



## MORBIDITY PROFILE OF SAILORS WORKING AT HALDIA DOCK COMPLEX OF WEST BENGAL

### Community Medicine

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### ABSTRACT

At present 90% of World trade is carried out by International shipping industry<sup>1</sup>. The theme announced by International Maritime Organization (IMO) in 2016 was "Shipping : indispensable to the world<sup>2</sup>" to increase awareness about contribution of sailors for their role towards well-being of mankind. But sailors face various health problems due to their occupation, over work, cramped space, extreme weather etc. Present study was conducted at Haldia Dock Complex(HDC) among 470 sailors with pre-designed and pre-tested schedule followed by physical examination with their informed consent. Study showed prevalence of hypertension (41.7%), followed by pain in knee and low back region (38%), Diabetes mellitus (17.8%), Ischemic Heart Disease – (12%), Obesity (10%), Hearing loss (8.1%). Dyspepsia (88.3%) & nausea-vomiting (82.5%) during voyage. Both tobacco & alcohol addiction (66%). IEC, regular health check-up & periodic counselling should be strengthened.

### KEYWORDS

International Maritime Organisation (I.M.O.), Hypertension, Ischemic Heart Disease (IHD).

### INTRODUCTION :

Three fourth of earth surface is covered by water. Water borne vessels like barge, ship, boat, sailboat are the only means of transportation over the ocean, sea, river, lake & canal.

Sailor can be applied to the personnel working in all kinds of waterborne vessels. At present 90% of World trade is carried out by International shipping industry<sup>1</sup>. Without shipping industry half of World population would starve<sup>1</sup>.

India has 7500 (approx.) km coastal line<sup>3</sup> and there is 14500 (approx.) km. navigable water channel through rivers, canal and lakes<sup>4</sup>. There are twelve major ports under administrative control of Govt. of India. Kolkata port has two dock system. One is Kolkata Dock System (KDS) at Khidirpore and another one is Haldia Dock Complex (HDC) at Haldia<sup>5</sup>.

Main lifeline of a port is Marine Operation Division & there are various categories of marine personnel working as sailor in marine operation division at HDC.

Workers in water transportation occupation often have to work for long periods and continuous multiple shifts on a small & cramped space and they are exposed to difficult working conditions like extreme weather, high noise, high temperature in engine room, continuous shaking movement, accidents due to fall, chemical injury, burn etc.

Sailors are broadly grouped into sailors of deck department and engine department. Sailors of deck department mainly do the job of sailing, piloting, loading and unloading, maintaining cabin, serving food etc. But, sailors of engine department do the job of maintaining the propulsion of vessel.

Although, all categories of sailors suffer from common health problems but some specific health problems also occur according to their specific job profile. Few studies were done to know the health problems of sailors working in different ports of India.

Keeping with this view in mind, an attempt was made by this study to access the socio demographic profile & job characteristics of sailors and also their morbidity pattern.

### MATERIALS & METHODS :

It was an observational descriptive study with cross-sectional design & it was conducted at Haldia Dock Complex (HDC) at Haldia, West Bengal. Out of 4178 employees working under HDC, 510 employees were directly related to sailing activity at river and sea. So all these

sailors were considered for my study (total enumeration). As forty sailors did not give consent so 470 sailors were finally interviewed with pre-designed & pre-tested schedules followed by physical examination after taking their informed consent. Medical records were reviewed whenever available. Tools like stethoscope, sphygmomanometer, weighing machine, tape, tuning fork (256 Hz), hammer etc. were used during study. After getting permission from ethical committee data were collected at three different settings.

One group of sailors was interviewed at their working vessels after taking permission from higher authority. Another group was interviewed at Port Hospital at Haldia & rest were interviewed at their home after taking prior appointment over telephone. Data were analysed with SPSS (Statistical Package for Social Sciences) version 20. Results were expressed with proportions, means, standard deviation, frequencies, venn diagram, stacked venn diagram etc.

### RESULTS :

**Table 1 Socio demographic profile & job characteristics of sailors (n=470)**

A. Socio Demographic Profile	No.	%	
Age (in years)	21 – 30	44	9.4
	30 – 40	120	25.5
	40 – 50	88	18.7
	50 – 60	218	46.4
Literacy status	Class VIII Pass	28	6.0
	Class X Pass	197	42.0
	Class XII Pass	158	34.0
	Graduation & Above	87	18.0
*Per Capita Monthly Income	5001 – 10000	250	53.2
	10001 – 15000	135	28.7
	> 15001	85	18.1
Addiction to both Tobacco & Alcohol	Yes	310	66.0
<b>B. Job Characteristics</b>			
Nature of employment	Permanent	298	63.0
	Contractual	172	37.0
Rank of employees	Officer	64	14.0
	Non-officer	406	64.0
Place of work	Deck Dept.	318	68.0
	Engine Dept.	152	32.0
Place of posting	Ship	109	23.0
	**Other than Ship	361	77.0

\* All belong to upper class as per modified B.G. Prasad's Scale.

