

Health Problems and Injuries' Related to Occupational Hygiene among Fishermen in Ismailia City

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Abstract

Background: Fishing is a dangerous profession in which fishermen face many health risks, which has a negative impact on the health of fishermen and their families. Despite scientific and technological progress, there is a lack of information on health problems faced by fishermen. **Study aim:** this study aimed to assess health problems and injuries related to occupational hygiene among fishermen at Ismailia city. **Design:** correlation design was used in this study. **Setting:** The present study was conducted at selected Ismailia fishing areas which include three lakes branched from Suez Canal named: Abu Adam, Elbahtemi, and Helous. **Sample:** Convenient samples of 352 fishermen were selected from the Ismailia areas mentioned. **Tools:** two tools were used in this study. *First tool:* structured interviewing questionnaire and the *second tool:* health assessment checklist. **Results:** the results in this study revealed that: 98% of the studied fishermen had not enough knowledge regarding occupational hygiene and 97.2% of them had poor practice regarding occupational hygiene. **Conclusion:** the study concluded that; there was statistical significantly relation between total score of knowledge and total score of practices about occupational hygiene with socio-demographic data. **Recommendation:** Develop health educational program among fisherman regarding occupational hygiene to prevent health problems.

Key words: Fishermen, Health Problems, Occupational Hygiene.

1. Introduction

Fishing is one of the most dangerous occupational fields with continuously high numbers of workplace incident .The health risks are broad and include cardiovascular, dermatological and musculoskeletal risks, as well as risks of hearing loss, stress-related issues and anxiety (King., et al, 2019; Santiago., et al, 2021).

There are some common hazards of the fishing occupation, such as: exposure to cold, wind, rough seas, also, substantial participation of physical effort, frequency of injuries during work, unpredictability and abruptness of threats, equipment failure, everyday psychological stress, and constant economic pressure. At the same time, the specificity and variety of hazards, depending significantly on geographical-climate and

cultural factors, makes the dissimilarity of problems and solutions substantial in different sectors of fishing. The present article is a review of the problems of Polish coastal fishermen, referring to some local particularities within this extremely difficult profession requiring special predisposition (Jeżewska, Grubman-Nowak, Leszczyńska & Jaremin, 2012).

There is a lack of respect for health and safety in the fishing industry, as well as an urgent need for health promotion interventions and tailored assistance, (Burella, Moro & Neis, 2021). Community health nurse especially occupational health nurses (OHNs) play a key role in occupational health services globally. Occupational health nurse has a vital role to reduce health problem among fishermen through assessing the health problems by working at the interface between the workforce and management as the first contact point for many health-related problems, preventing and controlling them through using the occupational hygiene guidelines (Hu, Cheng & Tao, 2017 ;Belita et al., 2021).

1.2. Significance of the study:

In Alexandria; Egypt, approximately 75 percent of fishermen experienced muscle and bone problems over the course of the year,

with 37.25 percent experiencing extreme physical and psychological stress. Furthermore, about 80% of fishermen who were injured at work confirmed that 55% of their injuries were due to negligence (El-Saadawy et al., 2014).

Fishing is a common job among Ismailia city dwellers as in Suez Canal and Ismailia's leaks of Abu Adam, Elbahtemi, and Helous. This study was carried out in order to recognize the health problems and injuries related to occupational hygiene that fishermen face as well as the health services that are available to them.

The aim of the study: The current study aims to assess health problems and injuries related to occupational hygiene among fishermen in Ismailia city.

Research Objectives:

1. Assess occupational hygiene among fishermen.
2. Assess health problem and injuries resulting from lack of occupational hygiene among fishermen.
3. Find the relationship between occupational hygiene practices and health problems and injuries among fishermen.

2. Subject and Methods

2.1. Study design: A Descriptive correlational design was adopted in the present study.

2.2. Study setting: The present study was conducted at selected Ismailia fishing areas which include three lakes branched from Suez Canal named Abu Adam, Elbahtemi and Helous.

