

# Assessment of Awareness about HIV/AIDS and Operationalization of Interventions in Rural Population of Raigad District, India

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**Abstract-** We are living in an 'international' society, and HIV has become the first truly 'international' epidemic, easily crossing oceans and borders. It is disappointing that the global numbers of people infected with HIV continue to increase, despite the fact that effective prevention strategies already exist. The present study was carried out to assess the awareness of rural population about HIV/AIDS in Raigad district and operationalization of appropriate interventions to empower the community leaders with appropriate leadership skills, to control the spread of HIV infection. The present community based interventional study was conducted during January 2009 to December 2009 at Mahad Taluka of Raigad District, India. Total of 724 individuals were selected by using stratified random sampling. The information was gathered by personal interview using semi-structured proforma. Total 724 individuals were interviewed with 202 (27.9%) males and 522 (72.1%) females. Overall awareness about symptoms of HIV/AIDS, its transmission routes and preventive measures was very poor. Composite scores of Knowledge and attitude were low (below 50%) specifically in females, unmarried and illiterate individuals. Thus it is necessary to create suitable environments at community level to stimulate, support and sustain healthy lifestyle choices and fear and guilt free discussion on the issue of HIV / AIDS and condom. At the level of the individual, the interventions should focus on behaviour change, especially aimed at HIV / AIDS prevention.

**Index Terms-** AIDS, Awareness, Intervention, HIV, Rural

## I. INTRODUCTION

When AIDS first emerged, no one could have predicted how the epidemic would spread across the world and how many millions of lives it would change. There was no real idea what caused it and consequently no real idea how to protect against it. Now we know from bitter experience that AIDS is caused by the HIV virus, and that it can devastate families, communities and whole continents. We have seen the epidemic knock decades off countries' national development, widen the gulf between rich and poor nations and push already stigmatized groups closer to the margins of society. We are living in an 'international' society, and HIV has become the first truly 'international' epidemic, easily crossing oceans and borders. It is

disappointing that the global numbers of people infected with HIV continue to increase, despite the fact that effective prevention strategies already exist. Number of people living with HIV in 2008 was 33.4 million. Of these 33.4 million 2.7 million were newly infected patients in 2008 and AIDS related deaths were 2 million.<sup>(1)</sup>

The Government of India estimates that in 2007, about 2.31 million Indians were living with HIV (1.8 – 2.9 million) with an adult prevalence of 0.34 percent.<sup>(2)</sup> Demographically the second largest country in the world, India has also the third largest number of people living with HIV/AIDS. HIV estimates derived using globally comparable methods and findings from the independent Impact Assessment Study which shows that the National AIDS Control Programme is progressing steadily towards the objective of halting and reversing the HIV epidemic in India over the period 2007- 2012. Available evidence on HIV prevalence and future statistical projections shows signs of stabilization of HIV epidemic in India at national level. Provisional estimates show that there are 22.7 lakh people living with HIV/AIDS in India by the end of 2008 with an estimated adult HIV prevalence of 0.29 percent.<sup>(3)</sup>

Maharashtra has the highest rate of urbanization i.e. 42%, major national highways pass through the state, it has a high rate of migrant and floating population, and there exists a well established sex industry in the state and industrialization leading to availability of cash money in the hands of industrial workers. The bed occupancy in many hospitals due to HIV positive persons has been as high as 25% to 30%, the ANC (Antenatal cases) HIV prevalence is around 1% and the HIV prevalence in STD clinics is 10.4%. There are 216748 registered HIV positive persons in the state today and an estimated figure of 8, 51,420 people living with HIV / AIDS. The total number of AIDS cases is 47,386 and those who have died are 2958.<sup>(4)</sup>

Maharashtra ranks first nationally in the proportion of total migrants. Maharashtra is India's leading industrial state and attracts male from almost all states of India. Census data suggest a predominance of inter-state migration to districts of Thane, Mumbai suburban, Nashik and Pune. A considerable volume of inter-state in-migrants come from some of the high prevalence districts of Karnataka and Andhra Pradesh. When comparing Maharashtra to Andhra Pradesh (Verma et.al. 2007) and Karnataka (Saggurti et.al. 2008) the relationship between migration and HIV is strong.<sup>(5)</sup>

Thane, Pune, Nashik, Mumbai (urban), Mumbai (suburban) and Nagpur districts received more than half of male migrants during 1991-2001. These districts also have recorded a high HIV prevalence among pregnant women attending ANC clinics. In addition, the primary out-migration districts such as Sangli, Satara, Solapur, Jalgaon and Bid have recorded a high HIV prevalence. Thus, both the origin and destination districts demonstrate a link to HIV.<sup>(5)</sup>

These facts indicate the transmission of HIV from urban to rural areas and from high risk to low risk behaviour groups. If left unattended, this problem may spread like a fire and all the gains of the project activities so far, are likely to get major setback. Hence it is necessary at this stage to plan and operationalize the appropriate preventive and control measures against HIV/AIDS to control the transmission especially from the migrants.

## II. MATERIALS AND METHODS

The present study was a community based interventional study carried out during January 2009 to December 2009 in Mahad Taluka in Raigad District of Konkan region of Western Maharashtra. District has sex ratio of 975 females per 1000 males and literacy rate of 60.4%. Almost 41% of the population lies below poverty line.

For the purpose of present study, it was decided to include members from the important stakeholders as well as beneficiaries of PRIDE-India, who are also the influential members in the community, in the 40 villages covered by PRIDE-India. They are as follows:

Self help groups members	3000
Sponsored children	1500
Adolescent boys	400

Adolescent girls	400
No. of families where at least 1 member has migrated to Mumbai	1000
Panchayat Raj Institutes members (Male)	200
Anganwadi workers	150
High school Teachers	60
Preschool Teachers	35
Total	6745

It was proposed to include at least, 10% i.e. 700 individuals from these groups for the purpose of survey for assessment of knowledge and attitude. Sampling technique was Stratified random sampling. Stratification was done according to the categories mentioned above. 724 individuals were selected by keeping inclusion and exclusion criteria in mind.

After finalizing the study design, it was thoroughly discussed and administrative approval was taken from PRIDE-India officials at Mahad. Permission for the present study was taken from the Dean and Head of the Department of Preventive and Social Medicine TN Medical College, Mumbai. Ethics committee clearance for the present study was taken after submitting the study protocol.

