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Research Article

OCCUPATIONAL HAZARDS AND INJURIES PREVALENT AMONG FISH HANDLERS IN TANJI AND BANJUL FISHING COMMUNITIES, THE GAMBIA

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Abstract

Fish handlers are exposed to a variety of hazards and injuries during their various activities. These hazards may be physical, chemical, biological, ergonomic, and psychosocial. This study documented various hazards and injuries common among fishermen and fish processors. A two-stage random sampling design was used and Tanji and Banjul were purposively selected, followed by a selection of 231 Fish handlers. Focus group discussions and interviewer-administered questionnaires were used to collect data on the various hazards and injuries common among them. Data were analyzed using the Statistical Package for Social Sciences (SPSS 20.0). Descriptive statistics were used to summarize the data. An analytical statistic test was used to test for association using the chi-square at a 95% significant level. Most of the reported hazards common to fish handlers in Tanji and Banjul were cuts (64.9% and 84.4%); stings from fish (74.0% and 64.9 %); the rough sea (48.7% and 64.9%); heat and cold (70.8% and 68.8%); bites (63.0% and 74.0%) aggressive customers (62.3% and 77.9%). the common perceived injuries sustained during fishing and fish processing among the fish handlers were cuts and lacerations (95.5% and 93.5%): puncture wounds (72.7% and 76.7%); sprains and fractures (70.8% and 80.5%); muscles strain and pains (79.2% and 85.7%); foreign objects in the eyes (63.6% and 58.4%) and sting from fish spines (85.7% and 94.8%). The comparison of the most common injuries and hazards between fish handlers in Tanji and Banjul Community were significant Occupational hazards and injuries are preventable during fishing and fish processing. Training and enforcement of safety in the workplace can significantly reduce these hazards.

Keywords: Occupational hazards, Injuries, Fish handlers, Fishing communities, The Gambia.

INTRODUCTION

Fishing has a lot of health hazards when compared to other occupational activities worldwide [28]. For example, in the United States of America, the fatality rate among fishing communities is 15-30 times the national average; in Italy, it is more than 21 times the national average; and in Australia, it is 143 per 100,000, compared with the average of 8.1 per 1,000,000 among other fatalities [7]. These countries are more developed than those in the West African region where the fatality rates are higher. In such advanced countries, safety and rescue services for fishermen are well established, especially in industrial vessels. For instance, the fatality rate in Nigerian artisanal fishing has been estimated to be 999 to 3,329 per 100,000 fishermen and in Guinea, the fatality rate is 500 per 100,000 fisherfolks [28]. Fish handling is considered one of the world's oldest jobs with its attendant risk of occupational hazards and endemic diseases [9,27]. During their activities, fish handlers are exposed to a variety of hazards and injuries such as cuts [19, 20] and this predisposes fish handlers to infections [10, 21] Furthermore, Extreme cold could be a common hazard among fisherfolks [19]. This is because fishing is usually carried out in the early morning under extremely cold conditions and this predisposes them to respiratory problems such as sneezing and coughing. Some of the fisherfolks who work in the open environment are also exposed to extreme weather conditions, especially during cold and rainy seasons.

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Fish traders store their fish in the old refrigerator filled with an ice blocks and this also exposes them to cold. For instance, [22] reported that fishermen are exposed to cold at work which makes them prone to respiratory issues. Also, repetitive motion injuries have been reported among both male and female fisherfolks [9, 25, 14]. The occurrence of repetitive motion injuries has been attributed to continuous bending and lifting of heavy loads [29]. Furthermore, Fish handlers performed some of their activities such as fishing, handling, and processing outdoors, and this exposes them to radiation from the sun leading to sunburns. For example, [20] indicated that more than half of the fisherfolk had skin problems due to sunstroke. Among fish smokers, [2] his study revealed that "The most common occupational hazards were redness and swelling of the eyes, chronic obstructive pulmonary diseases, stress-related health problems, the sting from fish spines, knife cuts, and snake bites while fetching firewood (physical), parasitic and pathogenic infection (biological), hazards from disinfectants used (chemical), ergonomic hazards such as fractures and dislocations, long work hours, and high mental demand (psychological). Fish dryers are exposed to a lot of hazards such as stings from fish spines, cuts, and sprains [22]. Other hazards include; damage to the eyes, heat exhaustion, heatstroke, sunburn, rash from heat, skin cancer, etc. Fish markets have fish traders that sell fish to consumers. According to [13], fish markets are frequently filthy and unsanitary, with damp and slimy floors, unpleasant odors, deposits of fish wastes, faulty drainage, and the prevalence of insects, and stray animals such as dogs, among other things. [3] researched the public health and hygiene conditions of fish market vendors in south-central Bangladesh and discovered