2.3. The sample of the study: The study population Convenient samples of 352 fishermen were selected from the Ismailia areas mentioned above.

$$n = \frac{n}{1 + (Ne2)}$$

n= sample size

N=352 sample size

2.4. Tools of data collection:

2.4.1. Tool (1): A structured interview questionnaire:

It included three parts: **The first part** was deal with personal data While, **the second part** was concerned with occupational hygiene background. **The third part** was about occupational hygiene practice **2.6.2. Scoring system:**

Knowledge was considered not enough: if the percent score was less than 60%, and enough: if the percent score was $\geq 60\%$. Practice was considered poor: if the percent score was less than 60%, and good: if the percent score was $\geq 60\%$.

2.6.2. Tool (2): Health assessment checklist:

This tool was developed by British Columbia Institute of Technology **BCIT, (2013)** in English language, modified by **Wilson and Giddens, (2013)** and modified by the researcher. It Consisted of two parts to collect the necessary data: **Part I: Health Problems:** It included signs and symptoms indicating the presence or absence of musculoskeletal symptoms, skin disorders, visual impairment, hearing impairment and stress level.

Part II: Physical assessment: head-to-toe assessment was done for fishermen. It includes all the body systems, and overall condition, assessment of signs and symptoms of diseases transmitted by fish and health assurance service.

2.4.3. Reliability of the Tools:

Reliability was done by Cronbach's Alpha Coefficient Test, which revealed that

each item of the utilized tools consisted relatively homogeneous items.

2.5. Field work:

The study was conducted during the whole period of the study from the beginning of January 2020 to the end of July 2020 (seven months). The data were collected from fishermen at a time an hour a day after the fishing trip and during the sale process until the completion of filling tools. The interview was last 20 minutes, after that Assessment was done, it lasts about 30 minutes

2.6. Administrative design:

An official permission was obtained using proper channels of communication before embarking on the study, and after the purpose of the study was explained to the responsible authorities to gain their cooperation.

2.7. Ethical considerations:

Study protocol was submitted for approval by Scientific Research Ethics Committee at faculty of nursing Suez Canal university. An official permission was taken from directors of the fishermen association the previously mentioned study settings to carry out the study. An oral consent was obtained

from the fisherman after explaining the aim of the study.

2.8. Statistical design

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp) Qualitative data were described using number and percent. Quantitative data were described using range (minimum and maximum), mean, and standard deviation. Significance of the obtained results was judged at the 5% level.

3. Results

Table (1): shows distribution of the studied fishermen according to socio demographic data that, the Mean \pm SD age of studied fishermen (29.47 \pm 10.59). Regarding to educational level 35.2% of them do not read and write. More than half of the studied fishermen (59.5%) had enough income. (56.5%) of them were married.

Table (2) demonstrates that most of the studied fishermen 90.6% had dryness of the skin, majority of them 81.0% had upper limbs injures (fractures -wound's). Regarding to respiratory system, 90.9% of them reported cough and 39.8% had dyspnea. 46% of them had hematuria. Near third quarter of them had

inflammation of eyes 74.4 % also most of fishermen had tinnitus, gum & dental problems and vomiting 84.7%, 85.5% & 83.5% respectively and clubbing nails in 90% of them as reported.

Table (3) demonstrates the total knowledge score about occupational hygiene among fishermen reveals that the majority of the studied fishermen reported poor knowledge about occupational hygiene as 98.0% of them had poor knowledge about prevention of diseases transmitted from fish, personal hygiene while, only 2% of them had good knowledge.

Table (4) shows that most of them had poor practice regarding hand washing, daily bath in (99.1%, 98.6%) respectively. They reported poor genital area care and changing underwear daily in 81% of them but 56.8% of them had good hygienic practice in cutting nail every week. Also, this table shows that 97.2% of the studied fishermen had poor practices in using personal protectors for fishers especially Avarol only 4.5% of them used it.

Table (5) Shows correlation between overall occupational hygiene knowledge with practices of studied fishermen. It clears a positive correlation between overall knowledge and practice about occupational

hygiene among fishermen with $p\text{-value} \leq 0.05$.

4. Discussion

Fishing is a rural people's economic activity that provides earning, employment, food and nutritional protection. Food processing jobs are also physically challenging, resulting in higher accident and disease rates than their non-food production counterparts, **Fry et.al. (2019)**. As a result, occupational hygiene is critical for all workers, especially fishermen, to protect their health and avoid the risks they face, such as infection and skin infection (**Ngaruiya, Ogendi & Mokuu, (2019)**).

