BMJ Public Health

Exposure to needlestick injury among healthcare support staff in Greater Accra, Ghana: a cross-sectional study

Philip Apraku Tawiah ,[1,2] Emmanuel Appiah-Brempong,[3] Paul Okyere,[3] Mary Eyram Ashinyo [4,5]

To cite: Tawiah PA, Appiah-Brempong E, Okyere P, *et al*. Exposure to needlestick injury among healthcare support staff in Greater Accra, Ghana: a cross-sectional study. *BMJ Public Health* 2024;**2**:e000681. doi:10.1136/bmjph-2023-000681

► Additional supplemental material is published online only. To view, please visit the journal online (https://doi.org/10.1136/bmjph-2023-000681).

Received 23 October 2023
Accepted 30 April 2024

For numbered affiliations see end of article.

Correspondence to
Dr Philip Apraku Tawiah; ptawiah@uhas.edu.gh

ABSTRACT

Objectives This study aims to determine the prevalence and predisposing factors of a needlestick injury (NSI) among healthcare support staff in the Greater Accra region, Ghana.

Methods An analytical cross-sectional survey was carried out from 30 January 2023 to 31 May 2023, involving 10 major health facilities. A multistage sampling method was adopted. The data analyses were performed using STATA V.15 software. χ^2, Fisher's exact and Mann-Whitney U tests were used to identify the preliminary association between the outcome variables and predisposing factors. Log-binomial regression analyses were used to confirm factors associated with NSI at a significance level of p<0.05.

Results The study was conducted among 149 healthcare support staff. The 1-year exposure to NSI was 68 (45.6%) (95% CI (37.5% to 54.0%)). Being a healthcare assistant (APR=2.81 (95% CI 1.85 to 4.25)), being married (APR=0.39 (95% CI 0.25 to 0.63)), being a supervisor (APR=0.34 (95% CI 0.20 to 0.57)), had training on standard precaution (APR=0.27 (95% CI 0.14 to 0.57)) and non-existence of needlestick reporting system (APR=0.46 (95% CI 0.29 to 0.74)) were significantly associated with NSI.

Conclusion The prevalence of NSI was high compared with other regional studies, and the risk factors were related to sociodemographic, behavioural and organisational factors. The study recommends guidelines that are geared towards NSI exposure among healthcare support staff.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Traditional healthcare professionals, including doctors, nurses and laboratory personnel, as well as housekeeping personnel, such as medical waste handlers, janitors and attendants, face significant susceptibility to needlestick injury.

⇒ However, globally, there is a lack of studies investigating exposure to needlestick injury among these healthcare support staff (healthcare assistants, orderlies and laundry staff), who may be more exposed compared to the traditional healthcare providers.

WHAT THIS STUDY ADDS

⇒ In this study conducted among healthcare support staff within 10 hospitals in the Greater Accra region, Ghana, it was found that being a healthcare assistant was associated with a higher prevalence of exposure to needlestick injury while being married, had training on standard precaution, being a supervisor and non-existence of needlestick reporting systems were linked to lower prevalence of exposure.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Stakeholders of the healthcare sector should take a closer look at needlestick exposure among healthcare support staff due to the high prevalence among them.

⇒ Policy-makers should create occupational policy on needlestick injury, specifically for healthcare support staff, bearing in mind their line of duty.

INTRODUCTION

Occupational exposure to bloodborne infections through needlestick injury poses a significant risk to health workers.[1] Additionally, needlestick injury is an established risk factor in the transmission of more than 20 types of infectious diseases among healthcare personnel.[2] Also, needlestick injury, in other words, percutaneous injury, accounts for 75% of all occupational exposures in the healthcare sector.[3] Furthermore, percutaneous injury poses a higher risk of transmission of hepatitis B and hepatitis C compared with mucocutaneous injury.[4] The safety and well-being of health workers, and healthcare delivery are compromised due to needlestick exposure.[5]

A projection by the WHO depicts that almost 3 million out of the 35 million healthcare professionals are exposed to needlestick injury on a yearly basis.[6 7] Other studies have revealed a high prevalence of needlestick injury among health professionals in low-income and middle-income countries compared with the developed ones. Bouya *et al*[8] reported a 1-year global pooled prevalence of needlestick injury among health workers as

44.5%[8] while the annual prevalence of needlestick injury ranged from 39.0%–91.0%[9] to 14.0%–60.0%[10] in Africa and Ghana, respectively.

