A study on the morbidity profile among the fishermen community in Ennore Creek

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Abstract

Aim
To study the morbidity profile of the fishermen community in the last six months residing in Ennore Creek, Bay of Bengal in India.

Settings and Design
A cross sectional study done among the fishing community in Ennore Creek which is located at the fringe area of North Chennai of Thiruvallur District, Tamilnadu.

Methods and Materials
This study was conducted among the fishing community in Ennore Creek which is located at the fringe area of North Chennai of Thiruvallur District, Tamilnadu. The cluster sampling method was adopted and 30 clusters were randomly selected by the probability proportionate to size (PPS) method. The structured questionnaire was used to collect information regarding details of the symptoms of the illness, duration of illness and observation of records regarding the illness. The study population included individuals with illness who are living in the nine fishing wards of Ennore Creek for the last six months.

Statistical analysis
Data entry and analysis was done using Statistical Package for Social Sciences (SPSS) version 15 software. Descriptive statistics were calculated for the types of illness and their treatment seeking pattern.

Results
Among the 780 subjects who have had illness in the last six months, orthopaedic and musculoskeletal disorders were seemingly predominant in 112 (14.4%) subjects while respiratory diseases were reported by 106 (13.6%) subjects. In this study, 86 (11%) subjects suffered from systemic disorders. Gastrointestinal problems were found in 85 (10.9%) subjects while 76 (9.7%) of them were diagnosed with skin problems. ENT disorders were reported by 65 (8.3%) subjects while gynaecological problems were reported by 54 (6.9%) subjects and eye disorders were reported by 33(4.2%) subjects. Cardiovascular diseases were reported by 28 (3.6%) subjects while disorders in central nervous system were present in 27 (3.5%) subjects and genito – urinary disorders were reported by 20 (2.6%) subjects.

Conclusion
Fishing is not simply a job but it is a way of life with its own traditions and values. Globally, fishing community is one of the disadvantaged groups as it bears the denial of health care reforms in terms of receiving health care services. Knowledge and comprehensive understanding about their morbidity profile are essential to design of health care and environmental interventions according to the needs and priorities. There is need to specifically target and improve the occupational lifestyle of fishermen. Various interventions like health promotion activities, education on environmental sanitation, measures for adoption of healthy lifestyle, initiatives to deal with the challenge due to environmental degradation, legislative measures to curb the release of pollutants of the industries are some of the legitimate issues to be addressed.

Key Words: Morbidity profile, Fishermen community, Ennore Creek
1. Introduction

Globally there is a profound degradation of the coastal environment. The degradation of the environment has started showing its first sign of fatigue especially in the coastal zone where pollutants are accumulating and the impact has become evident. The disappearance of mangroves, decrease in fish catch, displacement of fishing population and sickness are the signs of environmental sickness of coastal resources. Fishermen have prolonged hours of continuous work and fishing still remains a hazardous occupation [1] and stressful occupation as it presents difficult physical conditions, dislocation, isolation and less than ideal personal habits [2]. Fishermen have lower socio-economic status and their illiteracy influence their general health. Population – based studies about fishermen are few and even globally the information on these issues is not addressed adequately.

India is having one of the largest fresh and marine water resources, stands second and seventh in the world, in total fish production from fresh and marine waters respectively [3]. Length of coastline of India including the coastlines of Andaman and Nicobar Islands in the Bay of Bengal and Lakshwadweep Islands in the Arabian Sea is 7517 km [4]. Coastline of Indian mainland is surrounded by Arabian Sea in the west, Bay of Bengal in the east, and Indian Ocean in the south. The long coast line of India is dotted with several major ports such as Kandla, Mumbai, Navasheva, Mangalore, Cochin, Chennai, Tuticorin, Vishakapatnam and Paradip [5].

Chennai which is the capital city of Tamilnadu is subjected to industrial development and population explosion. The Chennai coastal area has a large area of coastal ecosystems such as lagoons, mangroves, creeks and estuaries. The coastal area of the city is about 75kms stretching between Ennore power plant, sprinkled with Manali Industrial Complex in the north and Madras Atomic Power Plants in the south [6].

