



ORIGINAL ARTICLE

AIDS Awareness: Indispensable Prerequisite Among Fishermen Population

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Abstract

Objectives: Fishermen are among the most vulnerable groups for human immunodeficiency virus (HIV)/AIDS with reported high prevalence. Poor knowledge base has been evidenced by a few studies. The present study was conducted to assess the knowledge regarding HIV/AIDS among fishermen of the Kutch coast, Gujarat, India.

Methods: A descriptive cross-sectional study was conducted among 950 fishermen of the Kutch coast, in the months of January–February 2015. Knowledge of HIV/AIDS of fishermen was assessed using structured interview schedules with 12 questions. The information on socio-demographic characteristics was also obtained. Chi-square test and multivariate logistic regression analysis were used for statistical analysis. The confidence level and level of significance were fixed at 95% and 5%, respectively.

Results: A major proportion of participants (57.2%) had no access to any potential source of information and had never heard about HIV/AIDS (65.1%). Some of them were aware of modes of transmission of AIDS but only a few of them knew about the methods of prevention. Only 23.1% of participants were observed with appropriate knowledge regarding HIV/AIDS. Bivariate and multivariate analysis revealed significant variation in the proportion of participants with appropriate knowledge with age and educational status.

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Conclusion: Overall, the knowledge of the fishermen community in the present study was evidenced to be poor creating an alarming situation demanding educative interventions as a part of AIDS control programs.

1. Introduction

AIDS is one of the growing epidemics in the world today and has been widely ascribed to be the most appalling health disaster. According to Global Health Observatory data Repository 2015, 35 million people were living with human immunodeficiency virus (HIV) worldwide at the end of the year 2013 with a mortality of 1.5 million [1].

Population groups reported [2,3] with increased risk of acquiring the disease (HIV/AIDS) are commercial sex workers, intravenous (IV) drug abusers, and mobile populations such as military personnel, fishermen, prisoners, and truck drivers. Mobile populations are known to engage in high risk—behavior, such as having unprotected sex with multiple sexual partners. Studies in different parts of SubSaharan Africa have found strong correlations between HIV and migration status [4]. HIV/AIDS prevalence among fishermen was reported to be four to 14 times higher than the general population in a review of surveys conducted since 1992 in 10 low or middle income countries in Africa, Asia, and Latin America [5,6]. Fishermen are particularly susceptible to the risk of HIV/AIDS on account of various risk factors associated with fishing and its related lifestyles. The dynamics of the fish trade require that fishermen be mobile and stay away from their families for several days together. Fishing is considered a high-risk occupation, both in terms of the livelihood insecurity that it offers and its potential for physical injury and death. The despair of poverty and the high-levels of physical risk are believed to encourage a culture of risk-taking with respect to sexual behavior, alcohol, and drug consumption. There is evidence to show a strong culture of heavy drinking of alcohol and drug consumption among fishermen in order to deal with the stress of long working hours and exposure to danger while at sea [7,8]. Some authors contend that risk-taking among fishing communities reflects a low risk perception, a denial of risk, and fatalism [7,9]. Other risk factors include their access to cash income, demographic profile (they are often young and sexually active), low level of education (especially sex education), and readily available commercial sex hawkers in most of the fishing ports and shores of fishing grounds [10]. Also significant, are cultural factors related to fishing as a high-risk, low-status, and uncomfortable occupation, which lead to high-risk sexual behavior practices.

HIV/AIDS is largely preventable, but lack of knowledge has led to its rapid spread. Widespread ignorance, poor information, and misconceptions regarding HIV in

society are responsible for causing social stigma, discrimination, and stigmatization. Therefore, understanding regarding the awareness of HIV/AIDS among high risk populations such as fishermen can help us in formulating a strategy for prevention, treatment, and improving compliance to treatment of HIV/AIDS. Therefore, the present study was undertaken to assess the knowledge regarding HIV/AIDS among fishermen population of the Kutch coast, Gujarat, India.