Basic information about study area, study population and NGO activities was collected from PRIDE-India NGO by studying previous records. Data collection tools were prepared: consent forms and preformed, pretested, semi-structured, open-ended questionnaire, all in the local language of communication i.e. Marathi.

### 2.1 KNOWLEDGE

Knowledge was assessed by using the composite scale giving scores to different attributes of knowledge regarding STIs and HIV/AIDS presented in interview schedule.

Sr. No.	Questions	Answer / Score	
		Yes	No / Don't know
1	Heard of STIs?	1	0
2	Are STIs curable?	1	0
3	Have you heard of HIV/AIDS?	1	0
4	Is there any difference between HIV & AIDS?	1	0
5	Is there any relation between HIV/AIDS & STIs?	1	0
6	Is HIV/AIDS completely curable?	0	No=1 / Don't know=0
7	Availability of HIV testing facilities?	1	0
8	Availability of HIV treatment facilities?	1	0
9	Desire more information on HIV?	1	0
10	Have you heard of condom?	1	0
11	Do you discuss health and sex issues?	1	0
12	Necessity of HIV testing in pregnant women?	1	0

13	Undergone HIV testing?	1	0	
		Correct	Partially correct	Wrong / Don't know
14	Meaning of STIs?	2	1	0
15	Ways of transmission of STIs?	2	1	0
16	Preventive measures for STIs?	2	1	0
17	Symptoms of HIV?	2	1	0
18	Symptoms of AIDS?	2	1	0
19	Transmission of HIV/AIDS?	2	1	0
20	Preventive measures for HIV/AIDS?	2	1	0
21	Purpose of condom use?	2	1	0

Maximum obtainable score was 29.

Score of 0-13 considered as Poor score; Scores of 14 – 29 considered as Good Score

## 2.2 ATTITUDE

Attitude was assessed by using the composite scale giving scores to different attributes of attitude regarding STIs and HIV / AIDS presented in the interview schedule.

Sr. No.	Statements	Answer / Score		
		Yes	No	Don't know
1	STIs can be cured by having sex relation with young unmarried woman?	0	1	0
2	It is mandatory to subjects both the partners for HIV testing before marriage?	0	1	0
3	It is dangerous to keep HIV infected individual at home?	0	1	0
4	Complete elimination of prostitution is necessary to prevent HIV transmission?	0	1	0
5	HIV infected females should never get conceived?	0	1	0
6	Those who are confirmed HIV negative after testing, have no risk of becoming HIV infected any time in the life?	0	1	0
7	It is possible to identify HIV infected individual easily?	0	1	0
8	STIs & HIV/AIDS are transmitted by only females?	0	1	0
9	It is necessary to test each individual for HIV infection?	0	1	0
10	It is dangerous to provide health care to HIV infected individual?	0	1	0

Maximum obtainable score was 10.

Score of 0 – 5 is considered as poor score and 6-10 is good score.

## 2.3 PLANNING OF SURVEY

The survey was planned in first week of January 2009. With the help of PRIDE-India officials the study population of 40 villages was divided into 4 Zones, namely, Pachad zone, Vinhere zone, Jui zone, Mahad zone.

### 2.3.1 Identification of surveyors and the supervisors

Total 40 surveyors were identified which were Community Organizers (COs) and Balsevikas. 20 pairs were formed, preferably one male and one female in each pair. 4 Assistant Zonal officers (AZOs) were identified, one for each of the four zones. Each AZO was supposed to supervise activity of 5 (or 6) pairs of the surveyors and help them in case of difficulties.

### 2.3.2 Training of surveyors and supervisors

All the 40 surveyors (20 Community Organizers and 20 Balsevikas) and the 4 Supervisors i.e. Assistant Zonal Officers

were given 1 day training about how to ask the questions for interview schedule. This was done to have uniformity in questionnaire filling and avoid subjective errors. Their queries about some questions were solved on the spot. They were trained how to develop rapport with the respondents and how to get answers to certain embarrassing questions.

### 2.3.3 Allotment of survey areas

The 40 surveyors were divided into 20 pairs, preferably one male and one female in each pair. Each pair was allotted 2 villages in such a way that surveyors were from different villages of residence than the ones allotted to them. This was done to avoid any bias on the part of the surveyors. The surveyors were also intimated about the route and mode of transport for reaching their allotted villages. The surveyors were also informed to be in contact with the respective supervisors i.e. Assistant Zonal Officers (AZOs) in case of any difficulties.

### **2.3.4 Field survey**

Field survey was carried out over a period of 2 days. 20 villages were covered on day one and remaining 20 on the second day. Each pair covered one village on each day and completed interviews of the allotted participants. The surveyors introduced themselves to the participants, developed rapport, took their consent and then interviewed the participants. Interviews were taken in local language i.e. Marathi. It was made sure that each question was properly understood by the participants

Proper privacy was provided to all the participants. Care was taken that female participants were interviewed by the female surveyor and male participant by the male surveyor. An attempt was made to interview the spouse of the migrant, wherever applicable. High school teachers and preschool teachers were requested to fill the forms, instead of taking their interview. This was mainly because the teachers would not be very comfortable to get interviewed by the community organisers and it is also more likely that they would express in a better fashion if given an opportunity to respond independently. Only those who have not undergone any training on HIV/AIDS were included in this exercise.

The four supervisors i.e. Assistant Zonal Officers (AZOs) supervised the work in their respective zones. AZOs also helped the surveyors in case of any difficulties. It was made sure that all interviews in that village are completed on the same day and not kept pending. Efforts were made on the part of the surveyors as well as the supervisors to minimize the mistakes in filling up the questionnaires.

### **2.3.5 Focus Group Discussions (FGDs)**

Along with interview schedule Focus Group Discussions (FGDs), in 3 villages each on day 1 and day 2 were conducted. Focus group interviews are the most appropriate methods to understand general view of the villagers about HIV and AIDS as it brings together different people and gives the opportunity to verify some of the facts about HIV and AIDS in the village. It also generates hypotheses and ideas. Total 21 FGDs in 6 randomly selected villages (5 each for males, females, adolescent boys and girls, and one combined for all categories of individuals at Bheloshi) were conducted. The participants of the FGDs were randomly selected from the community stake holders of PRIDE-India which were not included in interview schedule. A good rapport was developed with the participants and they were encouraged to interact, raise questions and put their opinions on different issues related to STIs, HIV/AIDS and condoms. Average duration of a FGD was 45 minutes. A total of 176 individuals participated in FGDs. FGDs were conducted to check consistency of the responses with interviews.

