Vulnerability to HIV in Humanitarian Emergencies: A Study of Tsunami Affected Communities in India

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Abstract

Understanding on vulnerability to HIV in humanitarian emergencies is limited to conflicts. Natural disasters like Tsunami are hypothesised to have increased vulnerability to HIV. This unique study focused on understanding the vulnerabilities of Tsunami affected communities in India, to HIV; covering 30 locations through multi-stage sampling, across five states, using mixed methods. Vulnerability existed in almost all locations; heightened in two-thirds locations. Physical proximity of displaced populations was the primary factor contributing to a chain of events that led to increased vulnerability. Increased unprotected sex with non-regular partners was the key risk factor. Coastal communities in the tsunami hit areas were vulnerable to HIV even before Tsunami. The effects of humanitarian crises and aid measures influenced the behaviour and practices of the affected, significantly heightening vulnerability. There is need to mainstream HIV and AIDS components in humanitarian aid and include communities from disaster-prone areas into national HIV and AIDS interventions.

Key Words **Population – Environent - Humanitarian Emergency-Tsunami - HIV-Vulnerability**

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Introduction

Natural disasters and resulted humanitarian crises have been subject to extensive research which contributed to better understanding of the crises as well as its repercussions on the population exposed to it. Systems and policies evolved from such research have helped in averting further disasters, cushioning the severity of the effect and also for preparing the community, governments as well as humanitarian agencies in addressing issues related to relief, rehabilitation, repatriation as well as reintegration of the inflicted back to normalcy. HIV though with relatively recent origin, of late has been identified in itself as an emergency. The African experience in HIV calls for immediate interventions elsewhere in the world in order to minimise the spread of the epidemic in general population. Across the continents such efforts have gained pace and also brought about land mark achievements in arresting the pace of spread and averting infections of millions of vulnerable. Linkages between marginalisation and vulnerability to HIV have been well documented. However, vulnerability of populations in humanitarian crises to HIV still remains a grey area.

The international experience in understanding vulnerability of communities towards HIV in disaster hit zones is mostly limited to conflicts and HIV and explains vulnerability in the context of sexual violence resulted in due to the conflict. This explanation does not hold well in the context of natural disasters where odds of sexual violence are low vis-à-vis wars and other conflicts. Hence it is important to theorise, verify and assess the impact of natural disasters on the HIV vulnerability of the affected. Empirical evidence from India having third largest estimated HIV infected population; recently subject to series of natural disasters, will not only help in understanding the vulnerability of affected communities and the effects of disaster on the vulnerability, but also would lead to formulating strategic policy decisions and planned humanitarian action in addressing HIV and AIDS in the context of natural disasters.

International Experience in Disasters and HIV vulnerability

The interrelationship between manmade disasters such as war and HIV have been well documented and emphasises more on sexual violence as a key factor for the spread of the infection. However, there is dearth of empirical evidence to conclude whether natural disasters trigger faster spread of the infection in the affected community. Rigorous desk research proved that though there is absence of empirical evidence, the subject matter had been a matter of concern for major actors in the humanitarian forefront. Many of such concerns were centred on issues related to violence and access to preventive measures and services. United Nations warned the countries affected with Tsunami about the need to guard against increased HIV transmission in devastated areas due to increased risk behaviour and vulnerability among the affected populations (United Nations, 2005). The main risk factors centre on an immediate lack of prevention resources such as condoms and education materials. Increased vulnerability is mainly due to people seeking livelihood alternatives because their principle means of income generation has been destroyed. Inter-Agency Support Unit (IASU) of UN office in Thailand noted that Tsunami increased the risk of HIV transmission. According to IASCU, Interrupted access to essential public and community services, undermined social stability and personal security, heightened the risk of sexual and gender based violence and threatened the break up of family units. Many workers also became more vulnerable due to the reconstruction activity, which employed many more mobile workers. Perhaps the most important for longer-term vulnerability to HIV infection, for thousands of people, the tsunami also destroyed their incomes, assets and livelihoods (IASU, 2006).

According to Tearfund Disaster Management Team, the spread of HIV doesn't stop during a conflict or disaster. They observed that in post emergency situations, like Tsunami, people's vulnerabilities increase and the impact of HIV and AIDS can worsen. The workbook by the team mentions that the very nature of a disaster encourages risky behaviour through the break down of society increasing power struggles and gender violence as well as stress and boredom. In addition the lack of resources can exacerbate the need to 'buy' or obtain food through sex. Therefore people's vulnerability towards HIV can increase at this time due to the potential rise in the infection rate. In addition people who are already infected or affected by HIV will find it harder to cope. During and after an emergency, gender inequalities can increase, lack of infrastructure can worsen, family and community structures can breakdown, access to safe water and sanitation facilities are denied and food security is affected (Perrty, 2006).While assessing the health systems during disaster mitigation, the Inter-Agency Standing Committee Task Force (IASC TF) observed that at the end of 2001, over 70 different countries

experienced an emergency situation, resulting in over 50 million affected persons worldwide. WHO notes that the very conditions that define a complex emergency – conflict, social instability, poverty and powerlessness - are also the conditions that favour the rapid spread of HIV and other sexually transmitted infections (IASC, 2006).WHO further stated that during a crisis, the effects of poverty, powerlessness and social instability are intensified increasing people's vulnerability to HIV. As the emergency and the epidemic simultaneously progress, fragmentation of families and communities occurs, threatening stable relationships. The social norms regulating behaviour are often weakened. In such circumstances, women and children are at increased risk of violence, and can be forced into having sex to gain access to basic needs such as food, water or even security. Displacement may bring populations and communities into contact. This is especially true in the case of populations migrating to urban areas to escape conflict or disaster in the rural areas. As a consequence, the health infrastructure may be greatly stressed; inadequate supplies may hamper HIV prevention efforts. During the acute phase of an emergency, this absence or inadequacy of services facilitates HIV transmission through lack of universal precautions and unavailability of condoms. In war situations, there is evidence of increased risk of transmission of HIV through transfusion of contaminated blood.

According to IASC, from the information available to date, the thinking on HIV transmission in emergency settings is that: (1) The risk of HIV transmission appears to be low in places with low HIV prevalence rates at the beginning of an emergency, and where populations remain isolated. This appears to remain true even when there are high levels of risk behaviours such as rape. Sierra Leone and Angola during the conflict years typify this scenario and (2) In areas affected by natural disaster, the impact on HIV depends on existing HIV prevalence rates and the capacity of the government, international agencies, donors and civil society to respond. In 2002-2003, when Southern Africa went through a food shortage, it is believed that people with HIV, already poorer because of lost household income and greater medical expenses incurred by the person living with AIDS, suffered disproportionately when faced with lack of food caused by the regional shortage (IASC, 2006).The World Disaster Report (2003), which deals with ethical issues in humanitarian aids, highlights that the international response during disasters tilted more towards 'high-profile disasters,' which are sudden in nature, receive a lot of media attention like earthquake, and flood. It argues that ethnic conflict, hunger and infectious disease like HIV, which are prolonged and invisible in nature, do not receive the same amount of attention and response in humanitarian actions. The subsequent Report which focuses on strengthening community resilience, terms HIV / AIDS as a 'Silent Disaster' and reports that the disease kills more people than any other natural disaster (World Disaster Report , 2004).