2. Materials and methods

2.1. Study design and population

A descriptive cross-sectional study was conducted among fishermen of the Kutch coast, in the months of January–February 2015. Fishermen were defined as all individuals involved in fishing for economic survival. Gujarat is one of the maritime states of India with the longest coastline and widest shelf area. The Gulf of Kutch is situated in Gujarat between the Saurashtra and Kutch peninsulas. Kutch is the largest district in India with a total area of 45,652 sq. km. The Gulf of Kutch is one of the major sea ports and a hub of marine fishing adding to the significant economy of the place. These areas harbor various commercial fishes such as pomfret, Jew fish, Bombay duck, shrimp, lobster, squid, cuttle fish, silver bar, hilsa, shark, catfish, mullets, etc. and different types of oysters, shell fish and seaweed. Fishes are sent to Assam, Andhra Pradesh, and Mumbai. These fishes are also exported to Sri Lanka, Bangladesh, and Mauritius. There are roughly 988 households engaged in traditional fishing on 12 banders (fishing settlements) on the Kutch coast. Fishermen migrate from the main villages to the banders, where they stay for 8–9 months in a year and practice traditional fishing [11].

2.2. Ethical approval

The study protocol was reviewed by the ethical committee of K.V.G Dental College and Hospital, Sullia, Karnataka, India and was granted ethical clearance. After informing the purpose and details of the study in the local language, a written informed consent was obtained from all the study participants. For illiterate participants, the required elements of informed consent were presented orally to the individual.

2.3. Pretesting of interview schedule

A structured interview schedule [6] in English was translated into the local language and was validated

among a convenience sample of 30 fishermen. Based on their feedback, the phrasing of the questions was improved. Cronbach α was found to be 0.82, which showed an internal reliability of the questionnaire. Mean content validity ratio (CVR) was calculated as 0.97 based on the opinions expressed by a panel of five academicians.

Knowledge of HIV/AIDS among fishermen was assessed using structured interview schedules with 12 questions which included questions regarding transmission of HIV/AIDS, sign, symptoms, and preventive measure with responses measured on Likert's scale with alternatives "Yes", "No", and "Don't know". The information on sociodemographic characteristics was also obtained.

2.4. Inclusion criteria

All fishermen of age 18–60 years and working for at least 2 years were included in the study.

2.5. Pilot study, sample size calculation, and sampling technique

A pilot study was conducted among a random sample of 50 fishermen of the same area. The sample size was calculated based on the proportion of correct answers for knowledge of HIV/AIDS in the pilot study (27%) assuming the confidence level at 95% and 10% allowable error. The formula used for sample size calculation was:

$$N = \frac{z^2 p (1 - p)}{d^2 p} \quad (1)$$

where N = sample size, z = normal deviate for given confidence level, p = prevalence obtained, and d = allowable error (relative precision). The minimum sample size was assessed as 934 which was rounded off to 950. The results of the pilot study were not included in the main study.

The principal unit of administration in India is the district headed by a Collector. Most districts are divided into two or more subdivisions. Each subdivision is again divided into Tehsils (talukas). Each Tehsil comprises of several villages. Multistage random sampling was employed to select the study population. The Kutch coast is divided into four zones from which one zone (Anjar, Mundra) was randomly selected. From the selected zone, a tehsil (Mundra) was randomly selected. From the selected tehsil, two villages namely: Bhadrashwar and Luni were randomly selected. Samples were selected using probability sampling from each village. A list of fishermen at the selected villages was obtained from the fishermen association of the area. Participants were selected employing systematic random sampling technique until the minimum sample size was achieved.

2.6. Data collection

The pretested structured interview schedule was used to collect the information. A single investigator well versed in the local language interviewed the participants to obtain the information. Data collection continued for 2 months (January 2015 and February 2015). On average, data collection from 15 participants was completed in 1 day through face to face interviews. The persons being interviewed were put at ease by telling them the purpose of the interview and how the data would be used later. The confidentiality and anonymity of information provided by them was assured to each and every participant. Information from each participant was recorded in a structured interview schedule.