Ennore is a suburb in Chennai, situated on a peninsula and is bounded by the Kourtaliar River, Ennore Creek and the Bay of Bengal [7]. The creek separates Ennore from the Ennore Port. Ennore Creek is located at the fringe area of North Chennai tailors both the Kourtaliar River and the Buckingham Canal with the Bay of Bengal. It has been supporting the livelihood of many fishing families who are settled in nearby nine villages.

Ennore creek was once the paradise for mangroves, reptiles, turtles and rare fishes. The study area is not only the nature’s gift but also a source for sustaining the traditional fishermen community settled in this Creek [8,9]. Ennore Creek is the most strategic place where many industries started mushrooming in and around the creek in the late 1970s led to profound growth affecting the fishing community [10]. Of late, the coastal ecosystems are highly degraded due to high population and industrial growth [11, 12].

The Ennore Creek is now affected by the merismatic growth of industries and polluting infrastructural enterprises leading to the creek’s transformation into a waste disposal channel of the industries. Ennore Creek has now become one of the important pollution points in Bay of Bengal and as a result of which the fishermen of the creek are subjected to various health problems.

Fishing community are the vanguards of coastal resources and they bear tell – tale sign of the environmental changes. The burgeoning population and the mushrooming of industries play a pivotal role in affecting the environment and essentially have pushed the community to the brink of morbidity and penury. Fishing is the traditional occupation of the community. In spite of disabled occupation and declining income from fishing, they are unable to pursue an alternate profession.

Fishermen are a special group with some unfavourable life styles and vulnerable for injuries, skin and respiratory allergic manifestations and certain other diseases. Majority of the causes were associated with their occupation and personal lifestyles, habits and lesser utilization of health facilities. There are not many scientific studies in such an economically important occupational group [13]. Despite dangerous nature of fishing occupation, very little research have been conducted and reported on fishermen's health and safety. Even in India, the research on this group of population is limited [14].

2. Materials and Methods

This study was done as a population based cross – sectional study among the fishing community in Ennore Creek which is located at the fringe area of North Chennai of Thiruvallur District, Tamilnadu. Ethical clearance was obtained. Ennore Creek has twenty four wards with a total population of 35,646 out of which nine wards belong to the fishing community with a total population of 14,461. There are sixty streets in the nine wards with 3,219 families that belong to fishing community.
2.1. Inclusion criteria
Only individuals with illness who are living in the nine fishing wards of Ennore Creek for the last six months and had given the informed consent were included in the study.

2.2. Sampling method
The cluster sampling method was adopted and 30 clusters were randomly selected by the probability proportionate to size (PPS) method in a manner which has been described below.

2.3. Sample Size
This is a part of a larger study on health seeking behaviour, hence the prevalence has been assumed to be 50% (as there are no studies done on the health seeking behaviour among the fishermen community), with alpha error of 5%, limit of accuracy of 10% and a design effect of 2, the minimum sample size required for the study was 768. The cumulative population of the sixty streets was prepared for selecting 30 clusters by PPS method. The sampling interval was determined by dividing the total cumulative population (14461) by the total number of clusters (30). The sampling interval obtained was 482. Thirty clusters were selected by probability proportionate to size (PPS) method and the number of individuals selected in each cluster was 26 and therefore total number of individuals studied was 780.

2.4. Study tool
Pre – tested structured questionnaire was thus developed was used to collect details on illness in the last six months, details of the symptoms of the illness, duration of illness and observation of records regarding the illness.

2.5. Data collection
A written informed consent was obtained prior to the interview. Accordingly 780 study subjects were selected based on the presence of atleast one illness during the last six months. If the household had more than one individual with illness, the individual who had the most recent illness was selected as the study subject. With regard to the illness, if the study subject had suffered from one illness the details about that particular illness was enquired. If the study subject had suffered from more than one illness, any one illness was randomly selected using random number tables. The random selection of illness was adopted to avoid any kind of bias in selection of the illness and also would facilitate to obtain a fair mix of acute and chronic diseases.

2.6. Data compilation and analysis
Data entry and analysis was done using Statistical Package for Social Sciences (SPSS) version 15 software. Descriptive statistics were calculated for the various types of illness.

3. Results
The study included 780 individuals who were selected based on the history of atleast one illness during the last six months. Mean age of the study subjects were 31.8 years (standard deviation of 19.014), median of 30 years and the age ranged between a minimum of 3 months and a maximum of 78 years. It was found that 327(41.9%) were males while 453(58.1%) were females.