Elliot found that HIV and AIDS are wider social and economic issues; power imbalance in gender-based relations is one of the root causes of HIV infection in resource poor countries and regions. In emergencies, where people are displaced and forced to stay in crowded camps, this imbalance becomes acute due to: Sexual and gender-based violence; Breakdown in social and community structures and Lack of physical and legal protection; Lack of health infrastructure; Lack of basic needs and economic opportunities; Lack of education and skills training; Frustration and idleness of the displaced (Elliot, 1999). Higher vulnerability of women and girls to HIV and AIDS in conflict situation has been highlighted by UNAIDS Inter-Agency Task Team on HIV and AIDS (IATT, 2006). Some of the factors heightening the risk of HIV infection, identified by the Task Team, including the above, are: Break-up of stable relationship; Disruption of social norms governing sexual behaviour; Economic destitutions and psychological trauma; Drinking, abuse, and unprotected non-regular partner sex by men; Increased dependence by women on men for physical and economic security; Survival sex or sex in exchange for food, water, shelter, protection and other basic necessities; Sexual interaction between civilians and combatants.

Smith reviews existing policies, guidelines vis-à-vis responses to HIV and AIDS in emergencies and provides recommendations for humanitarian agencies. She identified two major links between HIV and emergencies. First, humanitarian crises whether conflict or natural disaster occur more in countries where rates of HIV infection is already high. Secondly, emergencies may cause change in sexual behavior, disruption of medical facilities, loss of livelihoods and sexual violence and increase the risk of infection. Priority given to provision for basic needs, food, shelter and treatment for other infectious diseases like measles, cholera and dysentery, at the expense of HIV and AIDS, has been criticized (Smith, 2002). The United Nations General Assembly in one of its declaration on HIV and AIDS notes that armed conflict, humanitarian emergencies and natural disasters increase the spread of the epidemic. It mandates inclusion of HIV and AIDS awareness; its prevention and care for refugees, internally displaced persons particularly for women and children into national strategies, international assistance programmes, plans and programmes of all UN agencies, regional organizations and NGOs. It also advocates training on HIV and AIDS of armed forces and military personnel who participate in

protection, peacekeeping, relief and rehabilitation in such situation (United Nations General Assembly 2001).

The Inter-Agency Standing Committee defines emergencies and explores how emergencies increase vulnerability to HIV. It provides an elaborate guideline on emergency response addressing the specific needs of HIV infected people. IASC opines that in areas affected by natural disaster, the impact of HIV depends on existing HIV prevalence rates and capacities of the government, civil society organizations, donors and international agencies to respond to the disaster in question. At the same time, it cautions the need for "significant work in accurately assessing prevalence rates and information related to risk behaviours for HIV in emergency settings." It calls for multi-sectoral, coordinated and holistic approach to deal with HIV and AIDS in emergencies (IASC, 2005). Spiegel and Haroff-Tavel (2006) examined National HIV Strategic Plans and approved funding proposals on HIV and find out the correlation between internally displaced persons (IDPs) and the rate of HIV infection. Their study in 8 countries: Burundi, Democratic Republic of Congo, Columbia, Liberia, Nepal, Somalia, Sudan and Uganda reveals that in most of the priority countries HIV prevalence in low in comparison to surrounding countries in the respective regions. They argue that the statement that conflict increases HIV and AIDS among IDPs or IDPs have higher rate of infection than the general population, is not supported by data, and call for a comprehensive multi-sectoral study to establish the relation.

The literature review reveals that:

- There is a strong relationship between vulnerabilities to HIV and disasters. Emergencies may cause change in sexual behaviour, disruption of medical facilities, loss of livelihoods and sexual violence and increase the risk of infection. Humanitarian crises whether conflict or natural disaster occur more in countries where rates of HIV infection is already high.

- Main risk factors leading to vulnerability are – high risk sexual behaviour (which may be consensus or forced), and lack of preventive resources like condoms, treatment facilities, and educational services.

- Main factors influencing these risk behaviours are loss of assets and livelihoods leading to severe strain on incomes, stress and boredom; breakdown of society and social norms increasing power struggle leading to gender based violence. Physical destruction of public and community assets and properties leading to interrupted access to essential services and amenities is also one of the main influencing factors.

Objectives

Through an explorative approach, the study focused on developing an understanding of the situation and needs of the coastal communities in tsunami hit procinces of India viz. Tamil Nadu, Kerala, Pondichery, Andhra Pradesh and Andaman and Nicobar Islands with respect to prevention of STI, HIV in humanitarian crises. The study specifically looked at whether the coastal communities were vulnerable, if vulnerable, its change post tsunami as well as the factors related to change in vulnerability.

Methodology

Vulnerability, in the context of disaster and following relief and rehabilitation measures, in the study is defined as characteristics of a person or group or community, and their situation that influence their behaviour and practices which lead or exposes them through a causal chain of events resulting in increased likelihood of acquiring HIV-AIDS. The study examined all the four potential modes of transmission of HIV viz. unprotected penetrative multi-partner sex, receiving infected blood or blood products, sharing infected needles and from pregnant mother to child. Pre and post tsunami extent of vulnerable practices were assessed. The inquiry being explorative in nature, during sampling, emphasis was given in examining the heterogeneity of communities as well as habitats and their influence on vulnerability across the affected coastal provinces in India. Hence, a multi-stage sample was drawn by proportionately allocating 30 research locations by stratification of the states based on the level of damages looking into all five tsunami hit provinces. The official statistics on tsunami mortality was chosen as indicator of damage while determining the sample. This allocation was further adjusted such that each affected state is represented with at least two research locations in the sample. Hence three-fifths of the research locations were selected from Tamil Nadu, which accounts for 68 per cent of

tsunami deaths in the country. Another one fifth of locations were selected from Andaman and Nicobar Islands from where 28 per cent of the total casualties in India were reported. Two locations each were selected from Pondichery, Kerala and Andhra Pradesh; provinces which constituted 5 per cent, two per cent and one per cent respectively of total death toll in India. At the next level, one to three districts were selected from the affected districts which reported lion's share of the province level devastation in each province. In districts, revenue villages were further selected after classifying them into low, medium and high categories based on tsunami mortality. From each selected village, one research location was identified looking into the over all sample allocation by type of location viz. habitations, intermediate shelters and permanent shelters ensuring that this also cover the heterogeneity in major means of livelihood of communities. Nicobar district in Andaman & Nicobar Island could not be covered in the study due to restrictions in access.

