CHAPTER-V

DISCUSSION
DISCUSSION

From the results of the preceding chapter, various inferences and discussions have been attempted in this chapter.

In Manipur, it has revealed that a number of young children belonging to a low age of about 10 years or in a way who are still attending middle school, found initiating drug use usually with pills and alcohol and then coming down to heroin. In fact, 20.7% of children of the present study in the age group 10-15 years are found very much involved in drug abuse activities (Table - 2). Unlike elsewhere in the world, the problem of drug misuse in Manipur may be described as an age specific crisis emanated from an unsafe environment. The problem stemmed up from the younger age group with mean age of drug initiation of about 14 years at 95% CI (13.3-14.5 years), although the overall mean age of the study sample being 18.4 years at the time of drug initiation. Decreasing trend in the number of drug users in the age group 30 years and above clearly proves that all the influencing factors operating in Manipur appears to have less effect among the older age group.

It may be, by the way, referred that in Churachandpur district of Manipur, a study among its tribal population revealed mean age for drug users to be 23 years (ICMR, 1996). However, another survey conducted during 1984 (Singh, et al ,1985) has reported it to be 15.5 years only. In another such study among the Meitei population of Imphal, the ICMR has counted the mean age of drug addiction as 24 years (Sarkar, et al, 1991). This trend, in a way suggests that the earlier is the period (time space), the earlier is the drug initiation age. Further, these variations in
mean age of drug initiation and injection of Heroin in Manipur may also be due to the fact that of personal biases in the method of enquiries adopted in these studies.

To examine the validity of age specificity issue of drug use and HIV infection in Manipur, a comparison was made out among the male IDUs at different geographical areas of the country and elsewhere in the world where comparable data are available. When the age component data of the present study wishes to compare with the other data, no systematic data was available on this. Only the available data for Bombay, India (NARC, 1994), South west China (Zheng, et al, 1994) and Belle Glade, Florida (McCoy, et al, 1996) have been compared through graphic display as depicted in figure. 16 below.

![Graph showing age distribution of drug initiation](image)

**Fig. 16. Comparision of Age Distribution of Drug Initiation**

Figure 16 shows that the present study sample attained the peak frequency of drug initiation with probably high chance of HIV infection in the age
Discussion

group of 16-20 years. However, sample from Bombay (Mumbai) shows the initiation period in a later age group (say from 26 to 30 years). Meanwhile, adults in 30s and above are affected more frequently in Belle Glade, Florida. This shows that drug abuse and HIV infection has affected much younger ones specially the school going children and early college students in their teenage in Manipur. This also has indicated that an unsafe social environment for them have already developed in the State.

Although the cold waves of drug abuse epidemic and HIV has reported to be disseminated everywhere even to the remotest part of the State, the present study clearly shows the heterogeneity of IDUs in its geographical distribution with urban areas affecting a maximum of 66% and rural areas, a minimum of 16%. But as far as the distribution pattern of general population is concerned, majority of the people (say about 72%) resides in the rural areas, whereas only about 28% of the State population remains concentrated in a small area of the cities and towns. This reveals that urban area is particularly unsafe due to large proportion of drug affected individuals in its smaller size of the general population. However, this does not mean that peri-urban and rural areas are safe from the twin problem (Drug Use and HIV Disease). The prevention activities must therefore, be aimed at in the rural - urban axis while the control measures be emphasised in the urban - rural axis.

Unlike the geographical variation pattern as depicted in Sub-table 3.1, the ethnic difference of drug using habit goes on along the general population distribution pattern. Meiteis being the largest community (60% of the state population) contributes larger share of drug users (say about 85%). In other words, it may be said that for every three Meiteis, there is one tribal drug addict. The ratio is still reduced
Discussion

to one-fourth for the Muslims i.e. there is one Muslim drug user for every four Meitei drug users. It is to indicate that the proportion of drug use is related with the population size rather than the ethnic variation.

Furthermore, drug abuse activities affect not only the young age groups at the time of drug initiation but it might also delay the marital age. This is inferred from the fact that a large number of IDUs (68.9%) were found unmarried until recently (Sub-table 3.4). It seems that perpetuation of the long term effect of drugs for abuse might be the sole factor for this. It is also an associated response that 87.4% of the IDUs in the present study (Table 9) complain for reduce libido due to the effects of drugs consumed. So, like age specific character, injecting drug use may be considered as a factor affecting the marital status among the marriageable age group. This might together with untimely demise of a large number of HIV infected young IDUs (say 11% in present study) contributes in the long run to bring a structural change in the demography of the state after a decade or so. Ultimately, there will be a large generation gap which has a great socio-economic and health implications to the affected families in particular and the society in general.