### **2.3.6 Post survey feedback**

All the surveyors and the supervisors were gathered at the PRIDE-India office at Mahad on the following day of the survey. The queries and difficulties from the surveyors were answered. All the filled up questionnaires were collected from them along with the list of the participants. It was made sure that all 724 questionnaires were present and none was missing. All the questionnaires were checked for their completeness and correctness and then compiled in village wise stacks.

In the survey participants were asked whether they would like to undergo HIV testing voluntarily and those who were willing for the HIV test were promoted by counselling at health centre of PRIDE-India and referred for HIV testing at the ICTC at Rural hospital Mahad. All the individuals referred for HIV testing reported back to PRIDE-India health centre with their reports. The PRIDE-India functionaries facilitated this promotion process, as they have developed good rapport with the villagers. A total of 38 individuals, most of which were migrants, voluntarily underwent HIV testing during April to December 2009 of which 10 were found to be HIV positive. As housewives are considered as low risk group, voluntary counselling and HIV testing was promoted in the married females, especially among spouses of the migrants, to assess the trend of HIV infection. HIV testing was promoted among pregnant women for the same reason. A total of 264 females were registered in ANC clinic of PRIDE-India health centre during April to December 2009, all of which were counselled by medical officer at health centre of PRIDE-India and referred for HIV testing at the ICTC at Rural hospital Mahad. All the pregnant women referred for HIV testing reported back to PRIDE-India health centre with their reports. None of the tested pregnant females were found to be HIV positive. Also 2 children aged more than 2 years, who had both parents HIV positive diagnosed in last 2 years were tested for HIV and 1 (50.00%) of them was found to be HIV positive. A total of 24 (23 adults, 1 child) persons living with HIV / AIDS (old as well as new) were identified during April to December 2009. Also there were 2 deaths due to HIV / AIDS during the same period. Early detection and follow up of cases of STDs at Health centre and contact tracing was also included to facilitate early detection of HIV infected persons.

### **2.3.7 To provide care and support to HIV infected individuals**

An attempt was made with help of PRIDE-India functionaries to provide care and support to the individuals who are already infected with HIV. Those who were already infected with HIV were identified and referred to tertiary level health care institutes for further investigations, CD4 count and treatment / ART. The identified referring tertiary care hospitals are Dhirubai Ambani Hospital, Panvel, Bell Air Hospital, Panchgani and KEM Hospital Mumbai. A total of 23 HIV infected persons were referred for CD4 count and 10 were referred for ART during April to December 2009. The HIV infected individuals were given financial assistance for their travel to and from the tertiary care hospitals. Early detection of various Opportunistic infections – by periodic medical check up and screening for opportunistic infections of infected individuals at PRIDE-India health centre and referral of those having opportunistic infections to tertiary care hospitals was done at PRIDE-India health centre. A total of 9 HIV infected persons were referred for treatment of opportunistic infections. Counselling of the HIV infected individual as well as his family members, was also carried out at PRIDE-India health centre at PRIDE-India health centre.

Social support to the HIV infected individuals such as home based care, prevention of discrimination and stigma, security of job etc was provided by PRIDE-India functionaries with help of Self Help Groups established in each villages.

Those families taking care of HIV positive family member were assisted financially, 10 such families were assisted during

April to December 2009. When there was death due to HIV / AIDS, the family members were helped financially, 2 such families were assisted during April to December 2009 with help of PRIDE-India functionaries.

Those children who were orphaned because of death of both parents due to AIDS were given financial assistance and educational support in the form of school stationary as well as medical assistance, 2 such children were assisted during April to December 2009. Early detection and treatment of STDs was also carried out at PRIDE-India health centre at PRIDE-India health centre.

### ***2.3.8 To empower the community leaders with appropriate leadership skills, to control the spread of HIV infection***

Training workshops for key functionaries and other stakeholders: After the baseline survey it was decided to impart knowledge to key functionaries and other stakeholders of PRIDE-India Mahad, which are the community leaders and they would later help to control the spread of HIV infection. The training workshops were undertaken in February and March 2009 with the help of PRIDE-India officials. Total 6 workshops were organised each of 2 days duration. Maximum number of participants per workshop was 40. The participants for the training workshops were identified by PRIDE-India officials. Total 217 (69 males and 148 females) individuals were involved in the training workshops. Contents of the 2 days training workshop were finalised by Department of Preventive and Social Medicine in consultation with PRIDE officials. 2 to 3 resource persons were present for each workshop. Logistics arrangement and financial support to the workshops was provided by PRIDE-India.

Each workshop was hosted for different identified groups of community stake holders of PRIDE-India. E.g. members of self help groups (SHGs), members of Panchayat raj institute (PRIs), sponsored children, preschool and high school teachers, etc. These stake holders are influential people and act as community leaders for various community based activities, and are of great help for control of spread of HIV infection in the community.

#### **Contents of the training workshop**

- Adolescence: physical development and genital anatomy and physiology
- Adolescence: mental development
- HIV / AIDS basic information
- Ways of transmission and prevention of HIV / AIDS
- Condom importance and demonstration
- Prevention of parent to child transmission of HIV
- Signs and symptoms of HIV / AIDS
- HIV and STIs
- HIV and Tuberculosis
- Laboratory diagnosis of HIV / AIDS
- Treatment and care of People Living with HIV and AIDS (PLHAs)
- Counselling, AIDS stigma and discrimination
- HIV / AIDS: myths and misconceptions
- National AIDS Control Programme
- Addictions and their prevention and control
- Interpersonal communication skills
- Discussion with and among the participants

Each workshop was conducted over a period of 2 days, which was properly scheduled to cover all relevant topics. The topics were prepared in Microsoft Office PowerPoint, in local language i.e. Marathi and presented with the help of LCD projector. Transparencies along with overhead projector were also used wherever needed. Condom demonstration was done with help of condoms and dummy penis.