Among the study subjects, 256(37.7%) of them were illiterates while 74(10.9%) subjects have had education beyond high school. With respect to occupation, it was found that 171(21.9%) subjects were fishermen while 222(28.5%) subjects were fish vendors and 74(9.5%) subjects were engaged in non fishing jobs. In this study, 434(55.6%) subjects were married while 104(13.3%) of them were either widowed or separated or divorced.

Among the study subjects, 464(59.5%) hailed from nuclear families while 22(2.8%) subjects were either uni – member or belonged to the family of single parent with children. Among the study subjects, 507(65%) belonged to category of low standard of living while 38(4.9%) belonged to the category of high standard of living.

Among the 780 study subjects, 497(63.7%) of the subjects possessed records regarding their treatment while about 283(36.3%) of them did not have any records. Although 497 subjects had some details regarding their treatment as in a prescription paper or the blister packs of the medicines, among them 322(64.8%) subjects had details regarding their diagnosis while 175(35.2%) subjects did not have any details about their diagnosis. Nevertheless the diagnosis was made by investigator based on the symptoms described by the study subjects and the medicines taken by them. Details on the types of illness among the study subjects are presented in Table – 1.
Table 1. Details on types of illness among the subjects (n = 780)

<table>
<thead>
<tr>
<th>Types of Illness based on system involved</th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orthopaedic &amp; Musculoskeletal Disorders</td>
<td>112</td>
<td>14.4</td>
</tr>
<tr>
<td>Respiratory Illness</td>
<td>106</td>
<td>13.6</td>
</tr>
<tr>
<td>Medical Disorders</td>
<td>86</td>
<td>11.0</td>
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<tr>
<td>Gastrointestinal Disorders</td>
<td>85</td>
<td>10.9</td>
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<tr>
<td>Skin Disorders</td>
<td>76</td>
<td>9.7</td>
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<tr>
<td>ENT Disorders</td>
<td>65</td>
<td>8.3</td>
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<tr>
<td>Gynaecological Problems</td>
<td>54</td>
<td>6.9</td>
</tr>
<tr>
<td>Surgical Problems</td>
<td>51</td>
<td>6.5</td>
</tr>
<tr>
<td>Eye Disorders</td>
<td>33</td>
<td>4.2</td>
</tr>
<tr>
<td>Cardiovascular Illness</td>
<td>28</td>
<td>3.6</td>
</tr>
<tr>
<td>Central Nervous System Disorders</td>
<td>27</td>
<td>3.5</td>
</tr>
<tr>
<td>Maternal and Child Health Care</td>
<td>24</td>
<td>3.1</td>
</tr>
<tr>
<td>Genitourinary Disorders</td>
<td>20</td>
<td>2.6</td>
</tr>
<tr>
<td>Medical Emergencies</td>
<td>7</td>
<td>0.9</td>
</tr>
<tr>
<td>Dental Problems</td>
<td>6</td>
<td>0.8</td>
</tr>
</tbody>
</table>

3.1. Orthopaedic and Musculoskeletal Disorders

In this study, 112 (14.4%) subjects suffered from orthopaedic and musculoskeletal problems. Generalised aches and pains were reported by 32 (4.1%) subjects while 27 (3.5%) subjects suffered from arthritis. It was found that fractures were reported by 25 (3.2%) subjects, dislocations by 4 (0.5%) subjects, contusions by 4 (0.5%) subjects, tennis elbow by 2 (0.3%) subjects, trigger finger by 2 (0.3%) subjects and rupture of the tendo – achilles by 2 (0.3%) subjects. Spine disorders were found among 14 (1.8%) subjects.

3.2. Respiratory Illness

Among 106 (13.6%) subjects who suffered from respiratory illness, lower respiratory tract infections were found in 72 (9.2%) subjects while upper respiratory tract infections were found in 28 (3.6%) subjects. Chronic cough with haemoptysis were present in 5 (0.6%) subjects while carcinoma lung was diagnosed in 1 (0.1%) subject.