Traditional healthcare professionals such as doctors, nurses and laboratory workers as well as healthcare support staff like medical waste handlers, janitors and laundry workers are at a high risk of exposure to needlestick injury due to their daily contact with patients and medical waste.[11 12] Although the latter group of health workers might be more exposed, there is limited research and data to ascertain this assertion. For instance, in a recent review published on the global view of exposure to needlestick injury among health workers, there was no study targeted at healthcare support staff as study participants.[13 14] However, the majority of studies factored healthcare support staff as a small part of the general health worker group, but this masks the estimation of prevalence and associated risk factors of needlestick injury among them.

The global picture of lack of data, and low research on needlestick injury among healthcare support staff is similar to the situation in Africa and other developing countries,[9 15] where few studies have addressed needlestick injury among orderlies and medical waste handlers.[16 17] According to a recent scoping review on exposure to occupational health hazards among healthcare providers and healthcare support staff of the Ghanaian healthcare industry,[10] no study addressed needlestick injury among the support staff of the healthcare industry; hence, the reason for the conduct of this study. This research, therefore, investigated the prevalence and determinants of exposure to needlestick injury among healthcare support staff in the populated Greater Accra region of Ghana.

APPROACH AND METHODOLOGY

Study design, participants and setting

A multifacility cross-sectional study design and a quantitative approach guided the conduct of this study. The participants were healthcare support staff (orderlies, laundry workers and healthcare assistants) from 10 hospitals in the Greater Accra region of Ghana. Four of these health facilities were private-owned whereas the remaining were owned by the state. These facilities are Weija-Gbawe Municipal Hospital, Ashaiman Community Hospital, Pentecost Hospital, Sakumono Community Hospital, Nyaho Medical Centre, Shai-Osudoku Hospital, Tema General Hospital, Achimota Hospital, LEKMA Hospital and Ga North Municipal Hospital. Also, these hospitals are major healthcare facilities within their respective districts, providing a range of services including outpatient department (OPD), antenatal and family planning, dental care, eye care, laboratory services, ear-nose-and-throat care, radiology and dermatology services, along with surgical procedures. Their bed capacities vary from 50 to 500, and the total number of health workers ranges from 77 to 579.

The Greater Accra region houses about 30.6% of all medical officers, nurses, midwives and pharmacists in Ghana. This estimate represented the highest number of health workers in a region in the year 2015.[18] According to the Population and Housing Census, the Greater Accra Region accounts for about 17.7% of the total population of Ghana.[19] The region is highly urbanised, and the region is judged as an area with the highest population density based on its high in-migration and population growth rate.[19]

Sample size determination

The Cochran formulae,[20] $N = \frac{z^2pq}{d^2}$, guided the calculation of the sample size for this research. Applying z=constant for 95% CI given as 1.96, p=proportion of the population (22.8%) that experienced the outcome (needlestick injury) of a study conducted among housekeeping workers in hospitals of Shiraz, Iran,[21] q=(1−p) and d=margin of error estimated as 5%, the sample size, N_o, was projected to be 270. Also, after employing a design effect of 1.5,[22 23] the finite correction population formula proposed by Neyman[24 25] and an anticipated 10% non-response rate, we concluded with a sample size of 185. However, only 149 healthcare support staff participated in the study, resulting in a response rate of 80.5%. The fundamental reason for the non-response rate was the lack of monetary compensation.