After all the topics were covered in workshop, the participants were divided in groups of 5 or 6, and were given a situation regarding HIV / AIDS and its social implications. They were given 15 minutes to discuss the issue among themselves and then come forward and present their views and how they will tackle such a situation. Those issues were later discussed by resource persons and the participants were trained exactly how to handle these situations.

The topic "Interpersonal communication skills" was added in the training so that the trained individuals will act as volunteers to form a peer group, develop rapport and impart the knowledge they have gained through training, to their friends, colleagues, neighbours and those who are need of the information.

### ***2.3.9 To monitor community based IEC activities facilitated by empowered community leaders***

The community leaders which were empowered in training workshops were trained to undertake community based IEC (Information Education Communication) activities. These IEC activities were monitored through regular follow up visits to Mahad throughout the year. Expert help and support was given to these community leaders whenever and wherever needed. The list of IEC activities which were undertaken by empowered community leaders:

HIV / AIDS education sessions were held for the PRIDE-India project staff, members of self help groups, Panchayat Raj Institute members, youth group members in the village, non school going adolescents, local industrial workers, spouses of migrants etc in respective villages. These sessions were organized and conducted by trained PRIDE-India stakeholders. These sessions were monitored and helped by regular visits to Mahad.

A total of 34 HIV / AIDS education sessions were held, 5 for high-school children, 8 for spouses of migrants, 2 for self help group females, 3 for Panchayat raj institute members, 8 each for adolescent boys and adolescent girls.

Posters showing various pictures and information about HIV / AIDS were exhibited to ameliorate awareness about HIV among villagers. A total of two poster exhibitions were held in two villages.

World AIDS Day 2009 and World AIDS Week (1<sup>st</sup> to 7<sup>th</sup> December 2009) were observed at PRIDE-India, Mahad as well as a few select villages. A total of four HIV / AIDS counselling sessions were held at PRIDE-India, Mahad Health centre for individuals practising high risk behaviour. They were informed about safe sex practices and risk reduction practices. Pregnant women in the villages were identified and motivated by PRIDE-India Medical officer, to undergo HIV testing at nearby ICTC. As migrants working in Mumbai tend to visit their native villages in Mahad at the time of various festivals, dissemination of messages at the time of religious functions like Ganeshotsav, local fairs etc was carried out at a total of 7 gatherings.

### 2.3.10 Statistical Analysis

The data was checked for completeness. The data was coded and entered in Microsoft Office Excel. The data was filtered, processed and edited. The data was thoroughly analysed using SPSS 15.0 and Graph Pad Prism v5.01 statistical analysis software. Appropriate tests like Chi-square were applied.

## III. RESULTS

TABLE 1, 2 describe, total number of 724 individuals were interviewed with 202 (27.9%) males and 522 (72.1%) females. Most of them 615 (84.94%) were in the age group of 15 - 40 years, Hindu by religion (710, 98.06%), backward class (294, 40.60%), married (408, 56.35%), educated up to secondary school level (480, 66.29%), occupied as unskilled labourer (374/479, 78.8%) and socio-economic class IV (458, 63.26%). Out of these 724 families 238 (32.9%) had migrants who were migrated to various places for different reasons. Also, 547 (75.55%) of participants have also reported various forms of addictions among their family members mainly tobacco consumption (504, 92.13%) in various forms. Only 99 (49.0%) males and 83 (15.90%) females mentioned that they were the decision makers on their health problems, while, only 87 (43.07%) males and 288 (55.17%) females said that they discuss health and sexual issues with family members. TABLES 3, 4, 5 show only 106 (14.6%) individuals had good knowledge (Composite knowledge score  $\geq 14$ ) about HIV/AIDS and 165 (22.8%) individuals had right attitude (Composite score 6 to 10) towards HIV/AIDS. Good knowledge and right attitude was significantly more in males, married population, individuals with higher education, population with high per capita income. TABLE 6 shows various positive and negative findings of focus group discussion. Information obtained through FGDs and interviews of the individuals was consistent. TABLE 7 shows, total 264 pregnant women from general population were

counselled at PRIDE-India health centre and tested at nearby ICTC at Rural hospital Mahad. None of them were found to be HIV positive. Total 38 migrant males from villages volunteered for HIV testing at ICTC at Rural hospital Mahad of which 10 (26.32%) were found positive. Spouses of HIV positive migrants were also subjected to HIV testing and 2 (20.00%) of them were HIV positive. Also 2 children who were siblings, one aged 3 years and other 5 years, who had both parents HIV positive (father was migrant and died) diagnosed in last 2 years, were tested for HIV and 1 (50.00%) of them was found to be HIV positive. TABLE 8 shows, there were 23 adults and 3 children living with HIV / AIDS of which 12 adults and 3 children have been diagnosed during period April to December 2009. During period April to December 2009 there were 2 deaths of adults, who were diagnosed previously before this study was carried out. TABLE 9 describes, care and support to the infected and affected people because of HIV/AIDS. In the present study during period April to December 2009, total 23 HIV positive individuals were referred to tertiary care institute at Panvel, Panchgani and Mumbai for regular CD4 count, while 12 newly diagnosed were also sent for ART and 9 individuals were referred for treatment of various opportunistic infections. An attempt was made to restore the families struck by HIV / AIDS. Financial support was given to families of 12 newly diagnosed PLHAs. Two families where death of earning member due to AIDS had occurred were also given financial support and their children were provided educational support. TABLE 10, 11 reveal that, an attempt was made to improve knowledge and awareness among the general population by training representatives from different social groups. A total of 6 workshops educating participants about HIV / AIDS were held for 217 representatives of different PRIDE-India functionaries. A total of 48 HIV / AIDS awareness sessions were held in different villages which educated 2057 individuals.