2.7. Statistical analysis

Completed interview schedules were coded and spreadsheets were created for data entry. The qualitative and quantitative data was analyzed using SPSS version 15 (SPSS Inc., Chicago, IL, USA) Windows software program. Correct and incorrect responses to each question were given scores of '1' and '0'. A knowledge score was obtained for each individual by summing up the scores of each question. Knowledge scores ≥ 6 were considered as having appropriate HIV/AIDS knowledge and those who had scores < 6 were considered as having inappropriate knowledge [7]. Descriptive statistics were used to summarize the demographic information and the survey data was analyzed using the Chi-square test. Multivariate logistic regression analysis models were used to check the relation between independent and dependent variables. The confidence level and level of significance were fixed at 95% and 5%, respectively.

3. Results

Table 1 depicts the distribution of study participants according to socio-demographic variables. Among all participants ($n = 950$), the majority belonged to the 38–47 years age group (30.2%) and were married (60.8%). Approximately 80% of the study population was illiterate. More than half of the participants worked on a contract basis. The majority (65.6%) of participants had a monthly income of $\leq 10,000$ Indian Rupees (INR). Electronic media (TV, radio) was the potential source of information for the majority of participants (28.5%). Approximately 57.2% of participants had no access to any media.

The majority of the study population had never heard about HIV/AIDS (65.1%). Modes of transmission of HIV were known to approximately $> 40\%$ of study participants except mother to child transmission which was not known to 74% of participants. Only 19–25% of participants were aware of the methods of prevention of AIDS (Table 2). Among all, 23.1% of the participants

Table 1. Distribution of study participants according to sociodemographic variables.

Variable	<i>n</i>	%
Age (y)		
18–27	221	23.3
28–37	256	26.9
38–47	287	30.2
≥ 48	186	19.6
Marital status		
Unmarried	355	37.4
Married	578	60.8
Widower	12	1.3
Separated	5	0.5
Educational status		
Illiterate (cannot read and write)	762	80.2
Literate	188	19.8
Employment status		
Daily wages	432	45.5
Contract basis	518	54.5
Monthly income (Indian Rupee, INR)		
≤ 10,000	623	65.6
> 10,000	327	34.4
Access to potential source of information regarding AIDS		
No access to media	543	57.2
Print media	136	14.3
Electronic media	271	28.5
Total	950	100

had appropriate knowledge regarding HIV/AIDS. The proportion of participants with appropriate knowledge varied significantly with age ($p = 0.023$) and educational status ($p = 0.012$). The age group of 28–37 years

Table 2. Frequency distribution of correct responses.

Item	Individuals with correct response, <i>n</i> (%)
Heard about HIV/AIDS	332 (34.9)
Healthy looking individual can have AIDS	354 (37.3)
HIV/AIDS curable disease	123 (12.9)
HIV/AIDS transmits by unprotected sexual contact	456 (48)
HIV/AIDS transmits by unsafe blood transfusion	412 (43.4)
HIV/AIDS transmits by needle stick injury	423 (44.5)
HIV/AIDS transmits from mother to child during pregnancy	247 (26)
HIV/AIDS can be prevented by	
Use of condoms	218 (22.9)
Having only one sexual partner	231 (24.3)
No commercial sex	198 (20.8)
No injections with contaminated needles	182 (19.2)
No blood transfusions	183 (19.3)

showed the highest proportion of participants (31.3%) with appropriate knowledge regarding HIV/AIDS. Among illiterate participants, only 6.2% had appropriate knowledge as compared with 90.9% literate participants (Table 3).

Participants > 30 years of age had 2.431 times [confidence interval (CI) = 1.231–5.551; $p = 0.035$] greater knowledge than their younger counterparts. Literate participants had more knowledge [odds ratio (OR) = 4.551, CI = 2.314–8.982, $p = 0.014$] than those who cannot even read or write (Table 4).

