and years of work to obtain more robust comparisons between groups.

2.4. Ethical Approval

The approval to carry out this study was obtained from Health Research Ethics Committee (HREC) of the Lagos University Teaching Hospital, Lagos with reference number of approval: ADM/DCST/HREC/APP/759. Permission was also obtained from the Nigerian Battery Technician Association. All data were secured and made available only to the members of the research team. The study strictly adhered to the ethical principles outlined in the Declaration of Helsinki, including respect for persons, beneficence, non-maleficence, and justice. All data were anonymized and used solely for research purposes.

Consent to Participate

Written informed consent was obtained from all participants before enrollment in the study. Participants were provided with clear information about the study objectives, procedures, potential risks, and benefits, and were informed of their right to withdraw at any time without penalty. Consent was documented by signed forms, and for respondents with limited literacy, the forms were read aloud in their preferred language before verbal or thumbprint consent was taken in the presence of a witness. Confidentiality was ensured by anonymizing responses, and data were used strictly for research purposes.

3. Results

Data were successfully collected from all participants, comprising 150 battery technicians and 150 office workers, with complete responses obtained from both groups. Table 1 shows that only 4.7% of battery technicians had completed tertiary education compared to 29.3% of office workers, a difference that was statistically significant ($p < 0.082$). The majority of battery technicians (66.7%) practiced Islam compared to 42.7% of office workers, and this difference was highly significant ($p < 0.001$). Income distribution between both groups also differed significantly ($p = 0.021$). Although 38% of workers in each group earned between ₦18,000.00 and ₦37,999.00 monthly, only 2.0% of battery technicians earned ₦58,000–77,999 compared to 8.0% of office workers. Table 2 shows that memory loss was significantly more common among battery technicians (37.3%) than office workers (14.0%). Similarly, drowsiness (45.3% vs. 30.7%), limb numbness (55.3% vs. 40.0%), difficulty in passing stools (21.3% vs. 12.7%; $p = 0.046$), and easy fatigability (48.7% vs. 25.3%; $p < 0.001$) were significantly more prevalent among battery technicians. Skin itching was also higher among technicians (26.0%) than office workers (14.0%; $p < 0.05$). In contrast, cough was significantly higher among office workers (34.0%) than technicians (22.0%). Breathing difficulty, sneezing, and running nose were more frequently reported by battery technicians.

Table 3 indicates that 41.7% of battery technicians with more than 10 years' experience reported memory loss compared to 22.9% with fewer years, a significant association ($p = 0.043$). Limb numbness was more common among those working ≤8 hours daily (69.8%) compared to those working >8 hours (49.5%; $p = 0.024$). Among office workers, difficulty in passing stools was significantly higher in those aged ≥60 years (36.4%) compared to <40 years (4.9%; $p = 0.021$). Easy fatigability was significantly more frequent among battery technicians earning <₦18,000 (61.1%) compared to higher earners (41.1%; $p = 0.022$). Skin redness was significantly associated with age among office workers (27.3% in ≥60 years vs. 2.4% in <40 years; $p = 0.016$) and with years of work among battery technicians (14.3% in ≤10 years vs. 4.3% in >10 years; $p = 0.039$). Sneezing was more common in battery technicians with >10 years of work (67.8%) compared to ≤10 years (48.6%; $p = 0.038$). A similar association was observed among office workers, with sneezing reported more frequently in those with ≤10 years' work (48.6%) than those with >10 years (31.2%; $p = 0.030$). Table 4 reveals significant differences in health-seeking behavior. Most office workers (82%) utilized health facilities compared to 44.7% of battery technicians ($p < 0.001$) (Figure 1). Government-owned health facilities were more commonly patronized by office workers (60.0%) than technicians (28.7%; $p < 0.001$) (Figure 2). In contrast, about one-third of battery technicians (33.3%) patronized patent medicine vendors, compared to only 6.0% of office workers, a statistically significant difference ($p < 0.001$) (Figure 3).

