



Appraising the Knowledge, Perception, Attitude and Practice of Occupational Health and Safety among Physiotherapists in an Under-Staffed Healthcare Settings

Ajediran Idowu Bello^{1*}, Jemima B. Adu¹, Peter O. Ndaa², Adesola C. Odole¹, Fidelis T. Iyor¹, Hosea Boakye¹

¹Department of Physiotherapy, School of Biomedical and Allied Health Sciences, College of Health Sciences, University of Ghana, West Africa

²Department of Occupational Therapy, School of Biomedical and Allied Health Sciences, College of Health Sciences, University of Ghana, West Africa

ABSTRACT

Occupational health and safety (OHS) is a concept designed to prevent work-related hazards. The leeway for widespread practice of OHS among healthcare professionals underscores its appraisal on profession-specific basis, particularly in under-staffed settings.

Aim: We determined the knowledge, perceptions, attitude and practice of OHS among physiotherapists at selected hospitals in the southern sector of Ghana.

Methods: The Practicing physiotherapists within the sector were purposively sampled to participate in the cross-sectional survey. Their e-mail and WhatsApp addresses were obtained from the registry of the Ghana Physiotherapy Association. Google software link was created for the completion of a validated questionnaire on knowledge, attitude, perception and practice of OHS. Percentages and proportions were used to summarize demographic profiles. Associations of their knowledge and perceptions with socio-demographics, were performed using Pearson Chi-square test at $p < 0.05$.

Results: One hundred and three physiotherapists (mean age; 30.66 ± 5.49 years) participated in the study of which male accounts for 52, (50.1%). 91 (88.3%) respondents had practiced less than 10 years. High proportions of the physiotherapists demonstrated adequate specific knowledge on physical hazards (89.3%), perceived risks of work-related hazards (93.2%), which were not significantly associated with their gender, and years of practice experience ($p > 0.05$).

Conclusion: Our findings demonstrated adequate knowledge, perception, attitude, and practice of OHS among the physiotherapists. The highly perceived occupational hazards in their practice suggests exigency for adequate support to ensure positive occupational environment.

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Background

Healthcare professionals (including physiotherapists) practice in a variety of environments which deserve appraisal for safety. The optimum practices of physiotherapists remain paramount to guarantee their safety whilst also ensure best healthcare for patients. Physiotherapists work at vantage position to enhance and promote health and safety of patients with disability. They form an integral part of occupational health promoters, and they are known crusaders for proper body mechanics and posture. To

assume such a role model requires adequate knowledge, perception, attitude and practice of standard preventive measures for self-protection, and to preserve optimal health of their clients. Physiotherapy practice is characterized by manual handling, defined as “any activity requiring the use of force exerted by a person to lift, push, pull, carry or otherwise move, hold or restrain... an animate or inanimate object” [1]. The work demand entails enormous body mechanics such as repetitive tasks, high force manual techniques, patients’ body support as well as prolonged body contacts, and the display of constrained postures during

Contact Ajediran Idowu Bello ✉ ajediran@yahoo.com 📍 Department of Physiotherapy, University of Ghana, West Africa

certain manoeuvres [2]. The high demand for postural manoeuvres remains a potential cause of work related injuries/disorders in physiotherapy practice.

Occupational health and safety (OHS) is a universal guideline commonly adopted as a means of self-preservation by a wide range of workers including health workers [3]. It is a multi-disciplinary approach with varying applications across countries, enterprises and groups that are at risk. Although, there are general applicable principles for all disciplines and organizations, yet its knowledge, perceptions, practice, and attitude on profession-specific basis, are scantily reported particularly in under staffed work environments. The International Labour Organization (ILO) mandates the establishment of OHS policies to be implemented at both the governmental and enterprises' levels [4]. Reports concerning OHS from various health professionals form the basis for developing universal guidelines by the Centre for Disease Control (CDC), the ILO, and all other Occupational Health and safety institutes [5]. In compliance with the global directives, OHS policy exists in Ghana through an Act of Parliament (Ghana labour Act), Act 651 of 2003, to protect the health and safety of employees. The widespread implementation of the general principles, by various work settings however, underscores profession specific appraisal.