several health issues among the vendors. These include; cough, common cold, diarrhea, lesions (on hands, the tip of the fingers, between fingers, between toes, on the nail and tip of toes), and skin diseases on the legs. In the Gambia, although the dangers associated with fishing have been long acknowledged, there is inadequate information on the types, magnitude, and mitigation measures against those hazards among the fishing populations. Researches on fisheries are mainly on fishing methods, fish preservation, and protection. This is the first of its kind in the Gambia. The results of this study are expected to document various hazards prevailing among the fishing communities and propose possible mitigation methods among fish handlers in Tanji and Banjul fishing communities.

MATERIALS AND METHODS

Description of the Study Areas

This study was conducted in Tanji and Banjul towns in The Gambia, along the Atlantic coast. Tanji Village (also known as Tanjeh or Tanje) is located on the Atlantic Ocean beach in the northern section of the Kombo South District, West Coast Region of The Gambia. The village is the most populated district in the Local Gambia Authority, with a population of 14,531 inhabitants based on the 2013 Census [30]. It is also known as the Tanji Fishing Village and lies 30 kilometers from Banjul, the capital city, and 12 kilometers southwest of Kololi resort, on the Kombo Coastal Road. Tanji is dominated by three ethnic groups: Mandinka, Wolof, Jola, and Serer. The latter is mostly a fishing community, while the former is primarily a farming, crafts, and petty commerce community. The town center is around 1 kilometer from the main fishing area. There were 1,230 head fishermen across the country (2016 Frame Survey). There are over 2000 people engaged in various fishing activities in Tanji. Most of the fishermen are from other countries in West Africa Senegalese, Malians, Guineans, Sierra Leoneans, and Ghanaians. Various categories of fresh fish traders exist including males and females. Banjul, which is the capital city of the Gambia was originally called Bathurst and has a population of 31,301 [30] census. However, the population of the Greater Banjul Area, which includes the City of Banjul and the Kanifing Municipal Council, is estimated to be 413,397 people (according to the 2013 census, [30]. Banjul is situated on St Mary's Island (Banjul Island), near the mouth of the Gambia River, where it meets the Atlantic Ocean. Bridges connect the island to the mainland to the west and the rest of the Greater Banjul Area. Ferries connect Banjul to the mainland on the other side of the river.

Figure 1. Map of the Gambia

Figure 2. Map of Tanji

Figure 3. Map of Banjul

Study design and sampling method

A community-based cross-sectional study was used. Data was collected using both qualitative and quantitative methods among fish handlers (both male and female) in the selected communities. `The fish handlers included fish smokers, fish dryers, fishermen, and fresh fish traders. The sample size was determined using single population proportion formula by considering assumptions of a proportion of occupational hazards and injuries assumed to be 50.0%, desired precision of 5%, at a 95% confidence level. Two hundred and thirty-one respondents were randomly selected from Tanji and Banjul communities. This study had both descriptive and intervention components. This paper presents the findings derived from the descriptive component which had both qualitative and quantitative parts. The sample size was allocated proportionally to the size of the fish handlers. The fish handlers in the context of this study included fishermen, fresh fish traders, fish smokers, and fish dryers.

Data collection procedure

Qualitative component

Focus group Discussions were conducted to document the commonest injuries and health problems related to the fish handling job, and the perception of factors affecting their health and safety. Findings from the FGD were used to improve the quality of the draft questionnaire before finally being used for data collection. Sixteen FGDs, eight from each of the Banjul and Tanji communities were conducted. The FGD involved two of each male and female group of youth and adult fish handlers. Each session comprises about 8-10 participants. To ensure full participation during the interview,

convenient places without distractions were used for the conduct of the FGD and the responses were recorded. Before the commencement of the discussion, the purpose of the research was explained to the participants and they were assured that their views would be used for the research and also assured of the confidentiality of any information provided. Participants were told not to mention their names during the discussion to protect their identities. They were informed that the information provided by them would be recorded to enable the investigator to capture all the necessary information during the discussion.