Due to the sensitive nature and novelty of the research issue, the study employed a blend of qualitative methods to explore the research issue. The basic methods employed were social and resource mapping, polling booth, risk mapping, key informant interviews as well as in-depth interviews. The purpose of each method and target group with whom each method was applied is given in table No: 1. A team of one male and one female researcher assisted by two community facilitators spent five days at each location with the community to explore and triangulate data pertaining to research questions. At every location four distinct groups viz. married men, married women, unmarried men and unmarried women were separately focussed to understand the vulnerability of the subgroup. At each location the data thus collected finally lead to a location case study towards the end of fifth (last) day. The paper is a synthesis of the 30 location case studies. The fieldwork for the study was carried out during the July to December 2006.

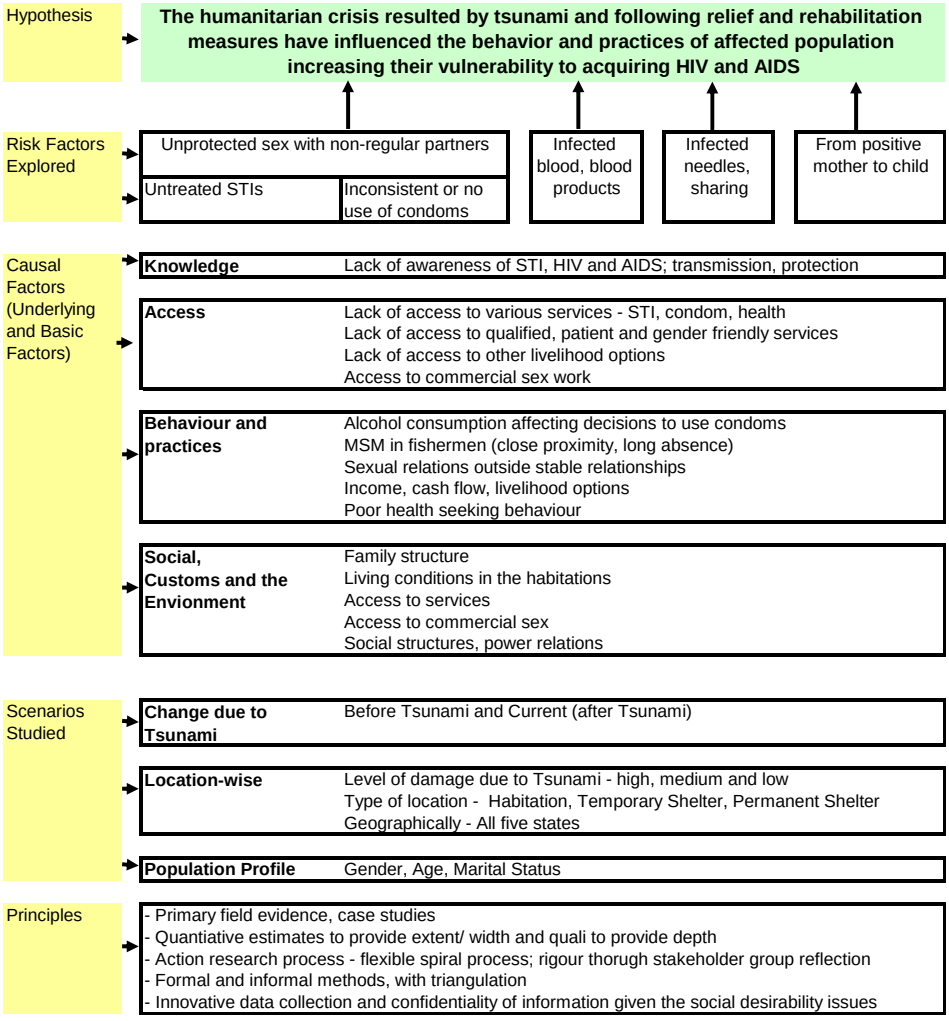
Table No.1

Research Methods Employed by Purpose

No	Method	Purpose
1	Mapping	Map community characteristics and resources, Rapport building, visibility of the study, collect demographics, Map community level vulnerability and risk characteristics
2	Polling Booth	Explore sensitive issues and triangulated community estimates: high risk behaviour: Pre and post tsunami
3	Key Informant Interviews	Understanding the community, exploring domain wise pre and post tsunami vulnerability and predictors, map risk characteristics, validate findings
4	In-depth Interviews	Illustrations of impact, preparation of case studies

Figure No.1

Framework for the Study



Discussion of the Findings

It was found that coastal areas studied were vulnerable to HIV even before the disaster had struck. The humanitarian crisis resulted in due to tsunami and following relief and rehabilitation measures were found to have influenced the behaviour and practices of the affected population heightening their vulnerability to HIV. Out of the thirty research locations in India, except one, all communities were found to be vulnerable irrespective of state, type of location, means of livelihood or degree of devastation due to tsunami. The proportion of population vulnerable ranged from 2 per cent to 46 per cent, with an average 17 per cent of the population at the location being vulnerable (See Table No.2). The estimate of total number of directly vulnerable people ranged from 1 per cent to 27 per cent in various locations with an average of 10 per cent. Andhra Pradesh and Tamil Nadu coastal communities are found to be at an elevated risk compared to Pondichery, Kerala and Andaman & Nicobar Island. Fisher folk had a higher vulnerability compared to other groups. High devastation locations and permanent shelters were found to have higher vulnerability compared to low devastations as well as habitations. Unprotected multipartner sex of the individual or partner was the predominant risk factor heightening the vulnerability.

Existence and Extent of Vulnerability

Except Chouldari in Andaman Island where the research triangulated that there is no vulnerability to the community or subpopulations, in all the locations varying proportions of married men and women were found to be with some degree of vulnerability. In the case of unmarried men, except the two Port Blair Locations in Andaman district in ANI, they were found with varying proportions of vulnerability. In sixteen locations out of the thirty locations, unmarried women were found vulnerable where as about half of the locations they were found not vulnerable. The study also identified varying proportions of spouses of the married men or women with unprotected multi-partner sex indirectly vulnerable. The practice of injecting drug use was not evident in any of the study locations.

