



KNOWLEDGE OF HEALTH EDUCATORS ON OCCUPATIONAL HAZARDS IN NURSING AND MIDWIFERY TRAINING COLLEGES, GHANA.

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Abstract

Objective: This study sought to determine the knowledge level of health educators in nursing and midwifery training colleges ([NMTCs]), regarding occupational hazards. **Methods:** A cross-sectional, quantitative design was employed, and eleven (11) NMTCs were selected. The study was conducted in NMTCs within the Ashanti region, Ghana. Data were collected from 200 health educators using questionnaire administered online. Both descriptive and inferential multivariate analyses were done. **Results:** Tutors have good level of knowledge on occupational hazards. Gender of health educators was significantly associated with level of knowledge ([COR=1.95, 95%CI=1.07 – 3.56, p=0.028]); with male tutors 1.85 times more likely to be knowledgeable ([AOR=1.85, 95%CI=1.01 – 3.52, p=0.049]). **Conclusions:** Though health tutors generally have good knowledge on occupational hazards, the phenomenon may be prevalent among these health educators especially female faculty members; scientific measures are therefore urgently needed to investigate the prevalence of workplace hazards among health tutors, and how they cope with these hazards with key focus on females; to ensure safety and wellbeing at workplaces.

Keywords: Occupational hazards; knowledge, health; educators; tutors.

Introduction

Ideally, work environment should be one that is free of risk or of limited hazards. However, globally, millions of workers are continually exposed to hazardous substances of varying magnitudes¹. Work-related risks are significant reasons for morbidities and mortality around the world, with 2.3 million mortalities reported annually¹. Reports of the World Health Organization (WHO) and the International Labour Organization indicate that annually, 1.9 million (1900 000) deaths globally are work-related². Of these deaths occupational injuries alone accounted for 19% (361,000)^{1,2}. Again, the maiden and recent WHO/ILO publication on the disease burden implies that 750,000 deaths were attributed to long working hours that yielded cardiovascular diseases and stroke²; with dangerous substances ([example asbestos]) alone accounting for 651,279 mortalities², and occupational accidents ([18%]). All workers are exposed to occupational risks; however workers in sub-Saharan African ([SSA]) regions have the most prevalent rates compared to developed countries³.

In Ghana, a recently published year-long prevalence study, involving varied health care workers in a public hospital indicated that, occupational hazards stood at 29%, with a little over 1.6 injuries per person-years. It is therefore a reminder to all nations and organizations especially in SSA to improve and ensure the wellbeing and security of their workforce; by consciously providing universal coverage of occupational health and safety practices as provided for in SDG 3².

Occupations and occupational conditions should be welcoming and worker-friendly to ensure optimal state of the mind and body⁴, meanwhile, educational institutions have been classified as moderately risky environments regarding the assorted hazards in such institutions⁵. Corroboratively, educators have been documented as workers with higher potential for stress and mental disorders^{4,6,7} and musculoskeletal pains⁸. This is because educators work under conditions that are not always favourable. Typical of such conditions are poor postures which could be attributed to inappropriate furniture, and increased workload, as well as stress which could be associated with abject combination of educators' physical, affective and cognitive capacities during service delivery⁸. Interestingly, such conditions as aforementioned have been identified as pivotal for absenteeism and intolerance among educators, time loss, and sub-standard education⁷; as well as the socio-economic repercussion for students, educators and communities⁸. The fact still remains that educators are seen as leaders, and mentors who play vital roles in the lives of students and communities. For instance, impacting knowledge, providing guidance and coaching, talent discovery and nurturing, and assisting students to realize their optimal future potentials and aspirations⁵ etc. Unfortunately, health systems have adequate provisions for the health of students but the same cannot be said of the health of their educators. Undoubtedly, a healthy teacher translates into healthy, sound and efficient students. Accordingly, aggressive result-oriented actions need to be taken based on scientific research to curb the insurgence of work-related health risks and harm. This is a shared responsibility towards the realization of the UN Sustainable Development Goals ([SDGs]) 3 and 8, which seek to ensure good health and well-being, as well as decent work and economic growth respectively. In this context, good and quality data on occupational accidents and diseases are vital and are hence required to design effective prevention strategies. The identification of hazardous sectors and occupations brings to the fore priority areas for the right targets in line with limiting occupational morbidities and mortalities; vis-à-vis, contributing to efficiency, productivity and economic growth of nations^{3,9,10}. Though varied occupational health problems among educators have been documented⁶, there is an apparent lack of concern and studies among health educators⁷. Most importantly, what accounted for the need for this study is the limited inclusion of health educators in literature, within the context of occupational hazards research. Key among them are health educators in nursing and midwifery training colleges.