The present study findings (Table 5) has depicted that there was always a huge expenditure in most of the families of IDUs as a result of prolonged involvement of their wards in the drug abuse activities. Though the cost involved for procuring drugs to provide the same desired effect among the IDUs are almost equal irrespective of their economic status, the economic impact suffered among the lower income families is five times more than the middle income group and six times than the higher income families. Under the circumstances, the lower income group families have to face more economic constraints of higher magnitude. The figure in Table 4 indicates that number of IDUs seems to be increased among the nuclear fami-
lies in parallel with the income level. This implies that low expenditure norm in higher income group seems to be inconclusive. In contrary, the IDUs in higher economic brackets of nuclear family are found enjoying the family resources with lesser control of the parents. In addition to this, majority of IDUs in nuclear families were found associated with the habit of drug initiation for reasons of curiosity and pleasure seeking (Fig. 6). Perhaps, the parents in the nuclear families might have been too lenient to their children or parents - child association time is not enough resulting either more independence of the children or parents are too mechanical in rearing children because of their preoccupation at work in most of the time. By the mean time, children might have been psychologically travelled far beyond the parental control and they are in most of the cases, attempted adventurous journey to test different tastes of drugging life with or without the peer influences (Fig. 6 ). However, the scenario among the IDUs of Joint families is in the reverse direction i.e. the frequency distribution of IDUs decreases as the income level increase (Table 4). The low expenditure norm in higher income group of joint families seems to be true. Perhaps, this may be because expenditure is more among the larger size joint families in lower income brackets. It is also a characteristic finding that drug use among the joint families is basically to get relief from frustration, tension, worry, etc. emanated from poverty, child abuse, etc. all because of persistent economic crisis in the joint families.

Nevertheless, the low percentage frequency of IDUs in higher income group of joint family inferred that joint family with sound economy is better buffered than either poor joint families or well-to-do nuclear families in controlling of the children. It seems to be corresponded to the general concept of better child socialisation process in the dormitory system of joint family in spite of its various
Discussion

limitations. In the present context, however, increase of IDUs in proportionate to larger number of joint family under low income group is expected due to frustration of the younger members out of the usual acute shortage of financial help to them. For the present study, it is also a fact that in nuclear families, there is hardly no one to give palliative care for the children in the absence of the parents. In Meitei patrilocal families, it is the mothers who are basically looking after the family and the children. But, in most of the cases of the present study, the knowledge of the mothers on drug abuse and related issues seems to be quite high as assessed quickly during the initial stage of the study. It is also reported in another study that fairly about 85.1% of the mothers have knowledge on drug abuse of their children (Sehgal and Singh, 1992). This is quite a good knowledge. However, during the initial stage of their children's involvement in drug abuse, mothers are actually found to be innocent such that they are unable to detect what their children are looming for and demanding from them. By the time both the parents come to know their children's problem, it is already late. They are unable to prevent them from being in danger with their mere knowledge on drugs, HIV and AIDS. This very fact has led many of the parents to choose an option to send their wards either to de-toxification centres or to jail for treatment as they usually perceived. They thought, this is the ultimate resort to solve their headache. But, most often, the situation become more complicated as seen today. On being released from the centre or the jail, it is noted among IDUs to fall back into relapse in drug in more than 90% of them (Yaima Singh, 1990 - 96; Panda et al, 1994). They showed quite indifferent attitudes towards parents and other family members. In a number of cases, the tendency of paricidal behaviours appears to have developed among IDUs. This is the time while the materialistic life style has carried away all the senses of humanism, to really look back into the importance of traditional valued culture of the joint families in the recent past.
Discussion

Signs of declining were commonly encountered in every household of the study sample. Broken almirah glasses, fading wall and stingy appearance of the surrounding along with the hopelessness appeal of the guardians are commonly found in each of the addicted family with some exception in well-to-do ones where parents tried to hide the realities of their wards being involved in drug abuse activities for reasons of prestige question. Majority of the participants had reported their aggressive nature with one or other members in the family for not giving monetary support for his daily quota (share) of drug. About 81% of such IDUs were found belonging into lower and middle income groups (Sub-table 3.7). Usually, most of the quarrel in the family has its route to the economic crisis of the family. Stealing and selling ornaments, cloths and other luxurious items in the family and sometimes from the neighbourhood are the characteristic behavioural problem of drug users. Cheating, lying and aggression with parents and among brothers and sisters is a common issue in every family of IDUs. Prolong use of drugs with stopover in between and frequent relapse to drugs (Table 7) has ruin the family economically and socially as perceived in general. The last blow appears to be when the addicted son is found infected with HIV and AIDS. But, it is when a huge expenditure is required to take care of the affected members of the family with HIV in due course of time.