Table 1. *Socio-demographic characteristics of respondents.*

Variables	Battery technicians (n=150)	Office workers (n=150)	Test stat	df	p
Age group (yrs)					
21-30	17 (11.3)	10 (6.7)			
31-40	47 (31.3)	38 (25.3)			
41-50	49 (32.7)	61 (40.7)	$\chi2=8.26$	4	0.082

Variables	Battery technicians (n=150)	Office workers (n=150)	Test stat	df	p
51-60	20 (13.3)	31 (20.7)			
>60	17 (11.3)	10 (6.7)			
Mean ± SD	43.85±11.56	45.12±10.25			
Marital status					
Single	17 (11.3)	24 (16)			
Married	126 (84.0)	122 (81.3)		3	0.111*
Divorced	1 (7.0)	3 (2.0)			
Separated	6 (4.0)	1 (0.7)			
Education					
None	8 (5.3)	4 (2.7)			
Primary	72 (48.0)	46 (30.7)			
Secondary	63 (42.0)	56 (37.3)	$\chi2$=21.53	3	<0.001º
Tertiary	7 (4.7)	44 (29.3)			
Religion					
Christianity	50 (33.3)	84 (56.0)			
Islam	100 (66.7)	64 (42.7)		2	<0.001*º
Traditional	0 (0.0)	2 (1.3)			
Monthly income					
<18,00	54 (36.0)	33 (22.0)			
18,000 – 37,999	57 (38.0)	57 (38.0)			
38,000 – 57,999	32 (21.3)	42 (28.0)		5	0.021*º
58,000 – 77,999	3 (2.0)	12 (8.0)			
78,000 – 97,999	2 (1.3)	4 (2.7)			
>98,000	2 (1.3)	2 (1.3)			

*Fisher's exact p-value ºStatistical significant

Table 2. *Self-reported general and organ-specific health problems of respondents.*

General health problems	Battery workers (n=150)	Office worker (n=150)	$\chi2$	df	p
Headache	96 (64.0)	98 (65.3)	0.058	1	0.809
Memory loss	56 (37.3)	21 (14.0)	21.402	[1]	<0.001º
Drowsiness	68 (45.3)	46 (30.7)	6.848	1	0.009º
Poor sleep	38 (25.3)	46 (30.7)	1.058	1	0.304
Limb numbness	83 (55.3)	60 (40.0)	7.069	1	0.008º
Abdominal discomfort	40 (26.7)	34 (22.7)	0.646	1	0.422
Difficulty in passing stools	32 (21.3)	19 (12.7)	3.992	1	0.046º
Urge to vomit	19 (12.7)	13 (8.7)	1.259	1	0.262
Loss of appetite	33 (22.0)	28 (18.7)	0.514	1	0.473

General health problems	Battery workers (n=150)	Office worker (n=150)	χ2	df	p
Easy fatigability	73 (48.7)	38 (25.3)	17.518	1	<0.001º
Joint pain	90 (60.0)	96 (64.0)	0.509	1	0.475
Decreased sex drive	53 (35.3)	40 (26.7)	2.634	1	0.105
Organ-specific problems[a]					
Skin					
Rash	26 (17.3)	18 (12.0)	1.71	1	0.192
Itching	39 (26.0)	21 (14.0)	6.75	1	0.009º
Redness	10 (6.7)	9 (6.0)	0.81	1	0.560
Lungs					
Cough	33 (22.0)	51 (34.0)	5.38	1	0.021º
Chest tightness	33 (22.0)	43 (28.7)	0.18	1	1.762
Breathing difficulty	22 (14.7)	9 (6.0)	6.08	1	0.014º
Nose					
Sneezing	95 (63.3)	59 (39.3)	17.29	1	<0.001º
Nasal itching	20 (13.3)	20 (13.3)	0.00	1	1.000
Running nose	82 (54.7)	54 (36.0)	10.55	1	<0.001º
Eyes					
Redness	57 (38.0)	46 (30.7)	1.79	1	0.181
Itching	42 (28.0)	43 (28.7)	0.02	1	0.898
Tearing	36 (24.0)	32 (21.3)	0.58	1	0.304