Methods

Design

The study adopted a quantitative cross-sectional approach. This design is the most appropriate for providing information on the prevailing occupational hazards among health educators¹¹. Moreover, previous studies from which this study draws strength adopted similar designs^{12,13,14,15}.

Population, Sample and Setting

The study was conducted with focus on health tutors in NMTC's within the Ashanti Region; with a total of 200 tutors conveniently sampled. The Ashanti region was also selected with recourse to the fact that it has many NMTC's as accredited by the Nursing and Midwifery Council of Ghana¹⁶.

Data collection instrument and Procedures

A structured questionnaire, containing close-ended questions in English language was used for data collection. Items in the questionnaire were designed after extensive review of related literature, and are organized under four sections ([A to B]), such that section 'A' contains items on respondents demographic data, section 'B'-respondents knowledge on occupational hazards.

The questionnaire was administered via online, and respondents were at liberty to fully express their views on the phenomenon¹⁷. It was transported unto Google form, and the link sent to respondents via e-mails and tutors' WhatsApp platforms of the selected health training institutions. The entire data collection was conducted within a period of five weeks.

Validity and Reliability of the instrument

The questionnaire was subjected to scrutiny by the project supervisor, Committee on Human Research and Publication Ethics ([CHRPE]) of the Kwame Nkrumah University of Science and Technology([KNUST]), followed by a pre-test using 10 respondents. Subsequently, all necessary corrections were made.

Additionally, the Cronbach's alpha was used to determine the propositions between the questions. The covariance among the individual items relative to the overall variance of the instrument were 0.7 and 0.67, making the instrument internally consistent and reliable^{18,19}.

Ethical considerations

To meet ethical standards and ensure that the human subjects were not over exploited, ethical approval was sought from the CHRPE-KNUST. To ensure and maintain anonymity of respondents, the questionnaire did not require names of respondents. All respondents were allowed to ask questions regarding the study for further explanation. Contact details of investigators were made available to respondents. Accordingly, filling the form or responding to the questionnaires was considered consent by the respondents. Participation was totally voluntary.

Data processing and analysis

Data was cleaned, processed and analyzed using the Statistical Package for the Social Sciences ([SPSS]) version 21, and Microsoft excel version 2013; where both descriptive and inferential analysis were conducted.

Categorization of knowledge Level of Respondents

Categorization of knowledge was based on the eight items/questions on knowledge, where respondents were requested to express their level of agreement or otherwise on each item. In this regard they were asked to either strongly disagree, disagree, be neutral, strongly agree, or agree. As such, responses were coded from 1 to 5 such that, each weak response corresponded to '1' and a strong response corresponded with 5. Using a median score of 29 as a benchmark, a score below 29 denotes poor knowledge, a score equal to 29 denotes adequate knowledge, and a score above 29 denotes good knowledge.

Results

A total of 200 health educators constituted the sample size for the study. Table 1 presents their socio-demographic characteristics. The mean age was 37.6 years, with a standard deviation of 4.62. Most of the respondents (48%) were within the age group of 35 to 39 years. Majority of the respondents were females (57.5%) and married (82.5%). Most, 49.5%, of the respondents had first degree and master's degree as their highest qualification; and the majority, 55%, were at the rank of Senior Health Tutor. A majority (56.5%) of the health tutors had 1 to 5 years of teaching experience.