3.3. Medical Disorders

Among the 86 (11%) subjects who presented with systemic medical disorders, 41 (5.3%) subjects were diagnosed with diabetes, hypertension and dyslipidemia. Communicable diseases like viral fever was reported by 9 (1.2%) subjects, dengue fever by 7 (0.9%) subjects, typhoid fever by 4 (0.5%) subjects, leptospirosis by 4 (0.5%) subjects, malaria by 4 (0.5%) subjects, lymphatic filariasis by 3 (0.4%) subjects, lymphadenitis by 2 (0.3%) subjects, chikungunya fever by 1 (0.1%) subject while chickenpox by 1 (0.1%) subject, mumps by 1 (0.1%) subject and leprosy by 1 (0.1%) subject. Anaemia was diagnosed in 3 (0.4%) subjects, hypothyroidism in 3 (0.4%) subjects while amoebic liver abscess was reported by 2 (0.3%) subjects.

3.4. Gastrointestinal disorders

Among the 85 (10.9%) subjects who presented with gastrointestinal disorders, acid peptic disease was diagnosed in 25 (3.2%) subjects. It was found that acute diarrheal diseases were reported by 15 (1.9%) subjects, hemetemesis by 12 (1.5%) subjects, jaundice by 11 (1.4%) subjects, haemorrhoids by 5 (0.6%) subjects, abdominal pain by 5 (0.6%) subjects, alcoholic cirrhosis by 4 (0.5%) subjects, worm infestations by 4 (0.5%) subjects, hepatomegaly by 2 (0.3%) subjects, vomiting by 1 (0.1%) subject and carcinoma of the stomach by 1 (0.1%) subject.

3.5. Skin diseases

In this study, skin diseases were reported by 76 (9.7%) subjects. Skin infections like fungal infections were reported by 19 (2.4%) subjects, contact dermatitis by 16 (2.1%) subjects, impetigo by 10 (1.3%) subjects, scabies by 6 (0.8%) subjects, folliculitis by 3 (0.4%) subjects, herpes infection by 3 (0.4%) subjects and furunculosis by 2 (0.3%) subjects. It was found that acne was reported by 3 (0.4%) subjects, eczema by 1 (0.1%) subject, seborrhoeic dermatitis by 1 (0.1%) subject, urticaria was reported by 1 (0.1%) subject and multiple skin tags by 1 (0.1%) subject. Solar Keratosis was reported by 6 (0.8%) subjects while autoimmune diseases like psoriasis by 2 (0.2%) subject, vitiligo by 1 (0.1%) subject and albinism by 1 (0.1%) subject.
3.6. ENT Disorders
In this study, 65 (8.3%) subjects suffered from ENT disorders. It was found that sinusitis was reported by 21 (2.7%) subjects, vertigo by 13 (1.7%) subjects, suppurative otitis media by 10 (1.3%), tonsillitis by 5 (0.6%) subjects, impaction of foreign body in the throat by 4 (0.5%) subjects, deviated nasal septum by 3 (0.4%) subjects, tinnitus by 1 (0.1%) subject. Epistaxis by 4 (0.5%) subjects and fracture of the nasal bones due to injuries were reported by 1 (0.1%) subject. Surgical interventions like nasal polypectomy were reported by 2 (0.2%) subjects while stapedioectomy for otosclerosis was reported by 1 (0.1%) subject.

3.7. Gynaecological diseases
In this study, 54 (6.9%) subjects presented with gynaecological diseases. Menstrual problems ((dysfunctional uterine bleeding 14 (1.8%), dysmenorrhoea 4 (0.5%), oligomenorrhea 3 (0.4%)) were the most common ailment which was found among 21 (2.7%) subjects while white discharge or leucorrhoea was found among 14 (1.8%) subjects. Postmenopausal bleeding was reported by 5 (0.6%) subjects, proplase uterus by 4 (0.5%) subjects, polycystic ovarian disease by 2 (0.3%) subjects, uterine fibroids by 3 (0.4%) subjects, cervical polyp by 2 (0.1%) subject, cystocele by 1 (0.1%) subject, endometriosis by 1 (0.1%) subject while uterine cancer was present in 1 (0.1%) subject.

3.8. Surgical problems
In this study, ailments requiring minor and major surgical interventions were reported by 51 (6.5%) subjects. Surgical interventions for parotid duct obstruction was reported by 1 (0.1%) subject, cholecystectomy for gall stones by 2 (0.3%) subjects, surgical repair for gastric perforation by 1 (0.1%) subject, surgical repair for ileal perforation following a blunt injury to the abdomen by 1 (0.1%) subject, surgical repair for intestinal intussusceptions by 1 (0.1%) subject, surgical repair for strangulated inguinal hernia by 1 (0.1%) subject, herniorraphy for inguinal hernia by 4 (0.5%) subjects, surgical repair for hiatus hernia by 1 (0.1%) subject, cystectomy for cyst in the right hypochondrium by 1 (0.1%) subject and hydrocele by 3 (0.4%) subjects, thyroidectomy for follicular cancer of the thyroid was reported by 1 (0.1%) subject.