Indeed, studies have shown that physiotherapists are susceptible to work related musculoskeletal disorders (WMSDs) which form the core components of physical hazards [6,7]. Notwithstanding, adherence to fundamental guidelines of OHS has been found to be effective in curtailing occupational illnesses, injuries and hazards among healthcare workers [8]. However, several barriers abound as potential barriers against the effective practice of OHS across organizations which include lack of its knowledge, low motivation, poor attitude, and limited staff resources [9]. Already, health sector in developing countries (including Ghana) is laced with many challenges including prioritizations, high workload occasioned by limited human resources, and organizational issues such as allocations of resources [10]. In view of the identified prevailing issues in the health sectors of most developing countries, appraising the requisite know how of OHS is thus worthwhile. Related studies in two African countries showed low levels of OHS practice among health workers, indicated the lack of adequate training in OHS as a bane for its practices among the Dentists in Nigeria, reported low awareness of OHS among nurses and doctors in Namibia, thus resulting in limited provisions of OHS driven services among several departments in the hospital [11,12]. The present study sought to determine the

physiotherapists' knowledge, perceptions, attitude and practice of OHS with the view to provide insight into the adequacy of its adoption according to professions need [13,14].

Methods

Study sites

The study was conducted across the secondary and tertiary hospitals (including accredited private hospitals) with physiotherapy facility, located in the southern sector of Ghana. The southern sector of Ghana comprises five administrative regions which include Accra, the capital city. More than two-third of the physiotherapists population in Ghana, practice in the Southern Sector [15]. The Sector is also endowed with the key tertiary hospitals.

Participants

The participants were practicing physiotherapists within the southern sector of Ghana. They were included in the cross-sectional survey if they were: actively practising, currently licenced by Allied Health Professions Council-Ghana, duly registered with Ghana Physiotherapy Association (GPA), and deemed to have actively practiced for over one year post-internship training programme. Unemployed physiotherapists and those who were on external Aid mission were excluded from the study.

Sampling

The participants were sampled purposively from the various centres. One hundred and eighty-eight duly registered physiotherapists in the southern sector, out of the total 280 registered GPA members, at the time of the conduct of this research, were eligible. Thus, using Taro Yamane's formula: $n=N/(1+Ne^2)$, with an allowable error ($e=0.05$), a total of 128 physiotherapists were required to take part in the study. Invariably, 103 physiotherapists responded out of the 116 questionnaire distributed, giving a response rate of 88.7% (Figure 1).

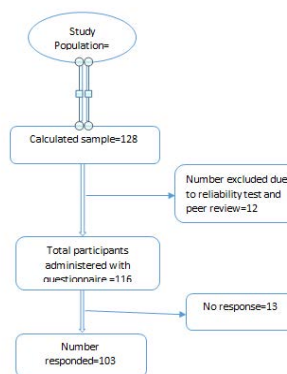


Figure 1: Sampling of the participants.

Materials for data collection

The socio-demographic profile of the participants was captured in a data collection form. A modified version of previously validated questionnaire on OHS among doctors and nurses was adapted for this study [16]. All the specific items for doctors and nurses were modified to suit physiotherapists' job descriptions. The questionnaire comprises four domains i.e. knowledge (8 items), perception (10 items), attitude (17 items), and practices (16 items). Response options on the knowledge, perception and practices domains are largely measured on nominal (Yes/No) scales with few closed ended items. The attitude domain on the other hand, is measured on 5 point Likert scale as follows: strongly agree=5, agree=4, undecided=3, disagree=2 and strongly disagree=1.