**TABLE 1: Demographic Profile of Study Population (n – 724)**

Socio-demographic Profile	Frequency	
Sex	Male	202 (27.9%)
	Female	522 (72.1%)
Age in years	< 20	258 (35.6%)
	20 - 29	153 (21.1%)
	30 – 39	204 (28.2%)
	40 – 49	73 (10.1%)
	50 & above	36 (5%)
Education	Illiterate	41 (5.7%)
	Primary	112 (15.5%)
	Secondary	468 (64.6%)
	Higher Secondary	94 (13%)
	Graduation and above	9 (1.2%)
Occupation	Self employed	29 (4%)
	Public Private sector employee	59 (8.2%)
	Unskilled laborer	374 (51.7%)
	Unemployed	262 (36.6%)
Religion	Hindi	710 (98.06%)
	Muslim	7 (0.97%)

	Others	7 (0.97 %)
Caste	Backward Class	294 (40.6%)
	Others	430 (59.4%)
Marital Status	Married	408 (56.4%)
	Unmarried	298 (41.2%)
	Divorced and Others	18 (2.4%)
Per Capita income per month	Class I	29 (4.01%)
	Class II	56 (7.73%)
	Class III	181 (25 %)
	Class IV	458 (63.26%)

**TABLE 2: Demographic Profile of Migrants (n-238)**

Demographic Profile		Frequency
Sex	Males	238 (100%)
	Females	0 (0%)
Age group	< 20 years	8 (3.4%)
	20 – 29 years	81(34%)
	30 -39 years	114 (47.9%)
	40-50 years	35 (14.7%)
Education	Illiterate	0 (0%)
	Primary	116 (48.7%)
	Secondary	43 (18.1%)
	Higher Secondary	66 (27.7%)
	Graduation and above	17 (7.1%)
Marital Status	Married	217 (91.2%)
	Unmarried	21 (8.8%)
Reasons for Migration	Work	215 (90.3%)
	Education	15 (6.3%)
	Other	8 (3.4%)

**TABLE 3: Composite score of knowledge (n -724)**

Questions	Max marks	Score	Average score	%
Heard of STI?	1	327	0.45	45.17
Are STIs curable?	1	87	0.12	12.02
Have you heard of HIV/AIDS?	1	626	0.86	86.46
Is there any difference between HIV & AIDS?	1	178	0.25	24.59
Is there any relation between HIV/AIDS & STIs?	1	198	0.27	27.35
Is HIV/AIDS completely curable?	1	414	0.57	57.18
Availability of HIV testing facilities?	1	195	0.27	26.93
Availability of HIV treatment facilities?	1	222	0.31	30.66
Desire more information on HIV?	1	637	0.88	87.98
Have you heard of condom?	1	397	0.55	54.83
Do you discuss health and sex issues?	1	404	0.56	55.80
Necessity of HIV testing in pregnant women?	1	325	0.45	44.89
Undergone HIV testing?	1	95	0.13	13.12
Meaning of STIs?	2	110	0.15	15.19
Ways of transmission of STIs?	2	166	0.23	22.93

Preventive measures for STIs?	2	160	0.22	22.10
Symptoms of HIV?	2	208	0.29	28.73
Symptoms of AIDS?	2	248	0.34	34.25
Transmission of HIV/AIDS?	2	443	0.61	61.19
Preventive measures for HIV/AIDS?	2	319	0.44	44.06
Purpose of condom use?	2	435	0.60	60.08
Total	29	6194	0.30	29.50

**TABLE 4: Composite score of attitude (n-724)**

Statements	Score	Average score	Percent
STIs can be cured by having sex relation with young unmarried woman?	542	0.75	74.86
It is mandatory to subjects both the partners for HIV testing before marriage?	28	0.04	3.87
It is dangerous to keep HIV infected individual at home?	304	0.42	41.99
Complete elimination of prostitution is necessary to prevent HIV transmission?	81	0.11	11.19
HIV infected females should never get conceived?	269	0.37	37.15
Those who are confirmed HIV negative after testing, have no risk of becoming HIV infected any time in the life?	384	0.53	53.04
It is possible to identify HIV infected individual easily?	391	0.54	54.01
STIs, & HIV/AIDS are transmitted by only females ?	427	0.59	58.98
It is necessary to test each individual for HIV infection?	31	0.04	4.28
It is dangerous to provide health care to HIV infected individual?	306	0.42	42.27
Total	2763	0.38	38.16

**TABLE 5: Association of average score of attitude and knowledge with awareness of HIV/AIDS (n-724)**

Category		Knowledge		Chi-square test	Attitude		Chi-square test
		Poor(0-13)	Good(14-29)		Poor(0-5)	Good(6-10)	
Sex	Male	155	47	P < 0.01; Significant	146	56	P = 0.049; significant
	Female	463	59		413	109	
Age group in years	< 20	232	26	P-0.09; Non-significant	220	38	P < 0.01; significant
	20 – 29	130	23		118	35	
	30 – 39	168	36		146	58	
	40 -49	58	15		47	26	
	50 & above	30	6		28	8	
Education	Illiterate	41	0	P < 0.01; Significant	37	4	P < 0.01; significant
	Primary	109	3		94	18	
	Secondary	413	55		371	97	
	Higher Secondary	55	39		57	37	
	Graduate & above	0	9		0	9	
Occupation	Self employed	12	17	P < 0.01; significant	16	13	P < 0.01; significant
	Public-private sector employee	43	16		40	19	



	Unskilled laborer	318	56		295	79	
	Unemployed	245	17		208	54	
Religion	Hindu	607	103	P – 1.1; Non-significant	549	161	P-0.8; non-significant
	Muslim	6	1		5	2	
	Others	5	2		5	2	
Caste	Backward Class	255	39	P – 0.4; Non-significant	235	59	p-2.1; non-significant
	Others	363	67		324	106	
Marital Status	Married	338	70	p- 0.07; Non-significant	304	104	p-0.14; Non-significant
	Unmarried	265	33		241	57	
	Divorced & others	15	3		14	4	
Per capita income per month	Class I	14	15	P < 0.01; Significant	18	11	P -0.23; non-significant
	Class II	39	17		42	14	
	Class III	159	22		140	41	
	Class IV	406	52		359	99	

**TABLE 6: Important finding of focus group discussion**

Sr. No.	Positive findings	Sr. No.	Negative findings
1.	Majority of the people had heard of HIV/AIDS.	1.	Significantly low percentages of people had heard of STIs.
2.	People were aware of transmission of HIV/AIDS from migrants.	2.	Knowledge related to the transmission and prevention of HIV/AIDS was poor.
3.	Some of the adolescent boys and girls had received training at school level, from teachers.	3.	There was no awareness about diagnostic and treatment facilities.
4.	Most of the people expressed desire to obtain more knowledge about HIV/AIDS and STIs and their prevention.	4.	There was lot of hesitation to talk openly on the topic of HIV/AIDS and STIs and condom use, especially among adolescent girls.
5.	People accepted the prevalence of premarital and extramarital affairs in the village.	5.	Lack of knowledge about symptoms of HIV/AIDS and STIs.
6.	There was no evidence of sexual exploitation or trafficking.	6.	People were not aware about responsible behaviours.
		7.	There was no consistency in understanding the issue.
		8.	There was no clear understanding of importance of the issue.
		9.	Role of condom in prevention of HIV/AIDS was less known.
		10.	Participants were not inclined to accept the AIDS patient.