Table 1. socio-demographic characteristics of health educators (n=200)

Variable	Frequency (n=200)	Percentage (%)
Age (years)		
Mean ± SD	37.6 ± 4.62	
<35	48	24.0
35 – 39	96	48.0
40 – 44	41	20.5
45+	15	7.5
Gender		
Female	115	57.5
Male	85	42.5
Marital status		
Married	165	82.5
Single	34	17.0
Divorced	1	0.5
Qualification		
First degree	99	49.5
Masters' degree	99	49.5
Doctorate and post-doctorate	2	1.0
Professional rank		
Health Tutor	16	8.0
Senior Health Tutor	110	55.0
Principal Health Tutor	56	28.0
Deputy Chief Health Tutor	15	7.5
Chief Health Tutor	3	1.5
Years of teaching experience (years)		
1 – 5	113	56.5
6 – 10	61	30.5
11 – 15	19	9.5
16 – 20	7	3.5

Knowledge of health educators on occupational hazards

Table 2 depicts knowledge of health educators on occupational hazards. It indicates that 53.0% were aware of hazards associated with their occupation, 26% had adequate knowledge on the prevention of hazards associated with their occupation, with only 7.5% having received training on occupational hazards. Most (57%) knew that their institution should have an occupational safety unit/officer, 91% were knowledgeable about the basic concepts of general safety precautions, and almost all (99.5%) agreed they could develop stress when they had high demands from work with limited job resources.

Table 2. knowledge of health educators on occupational hazards

Variable	Frequency (n=200)	Percent(%)
I am aware of hazards associated with my occupation		
Strongly Disagree	28	14.0
Disagree	59	29.5
Neutral	7	3.5
Agree	72	36.0
Strongly Agree	34	17.0
I am adequately knowledgeable on the prevention of hazards associated with my occupation		
Strongly Disagree	60	30.0
Disagree	72	36.0
Neutral	16	8.0
Agree	39	19.5
Strongly Agree	13	6.5
I have received training on occupational hazards		
Strongly Disagree	155	77.5
Disagree	24	12.0
Neutral	6	3.0
Agree	13	6.5
Strongly Agree	2	1.0
I know my institution should have an occupational safety unit/officer		
Strongly Disagree	23	11.5
Disagree	11	5.5
Neutral	52	26.5
Agree	30	15.0
Strongly Agree	84	42.0
I am knowledgeable about the basic concepts of general safety precaution		
Strongly Disagree	4	2.0
Disagree	3	1.5
Neutral	11	5.5
Agree	87	43.5
Strongly Agree	95	47.5
Job stress develops when job demands are high, with limited job resources		
Strongly Disagree	0	0.0
Disagree	0	0.0
Neutral	1	0.5
Agree	10	5.0
Strongly Agree	189	94.5
Occupational stress leads to the development of health problems, and poor productivity		
Strongly Disagree	0	0.0
Disagree	0	0.0
Neutral	1	0.5
Agree	8	4.0
Strongly Agree	191	95.5
Adequate job resources has motivational potential, and leads to excellent performance		
Strongly Disagree	0	0.0
Disagree	1	0.5

Neutral	3	1.5
Agree	21	10.5
Strongly Agree	175	87.5

Level of knowledge of health educators on occupational hazards

Figure 1 shows the overall level of knowledge of health educators on occupational hazards. It shows that about 63.0% (95% CI=56.0% – 69.4%) had good knowledge on occupational hazards.