With the economic dependency rate of 80.8% (Table 6) among the unemployed IDUs of the study sample, there is an associated characteristic of the IDUs to put heavy demands on parents either by request on false promise to do good things or quite often by force or by stealing. In a way, it may be said that there is a fair chance for the drug use habit to go along with the economic dependency and unemployment problems. Even those who are employed are not able to sustain on their own income as they are spending a huge expenditure on drug using activities
Discussion

(Table 4) Habits of non-keeping of formal income and expenditure account is common in most of the IDUs' families and that indirectly helped the youths to steal money from home and procured drugs.

Keeping these facts in mind, every attempt to minimise the risk for drug initiation, HIV transmission, etc. was designed. What is primary before IEC scheme is introduced to a target intervention group, is the assessment of the educational status of the said group so that baseline data for the degree of acceptability of any inputs could be determined. The present educational standard of the study IDUs is not bad. About > 50% of them belong to the higher educational status while only a minimum of 1 48% belong to no education category (Sub-table 3.5). But, the situation is quite in contrary. This very fact bring out an idea whether it is the education that open the ways for the school children to land up into the drug abusing habits, or it is the drug using habits to cause the students dropping out of the school. In the present study, it is noted that about 90% of the IDUs had incomplete education during their high school and college life. Only 8% of them had completed post graduation. Failure in examination, indulgence in drug abuse and addiction activities are the commonest cause of school and college drop-out. Students in higher educational level were found more addicted in drugs (51.8%) as compared to matric and below matric group (46.6%). It is a pertinent question whether the type of education imparted to the children failed to make them think reasonably to stay away from drug menace or the drug abuse activities are too strong and well fabricated in the society leading the students to even dropping out of the schools. Perhaps, it may also be possible that both the factors are acting together. But the present findings on the drug abuse habit along the educational standard has given some clue to furtherly re-examine the background of education. It is not a surprising event that children of even
Discussion

well educated persons holding responsible positions in the society were found trapping in drug trafficking and HIV infection network. Most of the parents have responded that they do not know what to do with their addicted children.

Falling someone into the trap of drug trafficking and hooked in drug is a situation resulted either due to personal liking as often defined by the term curiosity and pleasure seeking or influenced by friends with faulty stories such as *it is the only means to get relief from worry, tension*, etc. or still others falling into as victim due to poverty and unemployment difficulties. Now, the complication increases double fold when drug menace is found very much associated with HIV and subsequent illness due to opportunistic infections with dare consequences to the innocent women and children.

It is assumed that the risky behaviours for HIV transmission in Manipur might have been rooted sometimes in the early 80s with the time sporadic initiation of drug abuse in the late 70s. This is just following the waves of heroin epidemic occurred in South-east Asia and East Asian countries like Japan in 1950s, Thailand, Philippine, Myanmar, Malaysia, Indonesia, Singapore in 1960s, etc. (Poshyachinda, 1993).

So far, the main sources of HIV transmission in Manipur has been the IDUs and infected professional blood donors (State AIDS Cells, 1996). Although seropositivity is detected among the commercial sex workers (CSWs), no any study on them to be the potential source of HIV transmission has been conducted in Manipur. Any one of the males in Manipur has been labelled to be HIV positive exclusively after contacting CSWs. This does not mean that CSWs are riskless. Always, they have chances to transmit the virus to their male partners. However, a
number of wives of IDUs have been encountered to be infected with HIV. Even the child of infected mothers had been found HIV positive as detected through PCR method (Panda et al, 1994). Therefore, IDUs with their sharing habit and sexual promiscuity with either wives or CSWs or girl friends is being considered as the primary cause for HIV transmission in Manipur. Figure 17 shows the conceptual
framework of the possible HIV transmission environment of a baby in Manipur. Sarkar and others had reported in 1993 that 50% to 70% of the injecting drug users in Manipur were exposed to risky sexual activities. A screening of the injectors' female sex partners in 1991 indicated that 6% of them were found HIV positive. In addition to this, a study conducted by Sehgal in 1992 in collaboration with Manipur Voluntary Health Association found that over 30% of the married male and female injectors had engaged in extramarital sex, of which less than 2% had used condom. In the present study too, premarital (75%), marital (31%) and extramarital (5%) sex among both married and unmarried IDUs with either CSWs or wives or girl friends etc. (Table 9) is risky for the transmission of HIV, because the rate of condom use practices in them is comparatively found low with increasing rate of attack due to sexually transmitted diseases (STD) among 23% of the IDUs.

It is also an alarming situation that more than 50% of the sexually exposed unmarried drug injectors had pre-marital sex with either prostitutes or girl friends during the most potent period of HIV infection. It is also interesting to know that there are certain cases in which unmarried HIV positive injectors had sex with someone’s wife with greater risk of transmission of AIDS virus showing the existence of adulteration among the risky groups and subsequently onto the husband and also to their innocent children for HIV infection specially during the lactating period of the mothers.