Quantitative component

A two-stage sampling procedure was adopted for selecting respondents from each of the fisher folks. In the first stage, all the fishing communities on the western coast of the Gambia facing the Atlantic Ocean were eligible to participate in the study. However, those communities with a fish handlers population of less than 20 were not included. The two communities selected, Tanji and Banjul had the highest fish handlers at the time of data collection and were located at a distance of about 30km apart. The second stage involved the selection of the participants from the two communities using a random sampling method.

Questionnaire administration

A validated semi-structured interviewer-administered questionnaire was used to collect data on the various hazards and injuries prevailing among the fish handlers in the two study communities. The drafted questionnaire was modified with the findings from FGDs conducted. Before the commencement of the questionnaire administration, permission was first sought from the two fishing community leaders and then from the leaders of each of the fish handlers (fishermen, fish smokers, fish dryers, and fish traders). These group leaders helped to mobilize their members. The questionnaire was administered at a different time of the day based on the availability of the respondents and the time of activity. For fishermen, it was done in the afternoon period when they come back from the sea, for fish dryers and fish traders, the questionnaire was administered in the morning from 9 am because they usually start drying and selling at that time. Fish smokers start their work from 10 am upwards. It took about 10 minutes to administer each questionnaire and it was done at the respondents' sites of activity. Research assistants were trained to collect the data from selected fish handlers within the community using face-to-face interviews. They also received training on how to secure informed consent from the participants. The questions were read out to the respondents and explanations provided whenever it is necessary. The interview was conducted in Mandinka, Serere, and Wolof the major language spoken by most of the residents of the study site.

Data Analysis

The qualitative data from the FGD were transcribed verbatim and the transcripts were word-processed and edited using Microsoft Word. The files were read and emerging themes were identified. The key themes developed were related to the commonest injuries and health problems among fish handlers, and the perception of factors affecting their health and safety. The analysis was done using a thematic approach and findings were presented in themes and verbatim quotations. Survey questionnaires were checked to ensure they were properly filled and accurate. Each copy of the administered questionnaire was given a serial number to facilitate easy reference and identification. From the questionnaire, a coding guide was prepared. The open-ended questions were also given a code and later entered into the computer using SPSS software version 22 and Stata13.0. Data were analyzed using descriptive statistics and the Chi-square test at $P<0.05$.

RESULTS

Socio-demographic features of the Respondents

The socio-demographic characteristics of the respondents are shown in Table 1**.** A total of 154 and 77 fish handlers in the Tanji and Banjul fishing communities respectively were interviewed. The mean age of the fish handlers was 34.2±10.7 years in Tanji and 35.86± 10.86 years in Banjul. The majority, 75.3%, and 92.2% were males, 64.9% (Tanji), and 71.4% (Banjul) were married. The status of the fish handler among Tanji and Banjul were fishermen (56.5% and 80.5%), fish dryers (5.8% and 2.6%), fish smokers (27.9% and 11.7%), and fish traders (9.7% and 5.2%) Madarasa (an informal education) was the main educational qualification among 31.2% and 35.1% of fish handlers in Tanji and Banjul town respectively. The monthly income was between D1000 to D10000 Dalasis (Gambia Currency; USD20 to 200) among 60.3% (Tanji) and 71.4% (Banjul). More than half 62.3% in Tanji and 55.8% in Banjul reported that they do not smoke a cigarette. The majority, 70.8% (Tanji) and 51.9% (Banjul) spent about 9 to 16 hours a day at work.

Table 1. Socio-demographic features of the fish handlers

Socio-demographic features	Tanji (n=154) No. (%)	Banjul (n=77) No. (%)
Age Group		
≤ 24	31(20.1)	13 (16.9)
25-42	91(59.1)	47 (61.0)
43-66	32(20.8)	17(22.1)
Mean age	34.2±10.7	35.8±10.8
Sex		
Male	116(75.1)	71(92.2)
Female	38(24.7)	6(7.8)
Marital Status		
Single	50(32.5)	22(28.6)
Married	100(64.9)	55(71.4)
Widow	4(2.6)	0(0.0)
Status		
Fishermen	87(56.5)	62(80.5)
Fish dryers	9(5.8)	2(2.6)
Fish smokers	43(27.9)	9 (11.7)
Fish traders	15(9.7)	4(5.2)
Educational Status		
Primary	50(32.5)	10(13.0)
Secondary	39(25.3)	27(35.1)
Tertiary	17(11.0)	13(16.9)
Madarasa	48(31.2)	27(35.1)
Income Level		
<D1000	51(33.1)	1(1.3)
D1000 -D10000	93(60.3)	55(71.4)
D11000-20000	10(6.5)	12(15.6)
>D20000	0(0.0)	9(11.7)
Smoking Status		
Yes	58(37.7)	34(44.2)
No	96(62.3)	43(55.8)
Hours Spent during activity		
≤ 8	34(22.1)	28(36.4)
9-16	109(70.8)	40(51.9)
17-24	11(7.1)	9(11.7)