To assess the validity and reliability of the questionnaire, two academic staff (a physiotherapist and an occupational therapist) who are knowledgeable in the subject area, participated in a peer-reviewed process for content validity. The inputs from the review process were incorporated, and the questionnaire was subsequently subjected to test re-test reliability among ten physiotherapists, who were not involved in the final study. A Cronbach's alpha of 0.71 was obtained following the process. Respondents' scores are expressed in proportions for each item on the questionnaire. The questionnaire is self-administered and takes close to approximately 15 minutes for its completion.

Procedure for data collection

Approval for the study was sought from the Ethics and Protocol Review Committee of School of Biomedical and Allied Health Sciences, University of Ghana (Reference: SBAHS-PH/10517651/SA/SA2017-2018). Contact numbers and email addresses of all registered physiotherapists in the southern sector of Ghana were obtained from the secretariat of the GPA. Permissions were also obtained from the executive members of GPA having contacted them in persons or via e-mail messages about the rationale for the study. The secretary of the GPA obliged to announce the intent of the study to the members on three occasions. Thereafter, a written informed consent form, information sheet as well as the soft copy of the questionnaire (linked to online Google form) was posted on the WhatsApp platform of GPA and or via the e-mail of the individual member. They were implored to complete and return the copies of the questionnaire as soon as possible. One of the researchers, who were also a member, was saddled to monitor the completion of the questionnaire. About three reminders were sent after 48 hours for those who were unable

to respond as expected.

Data Analysis

Data were analysed with IBM-SPSS version 20. Descriptive statistics such as mean, standard deviation and percentages/frequency were used to present the data. The associations of the respondents' knowledge and perception of OHS with their gender, levels of education and years of practice experience were determined with Pearson Chi-square. The level of significance was set at $p < 0.05$.

Results

Social demographics of the participants

The age range of the participants was 24-54 years (mean=30.66 ± 5.49 years). More than half, 52 (50.1%) of the participants were male. Out of the 103 participants, 91 (88.3%) had practiced less than 10 years out of which almost half (49.5%) had only practiced between 1 and 5 years. Majority, 83 (80.6%) had professional entry level degree (B.Sc.) in physiotherapy whilst 21 (20.4%) of them had postgraduate degree (M.Sc.) training both in physiotherapy and other related disciplines (Table 1).

Table 1: Social Demographics of Ghanaian Physiotherapists

| Demographic | Variable | Frequency n=103 | Percent (%) |
|--------------------------|----------|-----------------|-------------|
| Sex | Male | 52 | 50.2 |
| | Female | 51 | 49.5 |
| Working experience/years | 01-May | 51 | 49.5 |
| | 06-Oct | 40 | 38.8 |
| | >10 | 12 | 11.7 |
| Education | Bachelor | 82 | 79.6 |
| | Masters | 20 | 19 |
| Marital status | Single | 58 | 56.3 |
| | Married | 43 | 41.7 |

Knowledge and perception of occupational health and safety

Majority of the physiotherapists, 100 (97.1%) believed that cross infection could be prevented by hand washing. Others, 92 (89.3%) and 94 (91.3%) were aware of some of the physical and ergonomic hazards respectively. Forty-Four participants (42.7%), cited the likely source of occupational hazards as body contact, 36 (35.0%) reported air borne infection, and 22 (31.4%) alluded to bloody fluid as hazards (Figure 2).