**TABLE 7: HIV positive among tested**

Sr. No.	Cases	Period	No. tested	No. positive	Total tested	Total positive	Percent positive
1	ANC cases	Apr to Jun 2009	106	0	264	0	0.00%
		Jul to Sep 2009	75	0			
		Oct to Dec 2009	83	0			
2	Voluntary testing (Migrant males)	Apr to Jun 2009	10	2	38	10	26.32%
		Jul to Sep 2009	16	5			
		Oct to Dec 2009	12	3			
3	Spouses of HIV positive migrants	Apr to Jun 2009	2	0	10	2	20.00%
		Jul to Sep 2009	5	1			

		Oct to Dec 2009	3	1			
4	Testing of children of HIV positive parents	Apr to Jun 2009	0	0	2	1	50.00%
		Jul to Sep 2009	2	1			
		Oct to Dec 2009	0	0			
Total					314	13	4.14%

**TABLE 8: Morbidity and mortality due to HIV/AIDS (during April to December 2009)**

Morbidity / Mortality	No.		Subtotal	Total
	Males	Females		
Adults living with HIV / AIDS	17	6	23	24
Children living with HIV / AIDS	0	1	1	
Adult deaths due to AIDS (April to December 09)	1	1	2	2
Children deaths due to AIDS (April to December 09)	0	0	0	

**TABLE 9: Care and support of infected /affected individual**

Activities	Period	No.	Total
Referral to tertiary care institute for CD4 counts	April to June 2009	7	23
	July to September 2009	8	
	October to December 2009	8	
Referral to tertiary care institute for ART	April to June 2009	2	12
	July to September 2009	6	
	October to December 2009	4	
Referral to tertiary care institute for treatment of opportunistic infections	April to June 2009	2	9
	July to September 2009	2	
	October to December 2009	5	
Financial support to families with PLHA	April to June 2009	2	12
	July to September 2009	6	
	October to December 2009	4	
Financial support to families with death of earning member	April to June 2009	1	2
	July to September 2009	0	
	October to December 2009	1	
Educational and financial support to orphaned children	April to June 2009	1	2
	July to September 2009	0	
	October to December 2009	1	

**TABLE 10: Participants of training workshops**

Participants	Male	Female	Total
Self help group members	0	38	38
Spouses of the migrants	0	40	40
Adolescent boys	39	0	39
Adolescent girls	0	40	40
Panchayat raj institute members	13	8	21
Pre-school and primary school teachers	17	22	39
Total	69	148	217

**TABLE 11: IEC activities in Villages**

Activity	Period	Sessions	Participants	Total	
				Sessions	Participants
HIV / AIDS education sessions for high-school children	Apr to Jun 09	2	76	5	173
	Jul to Sep 09	1	32		
	Oct to Dec 09	2	65		

HIV / AIDS education sessions for self help group females	Apr to Jun 09	1	54	2	103
	Jul to Sep 09	0	0		
	Oct to Dec 09	1	49		
HIV / AIDS education sessions for spouses of migrants	Apr to Jun 09	3	65	8	172
	Jul to Sep 09	3	71		
	Oct to Dec 09	2	36		
HIV / AIDS education sessions for Panchayat-raj institution members	Apr to Jun 09	1	13	3	32
	Jul to Sep 09	2	19		
	Oct to Dec 09	0	0		
HIV / AIDS education sessions for adolescent boys	Apr to Jun 09	3	101	8	237
	Jul to Sep 09	3	93		
	Oct to Dec 09	2	43		
HIV / AIDS education sessions for adolescent girls	Apr to Jun 09	3	78	8	183
	Jul to Sep 09	3	59		
	Oct to Dec 09	2	46		
Poster exhibitions	Apr to Jun 09	0	0	2	325
	Jul to Sep 09	1	140		
	Oct to Dec 09	1	185		
Counselling sessions for individuals practising high risk behaviours	Apr to Jun 09	2	39	4	86
	Jul to Sep 09	0	0		
	Oct to Dec 09	2	47		
Dissemination of messages at religious festivals and fairs	Apr to Jun 09	1	150	7	690
	Jul to Sep 09	3	210		
	Oct to Dec 09	3	330		
World AIDS day and week	Dec 2009	1	56	1	56
Total				48	2057

#### IV. DISCUSSION

A community based interventional study was carried out in 40 villages adopted by PRIDE-India NGO in Mahad Taluka of Raigad District. The study period was January 2009 to December 2009.

Total 724 individuals were interviewed with 202 (27.9%) males and 522 (72.1%) females. Most of them 615 (84.94%) were in the age group of 15 - 40 years, Hindu by religion (710, 98.06%), backward class (294, 40.60%), married (408, 56.35%), educated up to secondary school level (480, 66.29%), occupied as unskilled labourer (374/479, 78.8%) and socio-economic class IV (458, 63.26%). Also, 547 (75.55%) of participants have also reported various forms of addictions among their family members mainly tobacco consumption (504, 92.13%) in various forms. Only 99 (49.0%) males and 83 (15.90%) females mentioned that they were the decision makers on their health problems, while, only 87 (43.07%) males and 288 (55.17%) females said that they discuss health and sexual issues with family members.