Health hazards related to fish handling: Data from FGD

Fish handlers from the two communities disclosed that the job exposes them to a lot of health hazards such as Tetanus infection due to the cuts from the knife, common cold, and body pain especially in the waist because of the long sitting. Some of the participants stressed further that they usually experience general body pain, headache, malaria, pneumonia due to the ice block used in preservation, difficulty in breathing and swallowing, pain, and redness of the eyes. Some of the typical statements are shown below:

"If you are cutting fish, the knife can accidentally cut your hand and tetanus can enter the body….. You can have waist pain due to heavy hooks and lines used in fishing" (Tanji fishermen).

"I used to have a Common cold that results sometimes from the smoke, Difficulty in breathing and swallowing, pain and redness of the eyes due to smoke" (Tanji fish smoker)

"My problems are body pain especially the waist because of the long sitting and Skin sores especially on the hand due to salt use in drying" (Banjul fish dryers)

"Ice block used to preserve fish can cause Pneumonia and the common cold". (Banjul fish trader)

Occupational hazards related to fishing and fish processing

Table 2 showed the reported hazards common among fish handlers**.** Most of the reported physical hazards common to the fish handlers were cuts (64.9% and 84.4%); stings from fish (74.0% and 64.9 %); the rough sea(48.7% and 64.9%); heat and cold(70.8% and 68.8%); bites(63.0% and 74.0%) aggressive customers(62.3% and 77.9%).

Table 2. Occupational hazards related to various fishing and fish processing

Hazards	Tanji (n=154) No. (%)	Banjul (n=77) No. (%)
Physical		
Minor cuts*	100(64.9)	65(84.4)
Bites*	97(63.0)	57(74.0)
Stings*	114(74.0)	50(64.9)
Rough sea/Wind	75(48.7)	50(64.9)
Heat and cold*	109(70.8)	53(68.8)
Eye injury	51(33.1)	57(74.0)
Falls/accidents	33(21.4)	36(46.8)
Minor head injury*	97(63.0)	54(70.1)
Noise from engine	75(42.2)	50(64.9)
Aggressive Customers*	96(62.3)	60(77.9)
Biological hazards		
Parasites(leeches)*	85(55.2)	36(46.8)
Pathogen	66(42.9)	29(37.7)
Chemical hazards		
Smoke from the Engine/smoke House*	118(76.6)	63(81.8)
Disinfectant	57(37.0)	16(20.8)
Ergonomic hazards		
Internal injuries*	99(64.3)	61(79.2)
Broken bones or Dislocations	39(25.3)	3(3.90
Back Strain	53(34.4)	47(61.0)
Psychological hazards		
Prolong work*	131(85.1)	19(24.7)
Mental demand	50(32.5)	2(2.6)

Regarding chemical hazards, 76.6% and 81.8% reported exposure to smoke from the engine and smokehouse. Few (55.2% and 46.8%) reported exposure to parasitic infections. Reported ergonomic hazards were internal injuries (64.3% and 79.2%); back strain (34.4% and 61.0%). Several (85.1%) reported prolonged work hours as the main psychological hazard. Table 3 shows the frequency of exposure to occupational Hazards among the fish handlers. The commonest physical hazards reported monthly in Tanji and Banjul were minor cuts 31.8% and 26.0%); bites (41.6% and 46.8%), and fish stings (44.2% and 36.4%). In Banjul, several 41.6% reported heat and cold, rough sea (39.0%), and 44.2% noise from the engine monthly. For biological hazards, 31.2% and 37.7% were exposed to parasites and other pathogens weekly in Tanji.