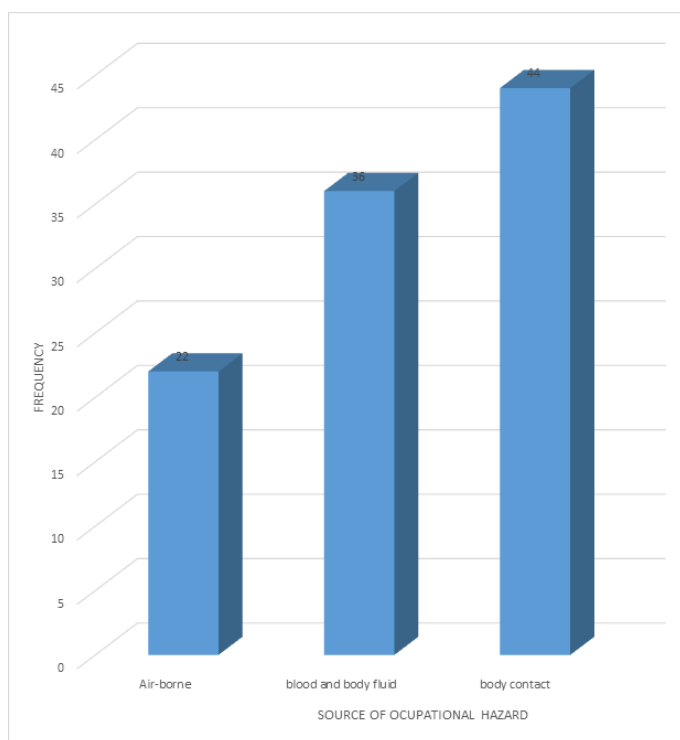


Figure 2: Showing the knowledge of the physiotherapists on the sources of occupational infection (x axis) and the frequency (y axis).

Ninety six (93.2%) perceived that they were at risk of occupational hazard out of which 75 (72.8%) physiotherapists rated their perception as moderate (Figure 3). Incident of slips and falls, 92 (89.3%); overhead

activities, 80 (77.7%); poor lighting, 83 (80.6%); body contact with retroviral patients 82 (79.6%), were identified as some of the perceived risks of occupational hazards in their practice setting. (Table 2).

There were no significant associations between the knowledge of OHS among the participants and their gender ($X^2=0.423$, $p=0.516$), education level ($X^2=0.208$, $p=0.901$), and work experience ($X^2=2.352$; $p=0.308$). Similarly, the perceived risk of the participants was not significantly associated with their working experience ($X^2=0.143$, $p=0.931$) and gender ($X^2=1.443$, $p=0.230$) (Table 2).

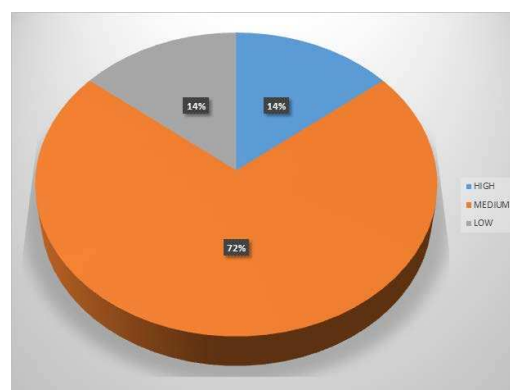


Figure 3: Showing the perceived level of risks regarding occupational hazards among the participants as low, medium/moderate and high.

Table 2. Knowledge and perception of occupational hazards among

| Knowledge of OHS | Yes n (%) | No n (%) |
|--|------------|-----------|
| Cross infection could be prevented by hand washing | 100 (97.1) | 3 (2.9) |
| Knowledge of physical hazard | 92 (89.3) | 11 (10.7) |
| Knowledge of chemical hazard | 80 (77.7) | 23 (22.3) |
| Knowledge of biological hazard | 69 (70.0) | 31 (30.0) |
| Knowledge of Ergonomic hazard | 94 (91.3) | 9 (8.7) |
| Knowledge of mechanical hazard | 85 (82.5) | 18 (17.5) |
| Practice experience | X^2 | p-value |
| 1-5 years (n=51) | | |
| 6-10 years (n=40) | 2.352 | 0.308 |
| 10+ years (n=12) | | |
| Sex | | |
| Male (n= 52) | 0.423 | 0.516 |
| Female (n=51) | | |
| Level of qualification | | |
| Bachelors (n=80) | 0.208 | 0.901 |
| Masters (n=20) | | |
| Risk of occupational hazard | 96 (93.2) | 7 (6.8) |