In the present study, 626 (86.46%) participants had heard of HIV / AIDS. In National Behavioural Surveillance Survey, 2006 carried out by NACO, it was observed that percentage of respondents who had ever heard of HIV / AIDS in rural Maharashtra was 94.5%.<sup>(6)</sup> The results from BBC World Service Trust's HIV knowledge attitudes and practices in India, baseline survey done in 2005 with help of World Bank showed that 82%

of the rural Indian population had heard of AIDS and 64% had heard of HIV, while 63% had heard of both HIV and AIDS.<sup>(7)</sup>

In this study level of awareness was significantly lower in females, individuals aged less than 20 years, illiterate, unemployed backward caste and unmarried population. Level of awareness about HIV / AIDS in males was 96.04% and in females 82.76%. Low level of awareness among females may be attributed to the fact that rural women have a barrier of shyness between them and the information providers and also they have less access to information and media in a male dominated society. The social values and customs also restrain the people from knowing and discussing about HIV/AIDS since it is mainly Sexually Transmitted Disease (STD).

In National Family Health Survey 3, 2005-06, coordinated by the International Institute for Population Sciences (IIPS) under the aegis of the Government of India, it was observed that 92.5% males and 81.6% females in Maharashtra had heard of HIV / AIDS.<sup>(8)</sup>

In National Behavioural Surveillance Survey, 2006 carried out by NACO, it was observed that percentage of respondents who had ever heard of HIV / AIDS in rural Maharashtra was 96.5% in males and 92.4% in females.<sup>(6)</sup> In a study done by T. Subramanian, et al. in Tamil Nadu, it was seen that only 72% rural women had heard of AIDS.<sup>(9)</sup> Similarly in a study done by D. Balk, S. Lahiri in 13 states of India, low rates of knowledge and awareness were reported more among rural women.<sup>(10)</sup> In another study done by Tillich M. and Nilsson A. amongst pregnant women of rural Maharashtra, in 2002, it was observed that only 81% rural women had ever heard of HIV / AIDS.<sup>(11)</sup>

In the present study Level of awareness was significantly lower in individuals younger than 20 years (200, 77.52%) as compared to those older than 20 years (426, 91.42%). This may be attributed to the fact that adolescent boys and girls are less open with the adults to talk about the issue of HIV / AIDS, and this might be the reason behind some of them avoiding to answer the questions about HIV / AIDS. Similarly, in another study done by D. Balk, S. Lahiri in 13 states of India it was seen that AIDS knowledge was more among those older than 20 years.<sup>(12)</sup> In National Behavioural Surveillance Survey, 2006 carried out by NACO, level of awareness of HIV / AIDS in age group of 15 to 24 years was found to be 88.5% and of 25 to 39 years was 84.7%.<sup>(6)</sup>

In the present study level of awareness was significantly lower in illiterate (21, 51.22%) as compared to literates (683, 88.58%). As the education level increases the awareness about HIV / AIDS increases, which is because of the fact that illiterate people are less exposed to informative material than educated and the level of understanding of the information increases with education. Similarly in a study conducted on AIDS awareness and knowledge of Indian women, done by D. Balk, S. Lahiri in 13 states of India, low rates of knowledge and awareness were reported more among rural and illiterate women. Multivariate analysis found rural, poorly educated and poor women to be the least likely to be AIDS-aware and, if aware, to be having the poorest understanding of AIDS.<sup>(10)</sup> In National Behavioural Surveillance Survey, 2006 carried out by NACO, it was seen that level of awareness about HIV / AIDS was lower in illiterates (45.8%) as compared to primary (77.7%), middle (91.6%), secondary and higher secondary (98.2%) and graduate and above (99.8%).<sup>(6)</sup>

In the present study level of awareness was significantly lower in unmarried (238, 79.87%) as compared to married (373, 91.42%) and divorced (15, 83.33%). This may be attributed to the fact that most of the individuals in this study who are unmarried are adolescents and young adults, who are less open with adults to talk about HIV / AIDS and thus may have avoided answering to the questions about HIV / AIDS. In National Behavioural Surveillance Survey, 2006 carried out by NACO, it was seen that the level of awareness of HIV / AIDS in currently married 81.4%, unmarried 92.3% and formerly married 71.4%.<sup>(6)</sup>

In this study, mass media i.e. television, radio, etc was major source of information of HIV / AIDS, as it contributed for 316 (74.18%) of participants, while, peer group i.e. friends and colleagues contributed for 198 (46.48%) of participants and hospitals and doctors contributed for only 51 (11.97%) of participants. In a study done by D. Balk, S. Lahiri in 13 states of India, it was seen that AIDS knowledge was more among those who had greater exposure to mass media. Television was the greatest source of AIDS information.<sup>(12)</sup> Similarly in another study done by T. Subramanian et al. in Tamil Nadu, television, radio and friends were reported as the main sources of information on AIDS.<sup>(9)</sup> In National Behavioural Surveillance Survey, 2006 carried out by NACO, it was seen that mass media i.e. television, radio, etc was major source of information (86.6%) about HIV / AIDS in Maharashtra.<sup>(6)</sup> In another study done by V. Bhatia et al. in Chandigarh, it was seen that major source of information about AIDS was mass media followed by friends.<sup>(13)</sup>

Maximum obtainable score from knowledge questionnaire was 29, which none of the participants achieved. Maximum score achieved by participant was 24 and minimum score was 2 and average score per person was 8.56. Composite score for knowledge was only 29.50%. This means, overall knowledge of all the individuals about HIV / AIDS is very poor.

In the present study it was observed that majority 618 (85.36%) individuals had poor score on knowledge scale and only 106 (14.64%) could score more than 13 on knowledge composite score scale.

Maximum obtainable score from attitude questionnaire was 10, which none of the participants achieved. Maximum score achieved by participant was 8 and minimum score was 1 and average score per person was 3.81. Average composite score for attitude was 38.16%. 165 (22.8%) individuals had right attitude (Composite score 6 to 10) towards HIV/AIDS. Attitude of the participants towards HIV / AIDS was poor which may be attributed to lack of awareness about the disease.

Composite score for attitude was significantly lower in females, individuals aged less than 20 years, illiterate and unemployed individuals as only 109 (20.88%) females, 38 (14.73%) individuals aged less than 20, 4 (9.76%) illiterate and 54 (20.61%) unemployed individuals could score more than 5 on attitude scale. This reflects poor attitude and lack of acceptability of individuals towards HIV / AIDS. This can be attributed to various factors such as low levels of awareness, lack of access to information, low literacy and various misconceptions about HIV / AIDS.