More than half of the fish handlers (57.1%) in Tanji and 70.1% in Banjul reported daily exposure to smoke from the engine and smokehouse as a chemical hazard. For chemical hazards such as smoke from the engine 51.7% and 72.6% reported daily exposure. Among the psychological hazards, 47.4% of Tanji reported long working hours weekly.

Commonest injuries related to the job: Data from FGD

Fish handlers in the two communities disclosed that there are a lot of injuries related to their job. The commonest injuries mentioned were cuts from knives, pricks from the fish spine, fish bites, falls from the boat, wounds from fish, and hooks used in fishing. Also, burns from the fire and the occasional fall of a log from inside when not properly fixed were mentioned. Some of the statements were as follows:

"I used to have pricks from the hooks of fish, bites from fish and falling from the boat" (Banjul fishermen)

"I used to sustain burns injury from the fire used to smoke fish. (Tanji fish smoker)
"When preparing fish for drying, I used to sustain cuts injury from the knife as well as from the teeth of fish" (Tanji fish dryer)

"One can sustain cut injury when selling fish and also pricks from the bones of fish" (Banjul fish trader)

Perceived injuries sustained during fishing and fish processing

Figure 2 depicted the common injuries sustained during fishing and fish processing among the fish handlers. The major injuries mentioned among Tanji and Banjul fish handlers were cuts and lacerations (95.5% and 93.5%); puncture wounds (72.7% and 76.7%); sprains and fractures (70.8% and 80.5%); muscles strain and pains (79.2% and 85.7%); foreign objects in the eyes (63.6% and 58.4%) and sting from fish spines (85.7% and 94.8%). A comparison of the most common occupational hazard among fish handlers in Tanji and Banjul Communities revealed that the following physical hazards such as bites, rough sea/wind, heat and cold, eye injury, falls/accidents, minor head injury, and noise from engines was significant. For biological hazards, pathogenic infections were significant and smoke from engine /smokehouse and disinfectants were significant for chemical hazards. Also, broken bones and dislocation were significant ergonomic hazards while prolonged work hours and mental demand were the significant psychological hazards Table 3.

Table 3. Comparison of the most common occupational hazard between fish handlers in Tanji and Banjul Community

Common occupational hazard	Tanji (%)	Banjul (%)	Total (%)	Chi-square test	p-value
Physical					
Minor cuts	52.8	29.1	189(81.9)	2.862[a]	0.413
Bites	38.9	18.6	133 (57.5)	9.870	0.043*
Stings	45.8	27.8	170(73.6)	3.089	0.378
Rough sea/Wind	61.5	33.3	219(94.8)	28.48	0.000*
Heat and cold	61.1	27.2	204(88.3)	19.575	0.000*
Eye injury	30.7	16.0	108(46.7)	7.804	0.050*
Falls/accidents	41.5	11.7	123(53.2)	22.617[a]	0.000*
Minor head injury	26.5	21.2	110(47.7)	10.245[a]	0.017*
Noise from engine	56.7	32.4	206(89.1)	26.765	0.000*
Aggressive Customers	52.8	29.1	189(81.9)	6.769	0.149
Biological hazards					
Parasites(leeches)	13.5	8.7	51(22.2)	7.526[a]	0.057
Pathogen	5.2	6.9	28(12.1)	13.779	0.003*
Chemical hazards					
Smoke from Engine/smoke House	55.0	31.6	200(86.6)	22.845	0.000*
Disinfectant	12.1	12.5	57(24.6)	10.476	0.033*
Ergonomic hazards					
Internal injuries	18.2	5.6	55(23.8)	6.829	0.076
Broken bones or Dislocations	7.8	11.7	45(19.5)	22.591	0.000*
Back Strain	44.2	21.6	152(65.8)	4.888	0.180
Psychological hazards					
Prolong work	40.6	21.2	143(61.8)	25.096	0.000*
Mental demand	6.0	5.6	27(11.6)	8.447	0.038*

*=significant, P<0.05

Table 4. Comparison of the most common injuries between fish handlers in Tanji and Banjul Community