| | | |
|---|----------------|-----------|
| Slips and falls | 92 (89.3) | 11 (10.7) |
| Body contact with retroviral patients | 82 (79.6) | 21 (0.4) |
| Poor lighting | 83 (80.6) | 20 (19.4) |
| Assault from patients | 88 (85.4) | 15 (14.6) |
| Directs contact with patients' body fluid | 98 (95.1) | 5 (4.9) |
| Assaults from co-worker | 67 (65.0) | 36 (35.0) |
| Repetitive motion | 98 (95.1) | 5 (4.9) |
| Performing Overhead activities | 80 (77.7) | 23 (22.3) |
| Practice experience | X ² | p-value |
| 1-5 years (n=51) | | |
| 6-10 years (n=40) | 0.143 | 0.931 |
| 10+ years (n=12) | | |
| Sex | | |
| Male (n= 52) | 1.443 | 0.23 |
| Female (n=51) | | |

Practice of occupational health and safety among the physiotherapists

All the participants 103 (100%) affirmed that they practiced safety precaution to prevent occupational hazards. One hundred and two (99.0%) practiced hand washing with anti-septic agents, 99 (96.1%) used

gloves, 94 (91.3%) used ward coat, 83 (80.6%) used to break between sitting periods, and 102 (99.0%) practiced correct body mechanics for lifting. Eighty three (80.6%) had completed immunization against hepatitis B and 67 (65.0%) had completed immunization against Tetanus. However, 56 (54.4%) of the participants practiced barrier method on daily basis (Table 3).

Table 3. Practice of occupational health and safety

| Safety precautions | Yes n (%) | Yes n (%) |
|---|-------------|------------|
| Practice of safety precaution against occupational hazard | 103 (100.0) | 0 (0.0) |
| Hand washing with bacterial agents | 102 (99.0) | 1(1.0) |
| Barrier methods | 56 (54.4) | 44 (42.7) |
| Gloves | 99 (96.1) | 4 (3.9) |
| Ward coat | 94 (91.3) | 9 (8.7) |
| Emergency exist | 63 (61.2) | 39 (37.8) |
| Dressing of cut wounds | 71 (68.9) | 30 (29.1) |
| Environmental control e.g. waste disposal | 96 (93.2) | 7 (6.8) |
| Breaks between sitting periods | 94 (91.3) | 7 (6.8) |
| Complete immunization against hepatitis B | 83 (80.6) | 20. (19.4) |
| Complete immunization against Tetanus | 67 (65.0) | 36 (35.0) |
| Correct body mechanics for lifting | 102 (99.0) | 1(1.0) |
| Correct body posture during therapy session | 102 (99.0) | 1(1.0) |

Attitude of the physiotherapists towards occupational health and safety

The participants showed adequate attitude towards the adoption of OHS into their practice. Whilst 102 (99.0%) believed that prevention of occupational hazards is a joint responsibility of the hospital management and the staff, only few 12 (11.7%), believed that paying ex-

tra attention to occupational hazard is an unnecessary burden on them. In addition, 101(98.1%) agreed that exposure and control policies should be regularly reviewed by the hospital management, and 78 (75.8%) agreed that punitive actions should be taken against violators of safety practices. In addition, very few participants 2 (1.9%) disagreed that prolonged standing should be avoided by all health workers (Table 4).