Infections like cellulitis was reported by 8 (1%) subjects, gluteal abscess by 3 (0.4%) subjects, breast abscess by 1 (0.1%) subject, paronychia by 1 (0.1%) subject, cervical lymphadenitis by 1 (0.1%) subject, chronic sialadenitis by 1 (0.1%) subject, non healing foot ulcer by 2 (0.3%) subjects. Subjects requiring minor interventions for lacerations was reported by 9 (1.2%) subjects, excision of lipoma 1 (0.1%), excision of dermoid cyst by 1 (0.1%) subject, excision of fibroadenoma by 1 (0.1%) subject, excision of infected sebaceous cyst by 1 (0.1%). Burns were reported by 2 (0.3%) subjects while varicose veins were reported by 2 (0.3%) subjects.

3.9. Eye diseases
Among the 33 (4.2%) subjects who presented with eye disorders, major contribution of it as much as 15 (1.9%) were due to cataracts. Infections like conjunctivitis were reported by 8 (1%) subjects, stye by 1 (0.1%) subject and chronic dacryocystitis by 1 (0.1%) subject. Glaucoma was diagnosed in 4 (0.5%) subjects. It was found that diabetic retinopathy was reported by 1 (0.1%) subject, pterygium by 1 (0.1%) subject, corneal ulcer by 1 (0.1%) subject while traumatic injury to the eye was found in 1 (0.1%) subject.

3.10. Cardiovascular diseases
Cardiovascular diseases were reported by 28 (3.6%) subjects. Ischemic heart disease (angina and myocardial infarction) was diagnosed in 12 (1.5%) subjects while cardiac failure (was present in 7 (0.9%) subjects. Valvular heart disease was present in 4 (0.5%) subjects while congenital heart disease (tetralogy of fallot, atrial septal defect and ventricular septal defect) were reported by 3 (0.4%) subjects and arrhythmia (supraventricular tachycardia) was found in 2 (0.3%) subjects.

3.11. Central nervous system disorders
In this study, 27 (3.5%) subjects suffered from disorders due to central nervous system. It was found that febrile convulsions were reported by 9 (1.2%) subjects, seizure disorder by 4 (0.5%) subjects, cerebral haemorrhages by 3 (0.4%) subjects, hemiparesis by 3 (0.4%) subjects, transient ischemic attack by 2 (0.3%) subjects, hypertensive encephalopathy by 1 (0.1%) subject, Parkinson’s disease by 1 (0.1%) subject, Bell’s palsy by 1 (0.1%) subject, peripheral neuropathy by 1 (0.1%) subject, trigeminal neuralgia by 1 (0.1%) subject and pituitary adenoma by 1 (0.1%) subject.
3.12. Maternal and Child health care

In this study MCH services were utilized by 24 (3.1%) subjects. Immunization was provided to 9 (1.2%) under – five children while antenatal care was offered to 7 (0.9%) pregnant mothers. Postnatal care was offered to 4 (0.5%) subjects, medical termination of pregnancy was done for 3 (0.4%) subjects while care for postpartum haemorrhage was provided to 1 (0.1%) subject.

3.13. Genitourinary problems

In this study 20 (2.6%) subjects presented with genitourinary problems. Urinary tract infections were reported by 7 (0.9%) subjects, genital ulcer by 2 (0.3%) subjects and pyelonephritis by 1 (0.1%) subject. Renal calculi was found in 8 (1.0%) subjects while nephrotic syndrome and in 1 (0.1%) subject and chronic renal failure in 1 (0.1%) subject.

3.14. Medical emergencies

In this study, medical emergencies were reported by 7 (0.9%) subjects. Poisoning were found in 3 (0.4%) subjects, diabetic ketoacidosis in 2 (0.3%) subjects hypoglycemia in 1 (0.1%) subject, hypokalemic paralysis in 1 (0.1%) subject.