4. Discussion

Fishermen are considered a high risk bridging population for HIV/AIDS because of their social contacts and interactions with the general population [12]. The key components of that bridging phenomenon are they stay away from home for long periods and most people involved in fishing as an occupation are within the age groups (18–35 years) most vulnerable to sexually transmitted infections (STIs). As they stay away from home for longer durations, the chances of indulging in risky behavior such as unsafe sex with casual/commercial sex workers substantially increases. A study by Setiawan and Patten [13] (2010) reported on selected findings of a qualitative social network study investigating STI/HIV-related risk among migrant fishermen based at one of Indonesia's major fishing ports in Bali. According to this study, entertainment for all alcohol-drinking fishermen included drinking, buying sex, playing pool, and watching pornographic films. These fishermen run a high personal risk of contracting HIV due to their circular migration patterns among Indonesian and foreign ports such as Thailand and South Africa [13]. Frequent mobility and high levels of alcohol use among fishermen before and during sexual encounters may be a factor of unsafe sexual practices. The transit stations share low educational levels among the local population, few public services, repeated human rights violations, violence, poverty, and corrupt authorities. The migrant population may be subject to discrimination, xenophobia, exploitation, and harassment, and have little or no legal or social protection in the host community. Within this social context, transactional sex, sex for survival, rape, and nonprofessional commercial sex happen in conditions that increase the risk of the transmission of STI/HIV, such as infrequent condom use [14,15]. In an exchange of sex for fish, fishermen get access to new sexual partners in the destination beaches and engage in risky sexual behaviors without any HIV prevention measures [16]. Therefore, the present study was conducted to witness a baseline data on knowledge of fishermen regarding the preventable disease, AIDS.

A low level of HIV/AIDS related knowledge (23.1%) among fishermen of Kutch, depicted in the present study

Table 3. Distribution of study participants with appropriate knowledge according to sociodemographic variables.*

Variable	Individuals with appropriate knowledge, <i>n</i> (%)	<i>p</i>
Age (y)		
18–27 (<i>n</i> = 221)	62 (28.1)	0.023 [†]
28–37 (<i>n</i> = 256)	80 (31.3)	
38–47 (<i>n</i> = 287)	63 (21.9)	
≥ 48 (<i>n</i> = 186)	14 (7.5)	
Marital status		
Unmarried (<i>n</i> = 355)	33 (9.3)	0.97
Married (<i>n</i> = 578)	182 (40.1)	
Widower (<i>n</i> = 12)	3 (25)	
Separated (<i>n</i> = 5)	1 (20)	
Educational status		
Illiterate (cannot read & write) (<i>n</i> = 762)	48 (6.2)	0.012 [†]
Literate (<i>n</i> = 188)	171 (90.9)	
Employment status		
Daily wages (<i>n</i> = 432)	95 (21.9)	0.132
Contract basis (<i>n</i> = 518)	124 (23.9)	
Monthly income		
≤ 10,000 (<i>n</i> = 623)	121 (19.4)	0.76
> 10,000 (<i>n</i> = 327)	98 (29.9)	
Access to potential source of information regarding AIDS		
No access to media (<i>n</i> = 543)	185 (34.1)	0.55
Print media (<i>n</i> = 136)	12 (8.8)	
Electronic media (<i>n</i> = 271)	66 (24.4)	
Total (<i>n</i> = 950)	219 (23.1)	

*Test applied: Chi-square test; [†]Indicates statistically significant at $p \leq 0.05$.

Table 4. Odds ratio (OR) and 95% confidence interval (CI) for appropriate knowledge regarding HIV/AIDS according to multiple logistic regression.

Variable	OR	95% CI	<i>p</i>
Age (≤ 30/> 30 y)	2.431	1.231–5.551	0.035*
Marital status (single/married)	1.32	0.12–2.88	0.55
Educational status (illiterate/literate)	4.551	2.314–8.982	0.014*
Employment status (daily wages/contract basis)	1.121	1.019–2.331	0.81
Monthly income (≤ 10,000/> 10,000)	0.56	0.18–2.54	0.77
Access to potential source of information regarding HIV (no/yes)	0.98	0.23–1.451	0.44

*Indicates statistically significant at ≤ 0.05 . CI = confidence interval; OR = odds ratio.