Sampling procedure

This study employed a multistage sampling method. The Greater Accra region in Ghana was purposefully selected, followed by the random selection of districts, hospitals and study participants. Also, the selection of districts from the region, hospitals from the districts and study participants was guided by the probability proportional-to-size sampling method. The Greater Accra region comprised 29 districts, including 2 metropolitan assemblies, 23 municipal assemblies and 4 ordinary districts. From these districts, 10 were selected, representing over 30.0% of the total districts. 17 major hospitals were selected into the sampling frame, and 10 of them were randomly chosen for the study. Each district was represented by one major hospital, with the exception of districts with two or three major hospitals, where one was randomly selected. The selection of major hospitals for the sampling frame was influenced by the 2021 annual OPD attendance data from the District Health Information Management System.[26] A stratified random sampling method was employed to recruit study participants based on their respective professions.

Inclusion and exclusion criteria

The participants for this study were healthcare support staff: healthcare assistants, laundry workers and orderlies. Additionally, these participants should have worked in a hospital for at least the past 12 months. Apart from the aforementioned healthcare personnel, other employees of healthcare facilities were exempted from the research.

Table 1 Sociodemographic and lifestyle characteristics of healthcare support staff

Characteristics	Frequency (149)	%
Gender		
Female	103	69.1
Male	46	30.9
Occupation		
Orderlies/laundry staff	128	85.9
Healthcare assistant	21	14.1
Age (years)		
Median (IQR)	33.0	30.0–40.0
26–29	34	22.8
30–33	48	32.2
34–39	26	17.5
40 and above	41	27.5
Marital status		
Single/divorced	89	59.7
Married	60	40.3
Highest educational level		
Primary	32	21.5
Secondary	117	78.5
Type of health facility		
Private	49	32.9
Public	100	67.1
Current position		
No position	118	79.2
Supervisor	31	20.8
Working experience (years)		
Median (IQR)	5.0	4.0–9.0
Less than 5	49	32.9
5 and above	100	67.1
Type of employment		
Contract	33	22.0
Permanent	116	78.0
Working days in a typical week		
5 and below	103	69.1
Above 5	46	30.9

Study questionnaire and data collection

The data were collected through a structured questionnaire (online supplemental file 2) which comprised mainly closed-ended questions with dichotomous, multiple-choice and ranking scale formats. The questionnaire was designed for the study; however, some portions were adapted from an already validated National Institute for Occupational Safety and Health, US Centers for Disease Control and Prevention's Healthcare Workers Safety and Health Survey questionnaire.[27] The questionnaire was structured into four sections, namely: respondent's sociodemographic and lifestyle characteristics; occupational, organisational and behavioural factors; intervention strategies and prevalence of needlestick injury, with 9, 9, 5 and 2 questions, respectively.

The questionnaire was pretested among 20 healthcare support staff of the Ho Teaching Hospital, Ho, Volta Region, Ghana. Following the pilot phase, questions were revised based on feedback from the study participants, faculty members in occupational health and safety, and key stakeholders from the Ghana Health Service. The self-administered paper questionnaire was shared among selected study participants, who were encouraged to complete it as soon as possible. Participants who requested assistance regarding their inability to complete the study questionnaire on their own were aided by research assistants. All participants endorsed a written consent form before they took part in the study. The data collection took place within the period of 30 January 2023–31 May 2023.

Data management and analysis

The information gathered on the paper questionnaire was entered into the Open Data Kit platform. STATA SE V.15 (64-bit) statistical analysis software was used for cleaning and analysis after the data were exported from the Open Data Kit electronic platform. Primary analysis, including frequencies, was conducted on all variables to confirm the presence or absence of missing values. Also, skewness and kurtosis tests were conducted on study variables to determine their appropriateness for parametric or non-parametric tests.

Descriptive statistics such as frequencies and percentages were used to summarise categorical variables, whereas median and IQR were used for continuous variables. The response options for the outcome variable, needlestick injury, were categorised as 'no' for 'never' response and 'yes' for responses to exposure occurring once, twice, thrice, four times or more than five times. Using statistical significance of 95% CI and $p<0.05$, χ^2, Fisher's exact and Mann-Whitney U tests were used to ascertain the preliminary associations between the prevalence of needlestick injury (past 12-month exposure to needlestick injury) and independent variables (sociodemographic and lifestyle characteristics, occupational organisational and behavioural factors, and intervention strategies). Variables significant at a p value of 0.1 and below on the preliminary tests were included in the multiple log-binomial regression model. However, in the model, variables were deemed significant at a $p<0.05$. To assess potential multicollinearity among key explanatory variables, variance inflation factor (VIF) was employed. The final results indicated no evidence of multicollinearity after eliminating certain variables beyond the VIF threshold of 5 (mean VIF=2.14, minimum VIF=1.36 and maximum VIF=3.74).