**\*\* Like Tug boat, Pilot Vessels, Barges & Dredgers.**

Majority (46%) of study subjects were 50 – 60 years age group, all were male, 87% Hindu, 60% Urban, 85% from Joint Family, 89% currently married, majority (76%) passed Class X or Class XII, all belong to upper class & most of them (66%) addicted to tobacco & alcohol.

Most (63%) were permanent employees & non officer (64%), most of them (77%) were posted in Tug Boat, Barges, Dredgers & Pilot vessels and majority (68%) work in deck dept.

**Table – 2 Prevalence of morbidities among Sailors**  
\* (n=470)

Morbidities	No	Percentage
Hypertension (ICD – I10)	193	41.7
Ischemic Heart Disease (ICD – I25)	55	12.0
Low Back Pain (ICD – M54) and/or Knee pain (ICD – M17)	178	38.0
** Obesity (ICD – E66)	46	10.0
Diabetes mellitus (ICD – E11)	84	17.8
Hearing loss (ICD – H90)	38	8.1
Vertigo (ICD – H81)	23	4.8
COPD (ICD – J44) or Asthma (ICD – J45)	32	6.8
Dermatological disorders (ICD – B35 & B37)	29	6.1
(Other like G.I. Disorder, Cataract, Thyroid dysfunction, CKD, neuropathy, surgical problem, malignancy)	77	16.4

\* **Multiple response.**

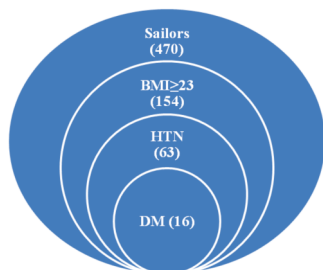
§ **International classification of diseases.**

\*\* **According to BMI cut-off for Asian people6 among the sailors.**

Above table showed prevalence of hypertension and Ischemic Heart Disease 53.7% followed by back pain/knee pain (38%), diabetes (17.8%), vertigo and hearing loss (13%), obesity (10%), over weight(23%), COPD/Asthma (6.8%) and skin diseases (6.1%). Most of the sailors (88.3%) suffered from dyspepsia followed by nausea / vomiting (82.5%), Cough & Cold (41.2%), diarrhea (39.8%) during their voyage in last one year.

Prevalence of Ischemic Heart Disease (IHD) among permanent employees 14.5% & contractual employees (6.9%).

Musculo Skeletal pain (45%) among engine employees & 34% among deck employees. Hearing problem 11.8% among engine employees & 6.3% among deck workers. COPD/Asthma 9.2% among engine employees and 5.7% among deck employee



**Fig. No.1 : Stacked Venn Diagram showing distribution of hypertension, Diabetes mellitus among the overweight sailors.**



**Fig. No.2 : Venn Diagram showing interaction between tobacco and alcohol addiction. Among the sailors 310 (66%) were at risk of addiction to both tobacco & alcohol.**

**DISCUSSION :**

All the sailors working at HDC were male. Health problems of female sailors were estimated in some scientific literature<sup>7</sup>. Mean age of sailors was 46.35 (SD + 10.9) years. Most of sailors (46.4%) were 51 – 60 years age group as they were recruited between late 1970 and early 1980 during commissioning of HDC. But later recruitment procedures became irregular. Most of them Hindu, currently married & living in a joint family. All of them were in upper class as per modified B.G. Prasad's socio economic scale as monthly PCI >Rs.6,000/-. Most of them (42%) passed Class X, followed by (34%) passed Class XII. Most of them (64%) were non officer and 63% were permanent employees recruited by chairman of Kolkata Port Trust. 68% sailors work in deck departments and rest (32%) in engine department. Only 23% work in a ship and 77% work in water borne vessels. Hypertension is the most prevalent (41.7%) followed by pain in low back region and knee (38%), diabetes mellitus (17.8%), I.H.D.(12%), obesity (10%), hearing loss (8.1%), COPD or Asthma (6.8%).

Raghuopathy Anchala et al<sup>8</sup> showed that the prevalence of hypertension among general population in India was 29.8% which is far less than 41.7%. Richard Pougnet et al<sup>9</sup> found the prevalence (hypertension) among European sailors between 8.2% to 49.7%. I.C.M.R. found that musculo skeletal pain among general population of India ranges between 6% to 18%<sup>10</sup> Prevalence of diabetes mellitus among general population in India ranges between 3-6% which is much less than present study<sup>11</sup>.

WHO estimated the global prevalence of hearing loss was 5.3%<sup>12</sup> which is lower than present study finding. But Mandal S et al<sup>13</sup> found the prevalence of IHD is almost similar 11.6% to this study finding. Prevalence of addiction among European sailors (72%)<sup>14</sup> was almost similar to this study finding (66%). High risk health behavior was found among 7(1.5%) sailors.

**CONCLUSION :**

Sailors are one of important pillar of shipping industry and port sector. This study found that overall prevalence of life style diseases were higher among the sailors than general population. Behavioral change communication (BCC) programmes, healthy Occupational environment, regular health check-up, counselling and healthy diet might be key interventions to prevent life style diseases among the sailors.

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**Conflict of Interest – None.**

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