To change man's behaviours that has been developed gradually over a period of time in the local traditional customs and cultural value system is the most difficult part if not impossible at all. The present study has shown that it is not the situation where there will be of no change at all.
Discussion

As has been observed in table 8, changes in the risk taking behaviours of the IDUs in all the three different periods of epidemics during a short span of 16 years since 1980 till 1996, occurred not only in the percentage frequencies of indicator variables but also in the philosophy of changes.

As seen earlier (Table 7, 8) during drug abuse epidemic (1980-89), a large number (63%) of IDUs had developed sharing habit of injecting equipment by 100% among the peer groups whose mean age is 18 years. This is the period when counselling and health education were absolutely unknown and the injectors were freely exposed to the risk of HIV infection. Neither fear of HIV nor alarm for AIDS awareness was felt among the risk behaviour groups and the general population as well. It was only in early part of 1990 following the first detection of HIV in October, 1989 that slogan for AIDS prevention began to generate but in a bad shape. As a result, no effect was given on the sharing habit of contaminated syringes and needles. It is also during this period that anti-propaganda spread by the hardcore addicts and drug peddlers was found counteracting the prevention slogan and it also acts as another factor for slowing down the progress of the prevention achievement in subsequent years. Impatience for urge and craving of drugs was also an unexplained contributing factor for sharing habit. Sharing stuffs among injectors with pooled resources and utilisation of the last drop of heroin solution for economic reasons are the next largest reason of sharing needles and syringes. By the mean time, leaving of drug injection among 97% of the IDUs for short duration (≤ 2 months) and 3%, for long duration (≥ 3 months) with repeated relapse episodes was considered not for the understanding of the risk on HIV transmission but for the reasons of the mounting pressure of economic shortage to procure drugs as has been shown by excess expenditure over income among the lower income groups (Table 5).
Discussion

Had it been for reasons of fear or development of responsible life style, there would have been no 100% sharing of contaminated injecting equipment among IDUs with poor but unsafe habit of cleaning when they fall back into relapse during 1980-89. The concept of cleaning, if ever existed, during this period was not even for prevention of HIV transmission but for the purpose of maintaining general hygiene among them.

Though rapid increase in the prevalence rate of HIV infection occurred within a short span of 3 years during 1990-93, the under current activities of HIV infection might have been taken place in higher magnitude back in the years 1980-89 without the knowledge of anybody in the society. The period is therefore, may be termed as Dark period or Latency phase. In fact, it is the period during which the future course of the disease as observed today were seeded.

As indicated in the present study sample, the changes in the risk behaviours for HIV infection were still occurred during 1990 - 93, though it is not to the extent as observed during 1994-96 (Table 8). This period which is described as the phase of HIV epidemic may also be considered as the period of Blaming and Denial at all levels in the society. Among the affected IDUs, there was a strong denial that they are infected with HIV though they suffered from Social ostracism for their drug abuse activities. For the relatives of the victims and some fundamentalists, there was a belief that HIV and AIDS was nothing but a rumour spreaded by scientists, doctors and even policy makers to fetch funds in the name of AIDS from different funding agencies elsewhere of the world. Still, there was a strong belief among the general populace that if one is a drug addict, he is an AIDS victim. Even among the well educated persons, it was considered that if one is infected with HIV, he suffered
from AIDS from the time of infection. However, these ideas did not last long with the passage of time. In the later part of the epidemic, there was an increasing awareness at certain levels. This is yet a further indication that the consequences of HIV/AIDS have heightened awareness and spurred action against drug and that HIV/AIDS has been more of an impetus to action than the drugs in and of themselves (Sarkar, et al 1996).

With the onset of AIDS epidemic (1994-96) and news of random death in every locality, the course of Natural history of injecting drug use has been changed dramatically as indicated in the present study period (Table-7, 8). It is also during this period that concerted effort of counselling and health education was imparted to the study group to see whether a change might develop in their risky habits. A good amount of changes as seen in table 8 indicated that unlike other periods in the past, the IDUs seems to realise the outcomes of the intricated interaction between psychosocial and biological factors. When serious efforts of counselling and health education were inseminated to them, we have seen that changes bring forth due to fear psychosis is less effective rather than the one produced by counselling and health education. The improvement in the unsharing and cleaning habits of injecting equipment during this period may be attributed to the effects given by counselling and health education. However, the methods of cleaning was still found improper as 73.68% of the IDUs still use to clean with any available cold, plain water with casual habits of flushing water out of the used syringes. Use of bleach solution while cleaning syringes and needles shows a discouraging figure as it reduced from 5% during 1990-93 to almost 1% during 1994-96 and it may likely be due to easy unavailability of bleach powder. Though boiling of injecting equipment was strongly advocated, there was little increase in their practice requiring more advocacy on harm minimi-
sation model as have been suggested by Panda, et al (1994) in Manipur context. Furthermore, exploration of the factors influencing uncleaning habit is still needed.