Table No: 2
Average Proportion of Population Vulnerable by Selected Background Variables based on Community Triangulated Estimates

No	Category (n)	Total Vulnerable[1]		Directly Vulnerable[2]	
		Average	Range	Average	Range
1	**State/Union Territory**				
	Tamil Nadu (18)	19%	6% – 46 %	11%	4% - 27%
	Pondichery (2)	19%	17 % - 21%	10%	9% - 11%
	Kerala (2)	12%	7% - 16%	8%	5% - 12%
	Andhra Pradesh (2)	29%	22% - 36%	16%	14% - 18%
	Andaman & Nicobar Islands (6)	3%	2%- 5%	2%	1% - 3%
2	**Livelihood**				
	Fishery (22)	19%	2% – 46 %	11%	1% - 27%
	Agriculture (3)	13%	2% - 21%	8%	2% - 11%
	Other (5)	7%	2% - 17%	4%	1% - 10%
3	**Loss of Lives**				
	High (16)	19%	6% - 46%	11%	4% - 27%
	Low (14)	13%	2% - 36%	8%	1% - 18%
4	**Type of Location**				
	Habitation (16)	20%	7% - 36%	12%	5% - 24%
	Intermediate Shelter (12)	10%	2% - 26%	6%	1% - 14%
	Permanent Shelter (2)	27%	9% - 46%	16%	5% - 27%

1 total vulnerable: total of directly vulnerable individuals as well as their partners who are indirectly vulnerable

2 directly vulnerable: individuals who are into unprotected sex with non-regular partners acoording to triangulated community estimates

Changes between pre and post Tsunami to the vulnerabilities

Out of the twenty-nine locations where communities were vulnerable, there was no change in the level of vulnerability for about one third locations where as in the case of two-thirds, vulnerability had increased. Vulnerability remained unchanged in both Andhra Pradesh as well as Pondichery locations. Among all the vulnerable areas in ANI and Kerala, the proportion of vulnerable had increased and for Tamil Nadu, out of eighteen locations that were vulnerable, in the case of thirteen, vulnerability increased. Except for one in Tamil Nadu, vulnerability increased in the case of all intermediate shelters. For all the permanent shelters and half of the habitations also vulnerability increased. In all the habitations where vulnerability had increased, intermediate shelters or permanent shelters are present within the habitation. For communities with major means of livelihood fishery or agriculture, in two-third three locations, vulnerability increased while in all the cases where the livelihood was other than fishery or agriculture, it increased. In the case of majority of locations irrespective of level of devastation, vulnerability increased; for high devastation locations it was for three quarters of the locations and for low devastation the increase was evident in two third of the research locations. There was no research location where community vulnerability had reduced.

For married men, in 18 out of 29 locations vulnerability increased, in the case of married women the increase in vulnerability was evident in 20 out of 29 locations and form unmarried men, out of 28 locations where the group was found vulnerable, in the case of 19 vulnerability got heightened.Married women were found vulnerable in 16 locations and their vulnerability increased in 13 research locations.. It may be noted that, though in terms of number of locations unmarried women were found vulnerable in only about half of the locations, in terms of increase in vulnerability, they rank first, followed by married women as well as unmarried men while the change was minimum for married men who already were at a high level of vulnerability even pre tsunami. It was noted that in locations where there is no change in vulnerability, married men were the most vulnerable population with rank one or two in almost all cases. Unmarried men are the second most vulnerable population in such cases followed by married women. Wherever there is increase in vulnerability, unmarred men rank first, followed by married men and women respectively.

Figure: 2

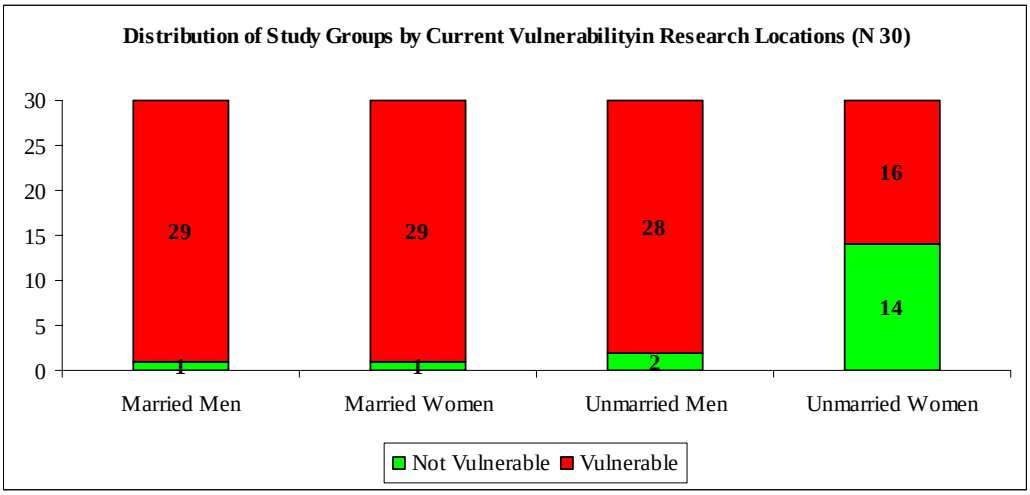
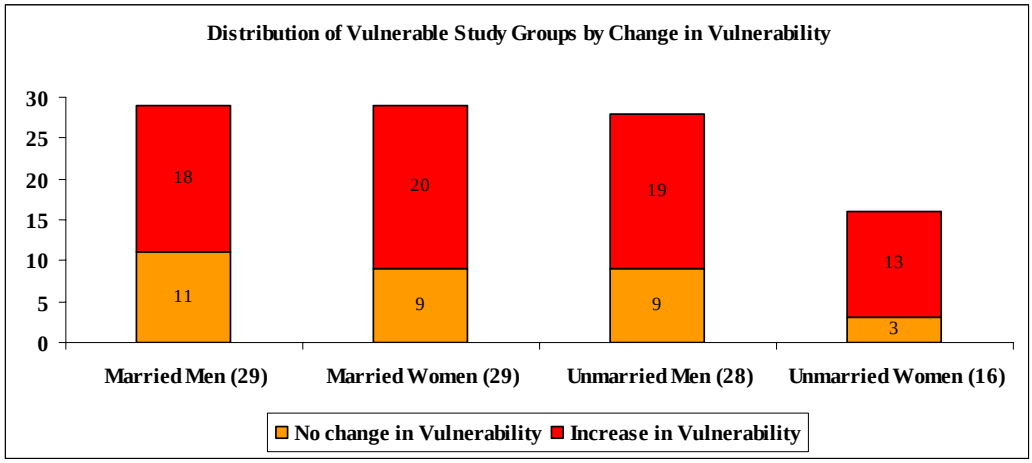


Figure: 3



Examining the quantum increase in vulnerability in terms of number of individuals vulnerable before and after tsunami the average increase was five folds compared to the pre tsunami number of individuals in the case of married women. For married men the average increase was three fold to the pre-tsunami figures. For unmarried men, the average increase in vulnerability was nine fold. In most cases there is only negligible increase for unmarried women.

Determinants of Vulnerability

The study looked at the factors that shape the vulnerability of the population from two dimensions, one is, which are the factors that determined the vulnerability of different subpopulations that existed even before tsunami and which factors emerged post tsunami. It was also examined, how the pre tsunami factors got aggravated or alleviated in due course. It is found that all the pre existed factors got aggravated in the post tsunami scenario.