º Statistically significant

Table 3. *Association between sociodemographic/occupational history of participants and health problems.*

Memory loss	Battery Technician (n =150)				Office worker (n=150)			
	No (n=94)	Yes (n=56)	χ2	p	No (n=129)	Yes (n=21)	χ2	p
Age group (years)								
<40	37 (67.3)	18 (32.7)			35 (85.4)	6 (14.6)		
40-59	44 (57.1)	33 (42.9)	2.21	0.332	85 (86.7)	13 (13.3)	0.22	1.000*
≥60	13 (72.2)	5 (27.8)			9 (81.8)	2 (18.2)		
Monthly income								
<18,000.00	39 (72.2)	15 (27.8)			23 (79.3)	6 (20.7)		
18,000 and above	55 (57.3)	41 (42.7)	3.29	0.070	106 (87.6)	15 (12.4)	1.34	0.248
Years of work								
1-10	27 (77.1)	8 (22.9)			59 (84.3)	11 (15.7)		
>10	67 (58.3)	48 (41.7)	4.09	0.043º	70 (87.5)	10 (12.5)	0.32	0.571
Daily work hours								

Memory loss	Battery Technician (n =150)				Office worker (n=150)			
	No (n=94)	**Yes (n=56)**	**χ2**	**p**	**No (n=129)**	**Yes (n=21)**	**χ2**	**p**
0 -8	27 (62.8)	16 (37.2)			94 (88.7)	12 (11.3)		
>8	67 (62.6)	40 (34.7)	0.00	0.980	35 (79.5)	9 (20.5)	2.15	0.142
Limb numbness	No (n=67)	Yes (n=83)	χ2	p	No (n=90)	Yes (n=60)	χ2	p
Age group (years)								
<40	22 (40.0)	33 (60.0)			27 (65.9)	14 (34.1)		
40-59	37 (48.1)	40 (51.9)	0.84	0.656	56 (57.1)	42 (42.9)		0.237*
≥60	8 (44.4)	10 (55.6)			7 (63.6)	4 (36.4)		
Monthly income								
<18,000.00	23 (42.6)	31 (57.4)			17 (58.6)	12 (41.4)		
18,000 and above	44 (45.8)	52 (54.2)	0.15	0.702	73 (60.3)	48 (39.7)	0.03	0.866
Years of work								
1-10	17 (48.6)	18 (51.4)			41 (58.6)	29 (41.4)		
>10	50 (43.5)	65 (56.5)	0.28	0.596	49 (61.2)	31 (38.8)	0.11	0.596
Daily work hours								
0 -8	13 (30.2)	30 (69.8)			66 (62.3)	40 (37.7)		
>8	54 (50.5)	53 (49.5)	5.08	0.024º	24 (54.5)	20 (45.5)	0.77	0.380
Difficulty stooling	No (n=118)	Yes (n=32)	χ2	p	No (n=131)	Yes (n=19)	χ2	p
Age group (years)								
<40	42 (76.4)	13 (23.6)			39 (95.1)	2 (4.9)		
40-59	63 (81.8)	14 (18.2)	1.08	0.584	85 (18.7)	13 (18.2)		0.021*º
≥60	13 (72.2)	5 (27.8)			7 (63.6)	4 (36.4)		
Monthly income								
<18,000.00	42 (77.8)	12 (22.2)			23 (79.3)	6 (20.7)		
18,000 and above	76 (79.2)	20 (20.8)	0.04	0.842	108 (89.3)	13 (10.7)	2.10	0.148
Years of work								
1-10	26 (74.3)	9 (25.7)			65 (92.9)	5 (7.1)		
>10	92 (80.0)	23 (20.0)	0.52	0.470	66 (82.5)	14 (17.5)	3.62	0.057
Daily work hours								
0 -8	37 (86.0)	6 (14.0)			94 (88.7)	12 (11.3)		
>8	81 (75.7)	26 (24.3)	1.96	0.162	37 (84.1)	7 (15.9)	0.59	0.442