More occupational safety and health (OSH) research is required to better understand job risks, injury and illness rates as well as establish and evaluate different types of interventions that can avoid or minimize the severity of workplace injuries and illnesses, **National Institute for Occupational Safety and Health, (2019)**. So, this study was conducted to assess occupational hygiene and its relation with health problems among fishermen. Those were achieved through the present finding.

According to the socio-demographic data, nearly a third of the studied fishermen were between the ages of fifteen and twenty, and

more than a third of them couldn't read or write. More than half of the fishermen surveyed were married and had a sufficient income. This finding is very close with **El-Saadawy, et al., (2014)** in their study which carried out in Alexandria city titled "some occupational health hazards among fishermen in Alexandria city" According to the report, more than half of the fishermen were under the age of forty and most of them were illiterate. Furthermore, these findings match those of a study conducted in the United States by, **Davis (2012)** titled "Perceptions of occupational risk by US commercial fishermen" According to the survey, the majority of the fishermen were between twenty two to forty five years old, had little schooling, and were married more than half of the time.

Contrariety, **Ngaruiya et al., (2019)** conducted a study titled "Occupational Health Risks and Hazards among the Fisher Folk" in Kampi Samaki, Lake Baringo, Kenya. According to their findings, more than half of the fisher folk surveyed were between the ages of twenty two and thirty four, but more than half of them had only a primary education, and the most of them were unemployed.

From the researcher point of view, the age group mentioned in the study could mean that

there is a legal requirement for fishermen to be at least eighteen years old and that they work in fishing at a young age. They had a poor level of education, which may be due to the fact that most of them prioritized work over education. This could also be clarified by the lack of technology and skills needed.

In regarding to health assessment of the studied fishermen, the present study revealed that they suffered from many health problems such as skin changes, in which the majority of them complained from skin dryness & clubbing nails and more than half of them had cracked heel and nails lesion. Also, most of the studied fishermen reported upper and limb fractures & wound, and more than two third of them had wound in their face and hematuria. The majority of them reported cough symptom, near three quarter of them had sneezing and more than half of them suffered from nasal irritation and sore throat. Most of them complained from ear pain, gum & dental problems and vomiting while, more than half of them suffered from inflammation in eyes and constipation and colon disorders.

This finding is consistent with **Eckert et al., (2018)**, who found that occupational factors such as noise exposure, upper extremity demands of gillnetting, and long working hours while fishing worsen chronic

health conditions such as hearing issues, respiratory and upper extremity disorders. Whilst also *El-Saadawy et al., (2014)* stated that the results of the current study revealed that fishermen had a higher frequency of different health problems such as musculoskeletal, respiratory, auditory, and skin problems due to their work environment of traveling overseas has a range of unique and different risks leading to severe health hazards in fishermen.

From the researcher point of view, the fishermen are exposed to many hazards that lead to many diseases including musculoskeletal, eyes, auditory, respiratory and gastrointestinal problems because they spent long work hours in the sea, especially on small boats and instability on the same boat and do non-use of personal protection equipment, their repetitive work pressure on them and long period of sun exposure during their fish trip.

In order to determine the level of knowledge about occupational hygiene among the studied fishermen, the current research revealed that the majority of them had insufficient and weak knowledge in the areas of information about personal hygiene, information on diseases spread from fish to

humans and how to prevent them. Diseases spread by handling fish should be avoided.

This finding is consistent with *Ngaruiya et al., (2019)* who found that despite extensive documentation on occupational health risks in fishing industries, there is a lack of knowledge of occupational hazards and hygiene in the fishing industry, especially in developing countries. Nonetheless, in a similar vein to *Saha, (2014)* her research, titled "A study of environmental awareness and knowledge of occupational hazards of fishermen in a remote District of India, " found that fishermen's awareness of occupational hygiene is much too low.

Unlikely, this finding disagrees with *Diei-Ouadi & Mgawe, (2011)* at their study in Africa titled " Post-harvest fish loss assessment in small-scale fisheries" and *Lentisco & Lee (2015)* at their study with title " A review of women's access to fish in small-scale fisheries" reported that fishermen were aware about sustainable fisheries management, waste collection and hygiene.