The present study has shown that age and ethnicity has no significant effect on the general uncleaning habit among IDUs (Table 20). However, educational status seems to play a role on the cleaning habit of syringes and needles. Higher is the educational level, lower is the uncleaning habit with statistically significant difference at $\chi^2 = 2.04$, d.f. = 1 and $p > 0.1$. In a way, it is to say that injecting drug users who have low educational standard adopted uncleaning habit more frequently as compare to those who attained higher educational standard. This shows that if the educational level of the risky group is made to increase, uncleaning practices could have been changed corroborating the general concept of higher risk perception among educated individuals.

It has also shown that HIV positive IDUs, who are also aware of its ultimate consequence are more cautious and have concerned to prevent further transmission of HIV as compare to their counterparts who are untested for HIV with strong denial and avoiding attitudes. Early detection of HIV status with proper backup of pre and post test counselling supports might at least help to reducing uncleaning practices of needle and syringes, although it may not completely control sharing drugs and syringes among the groups. Hence, early testing and disclosure of test result is suggested. HIV sero-positives clean the syringes and needles as frequently as 78.7% when comparing with unknown serostatus group which counts 60.98% only (Sub-table 20.4). It is also true that neither law enforcement agency nor social punishment has any effect on the unclean habit of the IDUs in Manipur ($\chi^2 = 0.01$, $p > 0.5$). Generation of fear psychosis by imposing either legal or social sanction to the injectors may not help to bring harm reduction by way of pro-
**Factors associated with Uncleaning Habit of Injecting Equipments among IDUs**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Uncleaning Habit(%)</th>
<th>$\chi^2$ d.f.= 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age of IDUs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\leq 25$ years ($n=62$)</td>
<td>25.81</td>
<td>0.04 (p &gt; 0.5)</td>
</tr>
<tr>
<td>$\geq 26$ years ($n=73$)*</td>
<td>27.40</td>
<td></td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-meiteis ($n=20$)</td>
<td>30.00</td>
<td>0.13 (p &gt; 0.5)</td>
</tr>
<tr>
<td>Meiteis ($n=115$)*</td>
<td>26.00</td>
<td></td>
</tr>
<tr>
<td><strong>Educational Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower ($n=65$)*</td>
<td>32.31</td>
<td>2.04 (p&gt;0.1)</td>
</tr>
<tr>
<td>Higher ($n=70$)</td>
<td>21.28</td>
<td></td>
</tr>
<tr>
<td><strong>HIV Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive ($n=92$)</td>
<td>21.28</td>
<td>4.63 (p &lt; 0.05)</td>
</tr>
<tr>
<td>Unknown ($n=43$)*</td>
<td>39.02</td>
<td></td>
</tr>
<tr>
<td><strong>Drug dependency for</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urge/craving ($n=78$)*</td>
<td>37.18</td>
<td>10.44 (p &lt; 0.01)</td>
</tr>
<tr>
<td>Other reasons ($n=57$)</td>
<td>12.28</td>
<td></td>
</tr>
<tr>
<td><strong>Fear psychosis of</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal sanction ($n=61$)</td>
<td>26.23</td>
<td>0.01 (p &gt; 0.5)</td>
</tr>
<tr>
<td>Social sanction ($n=74$)*</td>
<td>27.03</td>
<td></td>
</tr>
</tbody>
</table>

* Reference category
moting cleaning habit among them. Rather, it may encourage uncleaning habit because open cleaning of injecting equipment and shooting is not permitted by the law enforcement agency and the society. On the other hand, drug dependency due to urge and craving effect of drugs has frequent uncleaning habit (37.18%) to compare with drug dependency due to other reasons (12%). At least, as for the present study, it has been evident that counselling and health education (Table -21) has given more

Table -21
Factors associated to Changes in Unsharing Habit of Needles
and Syringes from 1990-96

<table>
<thead>
<tr>
<th>Variables</th>
<th>Changed Unsharing habit (%)</th>
<th>χ² (p value)</th>
<th>OR (95% Exact confidence limit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counselling &amp; Health Education</td>
<td>87.80</td>
<td>3.71</td>
<td>0.32</td>
</tr>
<tr>
<td>Fear of HIV/AIDS</td>
<td>69.70</td>
<td>(p = 0.05)</td>
<td>(0.12-0.80)</td>
</tr>
</tbody>
</table>

effective response rather than the threatening input model with odd ratio of 0.32 at 95% exact confidential limit from 0.12 - 0.80 and χ² = 3.71 (p = 0.05).