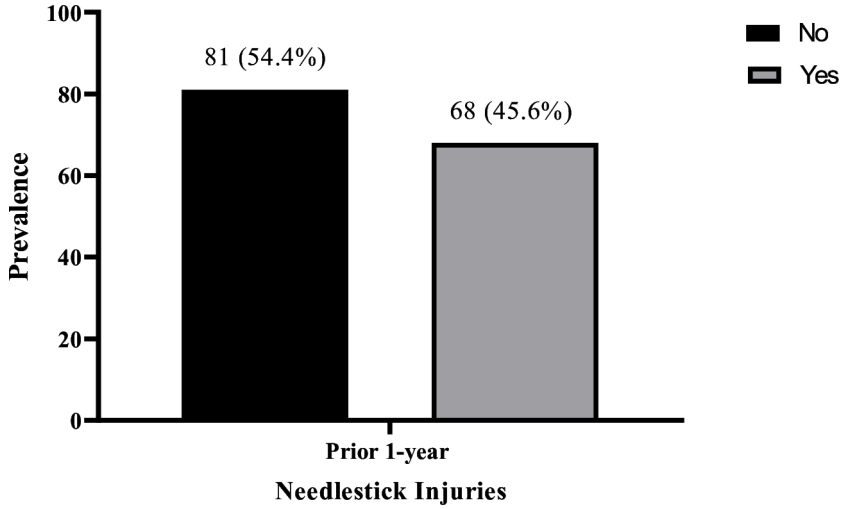

Figure 1 Prior 1-year exposure to needlestick injury.

RESULTS AND INTERPRETATION

Sociodemographic and lifestyle characteristics of healthcare support staff

Table 1 presents a summary of the sociodemographic and lifestyle attributes of healthcare support staff from ten health facilities. Among 149 study participants, a substantial majority, 128 (85.9%), 103 (69.1%) and 89 (59.7%) were orderlies/laundry staff, females and not married, respectively. The greater part of the study participants belonged to the age groups of 26–29 (32.2%), and 40 years and older (27.5%), with a median age of 33 years and an IQR of 30–40 years. Furthermore, a significant portion of study participants, 117 (78.5%) had achieved secondary education, and most (67.1%) were employed in public hospitals. In addition, slightly more than two-thirds, 100 (67.1%), had worked for 5 years or more. The median length of service was 5 years, with an IQR of 4–9 years. The majority of study participants, 116 (78.0%), were permanent staff members, while only a few, 31 (20.8%), held supervisory positions. Additionally, a significant number of them, 103 (69.1%), worked for 5 days or fewer during a typical working week.

Occupational, organisational and behavioural factors

Regarding occupational factors, slightly above half of study participants, 77 (52.0%) frequently experienced pressure from work, and the majority of them, 104 (69.8%) said their job was demanding. Additionally, a greater proportion, 91 (61.1%) experienced a lot of stress at work. With respect to organisational-related factors, a significant portion of respondents, 116 (78.0%), indicated the availability of needlestick reporting system in their facility, and most of them, 93 (62.4%) always had access to needed personal protective equipment. In addition, almost two-thirds, 98 (65.8%) perceived their department to be understaffed, and close to all, 142 (95.3%) had access to dustbins in their facility. Concerning behaviour factors, a significant number of study participants, 58 (38.9%), extremely followed work protocols, and the majority of them, 118 (79.2%), always use personal protective equipment (online supplemental table 1).

Intervention strategies for needlestick exposure

About two-thirds of study participants, 99 (66.4%) had been trained on wearing personal protective equipment, and almost half of them, 74 (49.7%), also received training on standard precaution. Additionally, most of them, 95 (63.8%), were trained in handling needle wastes. A huge number of participants, 134 (89.9%), disposed of needles in special containers, and less than half of them, 63 (42.3%), disposed of needles in regular bins (online supplemental table 1).