Determinants of Vulnerability

1. Pre-existed Factors which were aggrevated

1.1. Lack of awareness about STI, HIV and AIDS

Lack of awareness was predominent and universal throughout the locations. it was the foremost important factor taking all the vulnerable groups together, also for groups from among the groups with increased vulnerability post tsunami, married men and all groups where there is low devastation, lack of awareness ranked first. It was the second or third most important factor in most of the groups where there is an increase in vulnerability. There are people who have still not heard about HIV or AIDS. The researchers came across women who have been suffering from sexually transmitted disease, but not able to recognise it. Many men have beliefs like “having sex with men will not lead to HIV” , “women from villages are free from such infections”, “taking penis out before semen comes out can prevent HIV transmission even when the woman is infected with HIV”, etc.

1.2. Inconsistent or no use of condoms

There were men like Marimuthu[3] who know about HIV, but still were not able to use condoms consistently and went to VCTC for testing. Men who know about condoms also under alcohol fail to comply with safe sex. Young men also reported that “chance and condom readily available do not happen”. They do not carry condoms always. In the case of pre-planned sex only, chance of condom use emerges as we find.

[3] Names have been changed

But condom is more seen as a contraceptive than a measure to prevent AIDS. It is used only when the female partner is unmarried or married having not adopted permanent birth control measures. The research did not come across condom use within the institution of marriage intended to prevent STI. In most cases where the woman from the community/intermediate shelter was married and sterilised, condoms were not used. There is prevailing belief that "only tickets/ bus stand ponnu (sex workers) spread the disease". A "Kudumba Ponnu (house wife) is not perceived to be having such diseases and hence they say there is no need to use condoms. Many men reported that we are having sex with healthy women so no chance of such diseases. The researchers came across men having unprotected multi-partner sex who believed "I am strong enough, I will never get AIDS". Unmarried lovers were found more likely to use condoms. In one of the locations, the unmarried boys used "southal", thin plastic sheath (pieces of plastic carry bags which are universally available) to prevent pregnancy when they have sex with unmarried girls. But many unmarried men who have sex with their lovers reported that if they use condoms with their lovers, the girls felt that the boy either has an intention to desert her or has some "other affairs". The girls have sex without condoms with men trusting that the boys will marry them and even if there is pregnancy, there would not be a problem since they are going to marry each other.

1.3. Lack of opportunities for treatment of Sexually Transmitted Infections

Sexually transmitted infections prevailed in most locations and treatment providers were also available. Men, particularly unmarried men travelled to distant towns for treatment. From Velankanni they went to Nagapattinam, from Nagapattinam men went to Karaikkal, from Karaikkal to Nagapattinam, etc. Married women mostly depended the Village Health Nurse (VHN); a private doctor who has a clinic near by; private hospitals, or Primary Health Centres (PHC) near by for treatment. At large intermediate shelters, women availed the general health camps organised by humanitarian agencies. But in most cases it would be a male doctor with whom the women are not comfortable in sharing their symptoms and hardly there would be privacy if the doctor wants to examine the patient though they get STI cases. When researcher interviewed the doctor at such a camp site in Nagapattinam, he said

> "I get two three cases reporting STI symptoms during every camp. Today, we had two women. They (the women) do not say much when I try to probe the details. Also you can see the facility (the camp is being conducted in an empty shelter cubicle) There is no privacy to examine the case here while there is a long queue waiting and watching. So I give medicine, but cannot provide detailed counselling".

Men, also women had more access to uncertified providers compared to certified providers. There were faith healers, traditional providers, "fake doctors", nursing assistants or pharmacists whom people relied upon and were comfortable with in consulting. Researchers came across one such provider who has a clinic five kilometres away from the location, but started an extra clinic close to the most devastated area in the locality since he hot a large number of patients from the area. He is very popular among the men and women as a doctor who is very good in treating "such diseases". One nursing assistant, a popular informal provider near an intermediate shelter told the researcher that he advices "Whitefield" (an ointment for skin infections) to the patients who come to him. Women and men also mistook symptoms of STI as skin infections which were widely prevalent in the intermediate shelters. When asked, why they did not seek for treatment to a woman who reported symptoms, she replied "*ithukku ingairunthu anga poi kamikkaraangala*" (should we go from here all the way to get this diagnosed?).

People, particularly married women obtained the prescription slips or tablet foils from peers and bought medicines from the medical shops near by. Majority did not complete the treatment, but stopped medicine as symptom subsides. When it recurred, they used the same slip to obtain medicine again from the shop. Unmarried men directly went to the shops with the prescription or lure children promising sweets and send them with prescriptions to buy medicine for "*Annan*" (brother).

1.4. Commercial sex workers within easy reach

Irrespective the state, majority of locations had commercial sex workers available within easy reach. In some cases it was in the premises of the location and some other cases people travelled to nearest cities where sex workers were available. All coastal towns harboured commercial sex workers. The nexus between alcohol and sex was clearly evident in many cases. Fishermen travelled to the town particularly for Indian made foreign liquor and approached sex workers available in the city. Boys sometimes shared money and hired sex workers from far cities and brought to safe places near the

village. Post tsunami, increased money with men fetched more earnings to the sex workers which they have acknowledged to the researchers at various locations. Their rates also had gone up. However, sex workers also note that non-commercial sex had gone up on which number of their clients as well as rates came down. In Velankanni which is a major hub of sex workers in Nagapattinam the sex workers shared that pre-tsunami, the men used to pay 100 to 150 rupees, immediately after tsunami (one month after) there was a drastic increase in the rates as high as 500 and gradually reduced to the pre-tsunami rate six to eight months after tsunami. Sex workers and brokers from Velankanni remarkd *"Ippo ellam angeye set up pannittangale"* [Now they do it there (intermediate shelters) itself]. At many places, sex workers coped with it by focussing on single male migrants who were brought from other states for the construction of permanent shelters for the tsunami affected.

1.5. Temporary separation from spouse due to short/long term livelihood related migration

Seasonal migration related to livelihood has always been evident among fishing communities. During such migration which ranged from one to three months while the fishermen undertook interstate or inter-district migration leaving the family behind, they approached commercial sex workers to gratify their sexual needs. At some destinations, they take rented rooms while some others stay in boats. In either case they have more leisure time compared to the free time they had at the origin where they lived with the families. Very low awareness about STI, HIV and AIDS and consumption of alcohol lead to low odds of condom usage. In the absence of their men, some of the wives of these fishermen also entered into sexual relationship with available married or unmarried men. Men who go in boats for long expeditions which they call "*Thangal*" in Tamil Nadu, have to spent away from women and many engage in sex with other men. One fisherman remarked "In the boat, 10 men sleep in the space sufficient for only 4 to 6 men, moreover we are away from our wife, we get into the mood and we indulge in sex with others". Heavy consumption of alcohol which is normal during "*Thangal*" takes away their inhibitions in practising this. Such temporary separation from spouse also lead some women whose husband went for "*Thangal*" creating opportunities for sex with men available within the village, particularly unmarried men.