confirm the findings of previous researches addressing the knowledge, attitude, and practices related to HIV/AIDS among fishermen of Karachi [17], North Central Nigeria [18], and Baluchistan [19]. Almost half of the

population in the present study was unaware of the modes of transmission and > 25% of them did not present knowledge regarding methods of prevention of the disease. Moreover, ~65% of the participants never heard about HIV/AIDS. Zafar et al [17] (2014) also stated that the majority of the fishermen population of Karachi did not hear about HIV/AIDS. By contrast, Olowosegun et al [20] (2009) reported a major proportion (98.4%) of the fishermen population of Kainji Lake basin had heard about HIV/AIDS, though the knowledge regarding modes of transmission and prevention was relatively low. Faye et al [3] (2013) also reported a low level of knowledge among Senegalese sailors, a similar migrant population to the present study. According to the health belief model of health behavior change, perceived susceptibility means perceived risk for contracting the health condition or disease [21]. However, when the person is unaware of the disease or never heard of the disease, perceived susceptibility for disease seems to be nil which indirectly affects the health behavior. The majority of participants at the Kutch coast never heard of HIV/AIDS implying that no prevention methods were being practiced. Only 37.3% of

participants in the present study agreed to the fact that healthy looking individuals can have HIV/AIDS which implies that the remaining 63% hold the misconception that those carrying HIV virus cannot look healthy. A similar misconception was reported among commercial sex workers in a qualitative study conducted by Mah and Dibba [22] (2008) in Gambia among high risk populations. This study stated that among all high risk populations, fishermen had the lowest knowledge regarding HIV/AIDS. A common misconception stated by fishermen participants was that STIs can be contracted from urinating at a location where a dog had previously urinated [22].

The low knowledge reported in the present study is analogous to the findings among various fishermen populations of Karachi [17] and Bali [13]. However, studies eliciting knowledge among general populations reported amplified knowledge as compared with the present study. A good level of knowledge was evidenced among university students of Xinjiang [23] and among high school students of Lao People's Democratic Republic [24]. The insufficiency of knowledge among the fishermen population as compared with the general population may be ascribed to their illiteracy. Approximately 80% of the present study population could not read and write and among the meager literate population, the majority (90.9%) had appropriate knowledge regarding HIV/AIDS. Basavakumar et al [25] (2011) studied a profile of a fishing community in a village at Karnataka, India and reported that only 13.8% of fishermen participants were literate. By comparison, the literacy rate of the general population of India was found to be 74.04% [26]. The difference in knowledge regarding HIV/AIDS of illiterates and literates was found to be significant in the present study. A similar association in the literacy level and HIV related knowledge was also observed among fishermen of Baluchistan [19] and Bali, Indonesia [13]. Another major concern in the present study was that more than half of the study population had no access to any potential source of information on AIDS which might have added to their inferior knowledge. However, significant association was not elicited between source of information and knowledge which is in line with previous researches [17]. Among those, who had access to sources of information in the present study, electronic media such as TV and radio was the major source which confirms the findings of previous studies [17,27]. Limited access to sources of information in the present study might be attributed to the migrant nature of their work and less developed rural residential settings. Significant variation in the knowledge was also elicited with age in the present study which confirms the result obtained in the previous studies [13,17].

The present study determined poor knowledge of HIV/AIDS and associated factors (age and educational

status) that might have an influence on the knowledge base of fishermen. Thereby the subgroups among the highly vulnerable fishermen population which are at highest risk of getting the disease were assessed so that interventions could be planned more efficiently for preventing the disease in this population group.

5. Conclusion

This paper has highlighted knowledge regarding HIV/AIDS among fishermen of the Kutch coast. Knowledge varied with age and educational status. Therefore, it is imperative for government and other community based organizations to give the fisheries sector attention on HIV/AIDS education and prevention to help the population in the struggle against the pandemic. Urgent mobilization on HIV/AIDS information and education can be organized in the fishing communities to reduce the burden of HIV/AIDS on the national economy. Circulation of HIV/AIDS related information routinely through several means in the community is needed as many people reported lack of access to sources of information. The establishments of HIV/AIDS support organizations in enlightening the people on a broad-based community approach are required. Strengthening social capital through structural intervention programs may be important in preventing the spread of HIV/AIDS in this community.

Conflicts of interest

None.

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