Prevalence of exposure to needlestick injury among healthcare support staff

A significant number, 68 (45.6%) (95% CI (37.5% to 54.0%)), healthcare support staff were exposed to needlestick injury in the past 1 year whereas the rest were not (figure 1).

Sociodemographic characteristics influencing needlestick exposure

A significant association was found between the category of worker (χ^2=14.93, p=0.001), marital status (χ^2=20.14, p≤0.001), current position (χ^2=8.39, p=0.004) and exposure to needlestick injury. Also, working experience (t=2.11, p=0.034) was related to exposure to needlestick injury (table 2).

Occupational, organisational and behavioural factors, and intervention strategies influencing needlestick exposure

A significant association was observed between system for reporting needlestick (χ^2=7.82, p=0.005), use of personal protective equipment (χ^2=6.21, p=0.013) and exposure to needlestick injury (table 3). Regarding intervention strategies, trained on wearing personal protective equipment (χ^2=9.44, p=0.002) and received training on standard precautions (χ^2=12.56, p≤0.001) were significantly associated with exposure to needlestick injury (table 3).

Table 2 Sociodemographic and lifestyle characteristics influencing needlestick exposure

Characteristics	N	Needlestick injury		χ^2/t	P value
		No	Yes		
Gender				3.18	0.075
Female	103	61 (59.22)	42 (40.78)		
Male	46	20 (43.48)	26 (56.52)		
Category of worker				14.93	0.001*†
Orderlies/laundry staff	128	77 (60.16)	51 (39.84)		
Healthcare assistant	21	4 (19.05)	17 (80.95)		
Age				0.65	0.519‡
Median (IQR)	33.0 (30.0–40.0)	33.0 (30.0–42.0)	32.0 (30.0–39.0)		
Marital status				20.14	<0.001*
Single/divorced	89	35 (39.33)	54 (60.67)		
Married	60	46 (76.67)	14 (23.33)		
Educational level				0.92	0.337
Primary	32	15 (46.88)	17 (53.13)		
Secondary	117	66 (56.41)	51 (43.59)		
Type of health facility				0.23	0.633
Private	49	28 (57.14)	21 (42.86)		
Public	100	53 (53.00)	47 (47.00)		
Current position				8.39	0.004*
No position	118	57 (48.31)	61 (51.69)		
Supervisor	31	24 (77.42)	7 (22.58)		
Working experience				2.11	0.034*‡
Median (IQR)	33.0 (30.0–40.0)	33.0 (30.0–42.0)	32.0 (30.0–39.0)		
Type of employment				0.00	0.981
Contract	33	18 (54.55)	15 (45.45)		
Permanent	116	63 (54.36)	53 (45.69)		
Days in a typical week				2.02	0.155
5 and below	103	52 (50.49)	51 (49.51)		
Above 5	46	29 (63.04)	17 (36.96)		

*P<0.05.
†P values calculated from Fisher's exact test.
‡P values calculated from Mann-Whitney U test.

Factors associated with exposure to needlestick injury among healthcare support staff

Table 4 summarises the bivariate and multiple log-binomial regression analysis between risk factors and exposure to needlestick injury. The variables, category of worker, marital status, current position, reporting system for needlestick and trained on standard precautions were significant on the multiple log-binomial regression model. Belonging to the healthcare assistant occupation was associated with a higher prevalence of needlestick injury (APR 2.81, 95% CI 1.85 to 4.25, p≤0.001). However, being married (APR 0.39, 95% CI 0.25 to 0.63, p<0.001) and occupying the position of a supervisor (APR 0.34, 95% CI 0.20 to 0.57, p<0.001) were associated with a lower prevalence of needlestick injury. Additionally, having had training on standard precaution (APR 0.27, 95% CI 0.14 to 0.57, p<0.001) and the non-existence of needlestick reporting systems (APR 0.46, 95% CI 0.29 to 0.74, p=0.001) were also related to lower prevalence of needlestick injury.