In addition to such seasonal migration, men migrated to many neighbouring countries for livelihood related to fishery; to work in trawlers, ships, harbours, etc. Preferred destinations were Singapore, Malaysia, Saudi Arabia, Qatar, Kuwait, Maldives, etc. In countries where sex was liberal many had sex with sex workers available. But those who went to countries were sex beyond marriage would endanger their livelihood and life itself had to restrict their sexual desires. The unmarried men who went to such countries during the short periods when they are back devoted time and money lavishly to indulge in sex. From some Nagapattinam hamlets such men took cabs to go to Pondichery which is far away to reach sex workers. The unmarried migrant men who return from foreign countries for short durations have more chances of luring the unmarried girls in the respective habitats because many of the girls aspire to marry such men who are looked upon as having better status in the village compared to sedentary fishermen boys. Besides, they offer foreign gadgets as gifts which also attract women. Wives of migrants who are abroad are found to be one of the vulnerable groups as evident from the study, directly when they seek sexual partners in the absence of spouse and indirectly when the spouse has history of multi-partner sex during his migration.

1.6. Loss of spouse due to death or desertion

Widows, particularly pre-tsunami widows and women who were deserted or separated from husbands were another vulnerable group. A small proportion of widows were having multi-partner sex even before tsunami with men in the village. Many had regular partners who supported them financially also. Proportion of such women has now increased. Many have lost their houses and are into intermediate shelters, many others who were living with their parents have intentionally shifted to intermediate shelters hoping to get a permanent shelter from the government. Such women who live alone in intermediate shelters or permanent shelters are targets of married as well as unmarried men for sexual favours.

A few men also reported to have tsunami widows as sexual partners. But compared to pre tsunami widows tsunami widows are not reported as partners to men who have multi partner sex as evident from the study. However, since in Tamil Nadu, where large number of young women are thrown into widowhood, and widow remarriage rates being dramatically lower compared to remarriages of widowers, the study identifies tsunami widows as one of the potentially vulnerable group in future.

1.7. Lack of protection in the case of adolescent boys and girls

Sexual abuse by older men has been reported in the case of adolescent fishermen boys who go in boats. Such incidents have been happening even before tsunami. Many boys, who confided with researchers about their MSM orientation, reported that their maiden sexual experience was with an adult male while they worked as cooks in boats or started their career in fishing after dropping out of school.

Sexual exploitation of girls who migrate alone or in groups of unmarried children to work in companies existed from past itself. With tsunami there is an increase in number of adolescent boys entering into fishery due to death of other earning members in the family as well as many girls are sent to distant places to work in companies or domestic servants who have a heightened vulnerability. Livelihood related migration of fathers as well as brothers post tsunami, marriages of siblings diminishing family size, death of mother, intentional splitting up of joint families to nuclear families for obtaining permanent shelters all have increased the chances of girl child being alone in the house or intermediate shelter during day or night which aggravates their chance of being sexually exploited. Many girls who had boy friends used such new opportunities to have sex as evident from the case studies.

1.8. Unprotected sex with lovers who have multiple partners

Love affairs were not uncommon in coastal communities even pre-tsunami. Most of them ended up in marriages too. But there has been a spurt in the number of love affairs resulted by the increased physical proximity due to displacement. As a result of the same, number love marriages have also has seen a surge. Before tsunami, even if lovers wanted to have sex with each other, there was hardly any opportunity for it since the girls had limited mobility, there was no place where they can have sex as well as at home girls were never alone and even if a girl was likely to be alone, the family ensured she is under the watch of close relatives who lived in the neighbourhood. After tsunami, the opportunities to have sex has increased manifold. Empty, damaged, unused or abandoned structures close by provided enough cover, diminishing of family size, staying away from livelihood means of parents, etc gave more lone time to the girl in the absence of relatives to monitor, two houses (one damaged little away from the intermediate shelter) facilitated plying between the houses, which increased the mobility are some among the many factors. Couples tried to ensure not to get pregnant, but use of condoms was not consistent. Many of the boys and some of the girls had multiple partners which increased the vulnerability.

1.9. Infected mothers giving birth to babies

The research came across two incidents where pregnant women were detected being HIV positive and giving birth to babies. In both cases, the status of the offspring was not known to the family. In the case of Lakshmi[4] from Andhra Pradesh, there was no influence of tsunami increasing or decreasing the chance of infection form mother to child. However, the reason why the hospital authorities had not attempted caesarean which would have reduced the chances of during delivery is not known. In the case of Selvi, the disaster added on to the misery of the family with both husband and wife being HIV positive.

2. Post-tsunami Emerged Factors

2.1. Increased Physical proximity resulted in by displacement

Physical proximity resulted in by displacement is the third main factor which was evident while all vulnerable locations were examined. It was found that this factor is not prominent for groups where the vulnerability has not changed significantly. But in the case of groups or locations where vulnerability increased irrespective of the population subgroups, everywhere increased physical proximity is reported to be the prime factor responsible for vulnerability. Irrespective of the type of location or major means of livelihood, all groups where there is an increase in vulnerability, increased physical proximity ranked first. Communities which lived along the coastal belt, close to their livelihood means got displaced to relief centres, stranded there from days to months with little privacy or protection. Many were then shifted to intermediate shelters where blocks of small single cubicles separated by asbestos, tin or asphalt sheets where families of varying sizes from single person to more than ten had to spent up to two years at the time of the study. In ANI, there are two doors for each shelter; one front

[4] Name changed

door and the other back door. It is very easy for somebody to get into the house and get out of the house. In Tamil Nadu, most of the shelters had only one entry, the backside being another shelter. Increased physical proximity in turn increased social interaction further leading to physical advancement like touching with sexual intentions, verbal and nonverbal invitations for sex. Such attempts resulted into sex depending upon various other factors.

In Kerala (at many other locations also), unmarried boys and also some married who played pivotal role in rescuing many lives became heroes in the relief camps as well as intermediate shelters. They helped families in the camps and shelters from anything to everything and it paved way for wives of migrant men coming in touch with unmarried men of the locality, some of which grew to sexual relationships. The above two groups had very limited opportunity to interact with each other in the village, though they lived in the same village. There was no scope for sex in the Kerala relief camps because of lack of privacy, but when the families came back to their undamaged houses or permanent shelters, some of the relations which were established in the relief camps matured and sex took place at the privacy of the houses of the women whose spouses were migrants. There were instances when unmarried men were caught with spouses of migrants while having sex. Similar cases were reported from Tamil Nadu also. Love affairs also budded in relief camps and many ended in marriage. A fisherman boy from Tamil Nadu while discussing the issues in polling booth explained their sexual advancements like this

> *"Campile application koduthu, tendile arambichu ippo appadi poite iruku' sila peru application koduthum kadikale adhu ippovum trypanitu iruku"* (In the camp we gave the application, in the tent (intermediate shelter) it started and now it is going on, some people gave the application but did not succeed, they are still trying).