Reports have shown that the majority of infected individuals with HIV do not have AIDS for a number of years. Moreover, the rate at which AIDS develops in HIV infected persons ranges from 4 - 10 percent per year, majority will have clinical symptoms within 10 to 15 years of seroconversion (Libman and Witzburg, 1993). Figure 1 derived from the one presented by A.S. Fauci and H.C. Lane (1994) in the Harrison's Principles of Internal Medicine shows the schematic diagram to illustrate the natural biological course of AIDS disease as expressed by the clinical
**Discussion**

**Signs and Symptoms** for the corresponding levels of immunodeficiency as determined by the CD$_4$+ cell counts. Since there is no facilities for CD4+ cell counts in Manipur, this, at least helps in giving a general inference for easy understanding and comparison of the present study findings. Though the first case of HIV infection was reported in the year 1990 (Pal, et al, 1990), the year 1994-96 is considered as the beginning of **AIDS epidemic** in Manipur because a large number of HIV infected individuals specially the injecting drug users (IDUs) have manifested the signs of AIDS and many were expired due to AIDS and associated opportunistic infections during this period. The State epidemiological analysis has shown that 96 (1.3%) cases of AIDS were already expired and 218 (4.3%) are in full blown stage by December, 1996 (Fig. 18).

In the present study, only 2.2% of the HIV infected study sample were detected to belong in stage - IV of WHO clinical classification during the first three months of investigation in 1994. However, the figure increases to 9.7% during the later part of 1996 while following the cohort of 92 HIV seropositive IDUs for a period of three years (Table-11). All the stage IV patients and another six patients - four from stage - III and two from stage - IV of the non-tested category, altogether 15(11%) were expired by December, 1996 (Table 8). This shows that the state figure is under-reported as many of the cases did not appear or reported in the hospital for care and treatment due to fear psychosis and socio-economic factors.

On the other hand, symptoms of the acute HIV syndrome which are usually appeared during primary infection phase (i.e. within days to weeks) were unable to record properly in the present study on IDUs because the exact date of HIV infection and their subsequent date of seroconversion was impossible to detect timely.
Discussion

Fig. 18: Trend of HIV, AIDS and Death in Manipur (1993 - 1997)

for reasons mentioned in chapter III. Probably, most of the patients were examined for the first time during the prolonged Asymptomatic or Clinical Latent phase. But, it is assumed that most of the study subjects might have been infected with subsequent seroconversion long before recruitment for the present study as 94.04% of the total study sample had already initiated injection during 1980 - 93 (Table -7) by sharing needles and syringes with multiple partners.

It is generally reported that the appearance of AIDS defining clinical signs of opportunistic infections and malignancies were usually occurred only when the CD₄+ cells count reduces to 200/mm³. While an average decrease in CD₄+ cells count of 85/mm³/year has been described in a homosexual cohort study (Kaplan, et al, 1988), Margolick and his co-workers have suggested in 1992 that this rate of decline may be even slower among the IDUs. Although, CD₄ count were not attempted for the present study, it was considered to draw an inference tentatively for the
clinical events developed among the IDUs in Manipur. Although majority of the IDUs do not have terminal AIDS, the progress of the HIV disease in both the comparison groups as has been noted in table - 10 consists of PGL (46.2%, 21.5%) in stage I, prurigo (5.2%, 0.7%), angular cheilitis (1.5%, 0.7%), herpes zoster (10.4%, 4.4%), etc. in stage II; weight loss > 10% (8.9%, 1.5%), diarrhoea (5.9%, 2.2%), fever (14.1%, 2.2%), oral hairy leukoplakia (1.5%, 0.7%), pulmonary TB (9.6%, 3%), pyogenic infection (5.9%, 1.5%), etc. in stage III and fungal infection likely to be histoplasmosis (6.7%, 3%), candidiasis of oesophagus (6.7%, 1.5%), extra pulmonary TB (1.5%, 1.5%), etc. in stage IV of the disease. As indicated in table 10, clinical stage I defined by the presence of persistent generalised lymphadenopathy (PGL), is supposed to represent by 114 (84.4%) cases when signs and symptoms are considered separately. But in the present study, only 61 cases (45.2%) represent stage I among the HIV infected IDUs, as the grouping of signs and symptoms pooled 53 (39.3%) cases to belong in other subsequent clinical stages, simply because of overlapping of signs and symptoms in the same individual. Figure 19 illustrated the pattern and concepts of overlapping clinical features. The stage - II HIV infection as denoted by the appearance of either one or more signs has been detected in the study sample after a mean of 6.1 years from their estimated date of seroconversion (Table - 11). As shown in the present study, arrival of stage-IV with its characteristic clinical signs after a mean of 6.9 years from the date of seroconversion proves that the progression of HIV infection among injecting drug users in Manipur is comparatively faster. Although the factors associated with the disease progression were reported elsewhere as i) strain of HIV, ii) the disease status of the source of the infection, iii) the age of the recipient and iv) anti-retroviral therapy with ZDV and protease inhibitor, etc. (Libman and Witzburg, 1993; Lewis, et al, 1997), there is no
Discussion

