

Risks to trawler fishermen in Orkney waters

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SUMMARY. Over a period of 26 months, emergency medical contact was made with 63 sick or injured trawlermen from Hull and Grimsby who had been fishing in the fishing grounds around the Orkney Islands. The majority of accidents were due either to falls in heavy weather, entanglement with winching or fishing gear, or burns and scalds in the galley. Nearly 80 per cent of the episodes of illness which were seen might not have required the emergency service had the trawler crews been properly screened before going to sea, or trained in elementary first aid.

Introduction

TRAWLER fishing is one of the more dangerous occupations. It has a high morbidity rate and a mortality rate of 5.7 per 1,000 trawlermen per year, which is four times higher than for miners, and 40 times higher than for workers in manufacturing industries (Moore, 1969). However, relatively few studies have been made of total morbidity within a particular group of fishermen while at sea. This paper analyzes the sickness and accident morbidity as it affects the trawlermen from Hull and Grimsby while fishing at sea in middle-water trawlers around the Orkney Islands.

At any one time, there may be 25 or more middle-water trawlers fishing the Papa Bank, situated some miles to the north-west of the Orkney Islands. The total population at risk cannot be assessed as it varies markedly over a period of time owing to weather conditions, the availability of fish in the area, public holidays, and so on.

When accidents or episodes of illness occur on board, radio contact is made by the trawler's skipper to an established team on the Island of Westray, a remote, low-lying island, about ten miles long, in the extreme

north-west of the Orkney Island archipelago. The island's economy is based on fishing, fish-processing, and farming (Coull, 1966).

The island has regular air services, which use small 'Islander' aircraft, and they act, when appropriate, as air-ambulances. The air-ambulance flies, when necessary, either to Kirkwall which is about 30 miles away on Orkney Mainland, or direct to Aberdeen, 180 miles away. At the hospital in Kirkwall, medical, surgical, and obstetric care is available. The hospital is staffed by a consultant surgeon and two housemen, while the medical, anaesthetic, and obstetric services are provided by general practitioners. Specialist services are available in Aberdeen.

Over a period of several years the team, consisting of a doctor, a harbourmaster, a coastguard, boatmen, engineers, merchants, and others, has gained wide experience in giving trawlermen medical and mechanical assistance, and in obtaining supplies. When medical contact becomes necessary, the trawler is brought into inshore waters and the doctor is put aboard from a small boat brought alongside the trawler. The hazardous nature of this exercise in high winds and heavy seas should not be underestimated.

Method

Over a period of 26 months, full details were recorded of all medical cases seen. This included details of the patient's name, age, and occupation aboard the trawler, together with medical diagnosis, management, and disposal. During the study period 63 trawlermen were seen. This paper represents an analysis of the injuries and episodes of illness seen.

Results

The period of the study extended from 1 November 1974 until 31 December 1976. Of the 63 trawlermen seen during this period, 29 had had accidents and 36 were ill, two patients being seen with both casualty and medical problems.

Of the 29 accidents, 45 per cent were due to the patient falling against deck-rails, storm-doors, hatches,

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or gangways in storm conditions. A further 31 per cent were due to accidents with the winching gear, or the fishing gear, such as the nets, otter-boards, and bobbins. Ten per cent of the accidents occurred in the galley with burns and scalds, usually during violent weather. A summary of the causes of the accidents is given in Table 1.

The majority of the accidents sustained (68 per cent), consisted of 'soft tissue' injuries, that is, lacerations, contusions, ligamentous and muscular strains. Three burns were sustained in the galley as a result of cooking

utensils falling from the galley-stove when the trawler was tossing in high seas.

Six fractures were sustained. Four of these consisted of closed, uncomplicated rib fractures. One patient had his middle finger amputated through the proximal phalanx when his hand was crushed by one of the otter-boards. One patient slipped down a near-vertical stairway to the bottom of the trawler and sustained a fractured cervical spine. He was removed from the trawler and put ashore without further injury; he was then flown to hospital where he died several days later. The treatment given to these 29 casualties is listed in Table 2.

Of these 29 accident victims, 18 (62 per cent) stayed aboard the trawler after treatment. Eight (28 per cent) were flown home as soon as possible at the expense of the trawler operator, and three (ten per cent) were taken by special air-ambulance to hospital for treatment.

Although the majority of accidents were sustained by deck-hands, the relative risk was higher for the cooks, in view of the fact that the average trawler in the study carried only one cook, but seven or eight deck-hands. Because the number of trawlers fishing in this area at any one time varies considerably, it is impossible to determine the size of the population at risk. Precise morbidity rates cannot therefore be calculated, but the relative risk for different occupational groups aboard the trawler can be estimated (Table 3).

During the 26-month period of the study, 36 trawlermen were seen with episodes of illness. The diagnoses, made under broad diagnostic groups, are given in Table 4.

Of the 32 patients seen with episodes of sickness, 20 (63 per cent) stayed aboard the trawler after the consultation. This does not necessarily imply their fitness for work, but sometimes the exigency of the situation necessitated their continued employment. Several patients were advised to consult their own doctors on their return home. Six patients (18 per cent) were flown back to their home port at the expense of the trawler operator. The diagnoses of these six patients were as follows: lobar pneumonia, influenza complicated by staphylococcal pneumonia, acute epididymo-

Table 1. Causes of accidents to 29 trawlermen.

	Number	Percentage
Falls on deck against deck gear, storm-doors, hatches, or gangways in heavy seas	13	45
Entanglement with winching gear	5	17
Entanglement with fishing gear	4	14
Burns, scalds in galley	3	10
During fish-gutting	2	7
Miscellaneous	2	7

Table 2. Treatment given to 29 accident casualties.