That may be attributed to the fact that most fishermen have a low level of education, and education raises knowledge among individuals; therefore, the lower the level of

education among fishermen, the greater the chances of coming into contact with occupational hygiene and prevention. In addition to lack of social network contact which influence more proximal pathways to have adequate information about health status health damaging behaviours use and health promoting behaviours like service utilization.

As regarding to assess level of occupational hygienic practice among the studied fishermen the current study demonstrated that the majority of the studied fishermen reported poor level of occupational hygienic practice at hand washing and daily shower after working hours. Also, most of them reported poor level of occupational hygienic practices in the areas of changing under wear and foot care. The majority of them reported poor level of occupational hygiene practice in using personal protectors for fishers as Avarol and shoelaces for hunting. That's may back to the low educational level of the fisherman led to a decrease in his adherence to occupational hygiene standards, which made him vulnerable to injuries and health problems that also affect the fishing profession.

This finding is in line with a study published in the Southern Malawi region by *Kalumbi et al., (2020)* titled "Perspectives and

practices on water, sanitation, and hygiene from a fishing group along Lake Malombe, Southern Malawi, " which found that fishermen's sanitation and hygiene practices are severely limited because their work is often done at night and far from the lake the hygiene conditions at these processing sheds were severely compromised which it observed that water was drawn from the unprotected wells, and was only used for preparing meals and they weren't washing hands before eating.

In contrast, according to a study conducted by *Mishra (2020)* in Allahabad titled "A Study on Health Status among Fishermen," the majority of the respondents were washing their hands and clothing, and the majority of the respondents were bathing in public places.

That's may explained by that low educational level of the fisherman led to a decrease in his adherence to occupational hygiene standards, which made him vulnerable to injuries and health problems that also affect the fishing profession.

The current study found a statistically significant relationship between total score of occupational hygiene practices and health assessment in the incidence of skin dryness & dermatitis, lower limb & face problems, difficulty in breathing & pain with respiration urination problems, scratching and secretion,

inflammation in the skin, ear pain, infection, and hearing loss.

These results are consistent with *Eckert et al (2018)* report, "Chronic health threats in commercial fishermen: a cross-sectional survey from a remote rural fishing village in Alaska, " which found that the prevalence of hearing loss, upper extremity disorders, and sleep apnea risk factors were higher in commercial fishermen before and during the fishing season than in the general population. Noise pollution, the upper extremity demands of gillnetting, a lack of knowledge about occupational health and hygiene, and long working hours while fishing all contribute to these chronic health conditions and issues. These findings is inconsistent with the results of a study *Fry et al., (2019)* which stated that there was no obvious relation was found between occupational safety practices and health problems that because some of the studied subjects perform it and reported different diseases. From the researcher point of view, this may be due to their working conditions and the environment in which they work.

Concerning the correlation between overall occupational hygiene practices with knowledge occupational hygiene, the current findings of the study showed in demonstrated

that there was a positive correlation between overall knowledge of occupational hygiene and overall occupational hygiene practice as information about occupational hygiene about diseases transmitted from dealing with fish to human and prevention of diseases transmitted from dealing with fish.

In the same line, *Ngaruiya et al., (2019)* stated that there were an association between occupational hazards and awareness of performing good occupational hygiene. On the contrast, *Kucera & McDonald (2008)* at their study titled" Understanding non-industrialized workers' approaches to safety: How do commercial fishermen "stay safe"? " reported that there was no correlation between overall information of occupational hygiene and overall occupational hygiene practice and attitudes whereas most of the studied subjects identified specific safety measures, appropriate gear and boat maintenance and they didn't perform the safety measures. That's may be due to differences in cultures & social habits and they based on their experiences to have right knowledge to perform hygiene practices.

5. Conclusion:

In the light of the current study findings, it can be concluded that, most fishermen in the

Ismailia city had poor total knowledge and skills regarding occupational hygiene especially prevention of diseases transmitted from fish, personal hygiene as well as poor skills regarding hand washing and use of personal protection equipment's so they are exposed to several hazards, diseases and disabilities.

6. Recommendations:

Based on the results of the present study, the following recommendations were suggested:

1-Distributes instructions about importance of occupational hygiene.

2-Implementing educational programs for fishermen in the areas of occupational safety and health hazard prevention to raise Fishermen awareness regarding protection of themselves from hazards to prevent health problems by using PPEs .