Common injuries	Tanji (%)	Banjul (%)	Total (%)	Chi-square test	p-value
Cuts and lacerations	61.0	32.9	217 (93.9)	0.003[a]	0.958
Puncture wounds	47.2	26.8	171(74.0)	0.411[a]	0.521
Bruises	49.4	11.3	140(60.6)	42.459[a]	0.000*
Sprains and fractures	44.6	28.6	169(73.2)	4.399[a]	0.036*
Muscles strains and pains	50.2	30.3	116(80.5)	2.769[a]	0.096
Back injury	2.2	3.5	13(5.7)	4.240[a]	0.039*
Foreign objects in the eye	39.4	21.6	141(61.0)	0.025[a]	0.875
A sting from fish spines	55.4	33.3	205(88.7)	4.984	0.026*
Swelling/inflammation	15.6	20.8	84(36.4)	28.258[a]	0.000*
Leg/arm injury	2.6	0.9	8(3.5)	0.369	0.544
Pricks from fish	2.6	1.7	10(4.3)	0.112	0.738
Burns	62.0	34.1	222(96.1)	10.872[a]	0.028*
Sunburn	8.2	2.2	24(10.4)	2.382[a]	0.123

a=Pearson Chi-Square, *=significant, P<0.05

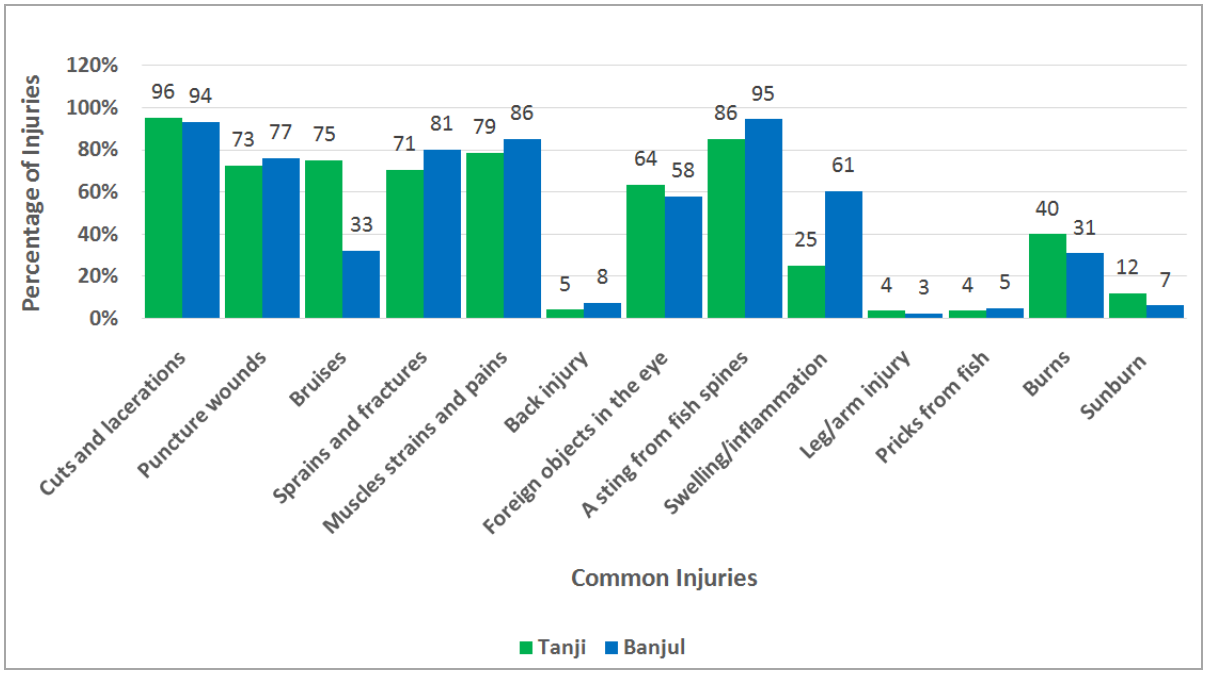

Figure 4. Common injuries sustained during fishing and fish processing

Similarly, the comparison of the most common injuries between fish handlers in Tanji and Banjul Communities revealed that bruises, sprain & fractures, back injuries, stings from the fish spine, swelling/inflammation, and burns were significant Table 4.

DISCUSSION

Fish handlers are exposed to a variety of hazards during their various activities. In this study, the majority of the respondents were males. Fishing is majorly done by men while women are more engaged in fish processing. This agrees with [8] which revealed that more males are involved in fishing than females because it is a more delicate task. Also, [15], indicated that most fishing communities recommend male fish harvesters. [19] showed that the fishing was done mainly by the male fisherfolk while females were engaged in fish processing. In this study almost all the fish dryers are women. The mean age of the fish handlers in the two study communities was 34.15±10.72 and 35.86± 10.86 years and majorities were in the age bracket of 25-42 years. [19] Also revealed that most of the fisherfolk in his study were between the ages of 22 to 45 years.