3.15. Dental problems

Among the 6 (0.8%) subjects who presented with dental problems, dental caries was reported by 4 (0.5%) subjects, toothache by 1 (0.1%) subject and dental fluorosis by 1 (0.1%) subject. Dental problems were reported by 6 subjects.

4. Discussion

The present study was done among the fishermen community encompassing all age groups and all types of illness. This point of interest of the study was on the health seeking behaviour of the community; therefore it is not a prevalence study and hence addresses only the morbidity profile of the community.

The health of workers on a large measure will also be influenced by conditions prevailing at their work place. Disease results from a complex interaction between the man, the agent and the environment [15]. The example of one such occupation in which the environment plays a major role is fishing.

With regard to the morbidity pattern, in the present study it was found that orthopaedic and musculoskeletal disorders, injuries, respiratory diseases, gastrointestinal problems, skin diseases, allergic manifestations and impaired vision was found in excess as compared to other morbidities. This is in concordance with the study done by Dr. Rotti et al [13], Valero et al [16], Jenson OC [17] and Casson et al [18]. A study conducted in Gujarat and Rajasthan have documented that 17 to 85% of the salt workers suffer from one or more morbid conditions like musculoskeletal, ophthalmic, dermal and other morbidities at any given point in time [19, 20]. Musculoskeletal symptoms were the highest reported morbidity among the salt workers (62%) [21].

In this study, orthopaedic and musculoskeletal disorders (14.4%) took the highest toll among all morbidities. Generalised aches and pains was found to be 7.6% while according to the study by Dr. S. B. Rotti [13] it was found to be 18.7% among the fishermen community. The difference in the result is because the present study included subjects with arthritis, low back aches and generalised myalgia but the study in reference included those with arthritis, low back aches and generalised myalgia and also with chest pain, ear aches and toothaches.

In the study conducted among fishermen by Dr. S. B. Rotti [13], injuries following trauma were found to be 2.7%. This is in concordance with the present study, which shows that fractures, contusions and dislocations following trauma was found to be 5.1% of the subjects. The injuries, included fracture of the mandible, clavicle, fracture of the humerus, both bones of the forearm, fracture of the ribs, fracture of the femur, patella, both bones of the leg, fracture of the metatarsals, contusions and dislocations of the knee joints, shoulder joints, trigger finger and rupture of the tendo achilles. Spine disorders were found to be 1.8% in the present study. The increased preponderance of generalised aches and pains, fractures and spine disorders could be related to the strenuous work and long hours of work and the vulnerable lifestyle that exist among the fishing community.

Tomer et al in their work have shown that subjective symptoms from the musculo-skeletal system are common among fishermen [22]. Crepitations in the shoulder tend to be more common among the fishermen. This indicates heavy dynamic work and prolonged static work [23]. Osteoarthritis of knee among them may result from working and living in the vertical environment of a moving ship [24].

Respiratory diseases were found in 106 (13.6%) subjects in the last six months. It is observed that upper respiratory tract infections, lower respiratory tract infections, pulmonary tuberculosis, asthmatic bronchitis, emphysema, pleural effusion, pneumonia and carcinoma of the lung were found to be 11.8% which is in concordance with the study done by Dr. S. B. Rotti. [13] which showed that the respiratory diseases to be 12.4%. Allergic
manifestations such as sneezing, nasal blocks, rhinorrhea was found to be 1.8% in the present study while it was found to be 0.9% in the study by Dr. S. B. Rotti. [13]. This increased susceptibility to respiratory diseases among the subjects residing in Ennore creek can be attributed to the pollution by fly-ashes which are released in bulk from the thermal power stations and other petrochemical industries.

Non communicable diseases like diabetes, hypertension and dyslipidemia which are regarded as the risk factors for coronary artery disease were found to be 5.3%. However in the study done by Dr. S. B. Rotti. [13], endocrine diseases such as diabetes were found to be 0.4% and further hypertension was grouped under cardiovascular diseases. Non communicable diseases in this study were predominantly reported by the subjects who belong to the age group above 50 years of age. Urbanization, unhealthy food habits, less physical activity among the elderly and given the epidemiological transition of the diseases could be the attributed as some of the reasons for increased proportion of subjects with the non communicable diseases.