There were also relief camps such as schools where empty corners facilitated extra marital or pre marital sex. Also due to congestion at the shelters, families were permissive to boys coming home late night or even sleeping outside the shelters. This enhanced the opportunities of such boys in exploring opportunities in watching pornographic movies, having alcohol parties, for sex with married or unmarried women in the night. Also, unmarried boys sleeping together near the shore, church yard, boats, shades for catamaran or in the intermediate shelters homo sexual activities prevailed. Physical proximity also increased the chances of the adolescent getting exposed to nudity at various degrees. Women who were not used to take back openly had to do it near the water sources shelter premises. Many young women and men saw others having sex accidentally in near by shelters or in the empty, damaged or abandoned structures in the vicinity. It lead to sexual arousal as well as experimentation. In some cases it even lead to blackmailing. Married men who witnessed unmarried lovers having sex blackmailed the girl to have sex with them. This was reported from more than one location. In another incident, a group of boys happened to see a married woman having sex with an unmarried girl in a shelter. Both the women were forced to have sex with the boys at many times after that to keep what they saw a secret.

2.2. Privacy for marital sex at intermediate shelters

Life in the intermediate shelters disturbed the routines of the communities. Single cubicle for whole family affected privacy for couples in having sex. Obviously, a fair proportion of fishermen families where living in single room houses even before tsunami. But if they were not able to have sex during night, they had alternate timings during the day for the same when others in the house are absent. But in intermediate shelters, round the clock, opportunities for married men to have sex with their wives diminished since they had to find suitable timings that do not disturb their livelihood and at the same time others in the house are absent. In many shelters, cubicles were see-through with holes and at many places the height of the wall was only six feet above which it was open and if somebody from the other shelter wants to peep in or even jump in, it was possible. Women, particularly the ones who enjoyed more privacy before tsunami could not cope with the settings and discouraged the attempts of husbands to have sex. At many places, women shared that, in the night from the cry of the cot they could sense that next door sex is happening. They teased each other jokingly about it. Many coped with it by spreading their beds on the floor. Lack of privacy for marital sex lead married men approaching commercial sex workers who were accessible. Unprotected sex with commercial sex workers brought home sexually transmitted infections to the wives.

2.3. Infection from Spouse

Infections from spouse when untreated became a nuisance for the women and increased their aversion towards sex with husband since sex becomes a painful nightmare.

> One fisherwoman from Nagapattinam bursted out "How do I have sex with my husband in the tent? Now a day when I have sex with him I get itching and irritation '*there'*. I've already told him, go anywhere he wants, but no sex with me".

Another women laments

> "*Nalla kudumpathu pengalukkum intha seeku avanga purshankitta irunthu varuthu, ivangalala onnum panna mudiyathu, romba athatti keta vittutae odiduvaanga*" (Women from good families also contract these symptoms from their husbands, these girls if they question their husbands fear that they may ditch them away).

> Lack of privacy for marital sex also provided opportunities for unmarried boys to have sex with married women whose marital sex was disrupted. An unmarried boy from Nagapattinam mentioned *"avangaluku angenndhu supply kedikale"; m*eaning that the married women's sexual needs were not being met by their husbands, so they were making advances to the unmarried boys.

This was further fuelled by the married men indulging in excessive alcohol consumption. Sex took place while their husbands were absent for work. Unprotected multi-partner sex of either spouse infected the other in such cases.

2.4. Empty, damaged, abandoned structures available for sex

At most places, the houses and other structures damaged in tsunami and hence abandoned provided new hideouts for sex. Blocks of empty intermediate shelters from which people have moved out at places were permanent shelters are allocated attracted people from outside the habitat also who brought sex workers making use of the cover. Lovers who previously were not having such opportunities were another group who made use of the hideouts.

2.5. Rupture of traditional social regulatory mechanisms

Traditional Panchayat which was evident across the locations except in Kerala was an indigenous measure of social control. It laid down behaviours that are not desirable. It acted as a court on local issues, gave the final verdict in almost all the issues related to the village. One of the core areas where traditional Panchayat saw that discipline is maintained was pre- marital sex as well as extra marital sex, there by intervening the vulnerability of the village folk. Pre-marital affairs when brought to the notice of the Panchayat, the girl and boy were usually forced to marry each other. In the case of extra marital affairs, upon receiving a complaint, the Panchayat fined the convicted heavily even up to tens of thousands. Sexual abuse or commercial sex work when brought to the notice of Panchayat, either the Panchayat heavily fined or send the person out of village for ever or for specific durations. Post tsunami, the strong hold of traditional Panchayat became loose at many places due to reasons varied. Allegations of corruption related to the relief money lead to conflicts and even fights. Displacement brought people from multiple origins together which weakened the control over the community. Youth who looked upon the Panchayat leaders as role models found them addicted to alcohol and corruption which has lead to the gradual weakening of the social control that they once exerted over the community. A permissive attitude has percolated among the men particularly. At the same time there were also panchayats which got strengthened post tsunami.

2.6. Increased money with men, more autonomy in spending as well as increased consumption of alcohol

Tsunami though took away most of their assets, the financial assistances from the state as well as central governments and the humanitarian agencies brought lakhs of rupees with men who were head of the household. In the case when father died, the sons managed the money. Flooded with money and bereaved with separation of loved ones, men resorted first to alcohol and then to commercial sex workers. Alcohol intake came to a peak level during the period when none of the fishermen went for fishing. They being so used to alcohol, when got more time coupled with grief went to alcohol outlets. In one of the locations, a villager remarked:

> "*Thenam kadalukku poravangalukku, aaru maasathukku mela kadalukku pogaama iruntha enna pannamudiyum, panamum oralavukku kidaichuthu. Tsunamikku approm vazhkaiyae illainnu ninaichom, mannu thingara vudambai manushan thinna enna*"

> (For those who had the habit of venturing the sea daily, when they are deprived for more than six months, what can they do? We also got adequate money. We thought there is no life after tsunami, what if we enjoy a woman who is ultimately going to be eaten by the soil after death).

A good number of young men who never consumed alcohol started it after tsunami. There were boys who responded, "what do we know about what is going to happen next, we all can die any time, don't you see what tsunami has done".

A Tamil Nadu VCTC counsellor narrated

> "We recently got an unmarried boy who came for testing and found positive; he had lost both his parents in tsunami and also the house. The boy who received lakhs of rupees from the government spent a fair share of it with friends for alcohol. It was his friends who took him to sex workers in Velankanni. He started crying sitting in front of me. But we lost in touch with him".

2.7. Loss of livelihood

Salination of agricultural land, collapse of the petty business, loss fishing implements such as boats, nets, catamarans etc though were replaced by humanitarian agencies plunged the coastal communities in to misery. Many were forced to migrate to other places, in the case of some, it was migration from once place to another, in the case of many it was also migration from their traditional occupation to another. Death of husbands brought many women in to fish vending. Many fishermen went to Singapore and other countries which were their traditional destinations. Such migration increased the vulnerability of not only the migrant but also that of the wife left behind in the case of married men. At many places unmarried women had to migrate in search of livelihood due to loss of traditional livelihood. Case studies of individuals who migrated indicate that this increase in mobility in many cases has heightened their vulnerabilities.