Fig. 19. Distribution pattern of HIV related diseases among IDUs

Scope for strain detection in Manipur except the couple study conducted by UCLA, Los Angel during 1996-97 in collaboration with the ICMR (1997). It is also observed to have limitation for anti-retroviral therapy with expensive combination of drugs on two basic grounds that

i) majority of the study sample belonging to lower and middle income groups could not afford the cost of treatment,

ii) there is no facility to conduct the viral load test and CD$_4^+$ cell count for determining exactly when to administer the newly discovered anti-retroviral drugs.

Apart from the infrastructural limitations, the treatment scene for opportunistic infections and ambulatory care services are so far found unsatisfactory (Yaima Singh, et al, 1995) in Manipur.
Discussion

It is also known that progression to AIDS is faster in persons at the extremes of age, with the youngest having the shortest latency phase (Libman and Witzburg, 1993). However, majority of the present study subjects are found belonging in the age range from 15-30 years. They are supposed to have comparatively slower progression in contrast to what was actually observed in the present subjects.

There are several reasons to stage or classify HIV infection. Staging helps to determine appropriate medical therapy, intervals for follow ups study, eligibility for clinical trials, and prognosis. Other purposes of disease staging include the development of research protocol for new therapies, epidemiological reporting and public health projections, and determination of disability. It is also useful to think of HIV infection as chronic disease resulting in wide clinical spectrum that ranges from asymptomatic (Clinical latency phase) to symptoms suggesting mild to moderate immunologic dysfunction, to complications indicating profound immuno-suppression (AIDS) {Fig. 1}. The percentage frequencies in each stage were also examined to study the validity of clinical criteria for suspecting HIV infection status among risk groups without laboratory testing in Manipur context. If never tested IDUs are 100% sure for HIV infection for reasons of their epidemiological risk factors, null hypothesis of no difference between the two comparing groups will be correct in all the stages of present study group.

When a great significant difference in stage -I of HIV infection between already known infected IDUs and never tested IDUs with corrected $\chi^2$ value at 1 d.f. and probability value of 0.000087 was observed (Table - 10), one could not say the positivity status in stage-I of HIV infection by virtue of their risk behaviours and clinical criteria prescribed by WHO without laboratory testing. Because, at present situation in Manipur, fair chance of inclusion of some seronegative IDUs are always
Discussion

occurred as the prevalence of HIV infection even among the most risky group has never come up to 100%. The significant differences in the two comparative groups as being decreased from stage - I to stage - IV indicates more reliability of predicting HIV sero-status with the progression of the diseases. In stage - III and IV, the $\chi^2$ value is not significant reflecting fair chance of accurate prediction of HIV infection among never tested IDUs.

It is well established fact that the HIV disease progresses from stage - I to IV with a gradual but steady erosion of the immune system. Together with this, loss of body weight, decrease of skinfold thickness, body cell mass depletion, hypoalbuminemia, decreased iron binding capacity of haemoglobin etc. are also expected changes in association with different stages of HIV infection. Of these, body weight, arm circumference and skinfold thickness over triceps and biceps are anthropometric parameters that could be measured with non-invasive external devices to examine the relationship between stages of HIV infection and extent of corresponding constitutional changes.

In the present study, changes in the mean body weight (Wt), mid-upper arm circumference (MUAC), skinfold over triceps (TSF) and biceps (BSF) are obvious from stage - I of HIV infection to Stage - IV. In all the measurements, a more or less similar decreasing pattern is maintained as the disease advances towards AIDS conditions showing the biological effects of HIV illness. With the help of Table - 11 & 13 and figure 9, any up and down fluctuation in the physical body weight of an IDU may be plotted against the year during which he/she has been seroconverted. Thus, the stage of the HIV infection may be determined for therapeutic management.

In the present study, all the anthropometric parameters measure a general decreasing trend from grade-I to grade-IV HIV illness with slight oscillation in
between (Table -12 to 16). During the last follow-ups, improvements in all the measurements are observed specially in stage -1 and II of HIV illness as compare to the one taken during the onset of the study. A point may be noted that infected subjects were measured shortly after the detoxification of prolonged heroin addiction during the onset of study while the last follow-ups was done after a long gap of drug abstinence. It suggests that prolonged use of heroin with sudden detoxification in a month or two might have played a role to bring such differences not only in the gross physical manifestations but also in the bio-chemical changes. Drug addiction is a biochemical process that disturb the otherwise normal metabolic system of the body with gradual depletion of the immunity. It seems to take time for the body to restore the normal condition after withdrawal of the cytotoxic effects of the drugs.