In this study, communicable diseases were reported by 37 subjects. Lymphatic filariasis was found to be 0.4% in this study which is in concordance with the study done by Dr. S. B. Rotti [13] in which it was found to be 0.2%. Leprosy and lymphadenitis were found to be 0.5%. Fever, that was diagnosed among the study subjects included typhoid fever, leptospirosis, dengue fever, viral fever, chikungunya fever, malaria, chicken pox and mumps. It was found to be 3.8% while in the study done by Dr. S. B. Rotti it was found to be 0.5%. Unsafe drinking water, unhygienic practices, improper environmental sanitation and waste disposal can be attributed as the reasons.

Gastrointestinal disorders were reported by 85 (10.9%) subjects, the diagnosis of which included pain in the abdomen, acid peptic disease; jaundice, alcoholic cirrhosis, ascites, hematemesis, haemorrhoids, diarrhoea, worm infestation, amoebic liver abscess and carcinoma of the stomach were found to be 11% in this study. This was in concordance with the study done by Dr. S. B. Rotti. [13] which showed the gastrointestinal disorders to be 10.6%. Excess of alcohol consumption is attributed as a reason for high proportion of subjects with gastritis, cirrhosis and hematemesis. Unsafe drinking water, unhygienic practices, improper environmental sanitation and waste disposal can be attributed as the reasons for jaundice, diarrhoea and worm infestations.

Skin infections like fungal infections, impetigo, scabies, herpes infections, folliculitis and furunculosis were found to be 5.4%. Other skin disorders like acne, psoriasis, vitiligo, albinism, multiple warts, seborrhoeic dermatitis and solar keratitis were found to be 2.3%. Allergic manifestations of skin like contact dermatitis, eczema, urticaria and pruritis were found to be 2.3%. In the study done by Dr. S. B. Rotti. [13], allergic manifestations were found to be 2.7% while other skin diseases were found to be 3.4%. Despite the exclusion of non healing ulcers, wound sepsis and burning sensation of the back in the present study, which was included in the reference study the proportion of subjects with skin diseases were found to be 50%. Skin infections were found to be in high proportion in this community because of reasons like walking barefoot, unclean habits, overcrowding of the houses and unhygienic practices.

Among the 15 subjects who complained of contact dermatitis, 10 of them stated that it was due to the nets that they carry with them. Ennore creek is highly polluted and is the most strategic place where a number of large amounts of effluents from the neighbouring industries. Most of the skin conditions could be due to longer hours spent in humid and wet conditions coupled with the pollution in the area and poor standards of personal hygiene. These facts play a vital role in certain ailments that are unique to this community.

Fishermen are prone to excess ultraviolet radiation due to constant exposure to sun [25]. The extra oral clinical conditions depicted in the present study were ulcersations, sores, erosions and fissures, the highest prevalence being depicted in head, neck and limbs region (13.7%) [24]. This is in accordance with the results of the study conducted by Bhat et al on rural Indian fishing community residing in coastal areas of Karnataka. This relatively high prevalence of ulceration may be attributed to the excess ultraviolet radiation due to constant exposure to sun [26]. Dermatological problems were present in 4% of salt workers [21] while it was 44% in a study done in Rajasthan. [19]. This may be due to environmental factors wherein the personal hygiene of the workers may be adversely affected due to inadequate water supply as well as the higher intensity of sunlight in desert areas of Rajasthan as compared to the coastal areas of the present study.

Among the 65 (8.3%) subjects who reported to have ENT disorders in the last six months, infections like tonsillitis, acute suppurative otitis media, sinusitis and chronic suppurative otitis media were found to be 2.8%. In the present study the proportion of subjects with headache was found to be 1.8% which is concordance with the study done by Dr. S. B. Rotti. [13] in which it was found to be 2.8%.

Among the 33 (4.2%) subjects who presented with eye disorders, major contribution of it as much as 15(1.9%) were due to cataracts. Other ocular morbidities were found to be in agreement with the study done by Dr. S. B. Rotti. [13] (5.8%). The study by Johnson et al shows a lower prevalence of ocular morbidities (42%) [21] as compared to 61% in the salt workers attending medical camps in Rajasthan [27]. Eyes of salt workers are continuously exposed to
sunlight reflected by the surface of brine and by the crystals lying at the bottom of the pans, causing glare and irritation. This results in the high prevalence of ophthalmic complaints including glare, burning of eyes, dimness of vision, watering of eyes. Outdoor occupation has been reported as a risk factor for ophthalmic conditions like cataract, pterygium [28, 29].