Table 4. Attitude of the physiotherapists towards occupational health and safety

| Variables | Agreen (%) | Not suren (%) | Disagreen (%) |
|---|-------------|---------------|---------------|
| Occupational hazard should be taken seriously and given prompt attention in the hospital | 103 (100.0) | 0 (0.0) | 0 (0.0) |
| Prevention of occupational hazards is a joint responsibility of the hospital management and the staff | 102 (99.0) | 0 (0.0) | 1 (1.0) |
| Paying extra attention to occupational hazard is an unnecessary burden on me | 12 (11.7) | 11(10.7) | 80 (76.6) |
| Training of staff and provision of personal protective equipment is necessary to reduce the risk of exposure to occupational hazard | 102 (99.0) | 0 (0.0) | 1 (1.0) |
| Lab coats should always be worn in procedures where spilling of fluid is likely | 101 (98.0) | 1 (1.0) | 1(1.0) |
| Gloves should always be worn when treating patients with open wounds. | 103 (100.0) | 0 (0.0) | 0 (0.0) |
| Hands should be properly washed after each contact with a patient | 103 (100.0) | 0 (0.0) | 0 (0.0) |
| Incorporating proper work breaks and stretching is essential to reduce exposure stress | 102 (99.0) | 1 (1.0) | 0 (0.0) |
| Putting of an injury surveillance system in place reduces report of workplace injuries. | 87 (74.4) | 10 (9.7) | 6 (5.8) |
| Self-evaluation of workplace risk factors should be done always | 101 (98.1) | 2 (1.9) | 0 (0.0) |
| HBV, Measles, Mumps, Rubella and Influenza vaccines should be received by all health workers | 98 (95.1) | 2 (1.9) | 3 (2.9) |
| Prolonged standing should be avoided by all health workers | 99 (95.1) | 2 (1.9) | 2 (1.9) |
| All exposures to occupational hazards should be reported to | | | |
| and appropriately documented by appropriate authorities | 102 (99.0) | 1 (1.0) | 0 (0.0) |
| Adequate staffing of hospitals is a way of reducing occupational hazards | 93 (90.3) | 7 (6.8) | 3 (2.9) |
| There should be provision of incentives for adherence to universal safety precautions | 88 (85.5) | 10 (9.7) | 5 (4.8) |
| Punitive actions should be taken against violators of safety practices | 78 (75.8) | 23 (22.3) | 2 (1.9) |
| Exposure and Control policies should be regularly reviewed by the hospital management | 101 (98.1) | 2 (1.9) | 0 (0.0) |

Discussion

Our findings indicate adequate knowledge, perception, attitude and practice of OHS. The knowledge as well as the perception of the physiotherapists was not associated with their years of practicing experience, the level of education and gender [17]. The mean age of the participants was 30.66 ± 5.49 years which also informs their reported years of clinical experience in which 88.3% had practiced less than 10 years. Many reasons have been ascribed in the literature as to why health care professionals are dominated by young people in developing countries which are believed to be due to incessant quitting of jobs and pre-mature retirement occasioned by numerous occupational hazards [18]. The situation in Ghana can be ascribed to the late commencement of physiotherapy training in Ghana. It thus shows the practicing of OHS among the participants is in conformity with the guidelines provided by the International Labour Organization and, the Ghana labour Act 651 of 2003.

Knowledge and perception of occupational health and safety among the respondents

The majority of the participants demonstrated good knowledge and perception of OHS. They indicated adequate responses on hand washing, physical and ergonomics hazards. Similar findings were reported in India [19,20]. Of particular importance among the OHS principles is their knowledge about hand washing to prevent skin related diseases. In the present study, 99.0% identified hand washing as an important component of OHS. According to Schmidt et al, of all the reported occupational diseases recorded in 2014 and 2016 among the physiotherapists in Germany, skin related occupational disease accounted for 57.4% and 73% respectively [18,21]. The knowledge of the participants in the present study might not be unconnected with their knowledge background from the theoretical perspective into practice. Contrarily, Julia et al. reported insufficient knowledge of ergonomic hazards among nurses in Namibia accompanied by high prevalence of reported cases of occupational hazards [22].

In addition, the majority of the physiotherapists perceived their task to be subject to repetitive motion, high risk of occupational hazards, slips and falls, and making direct contact with patients' body fluid. Similarly reported that 96% of Nigeria nurses perceived they were at risk of occupational hazards [23]. Intuitively, a high perception of hazards coupled with good knowledge may support a positive attitude towards the practice of OHS. The World Confederation for Physical Therapy policy statement (three), mandated her member organizations to be acquainted with their rights regarding safe and healthy practice environment including work-

place risks and hazards awareness [24,25]. These factors might have potentially contributed to the present findings.