Most of the reported hazards common to fish handlers in Tanji and Banjul were cuts(64.9% and 84.4%); stings from fish (74.0% and 64.9 %); the rough sea(48.7% and 64.9%); heat and cold(70.8% and 68.8%); bites(63.0% and 74.0%) aggressive customers (62.3% and 77.9%). This was also confirmed by the result of the focus group discussion. According to [22, 23], fish processors are also susceptible to many physical hazards such as noise, fish stings, cuts, sprains fractures, and snake bites in the course of their work. Regarding chemical hazards, 76.6% and 81.8% in Tanji and Banjul reported exposure to smoke from the engine and smokehouse leading to eye redness. Few (55.2% and 46.8%) reported exposure to parasitic infections. Reported ergonomic hazards in Tanji and Banjul were internal injuries (64.3% and 79.2%); back strain (34.4% and 61.0%). [24] also reported back strain among the fish handlers. Several (85.1%) in Tanji reported prolonged work hours as the main psychological hazard. [16] also reported that fish processors work for long hours which makes t be at a greater risk of depression. Pricks and bites are also reported by the fish handlers. This concurred with other findings which reported pricks and fish bites as health hazards prevalent among fisherfolk [19, 25, 28, 12]. Falls were also reported among the fish handlers due to slippery floors especially on rainy days and from improper disposal of wastewater from fish. [9] in their study reported falls among the fisherfolk. The findings are in line with those by [12], which also reported falls among the fisherfolk. In addition, [5] discovered that female fisherfolks were more likely than males to fall at work due to damp, slick flooring. Fish handlers also encountered sunburns and falls in the study area. Fish handlers performed some of their work outdoors, and this exposes them to the radiation of the sun resulting in sunburns. This is in line with the study by [20] which reported that about 54% of the fisherfolk had skin problems due to sunstroke. Similarly, [14] also discovered that the majority of the fishermen suffered from sunstroke. Also, [6] disclosed that 57.3% of the fisherfolk in Alexandria suffered from sunstroke. A comparison of the most common occupational hazard among fish handlers in Tanji and Banjul Communities revealed that the following physical hazards such as bites, rough sea/wind, heat and cold, eye injury, falls/accidents, minor head injury, and noise from the engine was significant. For biological hazards, pathogenic infections were significant and smoke from engine /smokehouse and disinfectants were significant for chemical hazards. Also broken bones and dislocation were significant ergonomic hazards while prolonged work hours and mental demand were the significant psychological hazards<0.05. In Nigeria, [22] reported that fisherfolk encountered cold in their workplace, which exposed them to respiratory problems. [5] in his study revealed that female fisher folks were exposed to cold from their working environments. Fishing communities are exposed to a lot of injuries. From the study, the common perceived injuries sustained during fishing and fish processing among the fish handlers were cuts and lacerations (95.5% and 93.5%): puncture wounds (72.7% and 76.7%); sprains and fractures (70.8% and 80.5%); muscles strain and pains (79.2% and 85.7%); foreign objects in the eyes (63.6% and 58.4%) and sting from fish spines (85.7% and 94.8%). The comparison of the most common injuries between fish handlers in Tanji and Banjul Communities revealed that bruises, sprain &fractures, back injuries, stings from the fish spine, swelling/inflammation, and burns were significant p<0.05. [31] in their study revealed that the most common injuries were abrasions, broken bones, wounds, and sprains. [22], reported that cuts, burns, eye redness, and pricks from fish spines were common among the fisherfolks. [19] reported cuts among the fisherfolk. [20], also reported that several fisherfolks had sustained cuts while working. Other findings showed that cuts were among fisherfolk [17, 22,18]. According to [10,21], cuts predispose fish handlers to infections.

Conclusion

Findings from this study revealed that fish handlers are exposed to lots of occupational hazards and injuries during their various activities which are preventable. I recommend that strategies for promoting training, safety advocacy, and enforcement of workplace safety regulations should be put in place to reduce these hazards and injuries.

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List of Abbreviations: GBOS: Gambia Bureau of Statistics
FGD: Focus group discussion

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