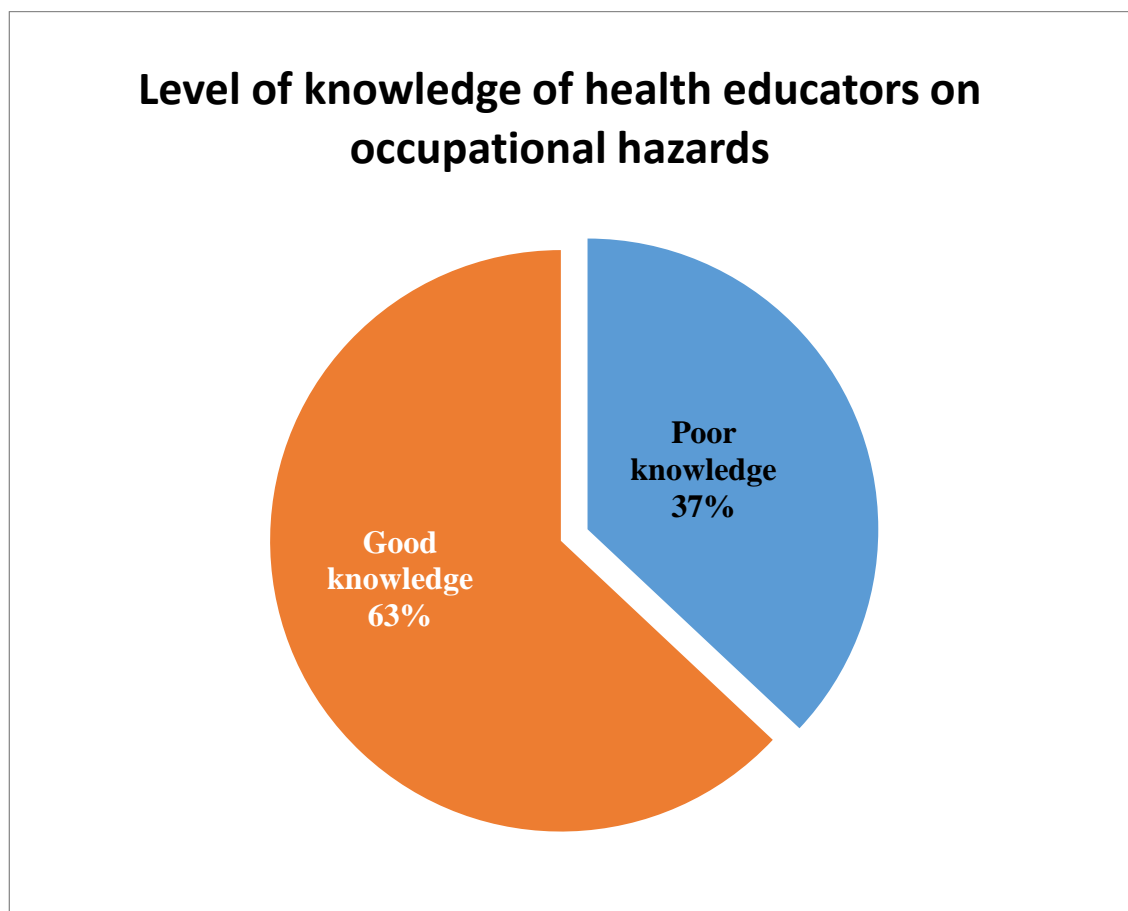


Figure 1. level of knowledge of health educators on occupational hazards

Association between knowledge on occupational hazards and socio-demographic characteristics of health educators

The association between knowledge on occupational hazards and socio-demographic characteristics of health educators was assessed using the chi-square test of independence. Clearly, aside gender which was significantly associated with level of knowledge ($p=0.027$), all other variables were not significantly associated with health educators' level of knowledge ($p>0.005$) [Table 3].

Table 3. association between knowledge on occupational hazards and socio-demographic characteristics of health educators