3-Raise Fishermen awareness regarding proper first aid procedures to minimize the risk of injuries and complications

Table (1): Distribution of the studied fishermen according to Socio demographic data

(n = 352)

Items	No.	%
Age (years)		
15 – 20	104	29.5
21 –25	42	11.9
26 –30	54	15.3
31 –35	38	10.8
36 – 40	40	11.4
> 40	74	21.0
Min. – Max.	15.0 – 50.0	
Mean ± SD.	29.47 ± 10.59	
Educational level		
Not read &write	124	35.2
Read &write	108	30.7
Basic education	49	13.9
Secondary education	47	13.3
University and above	24	6.8
Monthly income		
Enough	206	58.5
Not enough	146	41.5
Marital status		
Single	141	40.1
Married	199	56.5
Divorced	12	3.4

Table (2): Distribution of the studied fishermen according to health assessment (n = 352)

Health assessment	Present	
	No.	%
Grooming good	13	3.7
Skin condition: *		
Dryness.	319	90.6
Cracked nail.	252	71.6
Lesion of nails	220	62.5
Clubbing of nails	320	90.9
Cracked heel.	223	63.4
Burning sensation in skin.	46	13.1
MSDs conditions*		
Upper limbs injures (fractures -wound's).	285	81.0
Lower limbs. Injures (fractures -wound's).	189	53.7
Chest. Fracture in ribs	30	8.5
Backbones.	30	8.5
Fractures in Skull.	58	16.5
Wounds in Face	127	36.1
The Respiratory system: *		
Difficulty in breathing.	140	39.8
Cough.	320	90.9
Nasal irritation.	213	60.5
Sneezing.	249	70.7
Sore throat.	173	49.1
Nasal congestion.	109	31.0
Chest pain with respiration.	34	9.7
The urinary system: *		
Hematuria	164	46.6
Difficult in urination (Dysuria)	83	23.6
Senses: *		
The eye:		
Itching	100	28.4
Redness.	253	71.9
Secretions.	142	40.3
Inflammation.	262	74.4
Hearing problems*		
Ear pain.	61	17.3
Tinnitus.	298	84.7
Excessive secretions.	172	48.9
Weakness in hearing.	94	26.7
The Gastrointestinal system: *		
Gum & Dental problems	301	85.5
Constipation& Colon disorders.	242	68.8
Loss of appetite.	277	78.7
Vomiting.	294	83.5
Diarrhea.	226	64.2
Hernia	82	23.3

*: More than one answer

Table (3): Distribution of total knowledge of studied fishermen according to occupational hygiene (n = 352)

knowledge occupational hygiene	Not enough < 60 %		enough > 60%	
	No.	%	No.	%
Information about personal hygiene	344	97.7	8	2.3
Information about diseases transmitted from dealing with fish to human	340	96.6	12	3.4
Prevention of diseases transmitted from dealing with fish	352	100.0	0	0.0
Overall knowledge	345	98.0	7	2.0

Table (4): Distribution of the studied fishermen according to levels occupational hygiene practice (n=352)

Occupational hygiene practice	Poor < 60 %		Good > 60%	
	No.	%	No.	%
Skills	349	99.1	3	0.9
Hand washing	347	98.6	5	1.4
Daily shower (after working hours)	323	91.8	29	8.2
Cutting nails every week	152	43.2	200	56.8
Changing under wear	285	81.0	67	19.0
Care for the genital area	282	81.0	70	19.9
Foot care	255	72.4	97	27.6
Personal protectors for fishers	329	93.5	23	6.5
Shoelaces for hunting	249	70.7	103	29.3
Headgear"	234	66.5	118	33.5
Avarol	336	95.5	16	4.5
Gloves	51	14.5	301	85.5
Overall practices	342	97.2	10	2.8

Table (5): Correlation between overall occupational hygiene knowledge with practices of studied fishermen (n = 352)

Overall knowledge of occupational hygiene	Overall occupational hygiene practices	
	r	P
Information about occupational hygiene	0.348*	<0.001*
Information about diseases transmitted from dealing with fish to human	0.242*	<0.001*
Prevention of diseases transmitted from fish dealing	0.134*	0.012*
Overall knowledge	0.310*	<0.001*

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