DISCUSSION

This research examined the exposure to needlestick injury among healthcare support staff. The study, specifically, determined the prevalence of needlestick injury as well as its associated predisposing factors. The prevalence of exposure to needlestick injury among healthcare support staff in the past 12 months was 45.6%. Being a healthcare assistant was associated with a higher prevalence of

Table 3 Occupational, organisational and behavioural factors, intervention strategies influencing needlestick exposure

Characteristics	N	Needlestick injury		χ^2	P value
		No	Yes		
Pressure from work				0.37	0.541
Occasionally	72	41 (56.94)	31 (43.06)		
Frequently	77	40 (51.95)	37 (48.05)		
Demanding nature of work				2.64	0.104
Not demanding	45	29 (64.44)	16 (35.56)		
Demanding	104	52 (50.00)	52 (50.00)		
Stress				0.73	0.393
A moderate amount of stress	58	29 (50.00)	29 (50.00)		
A lot of stress	91	52 (57.14)	39 (42.86)		
Reporting system for needlestick				7.82	0.005*
Yes	116	56 (48.28)	60 (51.72)		
No	33	25 (75.76)	8 (24.24)		
Access to needed PPE				0.75	0.385
Always	93	48 (51.61)	45 (48.39)		
Sometimes	56	33 (58.93)	23 (41.07)		
Access to dustbins				0.39	0.403†
No	7	3 (42.86)	4 (57.14)		
Yes	142	78 (54.93)	64 (45.07)		
Understaffed				3.34	0.067
No	51	33 (64.71)	18 (35.29)		
Yes	98	48 (48.98)	50 (51.02)		
Use of work protocols				6.39	0.172
Not at all	18	12 (66.67)	6 (33.33)		
A little bit	24	8 (33.33)	16 (66.67)		
Moderately	26	13 (50.00)	13 (50.00)		
Quite a bit	23	14 (60.87)	9 (39.13)		
Extremely	58	34 (58.62)	24 (41.38)		
Use of PPE				6.21	0.013*
Always	118	58 (49.15)	60 (50.85)		
Sometimes	31	23 (74.19)	8 (25.81)		
Trained on wearing PPE				9.44	0.002*
No	50	36 (72.00)	14 (28.00)		
Yes	99	45 (45.45)	54 (54.55)		
Trained on standard precaution				12.56	<0.001*
No	75	30 (40.00)	45 (60.00)		
Yes	74	51 (68.92)	23 (31.08)		
Trained on handling needle wastes				1.55	0.212
No	54	33 (61.11)	21 (38.89)		
Yes	95	48 (50.53)	47 (49.47)		
Dispose needle in regular bin				0.06	0.802
No	86	46 (53.49)	40 (46.51)		
Yes	63	35 (55.56)	28 (44.44)		
Special containers for needle				0.21	0.644
No	15	9 (60.00)	6 (40.00)		
Yes	134	72 (53.36)	62 (46.27)		

*P<0.05.
†P values calculated from Fisher's exact test.
PPE, personal protective equipment.

Table 4 Bivariate and multiple logistic regression of risk factors and exposure to needlestick injury

Characteristics	Exposure to needlestick injury (n=149)				
	N	CPR (95% CI)	P value	APR (95% CI)	P value
Gender					
Female	103	1		1	
Male	46	1.39 (0.98 to 1.96)	0.064	1.14 (0.87 to 1.50)	0.337
Category of worker					
Orderlies/laundry staff	128	1		1	
Healthcare assistant	21	2.03 (1.51 to 2.74)	<0.001*	2.81 (1.85 to 4.25)	<0.001*
Marital status					
Single/divorced	89	1		1	
Married	60	0.38 (0.24 to 0.63)	<0.001*	0.39 (0.25 to 0.63)	<0.001*
Current position					
No position	118	1		1	
Supervisor	31	0.44 (0.22 to 0.86)	0.016*	0.34 (0.20 to 0.57)	<0.001*
Demanding nature of work					
Not demanding	45	1		1	
Demanding	104	1.41 (0.91 to 2.18)	0.128	0.78 (0.46 to 1.32)	0.348
Reporting system for needlestick					
Yes	116	1		1	
No	33	0.47 (0.25 to 0.88)	0.018*	0.46 (0.29 to 0.74)	0.001*
Understaffed					
No	51	1		1	
Yes	98	1.45 (0.95 to 2.20)	0.086	0.96 (0.70 to 1.32)	0.814
Use of PPE					
Always	118	1		1	
Sometimes	31	0.51 (0.27 to 0.95)	0.033*	0.57 (0.31 to 1.07)	0.080
Trained on standard precaution					
No	75	1		1	
Yes	74	0.52 (0.35 to 0.76)	0.001*	0.27 (0.14 to 0.52)	<0.001*