Associations of gender, level of education, and years of practice experience with their knowledge and perception of OHS.

Although there was overall adequate knowledge of OHS among the participants, this was not significantly associated with their sex, level of education and years of practice experience. In line with this [6] had earlier argued that years of practice experience, educational status and sex alone, are not necessarily the only determinants of individual's knowledge. The present study seems to reflect the acquired information by the respondents in the context of their professional practice.

Similarly, no significant associations were found between the perception of OHS among the physiotherapists, with their gender and practice experience. It implies that, their years of practice experience and gender has no bearing on their perception of OHS. This finding varies with the report from Greek hospitals [26]. In their findings, men and staff with longer years of practice experience had higher knowledge. The present finding is ironical but might not be unconnected with the relatively young age (30.66 ± 5.49 years), and short period of clinical practice, where 88.3% had practiced less than ten years.

Attitudes of the respondents towards occupational health and safety

The respondents also demonstrate good attitude towards OHS of which 99.0% believed that prevention of occupational hazards is a joint responsibility of the hospital management and staff. Only about one tenth (11.7%) of the respondents held the view that paying extra attention to OHS guideline is an unnecessary burden on them. Our findings agree with the previous in Nigeria where majority of health workers (80%) showed the right attitude towards OHS [16]. In fact our findings show that a significant number 98.1% agreed that OHS policies should be regularly reviewed by the hospital management, which explains the general view of the respondents whose interests do not lie only on embracing the OHS practice, but also on adequate review process to improve the policy.

Indeed, against the backdrop of shortfalls in the number of physiotherapists in Ghana, 90.3% of the respondents considered adequate staffing to reduce occupational hazards. The physiotherapist per 100, 000 people are 49.4 in Canada, 61.4 in Australia and 64.7 in the USA, compared to 12 and 13 for Tunisia and South Africa respectively, whereas, it is 1.7 in Nigeria and 0.95 for Ghana [27]. This finding is corroborated by the

submissions, which supports the view that insufficient staff increases the workload and chance of occupational injuries [28]. Most of the respondents also showed positive attitude 88(85.5%) towards provision of incentives for adherence to occupational hazards. Incentives from employers could reduce employee employer gap and increase workers joy at the workplace [29].

Practice of occupational health and safety among the respondents

Respondents in this study reported regular practicing of OHS regarding hand washing, use of gloves and ward coats, body mechanics and postures. The findings are at variance with the two previous studies conducted [30,31] in Nigeria and Egypt respectively. In their studies, respondents indicated poor practice of safety measures in spite of high awareness of OHS. Although, it has been reported that high awareness of OHS did not translate into better safety practices, the acquired knowledge and perceptions of the sampled physiotherapists in Ghana, seem to favour their practice of OHS [28]. Accordingly it is part of the physiotherapists' skills to employ various body mechanics to reduce incidence of work-related hazards [6].

As many as 80.6% and 65.0% of the respondents have completed immunization against hepatitis B and Tetanus respectively. The reported prevalence of Hepatitis B Virus (HBV) infection among health care workers was 2-10% higher than in the general population, and the average risk of contracting the HBV through percutaneous means was 6-30%, which thus justified vaccination against such infection by all health workers (including physiotherapists) [32].

Conclusion

The physiotherapists in this study showed adequate knowledge, perception, attitude and practice of OHS. The demonstrated knowledge and perception have no bearing on their sex, level of education and years of clinical practice. The perception of the occupational hazards by the physiotherapists should therefore be taken seriously at the professional association and government levels to ensure adequate support for practice.

Competing Interests

The Author declares that there are no competing interests to this study.

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None.

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