<i>Drugs</i>	
Analgesics	13
Antibiotics	3
Tetanus vaccine	1
Miscellaneous	1
<i>Surgical procedures</i>	
Suturing	6
Dressings only	12
Miscellaneous	2

Table 3. The relative risk of accidents and illness among different occupation groups.

Occupational group	Calculated number in group per 100 crews (1)	Number of accidents seen (2)	Number of episodes of illness (3)	Relative risk of accidents (2/1)	Relative risk of illness (3/1)
Skippers	100	1	6	1	6
Mates	100	1	1	1	1
Third hands	100	0	0	—	—
Engineers	180	0	6	—	3
Deck-hands	760	21	20	2.8	2.6
Cooks	100	6	2	6	2

Table 4. Diagnoses of 36 episodes of illness.

Diagnosis	Number	Percentage
Upper respiratory tract infections	8	22
Lower respiratory tract infections		
Pulmonary TB	3	
Lobar pneumonia	1	4
11		
Skin		
Infections	2	
Allergy	2	4
11		
Psychiatric		
Neurosis	1	
Psychosis	1	
Malingering*	2	4
11		
Genitourinary	3	8
Myocardial infarction (sudden death)	1	3
Dental caries	2	6
Gastrointestinal	7	19
Acute back strain	1	3
Forgotten tablets		
Warfarin	1	
Iron	1	2
6		

*Malingering was defined as the deliberate conscious production of symptoms of ill-health in order to manipulate the immediate environment.

orchitis, haematemesis secondary to peptic ulcer; and there were two psychiatric patients, one of whom threatened suicide.

Five medical patients were flown to the hospital in Kirkwall by air-ambulance either for treatment, or for urgent diagnostic investigation. The diagnoses later made in these patients were as follows: pulmonary tuberculosis, perforated peptic ulcer, and torsion of the testis. Two patients were discovered to be malingering and they caused considerable effort and expense. However, serious pathology must not be overlooked among trawler crews, who may be many hours away from medical attention.

The relative risk of sickness among different occupational groups aboard the trawlers is given in Table 3. Skippers appear to seek medical attention more frequently than other occupational groups.

Of the 34 episodes of sickness seen which led to stopping trawling and seeking medical advice, it is estimated that 79 per cent were unnecessary. In over 30 per cent of cases, the correct treatments were already aboard the trawler in the ship's medicine chest and could easily have been dispensed by a crew member with the most elementary knowledge. Twenty-six per cent of patients were unfit for work on board a trawler and should never have gone to sea. This included patients with serious psychiatric illness, past history of peptic ulcer, grossly rotten teeth, or a history of ischaemic

heart disease. The details of these patients are given in Table 5.

Discussion

There have been relatively few studies concerned with the medical implications of trawler-fishing as an occupation. Several medical conditions which occur in the general population occur more frequently among fishermen, for example, alcohol-dependence, pulmonary tuberculosis, and smoking-related diseases such as bronchogenic carcinoma and chronic bronchitis. Trawlermen are, however, a self-selected group.

Other conditions are more strictly of an occupational character, for example, erysipeloid infections (due to *Erysipelothrix rhusiopathiae*), Dogger Bank itch, an allergic response to a sea-chervil, *Alcyonidium gelatinosum* (Schilling, 1966), friction dermatitis of the wrist, seawater boils and folliculitis. Squamous cell carcinoma of the lip is of mainly historical interest as this is due to contamination of the lips with tar during the mending of tarred nets (Shambaugh, 1935).

The Committee of Inquiry into Trawler Safety (Board of Trade, 1969) emphasized the high rate of accidents that occur during normal fishing activities. They drew attention to the hazards associated with the working environment. Accidental injuries to individual crewmen were found to be as important a cause of death as the foundering of ships. The most common accidents were falls and slips on wet and heaving decks. The second most common accidents were found to be fractures, lacerations, and infected lesions arising from the use of the winch, deck machinery, and net gear.

Schilling (1971) drew attention to the difficulty of obtaining accurate information from the returns made by the trawler skippers for non-fatal accidents. He found accidents to be most common among distant-water trawlers (155/1,000 men years), then the near and middle-water trawlers (91/1,000 men years), followed by stern-trawlers (40/1,000 men years).

Table 5. Emergency medical consultations which might have been avoided.

Factor	Number	Percentage
Treatment already available aboard ship	11	32
Patient unfit for work at start of fishing trip	9	26
Dental conditions	2	6
Malingering	2	6
Prescriptions left behind	2	6
Self-inflicted illness (alcoholic gastritis)	1	3
Total	27	79

NB. Some patients could easily fall into more than one of these groups.

Moore (1969) documented the non-fatal injuries and illnesses arising among trawlermen sailing from Grimsby over a period of one year, and from this he was able to calculate morbidity rates. He found that most illnesses were of gastrointestinal, cardiovascular, psychiatric, and respiratory origin, in that order.

Cadenhead (1976) studied the hospital admissions of trawlermen who had been fishing around the Shetland Islands. He emphasized the urgent need to prevent unfit crewmen from taking to the sea. Illness and accidents at sea place a heavy responsibility on the skipper in respect of diagnosis, immediate first aid, and the need to transfer the patient to the nearest port. The inevitable and often considerable loss of time spent fishing is an added worry. He stressed the frequency with which alcohol was associated with accidents.

This study, which reviews all the episodes where emergency medical attention was sought by trawlermen fishing on the Papa Bank off the Orkney Islands, showed again that most of the accidents that occurred on board were caused by slips and falls on wet and heaving decks, or the use of the winch or fishing gear. Of the strictly medical conditions seen, the vast majority required emergency attention and need not have occurred at sea. If crewmen were screened so that only fit men took to the sea, and if crew members had even a basic knowledge of medicine such episodes need not occur. The majority of accidents seen in this study required little more than elementary first aid.

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