*P<0.05.
APR, adjusted prevalence ratio; CPR, crude prevalence ratio; PPE, personal protective equipment.

needlestick injury. However, being married, occupying a supervisory position, had training on standard precautions and the non-existence of needlestick reporting system were related to a lower prevalence.

In this study, 45.6% of healthcare support staff were exposed to needlestick injury. This estimate was in line with a study conducted in Ethiopia (42.1%),[16] Ghana (47.0%)[28] and Egypt (40.0%).[29] However, our finding was higher compared with a study (22.8%) conducted in Iran among healthcare support staff[21] and another among health professionals (35.4%)[30] in Ghana. The variations in prevalence of needlestick exposures may be due to differences in study population. For example, our study was conducted among healthcare support staff but most of the studies conducted worldwide were carried out among health workers in general, which may have included no or few healthcare support staff. Nonetheless, the consistently higher prevalence of needlestick injury among healthcare support staff can be attributed to the absence of proper education regarding the risks associated with needlestick injury,[31] improper disposal of needles and accidental mixing of sharp biomedical waste with other waste.[32]

Additionally, our study found that being a healthcare assistant was associated with a higher prevalence of needlestick injury. Our result was consistent to a retrospective study carried out in Italy,[33] and a systematic review conducted worldwide.[34] Some studies[35 36] revealed that doctors, nurses and all workers in surgical and emergency wards were at a high risk of exposure to needlestick injury. Healthcare assistants usually give direct support to this high-risk category of health professionals, and this may explain the reason for the higher prevalence of needlestick injury among them. In some health facilities,

healthcare assistants may assume the work of orderlies, especially in operation theatres where sensitive surgical procedures are carried out, which may expose them to more cases of needlestick injury.

Also, in this work, having had training on standard precaution was related to a lower prevalence of needlestick injury. Two systematic reviews[37 38] as well as other studies conducted in Ethiopia[39] and China[40] regarding training on standard precautions and other safety measures confirmed this outcome of the study. Training on standard precautions increases awareness and knowledge about the risks of needlestick injury and their appropriate preventive measures. Health workers who have received training are more likely to adhere to safe practices, such as using safety devices, proper disposal of sharps and avoiding recapping needles.[31] Training programmes also provide information on the importance of reporting needlestick injury and the availability of support services, which encourages health workers to seek appropriate care and follow-up. These factors might clarify why a reduced prevalence of needlestick injury was noted among healthcare professionals who underwent training on standard precautions.

Further, this current study found that being a supervisor and married were associated with lower prevalence of needlestick injury among healthcare support staff. Supervisors are more likely to be well informed about the risks of needlestick injury and educated on appropriate responses in case of exposure. They are also more likely to have received proper training on safety measures and standard work precautions, which can significantly reduce the occurrence of needlestick injury.[41] In the Ghanaian setting, supervisors may only give instructions for work to be done and might not do the actual work of the healthcare support staff, which may involve the gathering of wastes containing needles and other sharp-related objects. These accounts mentioned above might be the reason for the lower prevalence of needlestick among supervisors. Also, based on cultural differences, married people may be respected more and assigned jobs that will not expose them to come into contact with wastes containing needles, compared with single young healthcare housekeepers.