However, there is no significant difference among the patients in stage III and IV as observed during the onset of the study and last follow-up period implying more or less similar impact of HIV infection in later stage of AIDS.

For the present study, about 50% of the IDUs in stage -IV suffered from severe undernutrition. These group of individuals were infected mostly with fungus, bacteria and even with protozoan affecting the gastro-intestinal system with the result of poor food intake and malabsorption. Figure 13 shows the comparative account of all grades of malnutrition in all the stages of HIV infection. We could see no severe malnutrition in stage II and III patients when they are compared with asymptomatic individuals in stage -I. Signs of wasting is frequently appeared in case of severe malnutrition at stage - IV. This shows that the degree of undernutrition has been deteriorated (Table -17) with the gradual progression of HIV illness. The decrease in the body weight from stage -I to IV shows clearly a linear positive correlation with the decreasing trend of the haemoglobin levels among the infected IDUs (Fig. 20)
Discussion

with significant coefficient of correlation value \( r = 0.950, \text{d.f.} = 2 \) and \( p = 0.05 \). When the present findings on the levels of haemoglobin in all stages of HIV infection are compared with WHO guidelines for interpretation of iron status (Tara Gopaldas and Subadra Seshadri, 1987), all the study subjects suffered from anaemia with a measure of mean haemoglobin level accounting 9.9 gm% for a corresponding mean body weight of 43.1 Kg reflecting severe anaemic condition in stage-IV of HIV infection. To be perfectly correlated, \( r \) value must be equal to 1 (one).

It is reported that maintenance of optimum nutritional status in asymptomatic HIV seropositive individuals is relatively easier as compare to the stages when symptomatic infection has taken place (ICMR, 1991). Epidemiologically, it has been well indicated that undernutrition increases susceptibility to infections and infection

![Graph showing positive correlation between mean weight (KG) and mean Hb in gm% across different stages of HIV infection.](image)
leads to deterioration to nutritional status. Therefore, efforts should be made to prevent further deterioration in nutritional status even for HIV infected individuals.

Studies are underway to evaluate the effect, if any, of enteral or parenteral nutrition support on further body cell mass depletion in AIDS patients and survival period. Some preliminary data suggest that body cell mass repletion is possible by parenteral nutrition in patients whom malabsorption was the major problem. On other hand, nutritional status of AIDS patients appear to be one of the important determinants of incidence of opportunistic infections and evolution of the disease.

Among HIV infected individuals, weight loss and malnutrition are concomitant with the result of differential immunity depletion. So, adequate food which is the source of all energy is suggested to provide timely to regain weight loss and correct protein energy malnutrition among the HIV infected persons. If an infected person fail to meet his food requirements, he suffered not only from loss of body weight but also from reduced ability to work, and diminish resistance to infection (Park, 1994). If an adequate energy supply is not provided, some stored fat and protein specially in the adipose tissues and skeletal muscles will be burnt out as indicated by gradual reduction in all the skinfold measures to provide required energy for the minimum physiological activities. This is considered wasteful if continue for longer period with the result of wasting syndrome as often seen in cases of stage - IV HIV patients (Plate 3c). Therefore, measurement of calorie requirement for HIV infected individuals for better management of nutritional intake to maintain the energy intake and expenditure balance and prolonging the life span in the absence of curative medicine is an utmost important issue. Table-19 shows the different levels of daily energy need among IDUs of Manipur at different stages of HIV infection with cor-
responding basal energy expenditure along with the changes in the activity and infection factors. It is clearly seen that basal energy expenditures are inversely proportional to the total energy needs as the disease progresses from stage II to IV. From the trend curve, it is clearly observed that energy needs are reduced in stage-II HIV infection as compare to stage-I. Again from stage-II onward, the energy need increases along with the increments in the infection factors from 1.2 to 1.8. By the mean time, activity factors decreases from 1.3 to 1.2 as the patients progress to AIDS conditions and remain bed ridden. However, the basal energy expenditure shows a consistent decreasing trend as the disease progress from stage - I to IV (Fig. 15). The exact mechanism for such trend of energy variation is not known. Perhaps, it may be suggested that as the disease advances with greater intensity of opportunistic infection, the body requires more energy to cope the infection in addition to the maintenance of the normal physiological activities. Thus, the present study at least, established a baseline data on the understanding of natural history of AIDS with respect to the risk behaviours and bio-medical aspects of the IDUs in Manipur.