Variable			χ^2	p-value
	Poor knowledge n=74 (37.0%)	Good knowledge n=126(63.0%)		
Age (years)				
<35	20 (27.0)	28 (22.2)		
35 – 39	36 (48.7)	60 (47.6)		
40 – 44	14 (18.9)	27 (21.5)		
45+	4 (5.4)	11 (8.7)	1.29	0.732
Gender				
Female	50 (67.6)	65 (51.6)		
Male	24 (32.4)	61 (48.4)	4.87	0.027
Marital status				
Married	58 (78.4)	107 (84.9)		
Single	16 (21.6)	18 (14.3)		
Divorced	0 (0.0)	1 (0.8)	2.30	0.316
Qualification				
First degree	42 (56.8)	57 (45.2)		
Masters' degree	32 (43.2)	67 (53.2)		
Doctorate and post-doctorate	0 (0.0)	2 (1.6)	3.35	0.187
Professional rank				
Health Tutor	8 (10.8)	8 (6.3)		
Senior Health Tutor	40 (54.1)	70 (55.6)		
Principal Health Tutor	22 (29.7)	34 (27.0)		
Deputy Chief Health Tutor	4 (5.4)	11 (8.7)		
Chief Health Tutor	0 (0.0)	3 (2.4)	3.75	0.440
Years of teaching experience (years)				
1 – 5	43 (58.1)	70 (55.6)		
6 – 10	21 (28.4)	40 (31.7)		
11 – 15	8 (10.8)	11 (8.7)		
16 – 20	2 (2.7)	5 (4.0)	0.653	0.884

Factors associated with health educators' level of knowledge on occupational hazards

The factors associated with health educators' level of knowledge on occupational hazards were explored using bi-variate and multivariable logistic regression analysis. Regarding the bivariate analysis, only gender of the health educators was significantly associated with their level of knowledge [COR=1.95, 95%CI=1.07 – 3.56, p=0.028]. The multivariable logistic regression analysis showed that male educators were 1.85 times more likely to have knowledge on occupational hazards compared to their counterpart female tutors [AOR=1.85, 95%CI=1.01 – 3.52, p=0.049].

Table 4. factors associated with health educators' level of knowledge on occupational hazards

	COR	95%CI	p-value	AOR	95%CI	p-value
Age (years)						
<35	1			1		
35 – 39	1.19	0.59 – 2.42	0.629	0.82	0.34 – 1.95	0.652
40 – 44	1.38	0.59 – 3.27	0.467	0.69	0.19 – 2.41	0.559
45+	1.96	0.55 – 7.07	0.301	0.76	0.14 – 4.13	0.750
Gender						
Female	1			1		
Male	1.95	1.07 – 3.56	0.028	1.85	1.01 – 3.52	0.049
Marital status						
Married	1			1		
Single	0.61	0.29 – 1.28	0.193	0.64	0.28 – 1.50	0.310
Qualification						
First degree	1			1		
Masters' degree	1.54	0.86 – 2.75	0.143	1.39	0.70 – 2.77	0.346
Doctorate and post-doctorate						
Professional rank						
Health Tutor	1			1		
Senior Health Tutor	1.75	0.69 – 5.02	0.298	1.34	0.40 – 4.44	0.630
Principal Health Tutor	1.54	0.50 – 4.72	0.445	1.65	0.29 – 9.38	0.570
Deputy Chief Health Tutor	2.75	0.61 – 12.40	0.188	5.16	0.45 - 12.90	0.186
Chief Health Tutor						
Years of teaching experience (years)						
1 – 5	1			1		
6 – 10	1.17	0.61 – 2.24	0.636	0.97	0.33 – 2.82	0.964
11 – 15	0.84	0.31 – 2.26	0.737	0.37	0.07 - 1.97	0.242
16 – 20	1.53	0.28 – 8.27	0.617	0.24	0.02 – 3.57	0.299

Discussion

The study focused on assessing level of knowledge on workplace hazards among health tutors. At a confidence level of 95%, the overall level of knowledge of health educators on occupational hazards was good ([95%CI=56.0% – 69.4%]). This is a remarkable finding that could help health educators manage exposure to hazards. The finding has the implication of limiting dangerous and life threatening complications; as made explicit by²⁰ that possession of adequate knowledge on the dynamics of hazards and potential hazards is a paramount factor that corresponds to prompt preventive strategies. Further,^{21,22,23} also positively associate with

this finding, describing knowledge among teachers on workplace hazards as adequate. It must be noted however that adequacy of knowledge on a phenomenon may not translate to effective practice attitude.