Furthermore, the non-availability of needlestick reporting systems in facilities was associated with lower prevalence of needlestick injury among healthcare support staff. The prevalence of needlestick injury is lower among health workers in facilities without a needlestick reporting system because many needlestick injuries go unreported. It is estimated that a significant number of needlestick injury, if not most, are not reported.[42] Also, in facilities without a reporting system, there may be a lack of emphasis on the importance of reporting and addressing needlestick injury, leading to under-reporting. In essence, under-reporting can result in a lower documented prevalence of needlestick injury in health facilities.

Finally, based on our findings, it is evident that there is a significant need for targeted public health policies aimed at reducing the occurrence of needlestick injuries among healthcare support personnel. Specifically, interventions should be tailored towards addressing the higher prevalence observed among healthcare assistants. Also, policies should prioritise the promotion of factors associated with a lower prevalence, including completion of standard precautions training, and the implementation of needlestick reporting systems. Moreover, adherence to safety protocols, strengthening training initiatives and improving reporting mechanisms are critical steps towards mitigating the risks associated with needlestick injuries and enhancing the overall occupational health and safety of healthcare support staff.

Strengths and limitations of the study

The investigation included healthcare support staff from 10 major private and public hospitals in the National Capital of Ghana, with the goal of offering insights into the broader context within Ghana and similar low-income and middle-income countries. Also, the study was reported according to the Strengthening the Reporting of Observational Studies in Epidemiology cross-sectional reporting guidelines (online supplemental file 3) .[43] The study, though commendable, has certain limitations that must be taken into account. The utilisation of a cross-sectional study design, while useful in its own right, is not entirely capable of ascertaining conclusive cause-and-effect relationships or determining the order of causality among varying factors. Furthermore, the investigation is susceptible to recall bias, owing to the fact that study respondents were questioned about events that transpired within the last 12 months. Generalisation of the study outcome may not apply to minor healthcare facilities due to the use of only major facilities.

CONCLUSION

The exposure to needlestick injury among healthcare support staff was high within the past 12 months compared to other regional studies. Belonging to the healthcare assistant occupational group among healthcare support staff was related to higher prevalence of needlestick injury, whereas being married, and being a supervisor was also associated with a lower prevalence of needlestick injury. Additionally, having had training on standard precaution was also related to a lower prevalence of needlestick injury. Health facility managers should organise regular training on standard precautions for healthcare support staff, especially healthcare assistants. Due to the dynamics in the line of work between traditional health workers and healthcare support staff, the study recommends guidelines and policies that are strictly tailored towards the curbing of exposure to needlestick injury among healthcare support staff.

Author affiliations
[1]Department of Occupational and Environmental Health & Safety, School of Public Health, College of Health Sciences, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
[2]Department of Pharmacognosy and Herbal Medicine, School of Pharmacy, University of Health and Allied Sciences, Ho, Ghana
[3]Department of Health Promotion & Disability Studies, School of Public Health, College of Health Sciences, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
[4]Department of Quality Assurance - Institutional Care Division, Ghana Health Service Headquarters, Accra, Ghana
[5]Gilling's School of Global Public Health, Department of Maternal and Child Health, University of North Carolina, Chapel Hill, North Carolina, USA

X Philip Apraku Tawiah @JAprakuTawiah, Paul Okyere @okyere85 and Mary Eyram Ashinyo @mary_eyram

Contributors PAT conceptualised the paper, reviewed literature, wrote the methodology, collected and analysed data and wrote the original draft of the manuscript. EA-B co-conceptualised the paper, reviewed the original draft and supervised the work. PO reviewed the original draft and supervised the work. MEA reviewed the original draft of the manuscript. PAT serves as the guarantor, and he is responsible for the overall content of this paper.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Ethics approval This study involves human participants and this research methodology was sanctioned by the Committee on Human Research Publication and Ethics (CHRPE) of Kwame Nkrumah University of Science and Technology, Kumasi, with an approval reference number of CHRPE/AP/807/22. Additionally, it was also authorised by the Ghana Health Service Ethics Review Committee under the identity number of GHS-ERC:012/03/23. Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available on reasonable request. Datasets are available from the corresponding author on reasonable request.

ORCID iDs
Philip Apraku Tawiah http://orcid.org/0000-0003-0212-195X
Mary Eyram Ashinyo http://orcid.org/0000-0002-8493-9378

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