Focus group interviews were the most appropriate methods to understand general view of the villagers about HIV and AIDS as it brought together different people and gave the opportunity to verify some of the facts about HIV and AIDS in the village. It also helped to generate hypotheses and ideas. For this purpose a total of 21 FGDs in 6 randomly selected villages (5 each for males, females, adolescent boys and girls, and one combined for all categories of individuals at Bheloshi) were conducted.

In these FGDs it was observed that, there was awareness among the focus group participants about HIV / AIDS, but there was lot of hesitation to talk openly on the topic of HIV/AIDS and STIs and condom use, especially among adolescent girls. Significantly low percentages of focus group participants had heard of STIs. Knowledge related to the transmission and prevention of HIV/AIDS was also poor. Very less participants were aware about correct modes of transmission of HIV / AIDS and some also mentioned 'mosquito bite' and sharing food and clothes, coughing, water as modes of HIV / AIDS transmission. There is clearly lack of awareness about transmission and prevention of HIV / AIDS. Very few participants were aware correct ways of prevention of HIV / AIDS. Role of condom in prevention of HIV/AIDS was less known and very few participants also harboured misconceptions like use of mosquito nets, avoiding HIV infected persons and clean drinking water. Though awareness about symptoms of HIV / AIDS was very less among focus group participants, some of them knew few symptoms of AIDS, most commonly mentioning fever, diarrhoea, cough, vomiting, decreased appetite, weight loss, tuberculosis, and Herpes rash. A few reported that, AIDS patients' skin gets blackened, and a few also mentioned that worms and boils over body. Positive finding was that most of the

participants expressed desire to obtain more knowledge about HIV/AIDS and STIs and their prevention. Some of the adolescent boys and girls had even received training at school level, from teachers.

The participants revealed that the cases of HIV / AIDS in villages were on rise in recent 2 to 3 years and a few deaths AIDS were also reported. Many of the participants attributed this to recent increasing trend of migration and mobility of young adults to Mumbai. Participants accepted the prevalence of premarital and extramarital affairs in the villages among adolescents and young adults. Some of them also felt this as the reason behind rise in number of HIV / AIDS cases recently. There was no evidence of sexual exploitation or trafficking in villages, as told by the participants. When probed about attitude and acceptance towards HIV infected persons, many participants were not inclined to accept the AIDS patients. Overall there was no consistency in understanding the issue HIV / AIDS and there was no clear understanding of importance of the issue among the participants. Similar findings from focus group discussions were observed in a study 'HIV / AIDS in rural India: context and health care needs' done by Saseendran Pallikadavath et al. done in villages in Pune District of Maharashtra in 2001.<sup>(14)</sup>

In the present study total 264 pregnant women from general population were counselled at PRIDE-India health centre and tested at nearby ICTC at Rural hospital Mahad. None of the pregnant women were found to be HIV positive. Total 38 migrant males from villages volunteered for HIV testing at ICTC at Rural hospital Mahad of which 10 (26.32%) were found to be positive. This high prevalence among male migrants indicates them as high risk group. Spouses of HIV positive migrants were also subjected to HIV testing and 2 (20.00%) of them were found to be HIV positive. It was clear from this finding that spouses of the migrants are very much susceptible to get HIV infection from their husbands. Also 2 children who were siblings, one aged 3 years and other 5 years, who had both parents HIV positive (father was migrant and died) diagnosed in last 2 years, were tested for HIV and 1 (50.00%) of them was found to be HIV positive. This indicates perinatal transmission of HIV. There were total 23 adults and 1 child living with HIV / AIDS (old as well as new), of which 10 adults and 1 child had been newly diagnosed during period April to December 2009. During period April to December 2009 there were 2 deaths of adults, who were diagnosed as HIV positive previously before this study was carried out.

In the present study, during period April to December 2009, total 23 HIV positive individuals were referred to tertiary care institute at Panvel, Panchgani and Mumbai for regular CD4 count, while 10 newly diagnosed were also sent for ART. All HIV positive persons were screened for opportunistic infections at PRIDE-India health centre and 9 of them were referred to tertiary care institutes for treatment of various opportunistic infections.

An attempt was made to restore the families struck by HIV / AIDS. Financial support was given to families of 10 newly diagnosed PLHAs. Two families where death of earning member due to AIDS had occurred were also given financial support and their children were provided educational support.

In the present study an attempt was made to improve knowledge and awareness among the general population by

training representatives from different social groups. A total of 6 workshops educating participants about HIV / AIDS were held and 217 representatives of different PRIDE-India functionaries participated in them.

A total of 48 HIV / AIDS awareness sessions were held in different villages which educated 2057 individuals. This included HIV / AIDS education programs for various social groups, in which 8 sessions for spouses of migrants (172 participants), 5 sessions for high-school children (173 participants), 2 for self help groups (103 participants), 3 for Panchayat raj institution members (32 participants), 8 for adolescent boys (237 participants), 8 for adolescent girls (183 participants) were held. Two poster exhibitions about HIV / AIDS were organized for villagers in 2 villages and 325 individuals benefitted from these. A total of 4 HIV / AIDS counselling sessions were held for individuals practicing high risk behaviours and 86 individuals participated in these activities. Dissemination of messages at religious festivals and fairs on 7 occasions and 690 individuals participated in these activities. World AIDS day and World AIDS week were celebrated at PRIDE-India health centre, Mahad in which 56 individuals participated.

## V. CONCLUSION

The knowledge of rural people about HIV / AIDS, its transmission and prevention should be improved with help of vigorous campaigning, training workshops, HIV / AIDS education sessions with special focus on migrant workers and their families. HIV / AIDS awareness campaigns should be increased at the time of religious festivals and fairs, as migrant workers tend to visit their native place during this period.

It is necessary to create suitable environments at community level to stimulate, support and sustain healthy lifestyle choices and fear and guilt free discussion on the issue of HIV / AIDS and condom. At the level of the individual, the interventions would focus on behaviour change, especially aimed at HIV / AIDS prevention. Capacity-building strategies for the diagnosis and treatment of HIV must be made available through the existing health care facilities. Training of health professionals is an essential part of a cost-effective, evidence-based strategy for HIV / AIDS prevention and control because of their interaction with general as well as STI patients and pregnant women, as care providers and their role as health communicators in societies. Care and support activities for the HIV infected individuals and their families should be established through existing health facilities.

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