* Fishers exact p value. Statistically significant

Table 4*. Health seeking history of respondents.*

Variable	Battery workers (n=150)	Office worker (n=150	χ2	df	P
Health services used when ill/injured [aa]					

Variable	Battery workers (n=150)	Office worker (n=150	χ2	df	P
Self –medication	45 (30.0)	48 (32.0)	0.14	1	0.708
Herbs	49 (32.7)	22 (14.7)	14.61	1	<0.001º
Chemist	60 (40.0)	34 (22.7)	11.34	1	<0.001º
Prayers	5 (3.3)	9 (6.0)	0.72	1	0.395
Health facility	69 (44.7)	123 (82.0)	42.19	1	<0.001º
Type of health facility used [a]					
Private	23 (15.3)	34 (22.7)	41.35	1	<0.001º
Government	43 (28.7)	90 (60.0)	43.46	1	<0.001º
Traditional healers' home	3 (2.0)	7 (4.7)	40.97	1	<0.001º
Health personnel at/around workplace[a]					
Doctor	32 (21.3)	116 (77.3)	94.10	1	<0.001º
Nurse	16 (10.7)	27 (18.0)	3.29	1	0.070
Patent medicine vendor	50 (33.3)	9 (6.0)	34.47	1	<0.001º
Traditional healer	31 (20.7)	2 (1.3)	28.64	1	<0.001º
Experienced co-workers	4 (2.7)	7 (4.5)	0.85	1	0.357
None	31 (20.7)	0 (0.0)	34.57	1	<0.001º

[a]Multiple responses allowed. º Statistically significant.