From this study, health educators in the NMTC's mostly have either a first or second degree. This finding points out to the fact that, with almost 50% of tutors having postgraduate education, prevention and appropriate management of occupational hazards may not be a challenge. This is because, level of education has been posited by^{5,22,23}, as statistically significant with level of knowledge on occupational health hazards. Though in their study, correspondent level of preventive practice regarding work hazards was described as poor^{22,24}. Conversely, ^{20,25} have explicitly documented that possession of adequate knowledge on the dynamics of hazards and potential hazards is a paramount factor that corresponds to prompt preventive strategies.

Though this current survey did not measure the association between knowledge and practice of safety at workplace, ²²; and ²⁴ hints again that the high knowledge level of teachers on occupational hazards does not translate into practice. This assertion is however incongruent with ²⁰; and ²⁵ who argue that adequacy of knowledge on occupational hazards positively corresponds to effective practice. Worthy of note however, that all these studies were conducted between the years 2017 to 2020, and were also not specific among health tutors. Hence a more current investigation needs to be conducted to ascertain a population-based (health educators) association between level of knowledge and practice of occupational safety.

Conversely, the good knowledge on occupational hazards among tutors found in this study is in controversy with ⁵; and ²⁶, who have documented knowledge level among teachers as low and deficient respectively. In the case of ²⁶, however, the deficiency in knowledge on workplace hazards was significantly associated with absolutely lack of training given to tutors. That notwithstanding, regarding formal training on occupational hazards, it is key to note that, unlike ¹², who established a positive correlation between formal training and knowledge level, as well as practice, this current survey argues that, lack of formal training does not always yield poor knowledge. This is further demonstrated as this study found 63% good knowledge meanwhile only 7.5% of health educators had received formal training on occupational hazards and safety.

Significantly, this study establishes a clear association between knowledge on occupational hazards and socio-demographic characteristics of health educators. Accordingly, gender of health educators significantly influences their knowledge on occupational hazards ($p=0.027$; 0.028). More so, findings of this study imply that, male educators are almost twice more likely to have knowledge on occupational hazards compared to their female tutors ([AOR=1.85, 95% CI=1.01 – 3.52, $p=0.049$]). This may also account for why occupational hazards such as stress, burnout, work-life imbalance, voice disorders, and work-related musculoskeletal pain ([WRMSP]) are more prevalent among female tutors⁸. What the study failed to establish however, is whether this finding would propagate a positive association with adequate practice.

More so, the NMTC's are dominated by female educators; with most tutors being in the married social class. This means they are classic subjects to experiencing double-burden hazards, within the context of work-life imbalances.

Conclusion

Tutors in the NMTC's are mostly females, youthful, vibrant and energetic with adequate years of professional experience, as well as possessing one form of postgraduate degree or the other. Generally, tutors have good levels of knowledge on occupational hazards; with male tutors being more knowledgeable on occupational hazards compared to female tutors; though most have not gone through formal training on occupational hazards and safety.

Strength and Limitations of the study

The novelty of this study is such that no current study has documented knowledge of health tutors of on workplace hazards in the NMTC's in Ghana. Further, a significantly finding of this study is that it establishes a clear association between knowledge on occupational hazards and gender.

The study however did not measure the association between knowledge on occupational hazards and practice of safety at workplace. Additionally, 'the good knowledge' of tutors on occupational hazards as documented in this study is a perceived one and not assessed with a knowledge assessment tool. Lastly, the survey was conducted among tutors in Ashanti region, and did not involve other regions in the country.

Recommendations

- Regular formal training/workshops should be intensified by the MOH for health educators, emphasizing on standard safety precautions and establishment of institutional safety protocols
- NMTCs should conduct population-based occupational hazard surveys among health educators to ascertain the association between level of knowledge and practice of occupational safety
- MOH and NMTCs should organize regular screening and surveillance on occupational hazards for tutors. This will assist managers of NMTCs to develop keen interest in ensuring a friendly institutional 'climate', as well as the prevention and earlier detection of hazards at workplace.

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