Pre tsunami also women, particularly unmarried girls from Tamil Nadu and Pondichery coast migrated to work in the textile mills in Thirupur or to as domestic servants to various states. From the Kerala coast women migrate to fish processing units in Gujarat and Maharashtra. There are cases where in unmarried women who were long distant migrants for livelihood, getting better opportunities near their villages and has come back post tsunami. In some other cases, the families decided, the girls (migrants) need to work any more to contribute to family income. Such decisions were the result of livelihood interventions of one or the other of the humanitarian agencies.

Women and men migrating for livelihood is only a part of increased mobility. At many locations where the community was displaced to more than half a kilometre to the intermediate shelters. In cases where the family also made use of the original house which was partly damaged, unmarried women had a scope of plying between the two houses. This provided an opportunity for unmarried women who were otherwise not so mobile to stay away from the parents for a couple of hours giving the excuse that "I had been to the other house". Some Lovers utilised such opportunities for having sex at either of the vacant houses or any other safe vacant structure available. In the case of unmarried men, increased income and decreased control and peer influence made them to travel long distances to access sex workers. In the case of unmarried unemployed girls whose parents had to travel or spent more time away from the shelter for work, their absence for longer duration from the house increased the vulnerability. For certain girls, they were alone in the houses during day and for some other, they had to spend the nights alone at home.

2.8. Obligations

The research also found out though not prevalent everywhere, there were instances where women were forced to have sex with certain men for varied reasons. Women fish vendors were one of those groups. As fishermen say the catch diminished and more women including widows were into fish vending, the boat owners and fish agents had a bargain on whom to give fish. And to get into their priority list some times they demanded sex and in some instances women offered sex. Girls or women who were intercepted while having sex by others also were forced to have sex with the individuals to keep it a secret. Another sexual exploitation which the study could identify was men who saved lives of women, asking for sexual favours in return.

2.9. Exposure to blood without precautionary measures

Immediately after tsunami struck, large number of men and women engaged in rescuing the victims. Many of them had to handle bleeding men and women without any precaution as some of them remarked. In fact many of the rescue team who were smeared with blood had cuts and bruises on their bodies. Chances of such transmission are not ruled out. However, the research did not come across any clinical evidence for the same.

Reasons for Low Vulnerability of Unmarried Women

Unmarried women were less preferred as partners by both married as well as unmarried men since a casual affair with an unmarried woman would lead to fines in the case of married man who has an affaiar with the girl and in the case of unmarried, the boy will have to marry the girl if the matter comes to the Traditional Panchayat. At the same time, married women were available as a better choice and there was no fear of pregnancy leading to troubles in the case of married women. In addition to that affairs with married women do not really reach traditional Panchayat unless it is an attempt of abuse. Cited below is example from one of the locations.

Figure: 4
Determinants of Vulnerability of Unmarried Girls, Thouduvai, Nagapattinam

Unmarried girls are least vulnerable at this location for the following reasons:

- They get married at an early age (16 and above)
- There is a close watch and ward on their activities by family members and the community as a whole.
- They are seldom sent out of their habitation without a company by the parents/relatives
- An affair with an unmarried women when known public attracts hefty fines and reprimands from the traditional panchayats,
- An affair with an unmarried youth, if known to public, often ends up in marriage under the supervision of the Traditional Panchayat

Conclusions

Coastal communities in the tsunami hit areas of India were vulnerable to even before Tsunami. The humanitarian crises resulted in by tsunami and following relief and rehabilitation measures have influenced the behaviour and practices of the affected communities increasing their vulnerability. This leads to the conclusion that natural disasters and resulting catastrophe heightens the vulnerability of the affected population to HIV manifold. There fore, it is important to consider disaster prone zones as areas that are potentially more vulnerable to HIV compared to other areas. Disaster preparedness programmes as well as post disaster interventions of humanitarian agencies, civil societies and local self governments should integrate and mainstream HIV in their programmes and policies. Attempts to minimise the gap between relief and rehabilitation phases would contribute to reducing the vulnerability. Also the shelter designs should take into consideration the privacy for marital sex and physical layouts of intemreidate shelters may ideally copy the pre-tsunami housing order. Provision of correct information on STIs and quality treatment services with adequate privacy for medical examinations would enhance primary and secondary prevention of the infections which in turn reduce the vulnerability of the communities. All these measures would contribute to curb the the AIDS epidemic which is another disaster that can silently percolate during a disaster can be effectively addressed and averted. More research empirically examining various factors unearthed by the study would help in better understading the vulnerability of communities during and after humanitarian emergencies.

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The research was conducted complying with the laws of the country (India)

Vulnerability
Characteristics of a person or group or community, and their situation that influence their behaviour and practices which lead/ exposes them through a causal chain of events resulting in increased likelihood of acquiring HIV-AIDS

Directly Vulnerable
Total number of individuals (married men, married women, unmarried men and unmarried women) at a specific research location who are triangulated to be engaged in behaviour and practices which lead/ exposes them to likelihood of acquiring HIV.

Indirectly Vulnerable
Total number of individuals at a specific location who are at risk of acquiring HIV infection being the spouse of a directly vulnerable individual.

High Prevalent States
Based on HIV prevalence among various risk groups during each round of the sentinel surveillance, the provinces in India are categorised as high, moderate or low prevalent states. In High prevalence provinces, HIV prevalence rates exceed 5 percent among high-risk groups and exceed 1 per cent among antenatal women. Provinces that report HIV prevalence exceeding 5 percent among high-risk groups but less than 1 percent among antenatal women are categorised as Medium prevalent provinces. When the HIV prevalence rate is less than 5 percent in high risk groups, and less than 1 percent among antenatal women, it is termed as low prevalence.

Intermediate Shelter
Intermediate shelter is the transit shelter erected by government and various humanitarian agencies to house the families who lost their houses in Tsunami. In some states, it is called 'Temporary Shelter'.

Permanent Shelter
Permanent Shelter is house constructed or being under construction to rehabilitate the families who have lost their houses in Tsunami.

Habitation
A research location where most of the affected families lived in their pre-tsunami houses which are not distroyed. Some of the habitations had intermediate shelters or permanent shelters also within the location.

Traditional Panchayat
Traditional panchayat is a social institution within a village which takes decisions on key internal matters, seen across many states in India. It also functions as a court within the village where the community members can raise their grievances upon which the panchayat meets and discusses. The decision of the panchayat is binding in the matter for any member in the village. Usually, six to eight elder male members in the community constitute the panchayat. They either get elected or inherit the position.

Habitation
A research location which is neither exclusively an intermediate shelter nor a permanent shelter as defined in the study is called a habitation. Habitations include villages, part of a village or a hamlet which might even house an intermediate or permanent shelter within it.

Polling Booth
A qualitative research method developed by Swasti where in sensitive personal information is elicited from a group of individuals who respond to a set of questions by polling their responses anonymously. The group then analyses the results and deliberates upon it.

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