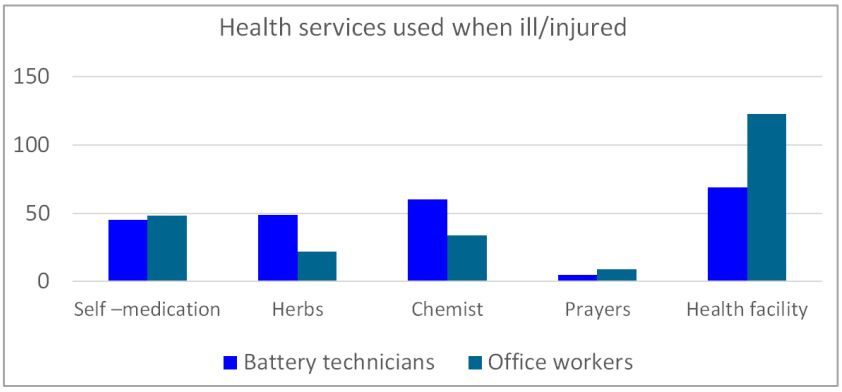

Figure 1. *Health services used by respondents when ill/injured.*

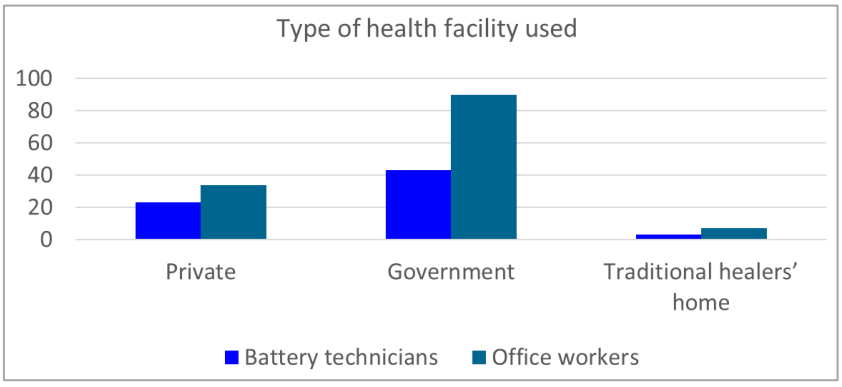

Figure 2. *Type of health facility used by respondents.*

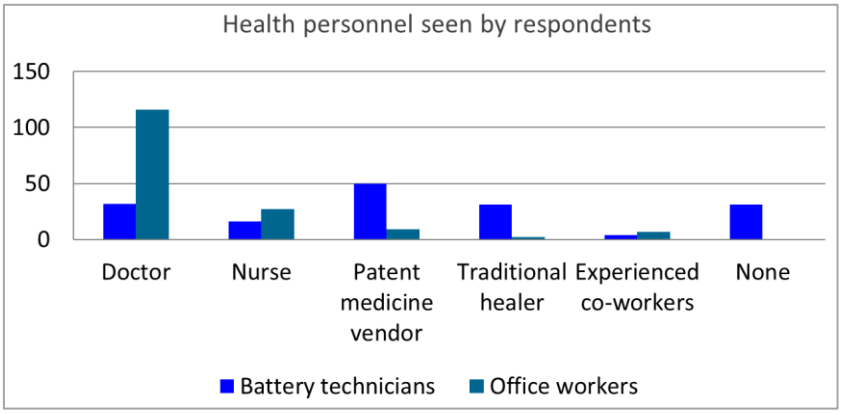

Figure 3. *Health personnel seen by respondents.*

4. Discussion

The mean ages of the battery technicians and office workers were 43.85±11.56 and 45.12±10.25 years respectively**.** This was similar to the findings in studies carried out in Lagos, Nigeria [2] which revealed similar mean age of 43.6 + 10.5 and 40.5+ 7.6 years for battery technicians working in an organized wetting and road side workshops respectively; and 44.6 ± 10.5 and 41.8 ± 8.6 years for roadside and organized automobile technicians respectively. [16] About half of the battery technician's population had primary education while 30.7% of the office workers acquired same level education in this present study. A study carried out in Ghana reported 31% percentage of automobile repair workers with primary school education [17] while a study carried out in Bangladesh largely had literate battery workers (78.0%) that had basic education. [7] Variations in primary education may reflect income, priorities, and culture. Most respondents had over 10 years' work experience, implying prolonged hazard exposure, consistent with studies among mechanics in Nigeria and artisans in Ghana. [11, 16] In the year preceding the study, most battery technicians reported headaches, limb numbness, and joint pains, while headaches and joint pains were also common among office workers, likely due to sedentary routines, repetitive tasks, and poor ergonomics. Battery technicians faced additional ergonomic risks from lifting batteries and awkward postures during repairs. Symptoms such as memory loss, drowsiness, limb numbness, difficulty in passing stools, and easy fatigability were significantly higher among technicians. Similar findings were reported in Dhaka, Bangladesh, where headache, limb numbness, and colic pain were frequent among battery workers. [7] Findings align with studies from Iran, India, Pakistan, and Ethiopia, which similarly reported fatigue, arthralgia, headaches, gastrointestinal symptoms, and memory issues among battery workers. These symptoms may reflect lead exposure but could also be influenced by recall bias since they were self-reported. [6, 15, 18]