Diseases of the cardiovascular system included cardiac failure, ischemic heart disease, valvular heart disease, congenital heart diseases and arrhythmias all of which were found to be 3.6%. In the study done by Dr. S. B. Rotti [13], in which the diseases of the cardiovascular system were found to be 4.4%. Despite the exclusion of hypertension and stroke under cardiovascular diseases in the present study, which was included in the reference study the proportion of subjects with cardiovascular diseases were found to be high. Except for congenital heart disease and valvular heart disease, the other cardiovascular diseases in this study were predominantly reported by the subjects who belong to the age group above 50 years of age. Therefore, urbanization, unhealthy food habits, less physical activity among the elderly and given the epidemiological transition of the diseases could be the attributed as some of the reasons for increased preponderance to heart diseases.

Diseases of the central nervous system included febrile convulsions, cerebral haemorrhage, Bell’s palsy, seizure disorders, hemiparesis, transient ischemic attack, Parkinson’s disease, pituitary adenoma, trigeminal neuralgia and peripheral neuropathy were found to be 3.5%. However in the study done by Dr. S. B. Rotti [13], the diseases of the nervous system were found to be 0.5%. The discrepancy between the findings could be because in the referenced study stroke was grouped under cardiovascular diseases and burning sensation was grouped under skin diseases. Further the details of grouping of the diseases in that study were not provided to facilitate the reasoning for this discrepancy.

The increase in ischaemic heart disease and cerebrovascular illness may be influenced by poor eating habits, which include higher sodium intake, accompanying high consumption of salted fish or higher prevalence of tobacco smoking.

Genito–urinary diseases included renal calculi, infections like pyelonephritis, urinary tract infections, genital ulcer and purulent discharge from the penis were found to be 2.6% while it was found to be 0.4% in the study done by Dr. S. B. Rotti [13]. During the conduct of the study it was observed that the polygamy as a very common practice and it was found that one man had more than two wives and vice versa. It is important to mention that there is practice of frequenting commercial sex workers and indulgence in sex with strangers in this community. Given the proximity of the study area to Chennai port and the presence of truck drivers was stated as the one of the important reasons for the spread of diseases.

The study done by Asawa K et al [14] revealed 76% subjects with dental fluorosis and the prevalence of dental caries was 82.6% among the fishermen group. In a study by Kumar et al [30] the prevalence of dental caries was (78.6%) while that by Bhat et al [26] was found to be 78%. In this study, since the morbidity profile of the entire community was studied in contrast to the prevalence of dental problems addressed in the reference studies. A probable explanation to this may be barriers related to the fishermen group like poor oral hygiene practices, lack of awareness, affordability and lack of oral health care.

5. Conclusion

Fishing is not simply a job but it is a way of life with its own traditions and values. Globally, fishing community is one of the disadvantaged groups as it bears the denial of health care reforms in terms of receiving health care services. Knowledge and comprehensive understanding about their morbidity profile are essential to design of health care and environmental interventions according to the needs and priorities.

There is a high existence of orthopaedic and musculoskeletal disorders, respiratory diseases, gastrointestinal problems, skin problems, ocular morbidities and indiscriminate sexual practices in the fishermen community. Extreme weather conditions, physical stress of strenuous labour, indiscriminate working hours, strain on the skeletal system to balance on the moving boat, direct bright sunlight, glare due to sunlight, roaring noise of the sea and the motor equipments are some of the pivotal reasons for the presence of certain morbidities in this particular occupational community. Fishing is one occupation, which involves irregular diet, stress, alcoholism, tobacco and pernicious habits of multiple sexual partners. This is further compounded by the pollution of fly – ashes and effluents from the neighbouring industries.

The Government of India, through its ‘National Policy on Safety, Health and Environment at work place’, states that “Government is committed to regulate all economic activities for management of safety and health risks at workplaces and to provide measures so as to ensure safe and healthy working conditions for every working man and woman in the nation” [31]. There is need to specifically target and improve the occupational lifestyle of fishermen.
Various interventions like health promotion activities, education on environmental sanitation, measures for adoption of healthy lifestyle, initiatives to deal with the challenge due to environmental degradation, legislative measures to curb the release of pollutants of the industries are some of the legitimate issues to be addressed.

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