Battery technicians reported sneezing, eye redness, skin itching, cough, and chest tightness -symptoms likely linked to irritation from lead fumes, the main entry route of lead into the body. These were significantly higher compared to office workers, consistent with findings from Karachi and Ghana that respiratory and eye problems are common among lead-exposed artisans. [1, 19] Years of work were positively associated with memory loss and sneezing but negatively with skin redness, reflecting exposure intensity, adaptation, or recall bias rather than causality. Daily working hours were negatively associated with limb numbness, while age correlated with constipation in technicians and skin redness in office workers, likely due to chronic exposure and age-related health changes. [17] Monthly income was negatively associated with fatigue, sneezing, and itchy eyes, possibly reflecting psychosomatic effects tied to job satisfaction. Health-seeking behavior was poor: only 44.7% of battery technicians sought care at health facilities, while many relied on chemists (40%) or self-medication (30%). [19] This aligns with Ghanaian studies and raises concerns, as unsafe remedies may worsen lead exposure or promote antibiotic resistance. Fewer than one-third consulted physicians compared to over two-thirds of office workers, underscoring a critical gap in professional healthcare utilization among battery technicians. [20]

Limitations of the study

Study Limitations and Future Directions

This study has several limitations that should be considered when interpreting the findings. First, the cross-sectional design limits the ability to establish causal relationships between occupational exposure, reported health problems, and health-seeking behaviors. Second, data collection relied on self-reported information, which may be influenced by recall bias, underreporting, or overreporting of symptoms. The absence of objective biomarker assessments such as blood lead levels also restricts validation of self-reported health conditions and exposure intensity. Selection bias may have occurred, as participation was limited to battery technicians registered with the association and office workers available during the study period, potentially excluding informal or unregistered workers. Additionally, the study was conducted only in Lagos State, which may limit the generalizability of

the findings to other regions of Nigeria with different socio-economic and occupational contexts. Future research should include longitudinal or cohort studies to better understand causal pathways between occupational exposures and health outcomes among battery technicians. Incorporating biomarker validation (e.g., blood lead levels, urinary assays) would strengthen exposure assessment. Intervention-based studies are also recommended to evaluate the effectiveness of occupational health education, regular medical screening, and policy enforcement in improving workplace safety and promoting healthier health-seeking behaviors among similar worker populations.

5. Conclusion

Most health problems were significantly more common among battery technicians than office workers, with the exception of cough, which was higher among office staff. A substantial proportion of battery technicians relied on chemists or self-medication, with only about one-third seeking care from health facilities. Strengthening health education, promoting positive health-seeking behavior, and providing incentives to encourage consultation with qualified health professionals are critical for improving outcomes in this group.

6. Recommendations

Given the significant burden of work-related health problems among battery technicians, targeted interventions are urgently needed. Health education programs should emphasize the dangers of lead exposure and promote positive health-seeking behavior, encouraging workers to consult qualified health professionals rather than rely on chemists or self-medication. Regular training on occupational safety practices, including the consistent use of personal protective equipment, should be made compulsory through collaboration between government agencies, professional associations, and employers. Policy makers should also strengthen regulatory oversight of informal workshops and provide accessible occupational health services tailored to the needs of battery technicians. In addition, periodic medical screening and biological monitoring of blood lead levels should be instituted to detect early signs of lead toxicity. Improving workplace infrastructure - such as ventilation, access to clean water, and hygienic facilities - will further reduce exposure risks. Finally, incentives and subsidies for protective devices could enhance compliance and sustainability of safety practices among this vulnerable workforce.

Abbreviations

Df	Degrees of Freedom
HBM	Health Belief Model
HREC	Health Research Ethics Committee
LUTH	Lagos University Teaching Hospital
NCDC	Nigeria Centre for Disease Control
SPSS	Statistical Package for the Social Sciences
WHO	World Health Organization

Acknowledgments

The authors gratefully acknowledge Professor Adebayo T. Onajole of the Department of Community Health, College of Medicine, University of Lagos, Nigeria, for his technical guidance and supervision of this work.

Author Contributions

Ebenezer Adeiza Ozomata: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing

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Funding

This was a self-funded study.

Data Availability

The data supporting the findings of this study are available upon reasonable request from the corresponding author.

Conflicts Interests

The authors declare no conflicts of interest.

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